

## PREFACE

After 20 years of implementing the Renovation (*Doi Moi*) policies and working toward international integration, Vietnam's health sector can proudly point to several solid achievements. The people's health has clearly and comprehensively improved. Many diseases have been controlled and eliminated, and targets for nearly all basic health indicators have been achieved or exceeded. The health system has been strengthened and expanded to achieve equity, efficiency, and development – increasingly satisfying the population's healthcare needs in terms of quantity and quality.

The achievements in health care mentioned above are closely linked to the recent socioeconomic development of Vietnam, originating largely from policies, strategies, and healthcare efforts by the Party and Government, effective international assistance, and the positive participation of all sectors, governmental levels, and the people themselves.

Results of protection, care, and promotion of the people's health, and the experience gained in organizing and implementing health services over the past 5 years, form the foundation for the Vietnamese health system to develop, overcome difficulties and challenges, and accomplish even more in the coming period.

In the past few years, although economic growth has been relatively high and stable, Vietnam still remains a low-income country. Despite improvements, the people's living standards remain at a low level. Poor and near poor people are numerous, and achievements in hunger eradication and poverty reduction are not yet sustainable. The natural environment is becoming more severely polluted, creating new hazards to health, and natural disasters continue to place a heavy burden on health and the economy. The social environment with changes in lifestyles and work have created several helpful factors, but also many that are harmful to health, eg, drugs, alcohol, tobacco, food poisoning, accidents, and injuries. Some emerging diseases, especially HIV/AIDS, avian flu, and SARS have appeared and are spreading. Noncommunicable diseases such as cancer, cardiovascular disease, mental illness, diabetes, accidents, injuries, and poisoning are increasing. Although the state has many policies aimed to achieve equity in the people's health, we have yet to resolve disparities in health status, quality, and access to health services between rich and poor regions, ethnic groups, and social strata.

Although the Vietnamese health system has been strengthened and receives more investment than in the past, in reality it remains unable to meet the growing needs of the population in terms of quantity and quality of healthcare services. In general, the Vietnamese health system with its vast experience and ability to effectively deal with communicable disease is still limited in its capacity and experience to prevent noncommunicable disease and to operate in a market economy, especially in the areas of health economics and health financing.

The Vietnam Health Report 2006 is the sequel to the first Vietnam Health Report, compiled by the Ministry of Health in 2002, and provides up-to-date and relatively comprehensive information on health, health determinants, and health care of the population in the context of a Vietnam in transition.

On the basis of comparisons and a situation analysis, this report also points to problems of concern and necessary policies and solutions to improve implementation of protection, care, and promotion of the people's health.

This report has benefited from the contributions of many national and international experts and administrators. We would like to give special thanks to Swedish Sida, for their technical and financial assistance in drafting and publishing this report. We hope that this report will be a useful reference for policymakers, strategists, administrators at all levels, researchers, teachers and students of public health, and others committed to building a health system in Vietnam oriented toward equity, efficiency, and development.

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## Abbreviations and Acronyms

ADB	Asian Development Bank
ADR	Adverse Drug Reaction
AFB	Acid-Fast Bacillus smear
ARBO virus	Arthropod borne virus
ASEAN	Association of Southeast Asian Nations
AUDIT	Alcohol Use Disorders Identification Test
AusAID	Australian Agency for International Development
BMI	Body Mass Index
CBR	Crude Birth Rate
CDR	Crude Death Rate
CED	Chronic Energy Deficiency
CHS	Commune Health Station
CIF	Cost, Insurance and Freight
COPD	Chronic Obstructive Pulmonary Disease
CRED	Centre for Research on the Epidemiology of Disasters
CT	Computerized Tomography
DALY	Disability Adjusted Life Years
DANIDA	Danish International Development Agency
DAV	Drug Administration of Vietnam
DFID	Department for International Development (UK)
DHS	Demographic and Health Survey
DOTS	Directly Observed Treatment Short-course
DPT	Diphtheria, Pertussis, Tetanus (vaccine)
DRG	Diagnostic Related Groups
EC	European Community
ELISA	Enzyme-linked Immunosorbent Assay
EM-DAT	Emergency Events Database
ENT	Ears, Nose and Throat (specialty)
EPI	Expanded Program on Immunization
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
GDP	Good Distribution Practice
GLP	Good Laboratory Practice
GMP	Good Manufacturing Practice
GNI	Gross National Income
GPP	Good Pharmacy Practice
GSO	General Statistics Office
GSP	Good Storage Practice

HALE	Health-Adjusted Life Expectancy
HCFP	Health Care Fund for the Poor
HCMC	Ho Chi Minh City
HIV/AIDS	Human immuno-deficiency Virus/Acquired Immuno-deficiency Syndrome
ICCIDD	International Council for Control of Iodine Deficiency Disorders
ICD-10	International Classification of Disease Version 10
IEC	Information, Education and Communication
IMR	Infant Mortality Rate
IUD	Intra-uterine Device
JICA	Japan International Cooperation Agency
KAP	Knowledge, Attitude and Practice (survey)
MDG	Millennium Development Goals
MMR	Maternal Mortality Rate
MOH	Ministry of Health
MOLISA	Ministry of Labor, Invalids and Social Affairs
MRI	Magnetic Resonance Imaging
NGO	Non-Governmental Organization
ODA	Overseas Development Assistance
OFDA	Office of U.S. Foreign Disaster Assistance
PET	Positron Emission Tomography
PPP	Purchasing Power Parity
SARS	Severe Acute Respiratory Syndrome
SAVY	Survey Assessment of Vietnamese Youth
Sida	Swedish International Development Authority
STD	Sexually Transmitted Disease
TFR	Total Fertility Rate
U5MR	Under 5 mortality rate
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations Children's Fund
UNODC	United Nations Office on Drug Control
USD	United States Dollar
VHLSS, VLSS	Vietnam (Household) Living Standards Survey
VMIS	Vietnam Multi-Center Injury Survey
VND	Vietnamese dong
VNHS	Vietnam National Health Survey
VSI	Vietnam Social Insurance
WHO	World Health Organization
WTO	World Trade Organization

**Exchange rate: 1USD = 16100 VND**

# PART A. HEALTH SITUATION

This opening section of the Vietnam Health Report 2006 focuses on health status to provide a comprehensive view of the complex situation in which Vietnam finds itself today. The section gives an overview of the status of selected aggregate health indicators showing Vietnam's progress over time and in relation to national health goals. Such information is valuable in revealing regional and socioeconomic disparities and in drawing international comparisons. This section also reviews broad morbidity and mortality patterns and trends in the population in recent years, and addresses major communicable and noncommunicable diseases based on the latest evidence available. Lastly, it briefly assesses the potential for reaching national and international health goals in light of the important challenges facing the health of Vietnam's population.

This section does not go into detail about the causes of this situation (covered in Part B), nor the vast number of interventions in place to try to deal with them (covered in Part C).

## Chapter 1

### AGGREGATE HEALTH STATUS INDICATORS

In the past 5 years, economic reforms known as Doi Moi have continued and intensified in Vietnam, and substantial achievements have been made in different areas. The health of the population has also improved remarkably, as illustrated by the aggregate health status indicators described in this chapter.

#### 1.1 Life Expectancy

Average life expectancy at birth in Vietnam has increased in the past 5 years from 67.8 years in 2000 to 71.3 years in 2005, an increase of 3.5 years. This surpasses the national life expectancy target of 70 years set for 2005 (Table 1.1).

In the 10-year period from 1989 to 1999, average life expectancy in the Vietnamese population increased only 3.1 years (from 65.2 in 1989 to 68.3 in 1999), an average annual increase of only 0.31 years [1]. However, in the past 5 years, average life expectancy increased more rapidly due to sizable declines in mortality, especially mortality among infants and in children under 5 years of age, as shown in Table 1.1. Nevertheless, wide differences in life expectancy remain between regions (Figure 1.1). For instance, life expectancy in the Southeast is 7.3 years higher than in the Northwest (73.9 years versus 66.6 years).

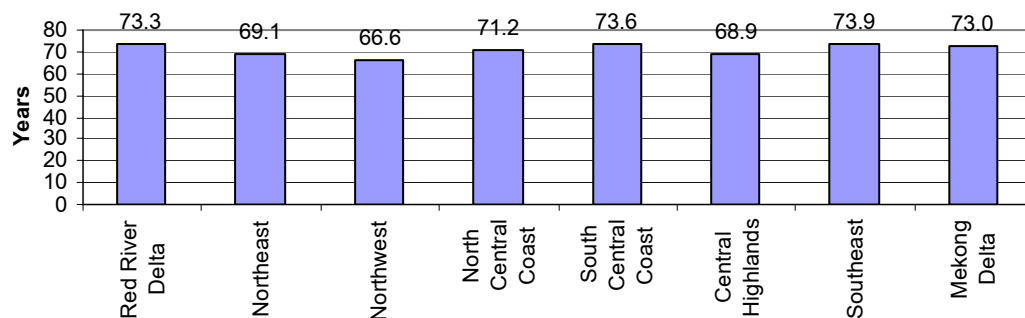
**Table 1.1. Status toward achieving national health objectives, 2001-2005**

Indicators	2000	2001	2002	2003	2004	2005	2005 Targets	2010 Targets
Life expectancy at birth (years)	67.8	68.0	71.3	71.3	71.3	71.3	70.0	>71.0
Maternal mortality rate (Number of maternal deaths/100 000 live births)*	..	95.0	..	85.0	85.0	80.0	80.0	70.0
Infant mortality rate (Number of deaths in children aged <1 year/1000 live births)*	36.7	31.0	26.0	21.0	18.0	17.8	30.0	25.0
Under-5 mortality rate (Number of deaths in children aged <5 years/1000 live births)*	42.0	42.0	35.0	32.8	28.5	27.5	37.0	<32.0
Share of newborns with low birth weight (% < 2500g)	7.3	7.1	7.0	6.5	5.8	5.1	<7	<6
Malnutrition rate for children under age 5 * (%)	33.8	31.9	30.1	28.4	26.6	25.2	<25.0	<20.0
Average height of adolescents (m )	..	..	1.58	..	..	..	..	1.6

Note. \* indicates that these indicators are also Millennium Development Goals (MDGs)

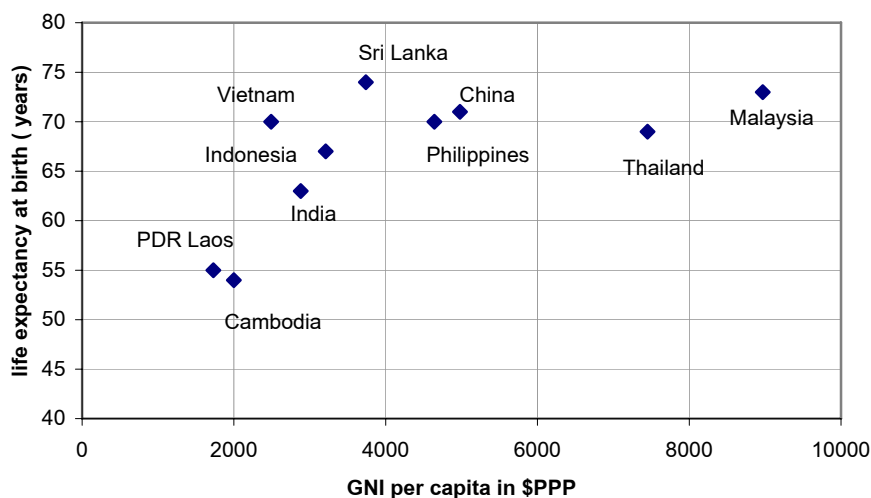
Sources: 2010 targets [2]; Data for 2002 on average height of adolescents [3]; Other data for 2000-2005 and 2005 targets [4]

**Figure 1.1. Life expectancy at birth by region, 2002**



Source: Survey of population change and family planning 1/4/2002 [5]

Vietnam's achievements in health status exceed that in other countries with higher incomes (Figure 1.2). Although gross national income (GNI) per capita in purchasing power dollars is close to the level of India or Indonesia, Vietnam has achieved higher life expectancy, equivalent to that of the Philippines, China, or Thailand, ie, countries with higher GNI per capita in purchasing power terms.



**Figure 1.2. International comparison of average life expectancy (years) and GNI per capita in PPP\$, 2003**

Source: World Development Indicators 2005 [6]

Life expectancy at birth is not a flawless indicator of national health status since it reflects only the mortality situation. A more comprehensive indicator is health-adjusted life expectancy (HALE). HALE is an indicator based on life expectancy adjusted for the time living with poor health. It represents the number of healthy years of life a newborn could expect to live based on age-specific mortality and morbidity rates.

Table 1.2 allows a comparison of HALE between Vietnam and several other countries. In Vietnam, HALE is estimated at 59.8 years for males and 62.9 for females, higher than that of several other Asian countries with substantially higher levels of per capita income. For males in Vietnam, 11% of life expectancy is lost to disease while the corresponding rate for females is 13%. These figures are higher than in China, but lower than in many other Asian countries.

**Table 1.2. International comparison of life expectancy at birth and health-adjusted life expectancy (HALE), 2002**

	Life expectancy at birth (years)	HALE ( years )		% of total life expectancy lost due to disease	
	Overall	Male	Female	Male	Female
China	71.1	63.1	65.2	9.3	10.4
Malaysia	72.0	61.6	64.8	11.4	13.3
Vietnam	69.6	59.8	62.9	11.0	12.9
Sri Lanka	70.3	59.2	64.0	11.8	13.9
Thailand	69.3	57.7	62.4	12.7	14.1
Indonesia	66.4	57.4	58.9	11.5	13.4
Philippines	68.3	57.1	61.5	12.4	14.3
India	61.0	53.3	53.6	11.3	13.6
PDR Laos	55.1	47.1	47.0	12.9	16.4
Cambodia	54.6	45.6	49.5	12.1	13.3

Notes: Statistical data in this table are estimated by WHO to ensure comparability and are not necessarily the official national figures currently used by the respective countries.

Source: World Health Report 2004 [7]

The proportion of Vietnam's population in older age groups is increasing rapidly. This delayed mortality also contributes to increases in life expectancy. According to data from the 1999 Census of Population and Housing, the proportion of the population aged 60 years and older is 8% (6.7% for males and 9.3% for females). Projections by the National Geriatrics Institute indicate that Vietnam will become a country with an aging population by the year 2014, with more than 10% of the population older than 60 years [8].

A rapid increase in the proportion of elderly in the population has led to many socioeconomic challenges, including that of health care for the elderly. The elderly usually suffer from chronic illness, difficult-to-treat degenerative diseases, frequent illnesses, and multiple and concurrent health disorders. A survey conducted by the Health Strategy and Policy Institute in 2005 indicated that 60% of the elderly had been ill during the 4 weeks prior to the survey while 70% suffered from chronic diseases. The most frequent diseases among the elderly are arthritis, hypertension, eye diseases, and mental depression. Access to health services by the elderly is often limited by mobility problems and the inability to afford healthcare services, especially those requiring prolonged intervention.

## **1.2. Child Mortality Rates and Malnutrition Rates**

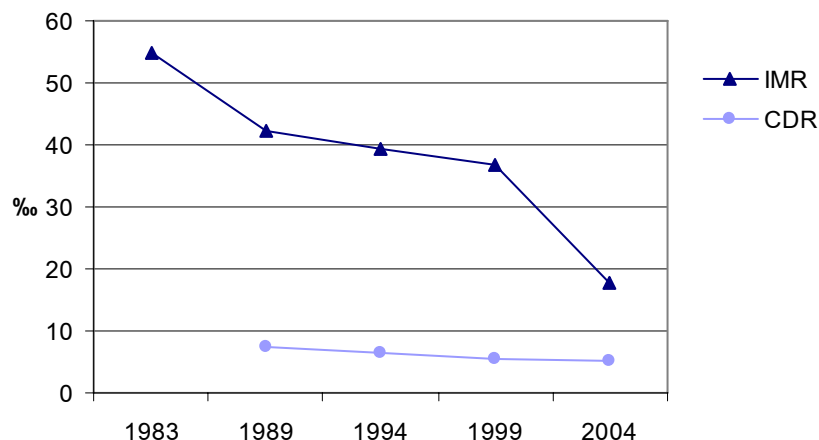
### **1.2.1. Infant mortality rate (IMR)**

A common indicator of mortality is the crude death rate (CDR), the ratio of total deaths in a year over the average population in that year. However, because the CDR is sensitive to the age structure of a population – mortality is naturally higher in a population with an older age structure and lower in a younger population – the crude death rate is not a good indicator to reflect the health situation of a community or a nation.

The infant mortality rate (IMR) is a better indicator for describing the health status of a nation. It reflects living standards, environment, educational level, and the organization, management, and quality of health services, especially maternal and child health care. IMR in Vietnam has fallen rapidly in the past two decades, from 55 per 1000 (‰) in 1983 it had declined to 20‰ by 2004 (Figure 1.3). In absolute terms, an estimated 27 000 children below 1

year of age died in 2004. In a 5-year period (2000-2005), the IMR fell from 36.7‰ to 17.8‰ in 2005, a decline of more than one half, on average a decline of 3.78‰ per year.

**Figure 1.3. Crude mortality rate and infant mortality rate, 1983~2004**



Source: 1983 Monograph on marriage, fertility, and mortality in Vietnam [1], 1999 and 2004 Survey of population change and family planning [9]

IMR varies between provinces, regions, urban/rural areas, and ethnicity. According to the 2004 Survey of Population Change and Family planning, the Northwest had an IMR of 33.9‰, three times higher than the Southeast at 10.6‰. IMR is also higher in the Central Highlands at 28.8‰, in the Northeast at 23.9‰ and in the North Central Coast at 24.9‰. The IMR in urban areas (9.7‰) is less than half that in rural areas (20.4‰).

Ethnic differences in IMR can be seen in data from the 1999 Population Census. In 1999, the IMR for the whole country was 36.7‰, and for the ethnic Kinh it was 21‰, however for the Gia Rai it was 69‰ and for the H'mong it was 56‰. A high proportion of deaths to children under 1 year of age occur during the first month after birth (perinatal mortality).

The main causes of perinatal mortality include premature birth, asphyxia at birth, injuries during childbirth, low birth weight, and infectious disease, all causes that could be prevented if medical staff were well trained to monitor the pregnancy, assist at childbirth, and provide postnatal care.

### 1.2.2. Under-5 mortality rate (U5MR)

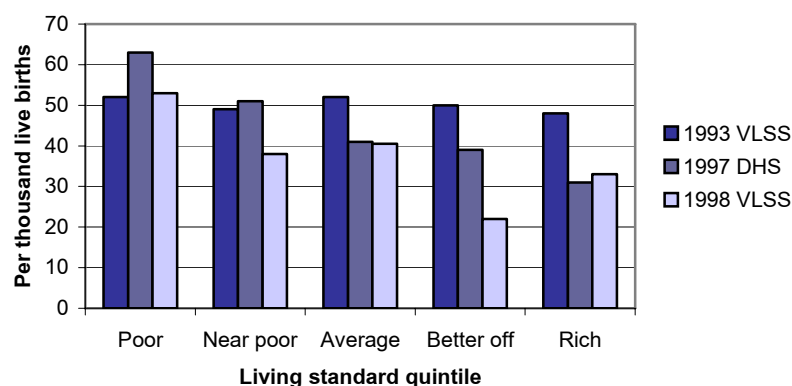
The under-5 mortality rate (U5MR) is defined as the ratio of deaths in children under 5 years of age per 1000 live births. It reflects living standards, environmental sanitation and clean water, nutrition, and the system of health care for children.

In the past 6 years, the U5MR has declined from 42‰ in 1999 to 27.5‰ in 2005, more than a one-third reduction, with an average decline of 2.7‰ per year. This reduction is fairly rapid in comparison with that of previous years. From 1995 to 1999, the U5MR had fallen from 50‰ to 42‰, an average decline of only 1.6‰ per year.

Nevertheless, the U5MR remains high in rural areas and for low-income groups. The U5MR among the poorest quintile<sup>1</sup> is twice as high as that of the richest quintile. Although the U5MR among the poor has changed little over the past few years, the rate has declined substantially in quintiles with a higher living standard (Figure 1.4)

<sup>1</sup> Quintiles are calculated as follows: Data are sorted in order of average per capita household expenditures from lowest to highest, then divided into 5 equal groups, each with 20% of the population. The poor are the 20% poorest individuals, near poor are the next 20%, etc. The rich are the 20% with the highest per capita expenditure.

**Figure 1.4. Under-5 Mortality Rate (‰) by income group, 1993-1998**



Notes: The data are from VLSS and DHS

Source: Wagstaff and Nga [10]

Table 1.3 presents causes of death in children under 5 years of age. Mortality is concentrated in the perinatal period and due mainly to premature birth, asphyxia at birth, and multiple birth defects. For children beyond the perinatal period, mortality is due mainly to drowning, respiratory infection, and encephalitis.

**Table 1.3. Causes of under-5 mortality, 1995-1997**

Year	1995		1996		1997		95-97		
Number of <5 children	38 239		37 962		35 994		112 195		
Number of deaths	No. of cases	Prevalence*	No. of cases	Prevalence*	No. of cases	Prevalence*	No. of cases	Prevalence*	Structure %
Drowning	56	146	51	134	43	119	150	134	25
Poisoning by rat poison	..	0	5	13	..	0	5	4	1
Fetal death	3	8	4	11	1	3	8	7	1
Premature birth	38	99	34	90	51	142	123	110	20
Asphyxia at birth	18	47	16	42	9	25	43	38	7
Congenital multi-malformations	7	18	9	24	12	33	28	25	5
Congenital heart diseases	8	21	8	21	9	25	25	22	4
Cerebral hemorrhage	13	34	5	13	1	3	19	17	3
Malnutrition	6	16	2	5	1	3	9	8	1
Acute leukemia	4	10	1	3	..	0	5	4	1
Pneumonia	26	68	28	74	15	42	69	62	11
Encephalitis	16	42	4	11	8	22	28	25	5
Acute diarrhea	5	13	4	11	2	6	11	10	2
Others	16	42	17	45	19	53	52	46	9
Unknown causes	10	26	10	26	8	22	28	25	5
<b>Total</b>	<b>226</b>	<b>591</b>	<b>198</b>	<b>522</b>	<b>179</b>	<b>497</b>	<b>603</b>	<b>537</b>	<b>100</b>

\* Per 100 000 population

Source: Thuc DV, Long TD, Son NK. In: Bach TT, Ha NT, Tuong NV, eds., 2000 [11].

### 1.2.3 Child malnutrition

Malnutrition and disease, especially infectious disease, are closely correlated. A malnourished child is more likely to suffer from illness, and an ill child is more likely to suffer from malnutrition. Vietnam is confronted with dual problems in nutrition: malnutrition in terms of stunting and wasting and, concurrently, the problem of overweight children. Each of these nutritional disorders is linked to different diseases.

Two basic indicators measure child malnutrition, ie, the proportion of low birth weight infants and the proportion of malnourished children under 5 years of age.

### **Proportion of low birth weight infants**

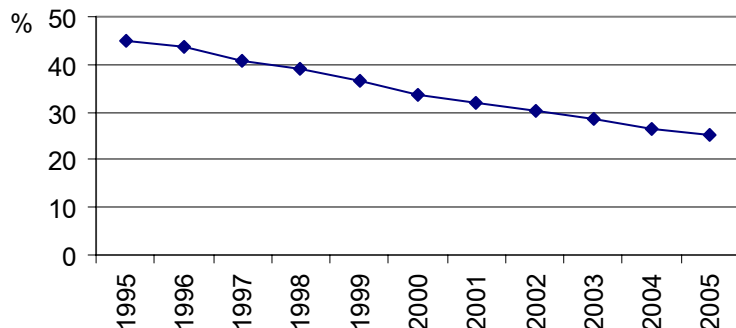
This indicator mainly reflects the mother's health status, especially factors related to her nutritional status, morbidity, and prenatal care. Although reproductive health services are relatively widely developed in Vietnam, the nutrition of pregnant women is still inadequate, especially among the poor.

The proportion of low birth weight infants (under 2500g) declined from 7.3% in 2000 to 5.1% in 2005, a decline of 2.2%, achieving the national target of a reduction to below 7% by the year 2005.

### **Malnutrition rate in children under 5 years of age (weight-for-age)**

Reducing child malnutrition is an important national goal and also one of the Millennium Development Goals (MDGs). Figures from the Health Statistics Yearbook indicate that from 2001 to 2005 the malnutrition rate in children under 5 years of age declined from 33.8% to 25.2%, nearly reaching the national target of less than 25% by 2005. This is a reduction of 8.6 percentage points, or a decline of one quarter since the year 2000. The malnutrition rate of children younger than 5 years declined continuously from 1995 to 2005 (Figure 1.5).

**Figure 1.5. Proportion underweight among children under 5 years of age, 1995-2005**



Notes: Underweight means the z-score on weight-for-age is below 2 standard deviations below the median

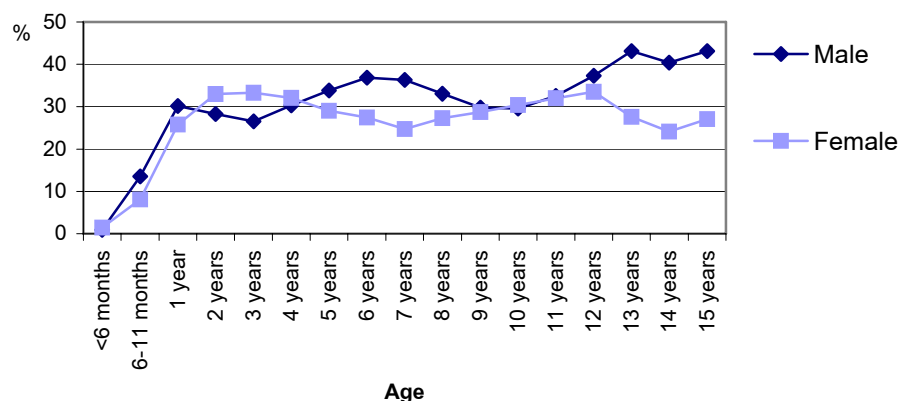
Source: Health Statistics Yearbooks [4]

The Vietnam National Health Survey (VNHS) 2001-2002 reported that 25.7% of children younger than 5 years were underweight. The proportions of underweight and stunting among poor children under 5 years of age were 34.2% and 34.9% respectively, ie, 3 to 4 times higher than among the quintile with the highest living standard where the rates were 12.7% and 9% respectively [3]. Hence, the child malnutrition rate remains high in Vietnam, and resolving this problem is one of the priority health problems, especially for children in poor groups.

Figure 1.6 presents malnutrition rates (weight-for-age) by age group and sex. The figure indicates that malnutrition rates are much lower for infants under 6 months of age. After 6 months, malnutrition rates increase rapidly. Girls in nearly all age groups have a lower prevalence of malnutrition than boys do. Only during the period from 1 to 4 years of age do girls have higher prevalence of malnutrition than boys. The reasons for this are unclear.



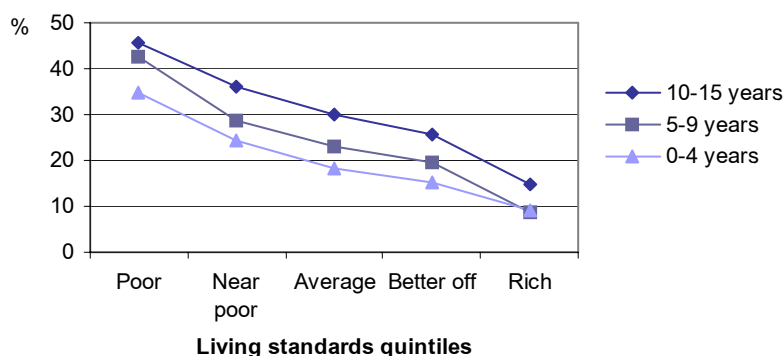
**Figure 1.6. Malnutrition rate of children under 15 years by age and sex, 2002**



Source: VNHS 2001-2002 [3]

Studies undertaken by the National Malnutrition Program indicate that child malnutrition is closely related to inappropriate child feeding practices, low birth weight, illnesses and their treatment in the first year of life (especially parasites), and poor nutrition of parents. Higher prevalence of child malnutrition is found in households having poor sanitary conditions, lack of clean water, inadequate amounts of food, and large family size due to a large number of children. According to the VNHS 2001-2002, living standards have a close correlation with child malnutrition in all ages. Figure 1.7 shows the relationship between the proportion of stunting (low height-for-age) and living standards. Stunting is related to prolonged inadequate nutrition which has affected physical development. The higher stunting prevalence in older cohorts of children is due to the more difficult living conditions they suffered earlier in childhood.

**Figure 1.7 Prevalence of stunting (height-for-age) by age group and living standards quintile, 2002**



Source: VNHS 2001-2002 [3]

The UNICEF database on malnutrition in Southeast Asia indicates the malnutrition rates in Vietnam are equivalent to rates in Indonesia, but higher than rates in Thailand and Malaysia (Table 1.4)

**Table 1.4 Prevalence of malnutrition among children aged 0-59 months in different Southeast Asian countries**

Countries	Malnutrition rate (%) (weight-for-age)
Thailand (2002)	9
Malaysia (2001)	12
Indonesia (2002)	26
Vietnam (2005)	25
Philippines (2001)	31
Myanmar (2000)	35
PDR Laos (2000)	40
Cambodia (2000)	45

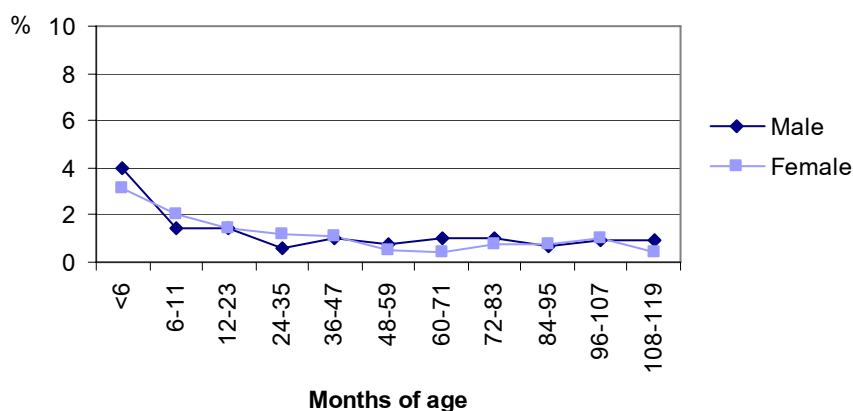
Notes: The malnutrition rate (low weight-for-age)

Source: [12-14]

### **Prevalence of overweight children**

Due to robust economic growth in Vietnam, living standards of the population have been improving in most regions, especially in cities and industrial zones. The Vietnamese diet has progressed from shortage to abundance. Hence, the problem of overweight children is beginning to appear (Figure 1.8). Although still at low levels, overweight affects about 1.3% of children in the under-5 age group and 0.8% in the group aged 5 to 10 years. Obesity in childhood usually leads to obesity in adulthood. Obesity is a poor nutritional state that requires intervention since it can lead to serious diseases, eg, diabetes and heart disease.

**Figure 1.8 Proportion of overweight children by sex and age group, 2002**



Source: VNHS 2001-2002 [3]

### **Micronutrient deficiencies**

Iodine is a micronutrient necessary for human growth and development. The severe consequences of iodine deficiency are endemic goiter, hypothyroidism, and mental retardation.

For women, iodine deficiency could provoke stillbirth, miscarriage, or premature birth. Children are the group most easily affected by iodine deficiency in the diet. During the 2001-2005 period, a goal of the health sector was to eradicate endemic goiter and iodine deficiency disorders nationwide by 2005. The evaluation report on implementing the national target

health programs during the 2001-2005 period indicates that the Iodine Deficiency Disorder Program achieved its goal, ie, the prevalence of goiter in children aged 8 to 10 years declined from 10.1% in 2000 to 6% in 2003 (the goal was to reach less than 5% by 2005). Nevertheless, in the Mekong delta, the prevalence of goiter remains high (10.1%). By 2004, the percentage of households using iodized salt sufficient to prevent disease had reached 92.8%, exceeding the 2005 goal of 90%. Iodine absorption has reached normal physiological levels throughout the country (the median iodine level in urine is 15.1 mcg/ dl) [15]. Despite meeting the criteria of goiter eradication and the closing down of this target program, it remains necessary to maintain the supply of iodized salt that meets medical standards and raise awareness among the population about the need to use iodized salt.

Child iron deficiency anemia is widespread in Vietnam. The prevalence of anemia in children in the Red River Delta is 35%, and prevalence in the Northern mountainous region is 49%. A recent study in Dak Lak reported that 30% of children aged 15 months to 15 years suffer from anemia, with rates higher among the Ede (38%) than among the Kinh (22%) [16]. About 80% of children suffering from iron deficiency anemia have a hemoglobin (Hb) concentration below 11g/dl.

Vitamin A deficiency can cause xerophthalmia and lower resistance to disease in children. The xerophthalmia prevalence in the Northern mountainous region is 0.53% [17]. A program is being implemented to regularly supplement Vitamin A in children.

### 1.3. Maternal Mortality Rate (MMR)

The maternal mortality rate has declined continuously. According to the data from the General Statistics Office of Vietnam, this rate has fallen from 130 per 100 000 live births in 1992 to 95 per 100 000 in 2000, a decline of 30% over an 8-year period. This rate continued to decrease, to 85 per 100 000 in 2002 and 80 per 100 000 in 2005, with a similar rate of decline as in previous years. In 2005, the most prevalent direct causes of maternal mortality among 5 obstetric complications were hemorrhage (74% of total deaths from obstetric complications) and eclampsia (8%) [14].

**Table 1.5 Maternal mortality rates in comparison to prevalence of 5 obstetric complications by region, 2005**

Regions	Number of cases	Number of deaths	% Deaths/ cases
<b>Whole country</b>	<b>3270</b>	<b>93</b>	<b>2.8</b>
Red River Delta	527	11	2.1
Northeast	327	16	4.9
Northwest	146	14	9.6
North Central Coast	338	11	3.3
South Central Coast	337	9	2.7
Central Highlands	274	10	3.6
Southwest	604	9	1.5
Mekong Delta	639	13	2.0

Source: Health Statistics Yearbook 2005 [14]

The proportion of deaths in patients suffering obstetric complications reflects the organizational and managerial situation and the quality of prenatal and delivery care. It also partly reflects access to health services, which is hindered by financial, cultural, and geographical barriers.

The data presented in Table 1.5 indicate that the number of patients with obstetric complications is high in the Red River Delta, Southeast, and Mekong Delta due to larger populations, although case fatality rates remain low. Conversely, case fatality rates are high in the Northwest and Central Highlands, suggesting the need for further study to determine the main causes and find effective intervention measures.

The Reproductive Health Department of the Ministry of Health, in collaboration with WHO, conducted the 2000-2001 survey on MMR in Vietnam in 7 provinces representing 7 ecological regions. The survey yielded the following results: MMR was 130 per 100 000 live births in the 7 provinces studied, varying across provinces from 103 to 162 per 100 000 live births. Direct causes account for 76.3% of maternal deaths, while indirect causes account for the remaining 23.7%. Among direct causes, 41% resulted from hemorrhage, 21.3% from eclampsia, 16.3% from infection, 11.5% from complications of induced abortion, 4.7% from uterine rupture, and 4% from ruptured ectopic pregnancy. Among indirect causes, 26.3% were attributed to cardiovascular disease, 10.3 % to hepatitis, 10.7% to cerebrovascular diseases, 10.5% to tuberculosis, and 15.3% to malaria [18].

Factors contributing to maternal mortality include: 46.3% of cases reported a delay in deciding to seek health care, 41.3% reported a delay in transferring the pregnant woman to an appropriate referral facility due to long distances, poor roads, or lack of transportation, and 40% reported a delay in providing essential treatment, lack of well-trained health workers, drugs, or necessary equipment.

Maternal mortality rates vary between regions (with rates of 269 per 100 000 in mountainous and midland regions compared to 81 per 100 000 in the deltas), between the Kinh ethnic majority and ethnic minorities (81 and 316 per 100 000 respectively), and between rural and urban areas (145 and 79 per 100 000 respectively) [18].

Besides factors such as living standards and literacy rates, the MMR is strongly related to the pathological situation of the mother and fetus, the organization and management of the health system, and the quality of reproductive health services.

## Chapter 2

### MORBIDITY AND MORTALITY PATTERNS

#### 2.1 Morbidity Patterns

The morbidity pattern in Vietnam has shifted from one in which communicable disease dominates toward one in which noncommunicable disease dominates (the epidemiological transition). From 1998 to 2005, public hospitals reported a sharp increase in the share of inpatients suffering from noncommunicable disease, from 40% in 1998 to 62% in 2005 (Table 2.1). The share of inpatients seeking care for accidents, injury, or poisoning remained stable, while communicable diseases sharply declined (Figure 2.1).

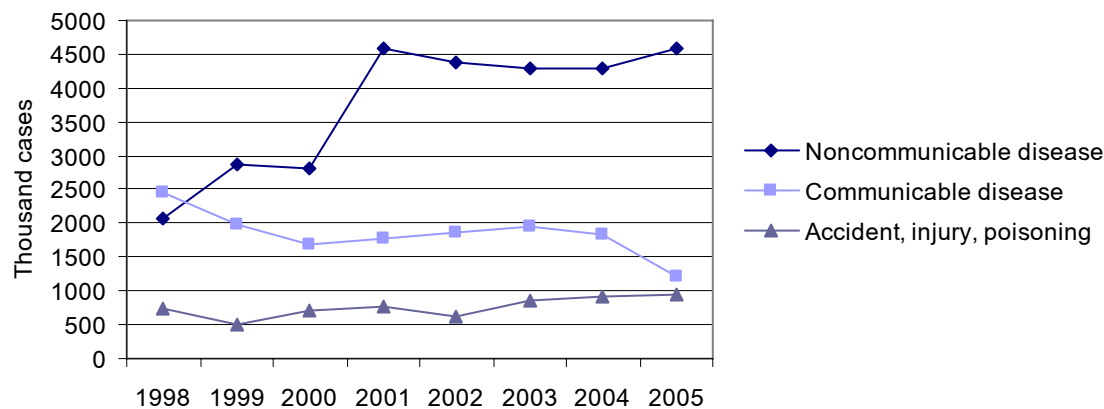
**Table 2.1 Trend in morbidity patterns of inpatients at public hospitals, 1998-2005**

Disease groups	1998	1999	2000	2001	2002	2003	2004	2005
<b>Structure (%)</b>								
Communicable disease	46.7	37.0	32.1	25.0	27.2	27.4	26.1	25.2
Noncommunicable disease	39.5	53.7	54.2	64.4	63.7	60.6	60.8	62.2
Accident, injury, poisoning	13.9	9.3	13.7	10.6	9.2	12.0	13.1	12.7
<b>Number of cases (1000)</b>								
Communicable disease	2467	1974	1673	1783	1867	1941	1847	1221
Noncommunicable disease	2084	2863	2824	4589	4376	4288	4302	4592
Accident, injury, poisoning	732	494	713	756	631	846	927	934

Note: Number of cases is calculated by multiplying the total inpatient visits available in Health Statistics Yearbook with the percentage share of the 3 disease groups

Source: Health Statistics Yearbooks [4]

**Figure 2.1 Trend in disease patterns of inpatients at public hospitals, 1998-2005**



Source: Health Statistics Yearbooks [4]

The trend presented in Figure 2.1 primarily reflects a pattern of more severe diseases where patients seek hospital care. Currently in Vietnam the proportion of patients self-medicating, and the proportion seeking care as outpatients at hospitals, commune health

stations (CHS), or private facilities is high, but the above data do not reflect the disease patterns. The data on morbidity patterns presented above could also be influenced by other factors, especially socioeconomic conditions. Formerly many patients with chronic noncommunicable diseases might not have sought care. As living standards and the quality of hospital care improve, however, patients are increasingly seeking care. Other possible factors are that facilities are now better able to diagnose noncommunicable diseases compared to the past, and patients with chronic noncommunicable diseases may require multiple admissions to hospital in a given year. Hence, they are likely to be counted multiple times in the above statistics, somewhat inflating the case total for noncommunicable diseases.

Despite problems with the data, communicable diseases have clearly declined. The trend toward an increasing share of noncommunicable disease is consistent with an aging population and with improvements in living standards and subsequent lifestyle-related diseases. Nevertheless, emerging communicable diseases, such as HIV/AIDS and potential pandemics like bird flu or SARS could strongly influence this trend in the next 5 to 10 years.

Another way to classify illnesses is based on the nature of the disorder, ie, acute, chronic, or injury, as collected in a household survey. In the Vietnam National Health Survey (VNHS) 2001-2002, family members were asked about illnesses contracted during the 4 weeks before the interview, including both severe and minor illnesses. Table 2.2 shows that males were more likely than females to suffer from acute illness and injury, while females were more likely to suffer from chronic illness, perhaps because of their greater longevity. The prevalence of accidents and injury was highest in the groups aged 6 to 15 years and 16 to 30 years. The incidence of acute illness decreases as age increases, while the prevalence of chronic illnesses increased from nearly 2% in children to 54% among the elderly.

**Table 2.2. Structure of self-reported illness and injury by household, sex, and age group, 2002**

	Acute illness	Chronic illness	Accidents/ injuries/ poisoning	Total
Number of cases during 4 weeks prior to survey (million cases)	11.7	5.9	0.6	18.2
General structure (%)	64.3	32.4	3.3	100.0
<b>Structure by sex</b>				
Male (%)	66.2	29.2	4.7	100.0
Female (%)	62.9	34.8	2.2	100.0
<b>Structure by age group</b>				
<1 year	97.7	1.8	0.5	100.0
1-5 years	92.0	4.7	3.3	100.0
6-15 years	83.6	11.7	4.7	100.0
16-30 years	69.2	26.9	3.9	100.0
31-59 years	53.5	43.5	3.0	100.0
60-74 years	41.4	56.3	2.3	100.0
75 years and over	43.5	54.4	2.1	100.0

Note: The number of cases during 4 weeks is the aggregate national figure as extrapolated from the survey sample results over a 4-week reference period.

Source: VNHS 2001-2002 [19]

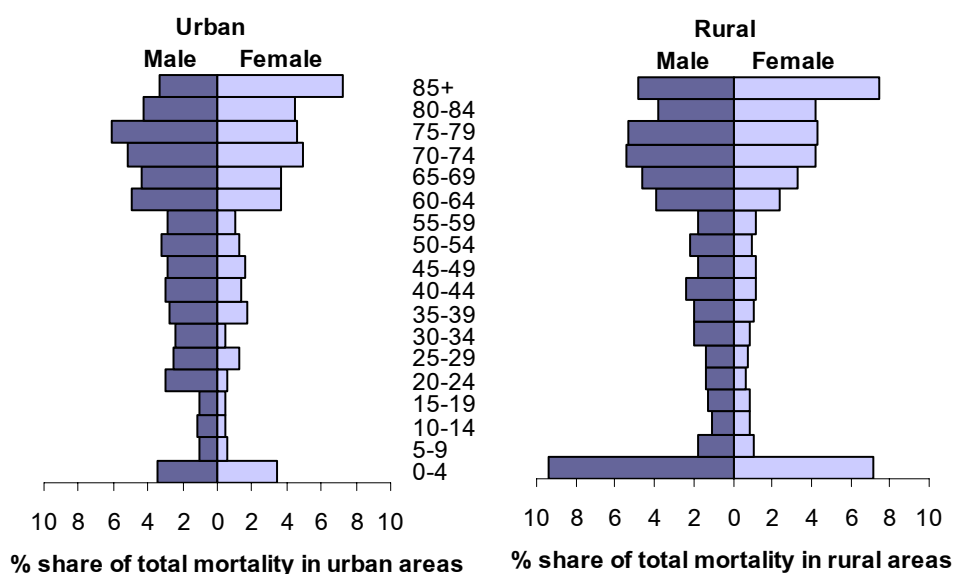
The Vietnamese health system was constructed at a time when communicable disease was predominant, and preventive health programs and commune health services focused efforts on diseases of this type. Although the hospital network is improving and healthcare staff are being trained to diagnose and treat noncommunicable disease, the preventive health system and commune-level health services are not yet fully reconfigured to manage the new disease patterns. To prepare for the future, researchers and policy-makers need to focus greater attention on training health workers, investing in equipment, and developing appropriate programs to more effectively resolve noncommunicable health problems.

## 2.2 Mortality Patterns

### 2.2.1 Mortality structure by age group, sex, and urban/rural residence

Data from the 1999 Population and Housing Census indicate that mortality in the group aged 60 years and older accounts for the greater share of overall mortality, similar to rates in higher income countries where mortality occurs primarily in older age groups (Figure 2.2 and 2.3). Nevertheless, mortality in children under 5 years of age remains high in Vietnam.

Figure 2.2 Age-sex structure of mortality in Vietnam by urban and rural residence, 1999



Source: 1999 Population and Housing Census [20]

Male mortality is higher than female mortality in nearly all age groups, especially during working years (14-59 years of age), in both rural and urban areas. This may be strongly related to a high number of accidents in this age group.

The mortality pattern by age group and sex is similar in urban and rural areas, except for under-5 mortality, which is much higher in rural areas as illustrated by the wider base of the rural mortality graph in Figure 2.2.

The VNHS 2001-2002 data indicate similar results (Table 2.2). Data from 2002 show that 1572 of the 2476 reported deaths were in people aged 60 years and older, ie, 63.5% of all deaths. About 55% of these reported deaths were male.

### 2.2.2. Mortality structure by disease

Currently, the registration system for vital statistics in Vietnam does not operate effectively and cannot provide accurate data on the number of deaths, cause of death, or the age, sex, and living standard of people who died. Therefore, to assess trends in mortality patterns it is necessary to rely on mortality data collected in public hospitals. In the future, the vital registration system, particularly with regard to health, must be improved to better facilitate the management of population and health.

Table 2.3 indicates that the mortality rate from noncommunicable diseases among inpatients at government hospitals increased from 44% in 1998 to 61% in 2005. Starting in 2003, the percentage of deaths from accidents, injuries, and poisoning exceeded deaths from communicable disease, making this group the second highest cause of death.

**Table 2.3. Mortality patterns based on inpatient records at government hospitals, 1998-2005**

Unit: %

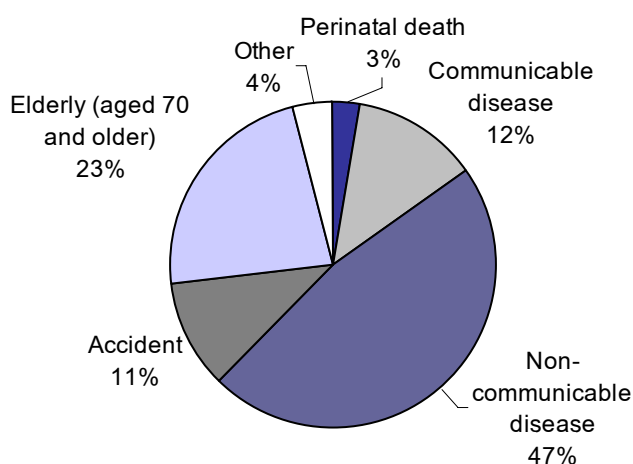
Year	Communicable disease	Noncommunicable disease	Accidents/ injuries, poisonings
1998	35.4	44.0	20.6
1999	34.0	52.2	13.8
2000	26.1	52.3	21.7
2001	15.6	66.4	18.1
2002	18.2	63.3	18.5
2003	17.4	59.1	23.5
2004	17.0	57.9	25.1
2005	16.5	61.2	22.3

Source: Health Statistics Yearbooks [4]

Deaths in public hospitals reflect only about 5% of the total annual mortality and cannot reflect the general mortality patterns of the population. Most deaths in Vietnam occur outside hospitals. Hence, the above data do not reflect the overall causes of death.

Another information source on causes of mortality in Vietnam is VNHS 2001-2002. This survey asked about deaths of household members during the preceding 3-year period. Information on the specific causes of death collected in a household survey cannot be as accurate as information provided by a hospital. However, 54% of interviewees said that the cause of death that they reported was what they had been told by a doctor. An additional 36% of reported deaths were from obvious causes, eg, suicide, old age, perinatal death, or accidents. Only 9% of reported deaths could be considered to have an unconfirmed cause (Figure 2.3 and Table 2.4).

**Figure 2.3. Structure of cause of death, 2002**



Source: VNHS 2001-2002 [3]



**Table 2.4. Cause of death by sex, age group, and living standard quintile, 2002**

Unit: %

	Perinatal mortality	Communicable disease	Non-communicable disease	Accident/injury	Elderly (over 70 years)	Other	Total	n
<b>Overall</b>	<b>2.8</b>	<b>12.4</b>	<b>47.1</b>	<b>10.8</b>	<b>23.3</b>	<b>3.8</b>	<b>100.0</b>	<b>2476</b>
<b>Sex</b>								
Male	2.6	14.7	50.2	13.7	15.2	3.6	100.0	1359
Female	3.1	9.7	43.2	7.1	32.9	4.1	100.0	1122
<b>Age group</b>								
<1	58.2	18.1	14.6	2.5	..	6.7	100.0	129
1-4	..	38.5	22.4	25.8	..	13.4	100.0	71
5-9	..	29.6	29.9	39.4	..	1.2	100.0	34
10-24	..	9.9	24.9	56.5	..	8.7	100.0	147
25-59	..	16.2	59.0	19.5	..	5.2	100.0	526
60+	..	9.5	48.8	3.2	36.1	2.4	100.0	1572
<b>Living standard</b>								
Poor	5.0	19.9	34.6	12.2	20.4	7.8	100.0	642
Middle	2.4	11.6	49.8	9.5	23.0	3.8	100.0	747
Rich	2.1	9.2	51.1	11.0	24.9	1.8	100.0	1087

Notes: Perinatal death includes children who died within 1 month of birth. The category “over 70 years” consists only of people aged 70 years and older whose more precise cause of death was unknown

Source: VNHS 2001-2002 [19]

Some distinct differences in the data become evident when comparing the VNHS 2001-2002 data against the government hospital data[21]. The survey shows that noncommunicable disease accounted for 47% of deaths in contrast to the 63.3% reported by hospital data in the same year. Communicable disease accounted for 12% of deaths in the survey versus 18.2% in the hospital data. Accidents and injuries accounted for 11% of deaths in the survey versus 18.5% in hospital data. Nevertheless, the general patterns are similar, showing that deaths from noncommunicable disease and accidents predominate.

To further increase the effectiveness of providing health care to the population and contribute toward increasing life expectancy, higher priority must be given to investments addressing noncommunicable disease and prevention of accidents and injury, while concurrently continuing to prevent communicable diseases and major epidemics that carry a high risk of mortality.

### **2.2.3 Mortality structure by living standards**

The VNHS 2001-2002 indicates higher mortality rates among the poor in perinatal death, communicable disease, accidents, and injuries, while noncommunicable disease and old age are the main causes of death among people with average and higher living standards. This suggests that we must continue to invest in health care for communicable diseases as they predominate among the poor.

## Chapter 3

### COMMUNICABLE AND NONCOMMUNICABLE DISEASES

#### 3.1. Communicable Disease

Table 3.1 presents data for 2000 to 2005 on the total number of cases for the most prevalent communicable diseases as reported by state health facilities (including hospitals, preventive health facilities, and commune health stations). These data not only reflect changes in morbidity, but also changes in health seeking behavior. Some diseases show an increasing trend in prevalence rates, although it is possible that these diseases previously went undiagnosed and untreated. However, they are now diagnosed given the advances in technology and wider access to better quality health services. Other diseases show a declining trend, which might indicate that diseases such as malaria are truly on their way toward being eradicated. However, it could also reflect data lost as patients increasingly self-medicate, or seek care at private facilities that do not report to the health administration system, whereas these patients previously sought care at state health facilities.

**Table 3.1. Total number of cases of communicable disease treated at public health facilities, 2000-2005**

Unit: cases

Diseases	2000	2001	2002	2003	2004	2005
Flu	1 359 758	1 584 784	1 612 303	1 634 349	1 650 459	1 586 875
Diarrhea	980 188	1 093 864	1 062 440	972 463	922 832	898 753
Pneumonia	276 832	278 656	389 657	864 588	880 191	889 150
Bronchitis	255 149	197 867	378 921	860 900	1 030 398	967 006
Rabies (vaccinated cases after animal bite)	480 058	426 933	445 466	464 868	610 810	505 939
Malaria	293 016	257 793	185 529	164 706	128 622	99 276
Sexually transmitted diseases	112 141	136 703	183 927	142 956	143 880	138 687
Tuberculosis	90 754	92 841	95 912	92 654	99 162	95 970
HIV/AIDS*	36 103	46 327	63 104	81 289	96 410	94 040
Dysentery, cholera, typhoid fever	85 959	91 078	77 869	71 177	66 863	65 567
Dengue	25 266	42 878	28 728	49 751	78 692	56 443
Leprosy	21 918	20 858	20 060	18 920	16 810	15 195
Viral hepatitis	9 825	7 923	8 421	7 079	8 022	7 834
Childhood diseases preventable by vaccine**	18 891	16 819	10 547	5 396	3 631	3 881
Including measles	16 512	12 058	6 755	2 297	217	410
Encephalitis, meningitis	3 147	2 701	2 306	2 670	3 097	2 337

Note: \* HIV/AIDS: the total cumulative reported HIV/AIDS cases minus cumulative deaths from AIDS at each time period.

\*\* Vaccine-preventable diseases consist of: Measles, poliomyelitis, tetanus, pertussis, diphtheria, tuberculosis, encephalitis, hepatitis B, cholera, typhoid fever

Source: Health Statistics Yearbooks [4]

### **3.1.1. Acute respiratory infections**

Acute respiratory infections, including influenza, pneumonia, and acute bronchitis, are among the leading causes of morbidity. Usually these diseases require only commune-level health services. According to the 2005 Health Statistics Yearbook, only 1223 deaths were attributed to these causes, although this figure is probably somewhat underreported. The Acute Respiratory Infection Program was successful in reducing mortality from respiratory infection, especially in children. Nevertheless, treatment of acute respiratory infections remains a pressing problem because of the overuse of antibiotics, leading to drug resistance.

### **3.1.2. Diseases of the digestive system**

Diarrhea is another lead cause of morbidity, with nearly one million hospitalized cases per year and many others going without treatment, self-medicating, or receiving treatment at private facilities. Cholera, typhoid fever, and dysentery still exist in some areas where safe water supply and sanitary facilities remain inadequate.

Intestinal parasites are also a common disorder, with an estimated 33.9 million people infected with roundworm (44.4% of the population), 17.6 million infected with whipworm (23.1%), 21.8 million infected with hookworm (28.6%) [22], and 1.7% infected by clonorchiasis, based on data from the Central region [23]. The Control of Diarrheal Disease Program has succeeded in reducing mortality from diarrhea, but the high malnutrition rate in Vietnam is due in part to inadequate prevention and control of digestive diseases.

### **3.1.3. SARS and avian flu in humans**

In recent years, there has been increasing global attention to emerging diseases; Vietnam has been an important epicenter. Among those of greatest concern are severe acute respiratory syndrome (SARS) and avian influenza A(H5N1). While the number of deaths caused by these two diseases is not great, their economic impact on Vietnam and the associated healthcare costs to prevent them are enormous.

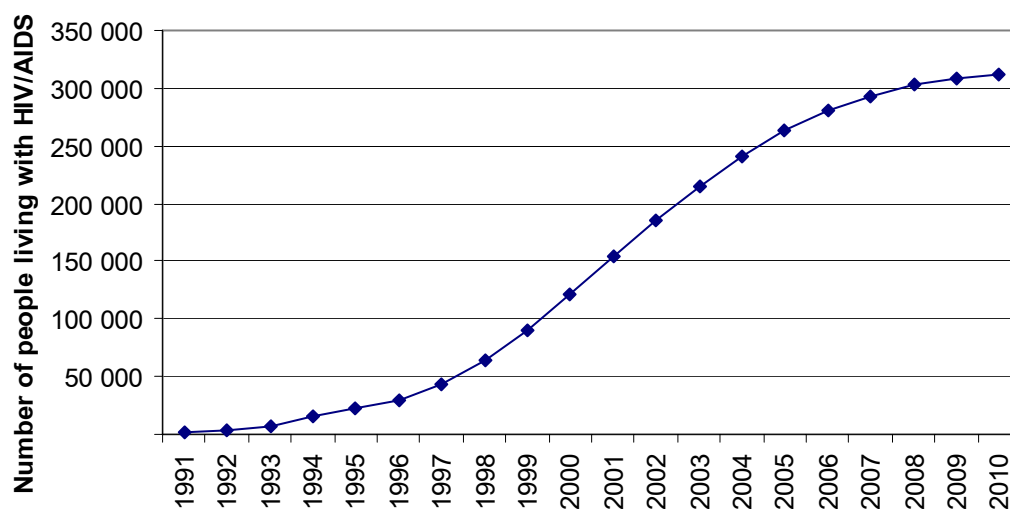
From the time the SARS epidemic began until it had ended, 63 individuals in Vietnam had contracted SARS, and 5 had died from the disease. Worldwide, 8098 people had contracted SARS, whereof 774 died [24]. Due to the risk of SARS spreading rapidly in the Vietnamese population, the government invested heavily in preventing and treating the disease. From 2003 to the present, no new cases of SARS have been detected in Vietnam [25].

Avian influenza is a communicable viral disease commonly found in poultry. One virus of particular concern in Vietnam and neighboring countries is the highly pathogenic A(H5N1) strain. In Vietnam, the first cases of avian influenza in humans were detected in the south early in 2003. By August 2006, after several epidemic waves in Vietnam, there were 93 confirmed cases of avian influenza in humans, whereof 42 resulted in death [26]. Avian influenza in humans is predicted to continue to remain a complex issue into the future. To deal with this threat, the Government has immunized poultry, destroyed poultry suspected of being infected, and strengthened training, which have contributed to declines in frequency and severity of epidemics among poultry.

### **3.1.4. HIV/AIDS**

HIV/AIDS is a communicable disease with high mortality and morbidity rates, especially among adolescents and youth. Figure 3.1 indicates the trend in the number of HIV-infected persons from 1990 and projections to 2010. From 2003 to 2005, Vietnam had an estimated 37 000 new cases per year. In 2005, the health sector detected only 13 731 new cases of HIV, 2861 new cases of AIDS, and reported 1673 deaths from HIV/AIDS [14]. Projections indicate that new cases of HIV could reach 26 000, with new AIDS cases ranging from 5000 to 10 000 per year, resulting in 11 500 deaths [27]. An estimated 0.51% of the adult population in Vietnam were living with HIV in 2005.

**Figure 3.1. Estimates and projections of the number of people living with HIV/AIDS in Vietnam, 1990-2010**



Source: Vietnam Administration of Preventive Health and HIV/AIDS Control [27]

Intravenous drug use is the most common means of contracting HIV/AIDS (57% of all cases)[28]. Among intravenous drug users nationally, 30% are infected with HIV. Approximately 5% of female sex workers in Vietnam are infected by HIV/AIDS, with a higher prevalence in Ho Chi Minh City (HCMC) and Hanoi [29]. In 2003, HIV prevalence among men was much higher than in women, with a ratio of 2.3 men infected for each woman infected [27]. An estimated 10 600 sex workers were living with HIV in 2005, much lower than the estimated 67 000 women living with HIV who were not sex workers (due to increased transmission of disease from husband to wife) [27].

The data suggest that for every 75 households in Vietnam, 1 household has a member living with HIV. In 2004, the prevalence of HIV was highest in Quang Ninh, Hai Phong, Ba Ria-Vung Tau, HCMC, and An Giang [14]. By the end of December 2005, young adults aged 20 to 29 years accounted for 53.8% of HIV cases [14]. A recent study indicates that HIV has caused about 126 000 Vietnamese people to fall below the poverty line due to household health spending (which is 13 times higher in households with HIV-infected members than in the average household), high funeral costs, and lost income among HIV-infected individuals and their relatives [30].

### **3.1.5. Sexually transmitted disease (STD)**

Sexually transmitted diseases (STDs) also represent a health problem of major concern in Vietnam. A study by WHO [31] on the distribution of STDs estimated 1 million new cases per year during the first few years of the new millennium, including 150 000 cases of syphilis, 150 000 cases of gonorrhea, 500 000 cases of *Chlamydia*, and 200 000 cases of other STDs, eg, *trichomoniasis* and herpes.

Various studies have reported that STD prevalence ranges from 24% to 82%, depending on the definition of the disease and the study subjects [32-35]. Of course, not all cases showing clinical symptoms are STDs, and not all STDs present clinical symptoms. These results are also consistent with previous estimates [36], which found gynecological infections in about 20% to 40% of women in rural areas and 10% to 20% in urban areas. However, the incidence of STDs reported by state health facilities in the Health Statistics Yearbook indicate a prevalence of only 0.1% to 0.2% [4]. This suggests that many cases of STD have not yet been diagnosed or treated, and the risk is high that these diseases will continue to spread.

### 3.1.6. Tuberculosis

Pulmonary tuberculosis remains a widespread health problem in Vietnam (Table 3.2) with substantial public health consequences. Vietnam is on the WHO list of 22 high-burden countries, which combined experience 80% of the world's tuberculosis cases. Vietnam has implemented the WHO's Directly Observed Therapy- Short Course (DOTS), national strategy for tuberculosis control, which prioritizes political commitment. Vietnam was the first of the only 2 countries to hit WHO targets for case detection and cure rates for over 10 years. Despite this long-term and sustained operational success, data during the period 2001-2005 on tuberculosis incidence rates are stagnant rather than falling. In a recent analysis the expected drop in the rate of tuberculosis is being offset by a rising rate of persons co-infected with tuberculosis and HIV. In addition to the cases with AFB+ test results, 16 249 cases of pulmonary tuberculosis with negative AFB and 16 670 cases of nonpulmonary tuberculosis were reported in 2005 [14].

**Table 3.2. Tuberculosis indicators in Vietnam, 2000-2005**

Indicators	National targets for 2005	2000	2001	2002	2003	2004	2005	Long-term targets by 2010 or 2015
Coverage by DOTS			99.8%	99.9%	100%	100%	100%*	
Prevalence of tuberculosis (Based on diagnosed cases)		90 754	91 461	95 712	92 654	99 162	95 970	Reduced 50% by 2010
Incidence of tuberculosis AFB+		53 169	54 202	56 735	55 447	58 389	55 570	Reduced 50% by 2015
AFB(+)/ 100 000 inhabitants	72		70	72	69	71.2	66.9	
Number of relapse cases		5 493	5 442	5 454	5 398	6 676	6 325	
Number cured among AFB+ cases		48 039	48 579	53 698	50 796	50 492		
% of cases cured among AFB+ cases	92%	90.3	88.9 [90.1]	90.9 [90.1]	90.5	90.7	90.0*	
Total deaths due to tuberculosis	decrease	1537	1670	1947	1888	1852		

Note: \* is planned figure

Source: Targets and epidemiological data from Report on implementation of national target programs [15]. Data for 2000, 2004, 2005 from Health Statistics Yearbook [4].

The southern provinces, especially HCMC and An Giang, report the highest prevalence of tuberculosis. The tuberculosis control program faces new challenges beyond tuberculosis and HIV co-infection, including drug-resistant tuberculosis (an estimated 2.5% of new cases and 23% of retreatment cases are due to multi-drug resistant tuberculosis, health sector reforms, and the emerging private health sector. A concerted effort is being made to strengthen the interventions in ethnic minority communities in remote and isolated areas, among the urban poor (including the homeless and migrant workers), and among people living in institutions (eg, prisons, drug rehabilitation centers) who have high prevalence rates. In addition, it is necessary to strengthen the role of the private healthcare sector in identifying and treating tuberculosis patients.

### 3.1.7. Leprosy

By the end of 2005, Vietnam still had 15 195 leprosy patients under medical supervision by the health system and 1612 cases being treated with multi-drug therapy (Table 3.3). In 2005, there were 765 new cases detected of which 51 were children under 15 years of age, and

124 (16%) had disabilities attributed to late detection. Because many leprosy patients are asymptomatic, the population is still at risk for a resurgence of this disease unless methods to eradicate it are maintained. Also, many patients who no longer show positive test results for *mycobacterium leprae* are disabled and require rehabilitation services. The Southeast and Central Highlands regions of Vietnam report the highest prevalence of leprosy.

**Table 3.3. Leprosy indicators in Vietnam, 2000-2005**

Indicators	2000	2001	2002	2003	2004	2005	2005 Targets
No. of provinces where leprosy has been eradicated according to Vietnamese standards	0	0	1	15			
Number of people checked to detect leprosy (million)		11	10.7	10.25			30 million people
Prevalence rate per 100 000 inhabitants		2.0	1.6	1.59	1.0		
Incidence	1477	1136	1138	949	858	765	5000+ new cases
Incidence rate per 100 000 inhabitants	1.90	1.73	1.48	1.18	1.04	0.92	
Number of patients treated with multi-drug therapy	3553	3044	2740	2258	2102	1612	6800 cases
Proportion disabled among new cases	20.92	19.19	19.43	18.86	16.90	16.2	
Number of patients rehabilitated through surgery		1047	928	875			5000 cases
% of disabled lepers receiving care		97.6	98.2	98.4			
Number of patients living in leprosy care village		15 500	16 208	16 890			

Source: Targets and epidemiological data from Report on implementation of national target programs [15]; Data for 2000, 2004, and 2005 from Health Statistics Yearbooks [4]

### 3.1.8 Malaria

The incidence rate of malaria decreased by half, and the mortality rate decreased by two thirds during the 2001-2005 period, far exceeding the targets (Table 3.4). In 2005, there were 99.3 thousand infected cases and 18 deaths from malaria. All provinces report immigration of infected cases from permanent malaria zones. The highest prevalence of malaria is reported from the Northern mountainous (29% of total cases) and Highland (20%) regions [4]. Low educational levels, language problems, and dependence on forest resources in remote areas complicate efforts to prevent and control malaria in these regions.

**Table 3.4. Malaria indicators in Vietnam, 2000-2005**

	2000	2001	2002	2003	2004	2005	2005 Targets
Number of new cases	293 016	257 793	185 829	164 706	128 622	99 276	
Prevalence per 100 000 inhabitants	377.2	327.6	232.7	203.6	157.0	119.4	under 350
Number of deaths	148	91	50	50	24	18	
Number of deaths per 100 000 inhabitants	0.19	0.12	0.06	0.06	0.03	0.02	under 0.15
Number of outbreaks		2 minor outbreaks	None	2 minor outbreaks	None		No major outbreaks

Source: Report on implementation of national target programs [15]

### 3.1.9. Dengue hemorrhagic fever

In 1997, Vietnam reported 354 517 diagnosed cases of dengue fever, resulting in 1566 deaths [37]. The health sector took major steps in the late 1990s to reduce the dengue fever epidemic, and by 2000 Vietnam reported only 24 000 infected cases and 52 deaths (Table 3.5). The expressed objectives of the program were to reduce the morbidity rate to 15% and the mortality rate to 10% of the rates at the outset of the program. Hence, the target was achieved sooner than expected. However, the sustainability of these achievements and potential reductions in morbidity and mortality remain uncertain.

**Table 3.5 Dengue fever indicators in Vietnam, 2000-2005**

Indicators	2000	2001	2002	2003	2004	2005	2005 Targets
Number of cases	24 118	42 878	31 754	49 691	78 692	56 443	
Prevalence per 100 000 inhabitants	31.1	54.5	39.8	61.4	95.9	67.9	109
Number of deaths	52	82	51	72	114	0	
Case fatality rate	0.22%	0.19%	0.16%	0.14%	0.14%	0	0.17%

Source: Report on implementation of national target programs [15] 2004 and 2005 data from Health Statistics Yearbook [4]

In 2004, dengue fever was widespread in the Mekong River Delta, accounting for 84% of total infected cases, with 9% of cases in the South Central Coast, 5% in the Central Highlands, and 2% in the North. The incidence of dengue fever has increased in older children and adults in recent years. In 1999 and 2000, about 24.3% of total cases were aged 15 and older. By 2001, this patient group has increased to 36.5% of all cases [15].

To date, no vaccine prevents dengue fever. Treatment consists of analgesic and antipyretic drugs, eg, acetaminophen. Prevention methods include reducing the vectors in the community and monitoring any outbreak of the disease.

### 3.1.10. Vaccine-preventable diseases

Since the 1980s, Vietnam has been implementing the expanded program on immunizations (EPI) for children and tetanus immunizations for pregnant women. Assessment has shown the EPI to be highly successful, as exhibited by the low and declining prevalence rates of 6 diseases covered by the program, ie, tuberculosis, diphtheria, pertussis, tetanus, measles, and polio (Table 3.6). Nevertheless, the achievements are not yet solid. The lack of DPT vaccines in 2002 led to higher rates of whooping cough and diphtheria in 2003. From 1997 to 2000, the incidence of measles increased rapidly even though children had been vaccinated.

**Table 3.6 Number of cases of vaccine-preventable diseases, 2000-2005**

Unit: Number of cases

Diseases	2000	2001	2002	2003	2004	2005	2005 targets	2010 targets
% of children fully vaccinated	96.0	97.0	89.7	93.3	96.5	97.8	>90%	>90%
<b>Child diseases</b>								
Diphtheria	113	133	105	105	49	36	41	43
Pertussis	1 426	1 242	662	716	382	194	410	432
Tetanus	266	177	149	119	72			
Of which neonatal tetanus	142	104	93	76	46	35	115	-
Measles	16 512	12 058	6 755	2 297	217	410	3277	86
Child tuberculosis (tubercular meningitis and other)	109	90	101	83	67	65		
Acute flaccid paralysis (suspected polio)	465	341	421	373	475	0	0	0
<b>Other diseases</b>								
Tetanus (both children and adults)	716	572	516	485	378	358	716	572
Viral hepatitis	9 825	7 923	8 421	7 079	8 022	7 834	decrease	
Viral encephalitis	2 249	1 860	1 634	2 095	2 257	1 590	decrease	
Typhoid fever	10 705	9 796	7 090	5 946	4 257	4 565	very few	
Cholera	176	15	317	343	67	0	very few	
Varicella (and shingles)	6 137	4 564	6 171	6 755	17 918	16 847		
Rubella	373	71	120	235	632	3 316		
Mumps	6 401	4 564	4 218	5 768	7 850	13 249		
Rabies (Vaccinated cases after animal bite)	480 058	426 933	445 466	464 868	610 810	505 939		

Note: Number of reported cases is likely to be lower than the real number due to inability to provide an exact diagnosis at many health facilities, non-reporting by private facilities, and incomplete reports by government facilities. Proportion fully vaccinated is the total number of vaccinations given compared to the estimated total number of children to be vaccinated (children under 1 year of age). Starting in 2003, hepatitis B vaccines were added to the EPI.

Source: Health Statistics Yearbook [4]

The health sector's immunization strategy, besides 6 childhood diseases, includes vaccines against typhoid fever and cholera in high-risk regions. Starting in 2003, free immunization against hepatitis B was added to the EPI. Japanese Encephalitis B was determined to be the cause of 70% of all encephalitis cases in the Central Pediatrics Hospital [38]. It has many complications, eg, deafness, muteness, learning disabilities, epilepsy, and mental disorders. The incidence rate of purulent meningitis is 12.2 per 100 000 in children under 5 years of age, but 25.7 per 100 000 in children aged under 24 months [39]. Currently the Ministry of Health is researching the need for and feasibility of adding Japanese Encephalitis to the EPI.

Vaccines can prevent several other diseases, including hepatitis A, rubella, mumps, influenza, and chicken pox. Since families must currently pay for these vaccines they are not widely used. Rabies can also be prevented by immunizing people who have been bitten by animals suspected of having rabies.

### 3.2. Noncommunicable Disease

Economic growth, an aging population, and lifestyle changes are causes leading to an increasing burden of noncommunicable diseases. Some non-communicable diseases are common among children, eg, nutritional disorders, asthma, vision disorders, dental caries, congenital malformations, and disability from accident or illness. These disorders are also found among adults. Diseases commonly found among the elderly include cardiovascular disease, diabetes, kidney disease, and cancer.



Information on the noncommunicable disease situation is incomplete, in part because many people affected by these diseases have not yet been diagnosed. Based on results from epidemiological studies of small samples, noncommunicable diseases can be divided into 3 groups: widespread, infrequent, and rare conditions. The most widespread type includes dental caries and gingivitis, with a prevalence of 70% in adults. This is followed by child malnutrition and chronic energy deficiency in adults and myopia, hypertension, and overweight among adults affecting from 12% to 28% of the relevant age groups. The group of infrequent noncommunicable diseases includes asthma, diabetes, and severe disability affecting from 1% to 6% of the population. The more rarely reported noncommunicable diseases in Vietnam include schizophrenia, cancer, stroke, renal failure, and rheumatoid arthritis.

### 3.2.1. Malnutrition

Malnutrition is an important factor contributing to the disease burden since malnourished people easily contract communicable diseases. Unbalanced nutrition is a problem in both children and adults affected by under- and over-nutrition (obesity). Reducing child malnutrition is an important target in Vietnam and is included among the MDGs.

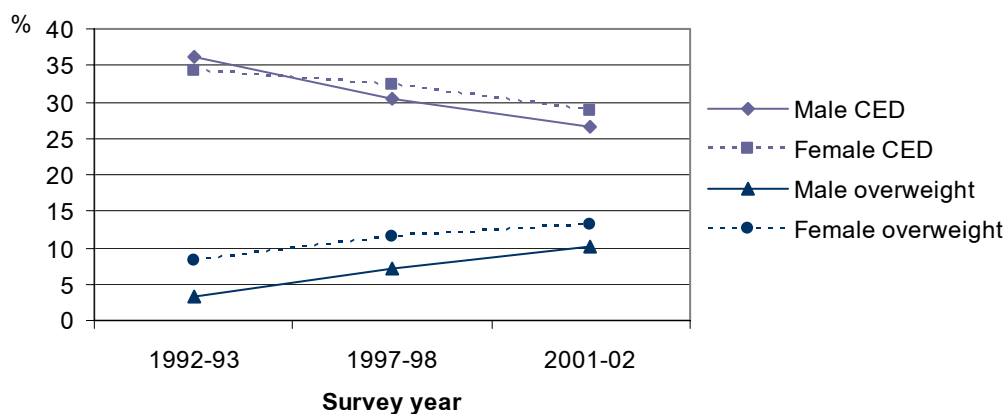
#### Child nutrition

Protein energy malnutrition and micro-nutrient deficiencies in children under 5 years of age have declined significantly in the past few years. Nevertheless, a new trend toward overweight and obesity in children in cities and more economically developed areas has developed that should be controlled to prevent the negative consequences that may result, eg, diabetes, cardiovascular diseases. Child malnutrition is addressed in detail in Chapter 1, Section 1.2 of this report.

#### Adult nutrition

Nutrition is also an essential factor in improving adult health. Adult malnutrition consists of both chronic energy deficiency and overweight. Chronic energy deficiency not only influences an individual's opportunities to earn a living and nurture oneself and one's family, but also affects the resistance of one's body. Chronic energy deficiency affects the reproductive health of women suffering from this condition and the nutrition and health of their children. As living standards of the population improve, the problems of overweight and obesity are emerging (Figure 3.2). Many recent studies have shown close correlations between nutrition and disease, and that a rational diet can reduce the risk of many chronic diseases.

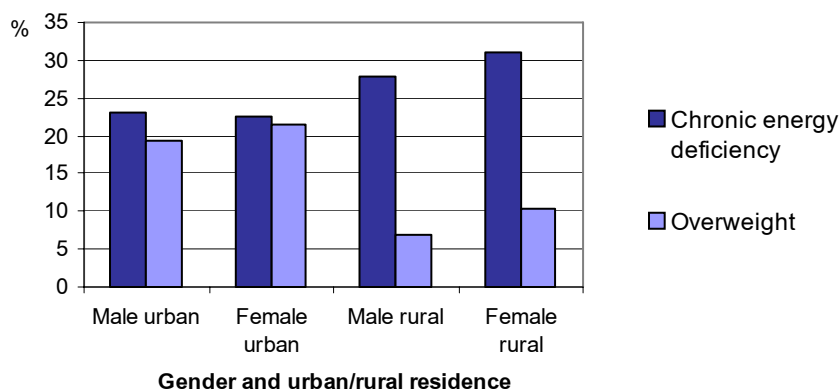
**Figure 3.2. Proportion of people aged 16 years and older with chronic energy deficiency (CED) and overweight by year and sex, 2002**



Source: VNHS 2001-2002 [3]

Chronic energy deficiency (CED) is measured by body mass index (BMI) calculated by the body weight/(kg) divided by square of the height/(m<sup>2</sup>). In Vietnam, a person with a BMI of 18.5 is considered as having chronic energy deficiency and over 23 as overweight. While about 28% of people aged 16 years and older suffer from chronic energy deficiency, the percentage of overweight people is beginning to increase, accounting for 12% of adults. This suggests that we are beginning to see a shift from undernutrition to overnutrition (Figure 3.3).

**Figure 3.3. Proportion of people aged 16 years and older with chronic energy deficiency (CED) and overweight by region and sex, 2002**



Source: VNHS 2001-2002 [3]

In general, the prevalence of CED in rural areas is higher than in urban areas, while the prevalence of overweight is lower. This situation could be explained by occupational structure, living standards, lifestyle, and diet. Higher-income people often consume energy-rich foods exceeding the needs of the body, while low-income groups may lack energy because of insufficient food. Also, wealthier people often have sedentary jobs and get little physical exercise. Given the trend toward an increasing surplus of calories, we can easily predict a future with many health problems related to overeating unless we initiate effective interventions now.

### 3.2.2. Asthma

Bronchial asthma has a clinical profile including paroxysmal attacks of bronchospasm irritated by various factors [40]. People with allergic tendencies, eg, allergic rhinitis, eczema, or hives are easily affected by asthma. Asthma is also influenced by heredity, and the prevalence of asthmatic patients has increased due to environmental factors such as smoke (from coal, firewood, gas, incense, tobacco), road dust, house dust, and industrial chemicals.

Before 1985, bronchial asthma affected about 1% of the population in rural areas and 2% in urban areas. In 2004, the prevalence of asthma had increased to 2% and 6% respectively [40], ie, about 4 million Vietnamese suffered from asthma. Among children, the prevalence is more than 10% in Hanoi and 16.7% in HCMC. Asthma places a heavy burden on community health [41]. It is a chronic disease and cannot be cured definitively. To live with asthma, people need to understand their disease and the treatment methods, which include preventive therapy and disease control by avoiding contact with factors that irritate bronchial tubes.

### 3.2.3. Eye diseases

Many different factors cause eye diseases, eg, noncommunicable disease, accidents, and communicable disease. Vietnam has a high number of cases of disease-related blindness and unclear vision that could be prevented or cured.

The program for lens replacement surgery for blind, low-income people throughout Vietnam reports that over 340 000 people are blind in both eyes, and nearly 500 000 are blind

in one eye because of cataracts, and about 100 000 new cases occur per year. The program providing cataract surgery to low-income people intends to operate on 180 000 blind individuals over the next few years [42].

In children under 1 year of age, especially children under 6 months of age, the prevalence of vitamin A deficiency is 32%, and 50% to 60% of breastfeeding mothers are deficient in Vitamin A. Vitamin A deficiency is related to xerophthalmia and consequent blindness [43].

According to an epidemiological survey on blindness that was undertaken in 8 provinces in 2000-2002, scratched cornea from trachoma is the fourth leading cause of blindness in Vietnam. Although trachoma infection has declined significantly, 200 000 people still require treatment each year. According to preliminary estimates, about 300 000 cases of trichiasis require surgery. The ophthalmology specialty in Vietnam has set a target to eradicate trachoma that causes blindness by the year 2010. This will be achieved by meeting the criteria to reduce trachoma prevalence to below 5%, to reduce trichiasis to below 0.1%, and to reduce the proportion blind due to corneal scarring from trachoma to less than 0.01% [44].

The prevalence of myopia, hypermetropia, astigmatism, and other vision disorders is rising in school children. No official data are available on the prevalence of vision disorders in the country as a whole. In 2005, an estimated 15% to 17% of school children in Hanoi were affected by myopia, hyperopia, or other disorders, which are more common in urban than in rural areas [45].

The last survey conducted by the Hanoi Health Department indicates that the prevalence of vision disorders in school children is 73.2%, with myopia alone accounting for 47.5% [46]. According to reports from Hai Phong, prevalence is 26% to 27% in Hai Phong and about 30% in Phu Tho province[47]. A study by the National Institute of Nutrition on 10 000 children in basic secondary schools in Hanoi and HCMC shows that the prevalence of vision disorders is 49.16%, with myopia accounting for 50% of those vision disorders[47, 48].

### 3.2.4 Dental and oral disorders

The most prevalent dental diseases are dental caries, gingivitis, pericoronitis, and crooked teeth.

The results of a nationwide survey on dental health conducted from 1999 to 2001 indicate that 84.9% of 6- to 8-year-old children have caries in milk teeth. The prevalence of caries in permanent teeth was shown to increase with age (Table 3.7). While the prevalence of dental caries in permanent teeth among children aged 6 to 8 years is only 25%, prevalence is 90% among people aged 45 years and older. The prevalence of periodontal disease also increased, from 42.7% among children aged 6 to 8 years, it rose to 67% in children aged 15 to 17 years, and reached 93% in the group aged 45 years and older.

**Table 3.7. Prevalence of dental caries and gingivitis by age group, 1999-2001**

Age groups	Unit: %		
	Prevalence of milk – tooth caries	Prevalence of permanent tooth caries	Prevalence of gingivitis and pericoronitis
6-8 years	84.9	25.4	42.7
9-11	56.3	54.6	69.2
12-14	..	64.1	71.4
15-17	..	68.6	66.9
18-34	..	75.2	98.3
35-44	..	83.2	98.7
>45	..	89.7	93.3

Source: Dental health survey [49]

The high prevalence of dental caries in Vietnam has many causes. Although the fluoride concentration in drinking water is low, about 0.4 ppm (only half of the internationally recommended level), the main problem is the major lack of dental care for the population. Over 60% of children and 50% of adults have never had a dental examination. Other causes include insufficient public awareness about dental diseases and the lack of dentists, eg, many districts and communes have no dentist [50]. The prevalence of dental caries and gingivitis could be reduced sharply by simple interventions consisting of dental education, rinsing the mouth with fluoride liquid, and early detection and treatment of dental diseases in schools.

### 3.2.5. Mental health

Mental health has not received much attention given the still high prevalence and priority given to communicable diseases. After communicable diseases have been controlled and the standard of living has been raised, then society begins to consider mental health issues. In Vietnam, the existing community mental health programs have focused on schizophrenia, epilepsy, and learning disabilities. Although depression, suicide, autism, and other mental problems are beginning to be noticed, there are too few doctors with the professional capacity to diagnose and treat mental illness.

Data from the Health Statistics Yearbook indicated that 114 000 patients had mental illness or behavioral disorders in 2005 (Table 3.8). It is not possible to analyze trends over time since the number of diagnosed cases remains low, and data are based on incomplete reporting from health facilities. According to the community-based mental health program, in 2005 all reported cases of schizophrenia were receiving treatment, and the number being managed by the health system has been increasing gradually.

The Center for Child Psychology and Psychiatry reports that child mental disorders affect about 20% of children [51]. Data from the Clinic for Medical and Educational Psychology of Dong Da Hospital shows that over the past 15 years, they have diagnosed and treated mental disorders in about 3000 children, an average of 200 cases per year.

**Table 3.8. Prevalence of selected mental illnesses, 2000-2005**

Unit: Number of cases

	2000	2001	2002	2003	2004	2005	Targets by 2005
Mental and behavioral disorders	73 324	29 052	35 965	121 022	161 483	114 198	
Cases of schizophrenia diagnosed and treated in community		10 000	17 643	23 826	35 000	114 198	50 000
Cases of schizophrenia diagnosed but not yet treated		3 984	8 995	15 000	21 000		35 000

Source: Health Statistics Yearbook [4] – Report on implementation of national target programs [15].

The prevalence of 10 mental illnesses was studied in a clinical epidemiological survey on mental health conducted in 8 localities representing various geographic and socioeconomic conditions throughout the country. Over a 3-year period (2000-2002) the prevalence of 10 common mental illnesses in the population was 14.9% [15]. Table 3.9 presents the prevalence of each disease.

**Table 3.9. Prevalence of 10 common mental illnesses, 2003**

Diseases (Code ICD – 10)	Prevalence (%)
Schizophrenia (F 20)	0.47
Epilepsy (G40)	0.35
Post-concussional syndrome (F07.2)	0.51
Mental retardation (F70-F73)	0.63
Dementia (F00-F04)	0.88
Depression (F32)	2.8
Anxiety (F41)	2.6
Behavioral disorders of adolescents (F91)	0.9
Alcohol abuse (F10.1)	5.3
Drug addiction (F11)	0.3

Source: Report on implementation of national target programs [15]

Given only the 10 mental illnesses listed above, about 10 million people needed mental health care. If the survey could cover all 300 mental disorders, the prevalence would be estimated at 20% to 30% of the population.

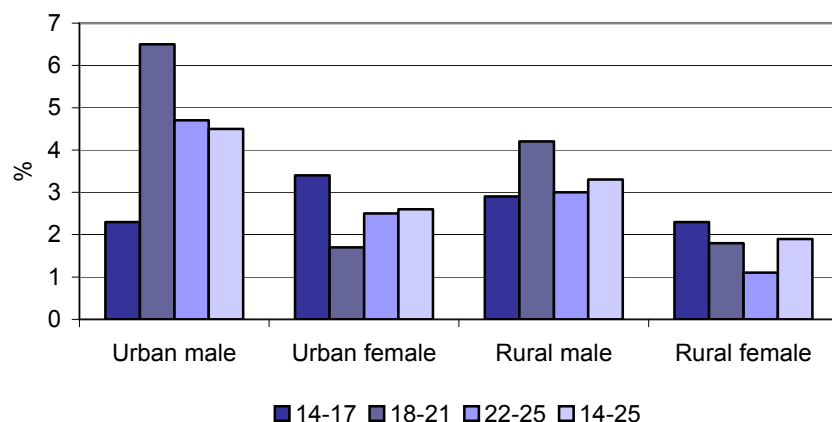
### ***Mental health of adolescents and youth***

In 2000, a survey conducted in the Centre for Mental Health of HCMC including 6494 adolescents examined at the Centre indicates that common problems are acute mental disorders (6%), schizophrenia (4%), behavioral disorders (7.4%), and mental-motor retardation (10%) [52].

Illegal actions of adolescents, eg, assault, rape, robbery, homicide, and possession of illegal drugs, are viewed as mental problems. According to annual population statistics from 2000 [52], 20% of all adolescents aged 14 to 16 years committed an offence involving illegal possession of drugs (48.4%), rape of children (45.1%), illegal trading in drugs (37.8%). According to the Health Statistics Yearbook, in 2004 there were 24 577 attempted suicides, equivalent to 29.96 per 100 000 inhabitants.

Similarly, self-inflicted injuries or suicide are considered as mental health problems in adolescents. The Survey Assessment of Vietnamese Youth (SAVY) [53] indicates that 2.8% of the interviewed adolescents reported having inflicted injury upon themselves, while 3.4% reported having the intention to commit suicide. Self-injury includes self-mutilation or other forms of harm, not only suicide. Differences are observed between males and females and between rural and urban areas. The prevalence of self-inflicted injury is higher among males than among females. Inversely, the prevalence of suicide behavior in females is higher. This prevalence is also lower in rural compared with urban areas (Figure 3.4)

**Figure 3.4. Prevalence of self-inflicted injury by sex and urban-rural residence, 2003**



Source: SAVY [53]

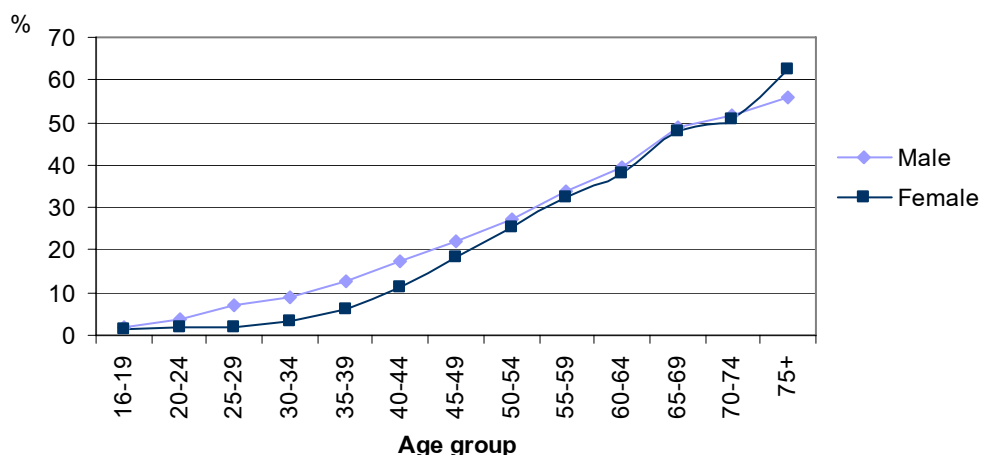
### **3.2.6. Cardiovascular disease**

The principal cardiovascular diseases are cerebral vascular complications, cardiac insufficiency, coronary diseases, chronic pulmonary heart, and vascular diseases. Risk factors for cardiovascular diseases consist of hypertension, increased cholesterol, and indirect factors such as smoking, alcohol, diet, obesity, and old age.

According to the World Health Report 2002, hypertension is an important secondary factor influencing the disease burden in low mortality developing countries such as Vietnam [54]. Hypertension is a risk factor that could lead to renal insufficiency, cardiac insufficiency, cerebral vascular complications, and other problems. The Vietnam National Health Survey (VNHS) 2001-2002 [3] estimates that the prevalence of hypertension (based on the WHO definition) in those aged 16 years and older is 15.1% in males and 13.5% in females. Figure 3.5 shows that the prevalence of hypertension increases with age for both males and females. An estimated 50% of men and women have hypertension at 65 years of age. In those of working age (20-59 years), the hypertension risk is higher among males than females. Obesity and urban residence are also closely associated with hypertension. These results are similar to findings from smaller studies in Vietnam [55, 56].

Only 28% of males and 42% of females with hypertension are diagnosed [3]. The proportion of diagnosed patients in urban and wealthy groups is higher than that in rural and low-income groups.

**Figure 3.5. Prevalence of hypertension by age group and sex, 2002**



Source: VNHS 2001-2002 [3]

Stroke occurs suddenly due to a blood clot or rupture in the cerebral arteries and leads to the loss of ability to control nerves. It is the most widespread of the cardiovascular diseases. Stroke is a serious illness with high mortality and leaves survivors with severe complications that impact heavily on the life and activities of the patient and family. The prevalence of this disease increases rapidly with age.

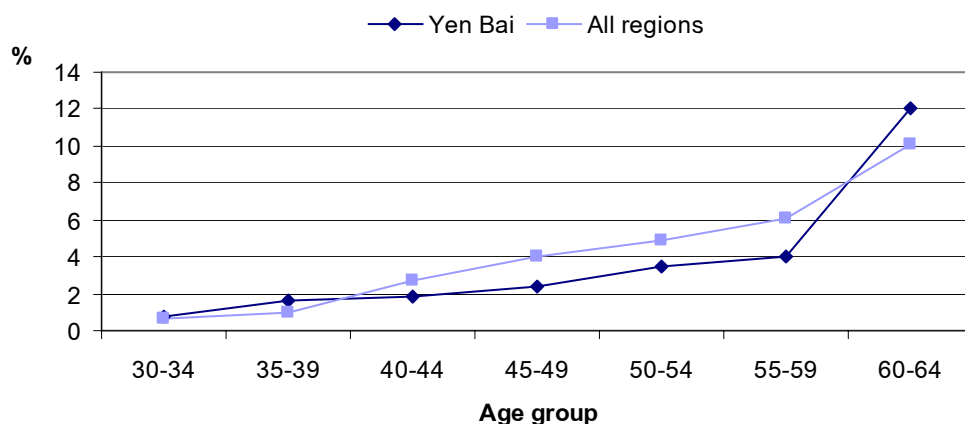
Morbidity and mortality rates of cardiovascular diseases in general, and of cerebrovascular complications in particular, vary greatly between different regions in Vietnam. In Ba Vi district, a central mountainous area with mainly agricultural production, the mortality rate from cerebrovascular complications is 73 per 100 000 inhabitants. In Son Tay town, the rate is much lower (41 per 100 000). In Hanoi, this rate is similar to that of HCMC (130-131 per 100 000). The incidence rate (250 compared with 69 per 100 000) and the prevalence (608 compared with 133 per 100 000) in HCMC are high in comparison with Son Tay town [56-58].

About 60% of those who suffered cerebrovascular complications are below 60 years of age. Among patients with this disease, 80% died within 24 hours. The causes of cerebrovascular complications are: 66% with hypertension, 7% with heart valve diseases, and the remaining 27% with unknown causes [57-59]. These data suggest that the main cause of stroke is hypertension.

### **3.2.7. Diabetes**

In 2004, the endocrinology hospital conducted an epidemiological survey nationwide on diabetes, which indicated that the standardized prevalence of diabetes in Vietnam is 2.7%. Cities have the highest standardized prevalence, at 4.4%, while the rate is 2.7% in the delta and 2.1% in the mountainous area [60]. Prevalence increased with age, eg, a survey in Yen Bai reported that prevalence was 0.72% and 0.60% in males and females respectively in the 30-34 age group, 2.37% and 4.0% respectively in the 45-49 age group, and 12.09% and 10.10% in the 60-64 age group. (Figure 3.6) [61]. A screening survey found that 65% of cases detected had not previously been diagnosed [60]. This suggests that many people in the community suffered from diabetes, but were unaware of it. Diabetes patients are at risk for complications such as blindness, renal insufficiency, and foot complications. Information on the trend of diabetes morbidity is unavailable, but risk factors such as obesity and old age are increasing, which indicates that the disease will tend to increase in the future. The national program on diabetes, supported financially by the World Diabetes Foundation, has implemented pilot research on improving the quality of treatment for diabetes in Vietnam through training doctors, nurses at district and commune levels, and health education about diabetes prevention, control, and management.

**Figure 3.6. Prevalence of diabetes by age group, 2004**



Source: Mui VT. Chuc NQ, 2004 [61]; Binh TV, 2004 [60]

### 3.2.8. Cancer

Vietnam reports about 75 000 new cases of cancer per year (Table 3.10). The case fatality rate is high, and cancer accounts for around 12% of total deaths annually in Vietnam. As shown in the table, the incidence of cancer increased between 1990 and 2002.

**Table 3.10. Number of cancer cases, incidence, prevalence, and mortality, 1990 and 2002**

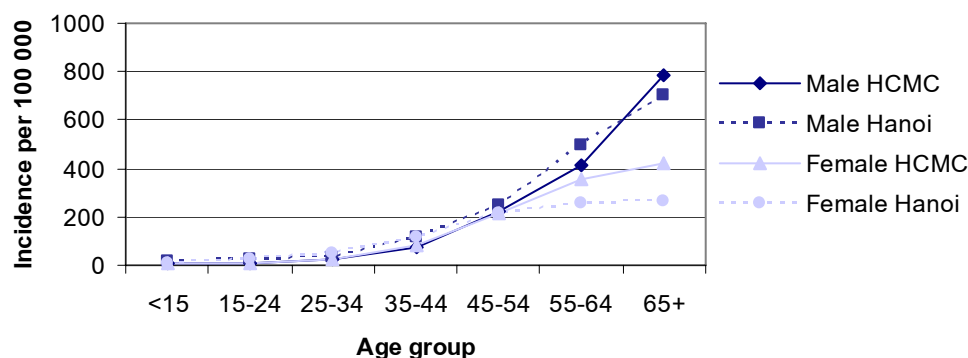
	1990				2002			
	Male		Female		Male		Female	
	No. of cases	Prevalence rate	No. of cases	Prevalence rate	No. of cases	Prevalence rate	No. of cases	Prevalence rate
Incidence	28 140	133	24 581	92	41 665	144	33 485	104
5-year prevalence	-	-	-	-	59 885	-	78 811	-
Mortality	-	-	-	-	33 318	116	21 324	67

(Prevalence rates are per 100 000 population, standardized to the world population structure)

Source: Globocan 2002 [62]

Figure 3.7 shows that the incidence rate of cancer increased with age, reflecting a cumulative risk over the years, eg, smoking, contact with chemicals in agriculture, or toxins in food.

**Figure 3.7. Annual incidence rate of cancer in Hanoi and HCMC by age group and sex, 1997-1998**



Source: Hanoi- IARC-Cancer Incidence in 5 continents, Vol. VIII [63]; HCMC- Quoc NM, Hung NC, Parkin DM [64]



Incidence, prevalence, and mortality rates for the 5 most important cancers in males and females are presented in Tables 3.11 and 3.12. The tables show that liver, lung, and stomach cancers are the most common cancers in males, while cervical, breast, and stomach cancers are the most common in females.

**Table 3.11. Cancer in men, national data, 2002**

Male Cancer	Incidence			Mortality			Prevalence		Code
	No. of cases	Crude rate	Standardized rate	No. of cases	Crude rate	Standardized rate	1 year	5 year	ICD-10
Lung	8089	20.3	29.6	7480	18.8	27.4	2635	6285	C33-C34
Liver	6933	17.4	23.7	6515	16.3	22.3	1582	3444	C22
Stomach	6104	15.3	21.8	5190	13.0	18.6	2870	7910	C16
Colon, rectum	3428	8.6	11.8	2220	5.6	7.6	2431	8454	C18-C21
Throat, mouth	2113	5.3	6.9	1343	3.4	4.5	1557	5241	C11

Notes: Number of cases, crude incidence rates, and standardized rates per 100 000. Standardization is according to world population structure.

Source: GLOBOCAN 2002, IARC [62].

**Table 3.12. Cancer in women, national data, 2002**

Cancer	Incidence			Mortality			Prevalence		Code
	No. of cases	Crude rate	Standardized rate	No. of cases	Crude rate	Standardized rate	1 year	5 year	ICD-10
Cervix	6224	15.5	20.3	3334	8.3	11.2	5031	19 262	C53
Breast	5268	13.1	16.2	2284	5.7	7.1	4755	19 049	C50
Stomach	3159	7.9	10.0	2661	6.6	8.4	1512	4 295	C16
Colon, rectum	2601	6.5	8.3	1664	4.1	5.2	1840	6 390	C18-C21
Lung	2219	5.5	7.3	2043	5.1	6.7	731	1 775	C33-C34

Notes: Number of cases, crude incidence rates and standardized rates are per 100 000. Standardization is according to world population structure.

Source: GLOBOCAN 2002, IARC [62].

Cancer is a disease that is difficult to treat, but it is possible to reduce the risk factors for cancer. According to international experience, 98% of stomach cancer can be prevented [65]. An estimated 30% of cancer cases in Vietnam are related to smoking, and about 35% are related to chemicals in food [66, 67]

### 3.2.9. Kidney disease

In 2004, there were about 16 000 inpatient cases of renal insufficiency in Vietnam, but no statistical data concerning annual mortality. In the United States, renal insufficiency is closely related to diabetes and blood hypertension. These disorders are increasing in Vietnam due to lifestyle changes and the rising prevalence of obesity. Renal insufficiency requires expensive treatment, eg, kidney dialysis or kidney transplant combined with pharmacotherapy to prevent rejection of the transplanted kidney. The need to treat these diseases will increase in the future.

### 3.2.10. Bone and joint diseases

The elderly are often affected by bone and joint diseases. However, these diseases can also be found in younger groups due to accidents and professions requiring heavy physical labor. Both risk groups are expected to increase in the near future in Vietnam.

Chronic arthritic diseases are a major cause of lost labor capacity and an economic burden for the family and society. Rheumatoid arthritis is the most common form. The prevalence of rheumatoid arthritis in the community among males (0.12%) was found to be lower than that in females (0.56%) (Table 3.13). The highest prevalence was found in people aged 45 to 65 years. The ethnic minorities Ede (1.01%) and Muong (1.06%) have higher morbidity than that of Kinh (0.3%) [68].

Spinal ankylosis is a common form of chronic arthritis in Vietnam, ranking second after rheumatoid arthritis. This disease is frequent in males, with a prevalence of 90% to 95% of total cases in males and females combined. The prevalence of spinal ankylosis in the community was found to be 0.07% (Table 3.13).

**Table 3.13. Prevalence of selected bone and joint diseases, 2004**

Sex	Number of people examined	Prevalence	Prevalence rate (%)
Rheumatoid arthritis, age 16+			
Male	24 161	29	0.12
Female	23 000	128	0.56
Total	47 161	157	0.33
Spinal ankylosis, age 16+			
Male	24 161	18	0.07
Female	23 000	0	0.00
Total	47 161	18	0.04

Source: Manual of internal medicine [40]; Linh HD. Some epidemiological and clinical characteristics of rheumatoid arthritis and spinal ankylosis in areas of the Central Highlands [68]

Lumbago or lower back pain is also a widespread syndrome that occurs in all age groups, and there is no discrimination between social classes or professions. Lumbago is a main cause of absence from work and reduced productivity.

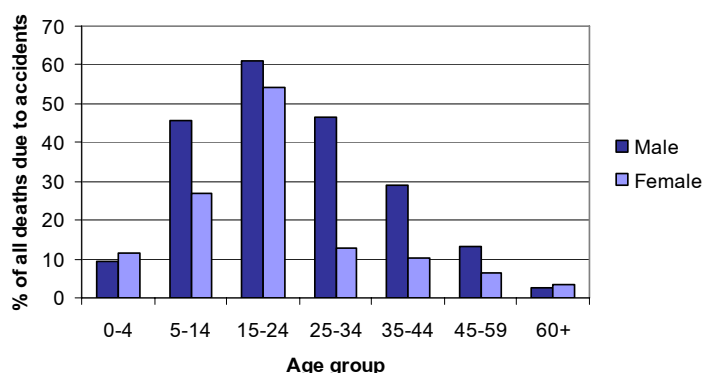
### **3.2.11. Accidents, injury, and poisoning**

#### **Accidents and injury**

Accidents are a major cause of mortality in Vietnam. According to VNHS 2001-2002, accidents are the fourth leading cause of death. By extrapolating from the sample it can be estimated that about 50 000 deaths annually are due to accidents, accounting for 11% of total mortality. According to data from the Vietnam Administration of Preventive Medicine, in 2001 the general injury rate was 5449.7 per 100 000 inhabitants, and the mortality rate due to injury was 88.4 per 100 000 inhabitants, 3 times higher than deaths from infectious disease.

The characteristics of people who die from accidents are a cause for concern. Age and sex are factors with the strongest association to accidents. Figure 3.8 indicates that except for the under-5 and over-60 age groups, the mortality of males is greater than that of females, as much as 2.3 times greater. The age groups at highest risk of mortality by accidents are adolescents and youth (aged 15-24 years), accounting for about 50% of total deaths from accidents.

**Figure 3.8. Proportion of deaths due to accidents by age and sex, 2002**



Source: VNHS 2001-2002 [3]

Accidents are also an important cause of disability. According to findings of VNHS 2001-2002, accidents are ranked as the fourth of six causes for disability, ie, congenital, disease, old age, war consequences, accidents, and others. VNHS 2001-2002 estimates that currently there are about 276 000 people living with permanent disabilities due to accidents.

### Poisoning

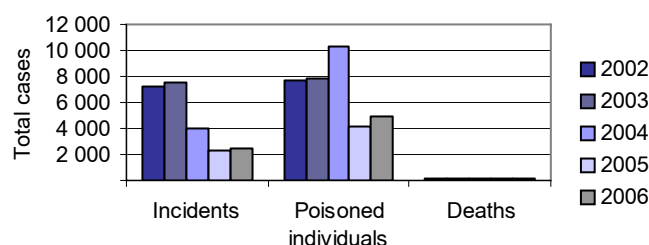
Pesticide poisoning has become an emerging health problem in recent years. According to statistics reported by 40 provinces/cities, in 2006, there were 2504 incidents of pesticide poisoning with 4943 poisoned individuals. The number of deaths due to pesticide poisoning was 154, hence the case fatality rate is 3% of total poisoned individuals. The real figure on mortality could be higher due to unreported cases occurring in remote areas that lack a reporting and information system (Table 3.14)

**Table 3.14. Pesticide and herbicide poisoning, 2002-2006**

Contents	Accidents and poisoning due to plant protection pesticides and herbicides				
	2002	2003	2004	2005	2006
Number of poisoning incidents	7 170	7 552	4 009	2 241	2 504
Number of poisoned individuals	7 647	7 902	10 355	4 223	4 943
Number of deaths	227	214	154	134	155

Source: Report by Vietnam Administration of Preventive Health [69, 70]

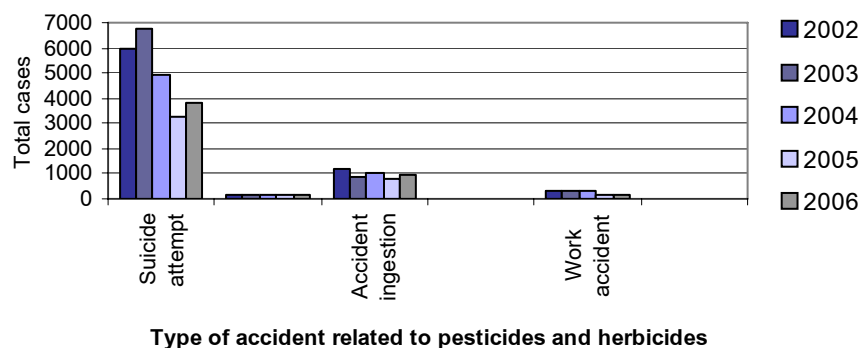
**Figure 3.9. Evolution of pesticide poisoning situation, 2002-2006**



Source: Report by Vietnam Administration of Preventive Health [69, 70]

Figure 3.10 indicates that attempted suicide is the main reason behind morbidity and mortality from pesticides. The number of poisoning cases in work, eg, spraying pesticides, was 163, equivalent to 3.2% of total pesticide poisoning cases in 2006.

**Figure 3.10. Classification of causes and consequences of pesticide poisoning, 2002-2006**



Source: Report by Vietnam Administration of Preventive Health [69, 70]

Food poisoning is relative common. Data from the National Program on hygiene and safety of food (Table 3.15) showed approximately 150 to 250 incidents of reported food poisoning annually (2001-2004), involving between 3500 and 6500 patients and causing 37 to 71 deaths.

**Table 3.15. Food poisoning, 2001-2004**

Years	Incidents	Individual cases	Deaths	Mass food poisoning incidents
2001	245	3 901	63	30
2002	218	4 984	71	41
2003	238	6 428	37	42
2004	145	3 584	41	27
<b>Total</b>	<b>846</b>	<b>18 897</b>	<b>212</b>	<b>140</b>

Source: Report on implementation of national target programs [15]

Causes of food poisonings are presented in Table 3.16. From 2001 to 2004, the most common pathogenic agents were microorganisms such as botulism, *E. Coli*, *salmonella*, followed by poisonous food such as mushrooms and puffer (fish). by Chemical poisoning encompasses 25% of total reported food poisoning cases.

**Table 3.16. Causes of food poisoning, 2001-2004**

	2001	2002	2003	2004
Microorganisms	38.4	42.2	49.2	55.8
Chemicals	16.7	25.2	19.3	13.2
Poisonous foods	31.8	25.2	21.4	22.8
Unknown causes	13.1	7.4	10.1	8.2
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: Report from Vietnam Administration of Preventive Health [69]

### 3.2.12. Disability

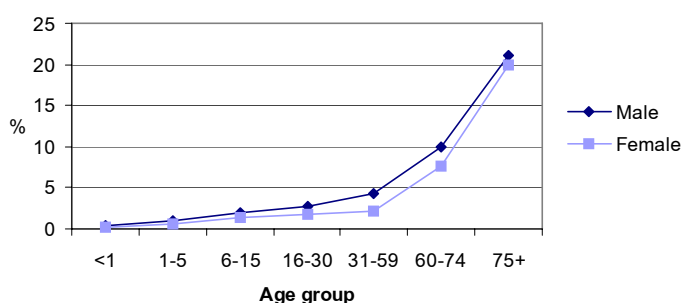
A national survey focused on disability has not been conducted in Vietnam. Hence, statistical data on national prevalence of disabilities are unavailable, and existing estimates vary widely. In 1994-1995, the Ministry of Labor, Invalids and Social Affairs (MOLISA) conducted a survey [71] which estimated that approximately 1.81% of the population had severe disabilities. The prevalence of disability in males was higher than that in females. The results of this survey indicated that one third of the severe cases were due to congenital malformations, one third due to diseases, and 20% due to war casualties. A survey of the

disabled in community rehabilitation programs, conducted by the Ministry of Health [72], estimated the prevalence of disabled persons in the population at 5.2%, whereof blindness affects about 11% and deafness affects 8% to 11%.

Another survey on child disabilities conducted by MOLISA and UNICEF in 1998 [73] estimated that 3.1% of children aged 0 to 17 years were disabled, ie, about 1 million children suffered from disability. Prevalence in rural areas and in males was higher than that in urban areas and in females. The most common disabilities involve mobility (22%) and speaking (21%) problems. About 6.3% of disabled children had been affected by wartime chemicals.

Information is unavailable on disabilities as defined according to uniform definitions and methods. One of the best sources of information on disabilities is VNHS 2001-2002 (Figure 3.11, Figure 3.12), which reported that the prevalence of disability in males is higher than that in females, and this prevalence increases rapidly after 60 years of age.

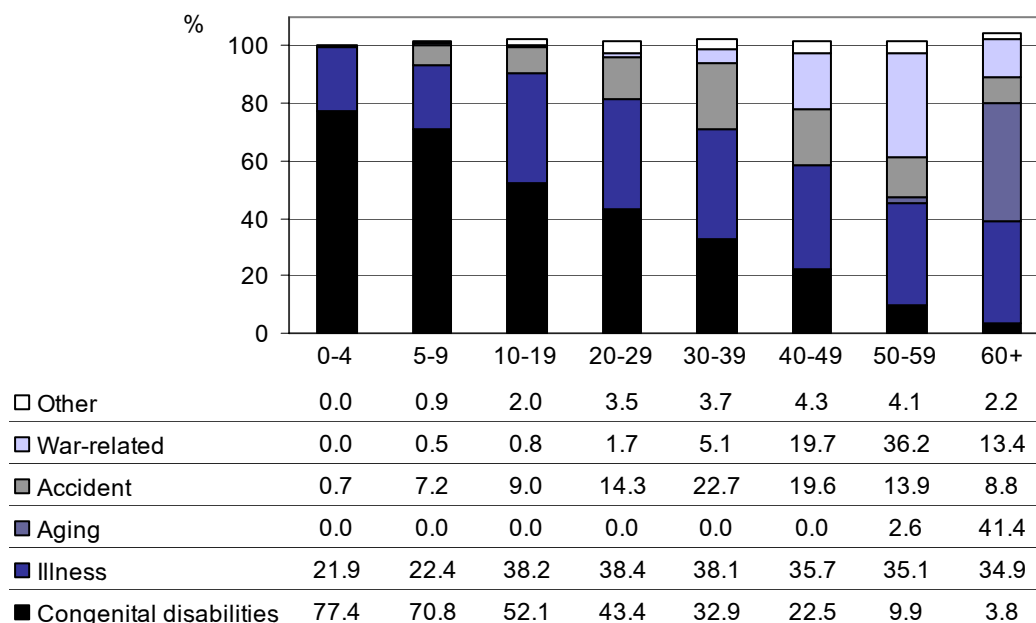
**Figure 3.11. Prevalence of disability by sex and age group, 2002**



Source: VNHS 2001-2002 [3]

The proportion of households with disabled individuals is 13% for all households, but 18% for low-income households (VNHS 2001-2002) [3]. Households having a disabled person bear a heavy burden since the disabled often need assistance for daily living and are unable to work.

**Figure 3.12. Causes of disability by age group, 2002**



Notes: The proportion may be over 100% in the case that an individual has more than one cause of disability

Source: VNHS 2001-2002 [3]

Figure 3.12 shows the distribution of disabilities across age groups in Vietnam. Among children under 5 years of age, 77.4% of disabilities are caused by congenital malformations and only 22% by diseases. In the 20-29 age group, 14% of cases are due to accidents, and in the 60+ age group 41% suffered disabilities due to aging. The number of disabilities due to old age is higher among females than males, but accident- and war-related disabilities are much higher among males.

While some types of disability are difficult to prevent, eg, those caused by aging, many others could be prevented, eg, disability from accidents or disease. Even congenital malformations could be prevented by prenatal interventions such as antirubella vaccination before pregnancy, use of folic acid supplements during pregnancy, and avoiding the use of drugs, alcohol, and pharmaceuticals and contact with pesticides during pregnancy. Several disabilities, eg, blindness from cataracts and cleft palate, could be cured through surgical interventions. Some problems faced by the disabled could be overcome by rehabilitation, by training in sign language and lip reading for deaf people, and by reading and writing skills for the blind. Hence, they could become more involved in working, learning, family life, and society.

The prevalence of disability in Vietnam is relative high, but awareness about preventing and managing disabilities remains low. Participation of disabled persons in social activities also remains limited, and a community-level rehabilitation program remains underdeveloped.

## Chapter 4

### HEALTH STATUS: CHALLENGES AND PROSPECTS

#### 4.1. Challenges in Meeting Health Goals

##### 4.1.1. Diverse and complex disease patterns

Besides the health problems covered in the Millennium Development Goals (MDGs), Vietnam faces many other health problems caused by environmental pollution, lifestyle changes, unsafe conditions in work and daily life, and an aging population. While endemic communicable diseases, eg, dengue fever, malaria, respiratory disease, and digestive tract diseases continue to persist, there is a potential for epidemics, and new diseases are emerging, eg, SARS, avian influenza A(H5N1), and especially HIV/AIDS. Noncommunicable diseases, including cardiovascular disease, cancer, and mental illness, are showing an upward trend. Premature mortality (before 60 years of age) remains high, particularly in males, because of accidents, smoking, alcohol, and illicit drugs.

##### 4.1.2. Disparities in health status

Although attention has been directed toward reducing inequity in health between regions, social strata, and ethnic groups, differences persist.

Table 4.1 shows that life expectancy at birth for both males and females in the Northwest and Central Highland regions is much lower than that in urban and lowland regions. The child malnutrition rate and infant mortality rate (IMR) are higher in rural and mountainous areas. Ethnic minorities, a large proportion of whom are poor, tend to have worse health status than that of the Kinh ethnic majority. According to the 1999 Population and Housing Census [1], life expectancy at birth of the Kinh was 73.5 years, compared to 63.0 years among the H'Mong, 69.7 years among the Khmer, and 60.4 years among the Gia Rai.

**Table 4.1. Life expectancy at birth, child malnutrition rate, and IMR by region**

	Life expectancy at birth (1989-1999)		Child malnutrition rate, 2004 (%)	IMR, 2004 (per 1000)
	Male (year)	Female (year)		
<b>Whole country</b>	<b>66.5</b>	<b>70.1</b>	<b>26.6</b>	<b>17.8</b>
Urban areas	73.1	76.3	21.2	9.7
Rural areas	65.2	68.9	30.8	20.4
Red River Delta	69.8	73.4	22.8	11.5
Northeast	65.2	68.9	29.8	23.9
Northwest	60.2	64.0	32.0	33.9
North Central Coast	66.4	70.1	31.7	24.9
South Central Coast	65.3	69.0	27.7	18.2
Central Highlands	58.6	62.3	35.8	28.8
Southwest	71.0	74.4	19.9	10.6
Mekong River Delta	66.9	70.5	25.1	14.4

Source: Life expectancy at birth 1999 [1] – Child malnutrition 2004 [74], IMR 2004 [75]

The differences in life expectancy at birth and IMR can also be seen clearly across different levels of educational attainment. The life expectancy at birth of children whose

mothers had no schooling is 65.8 years, compared to 75 years for children whose mothers attained secondary education. The IMR of children whose mothers had no schooling was 45 per thousand compared with 17 per thousand among children born to mothers with postsecondary education.

Living standards also influence health status. According to results of the Vietnam National Health Survey (VNHS) 2001-2002 [19], 50% of total deaths among the poor occurred in people aged less than 60 years of age, compared to only 35% among those with average incomes, and 29% among the high-income group. In the low-income group, 16.5% of deaths occurred in children under 6 years of age compared to only 3.6% in the high-income group (Table 4.2).

**Table 4.2. Age structure of deaths during 3 years before the VNHS by living standards, 2002**

Unit: %

Living standards	Age structure of deaths over a 3-year reference period				
	<6 years	6-19 years	20-50 years	60 and over	Total
Poor	16.5	7.0	26.1	50.4	100.0
Middle	6.4	4.5	24.0	65.1	100.0
Rich	3.6	2.8	22.8	70.8	100.0
Total	7.3	4.3	24.0	64.4	100.0

Notes: 2481 reported deaths in the survey

Source: VNHS 2001-2002 [19]

Health policy and strategy should prioritize resolving health problems among groups at high risk of morbidity and mortality, primarily people living in rural or mountainous areas, ethnic minorities, children, adolescents, mothers, and the poor.

#### **4.1.3. Need for greater investment**

In the past few years, the health status of the population has improved. However as health status in the population improves toward the high level being achieved by Vietnam, it will become necessary to invest more to maintain the pace of improvement of the past. This is evident when examining the pace of reduction in the prevalence of malaria, which slowed in the 2000-2004 period compared to the 1990-2000 period, or the prevalence of child malnutrition, which is declining more slowly in provinces that have already achieved low levels. Moreover, the increasing prevalence of noncommunicable, chronic, and degenerative diseases will also require more expensive interventions.

Hence, continuing to improve the population's health at the same pace as in the past will require greater efforts and investments in health while exploiting protective factors and effectively preventing risk factors.

## **4.2. Prospects in Coming Years**

### **4.2.1. Comparing with national targets for 2005 and 2010**

By 2005, Vietnam had basically attained the national health status targets laid out in the 5-year plan of 2001-2005 (Table 1.1). Rapid socioeconomic development means there is a high likelihood of achieving the more ambitious targets set for 2010. However, further efforts are needed to overcome problems such as reducing maternal mortality and malnutrition in children under 5 years of age.

### **4.2.2. Comparing With MDGs of the United Nations**

In 2000, the Millennium Declaration of the United Nations acknowledged the commitment of nation-members to eradicate poverty and establish a world favorable to human development. The MDGs are a manifestation of this commitment in terms of quantitative targets, many of which concern health.



Table 4.3 summarizes Vietnam’s progress toward achieving the MDGs related to health by the year 2015. This table presents data starting from 1990 (or as close as possible to 1990), results from year 2000 when the Millennium Declaration was published, and the data for 2005. The final column describes the 2015 targets, which have been quantified in relation to Vietnam’s baseline in 1990.

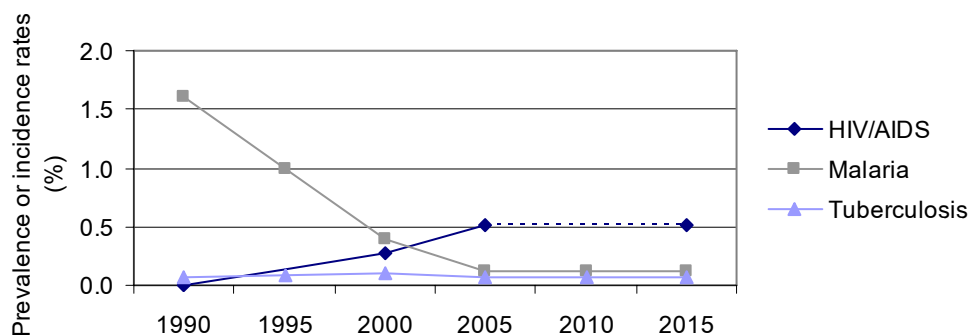
With a rapid decline in malnutrition, Vietnam is not far from achieving the target of reducing child malnutrition by half compared to 1990. The prevalence and incidence of malaria have declined substantially and continue to decline (Figure 4.1). However, Vietnam needs to put greater effort into achieving the MDGs related to under-5 mortality and maternal mortality, stopping the further spread of HIV/AIDS, and stopping and reversing trends in the incidence of tuberculosis.

**Table 4.3. Vietnam’s progress toward achieving MDGs**

	1990	2000	2005	Objectives by 2015
Child malnutrition rate (% of children aged 0-5 who are underweight)	45% (1990)	33.8%	25.2%	22.5% (reduce by half from 1990 level)
Under-5 mortality rate (per 1000)	58.1 (1990)	42	27.5	19/1000 (reduce by two thirds from 1990 level)
Maternal mortality rate (per 100 000 live births)	200-249 (1990)	95	80	50-62 (reduce by three fourths from 1990 level)
Prevalence of HIV (% adults aged 15-49)	0.004 (1991)	0.273	0.51	Stop and reverse spread of HIV/AIDS
Prevalence of malaria (%)	1.65 (1991)	0.38	0.15 (2004)	Stop and reverse prevalence of malaria
Incidence rate of tuberculosis (%)	0.086 (1992)	0.11	0.11 (2004)	Stop and reverse incidence of tuberculosis

Source: Child malnutrition rate [74], U5MR 1990 [76], 2000 and 2005 [4], Maternal mortality rate 1990 [77] 2000 and 2004 [4], Prevalence of HIV [27], Prevalence of malaria 1991 [77], 2000 & 2004 [4]. Incidence rate of tuberculosis 1992, 2000, 2004 [4].

**Figure 4.1. Trends and MDGs related to HIV/AIDS, malaria, and tuberculosis, 1990-2015**



Notes: HIV/AIDS and malaria calculated by prevalence; tuberculosis by incidence rate

Figure 4.1 illustrates the general trends in prevalence or incidence of HIV/AIDS, malaria, and tuberculosis that can be used to assess progress toward achieving the MDGs. Clearly, progress has been made in stopping and reversing the prevalence of malaria. The incidence rate of tuberculosis is stagnant, but the prevalence of HIV/AIDS has shown a rapid increase in the 2000-2004 period compared to the 1990-2000 period. The broken line indicates the trend needed to stop the progression of HIV/AIDS. To reverse the prevalence trends, the lines toward 2015 should indicate a decline from the levels in 2005.

# PART B. DETERMINANTS OF HEALTH

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Health is determined by many factors besides genetics. This section provides an overview of many socioeconomic and natural environment factors affecting health including economic, demographic, and educational factors. It also describes safety in the community, occupational and traffic safety, natural disasters, domestic violence, and food safety. Moreover, this part discusses lifestyle factors with negative effects on health (eg, smoking, alcohol abuse, drugs, and unsafe sex) and those with positive effects (eg, diet and physical activity).

## Chapter 5

### ECONOMIC DETERMINANTS

#### 5.1. Economic Development

General objectives of the 10-year socioeconomic strategy for the period 2001-2010 presented in the Resolution of the 10<sup>th</sup> Communist Party Congress are: to accelerate development in Vietnam; to substantially enhance the physical, cultural, and spiritual lives of the people; and to form the foundation for Vietnam to become an industrialized and modernized nation.

Among specific objectives of the strategy of particular interest are:

- Increase GDP at least two-fold by 2010 compared to 2000, eradicate hunger, and reduce the number of low-income households.
- Reduce child malnutrition to less than 20%.
- Improve living standards of the people in terms of nutrition, housing, clothing, travel, health services, education, jobs, information, and cultural activities.
- Vietnam's perspective on development: Development should be rapid, efficient, and sustainable; and social progress, equality, and environmental protection should parallel economic growth [78].

The Central Executive Committee at the 10<sup>th</sup> Communist Party Congress (18/4/2006) reported that the following economic progress had been achieved from 2001 to 2005: annual economic growth averaged 7.15% (Table 5.1), broad-based development was evident, many social problems were on the way toward being resolved, eg, eradicating hunger and reducing poverty, and the people's standard of living had improved.

**Table 5.1. Annual real GDP growth, 2001-2005**

Unit: %

Year	Real growth rate of GDP
2001	6.90
2002	7.08
2003	7.34
2004	7.80
2005	8.43
Average	7.51

Source: GSO – Statistical Yearbook (various years) [79]

In 2005, the GDP reached 838 000 billion Vietnam dong (VND) in current prices; on average 10 million VND per capita per year, ie, equivalent to 640 U.S. dollars (USD) [80].

The World Bank reported that in 2004 the GDP per capita in Vietnam was 562 USD, higher than the mean among the lower income group of nations (530 USD per capita).

Compared to a GDP per capita of about 400 USD in 2000 [79], the GDP per capita of 640 USD in 2005 represents an increase of 60%. By 2010, Vietnam is expected to have a GDP that would be 2.1 times higher in current prices, ie, equivalent to between 1050 and 1100 USD per capita [81].

Health indicators are generally found to be more favorable in countries with a higher GDP per capita. However, as presented in Chapter 1, the health indicators in Vietnam have improved faster than GDP growth in recent decades, particularly in the last 5-year period (2001-2005).

## **5.2. Poverty Situation**

In the context of comprehensive development, the strategy to eradicate hunger and reduce poverty plays an important role in promoting health.

During the last 5-year period, Vietnam promoted activities to eradicate hunger and reduce poverty. By the end of 2005, the number of households living in poverty (based on the Vietnamese poverty line for the 2001-2005 period) had decreased to 1.4 million households, a decline in the poverty headcount index from 17.5% to 7% (exceeding the target for 2005 of 10%), representing an average rise from poverty of about 330 000 households per year. In 2005, the government raised the poverty line to approach the international standard (1 purchasing power parity dollar (PPP\$) per capita per day, ie, equivalent to 200 000 VND per capita per month in rural areas and 260 000 VND per capita per month in urban areas). In 2005, a survey of 64 provinces found that by applying the new poverty line the poverty rate nationwide increased to about 26%, ie, about 4.6 million households. The target is to reduce the rate to 15% by 2010 [82].

Although the prevalence of poor households has decreased rapidly, the poverty reductions achieved are unsustainable due to the high prevalence of near-poor households at high risk of falling back into poverty if faced with severe illness or natural disaster.

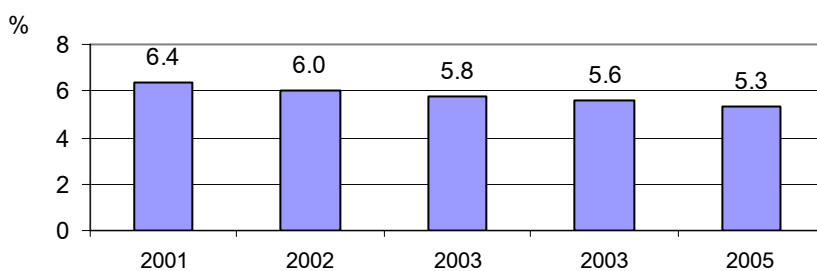
To sustain trends in hunger eradication and poverty reduction, the government developed a comprehensive strategy covering health services, education, jobs, financial support for production, and prevention of social vices (addiction to drugs, alcohol, and gambling). This strategy aims to create favorable conditions for people, particularly the poor and near-poor, to access opportunities to improve their lives. The government has issued a policy to support health care of the poor, eg, by developing community health programs, networks of health services, and demand-side subsidies for curative care (Decision No 139 by the Prime Minister).

## **5.3. Labor and Employment**

In the process of economic reform, labor and employment have a major influence on health. Large-scale migration of the population from rural to urban areas and from one region to the other in the past few years has created a risk that disease will spread quickly and widely, especially as living conditions in the destination area often lack basic infrastructure, eg, clean water and sanitation. Casual labor groups, especially adolescents and youth, face greater risks to health. Casual laborers may also face greater difficulties in obtaining health care, their nutritional status is generally not secure, and they are usually in a weaker position to find a safe working environment. [83].

From 2001 to 2005, the economy created jobs for about 7.5 million workers. In 2005, around 43 million people (about 52% of the population) had employment. The unemployment rate among people of working age declined gradually between 2001 and 2005 (Figure 5.1).

**Figure 5.1. Unemployment rate, 2001-2005**



Source: GSO- Statistical Yearbook (various years) [79]

In rural areas, the proportion of working time used by people of working age has increased, from 74.16% in 2000 to 80.65% in 2005 [80].

The government predicts that jobs for 8 million more workers will be created between 2006 and 2010, reducing unemployment to 5%. By 2010, farming is estimated to account for only 50% of total employment [81].

#### **5.4. Living Standards and Income Disparities**

According to the Vietnam Household Living Standards Survey (VHLSS) [84], the average monthly income per capita for the country as a whole is 484 400 VND (current prices), representing an increase of 36% compared to income in 2001-2002. The average increase from 2002 to 2004 was 16.6% per year, higher than that during 1999-2001 (which was 6% per year in current prices). Adjusted for inflation, real income during 2002-2004 rose by 11%, compared to only 5.8% in 1999-2001.

Household income increased in both urban and rural areas. The average monthly income per capita in urban areas was 815 400 VND, an increase of 31.1%, and in rural areas it was 378 000 VND, an increase of 37.4% compared to 2001-2002. In rural areas, where 72.3% of population resides, incomes have increased faster than in urban areas.

Nevertheless, monthly income per capita in urban households remains higher than in rural households, but this gap is narrowing (Table 5.2).

**Table 5.2. Urban-rural income gaps, 1999~2004**

Year	Ratio of average income per capita per month between urban and rural areas
1999	2.30
2001-02	2.26
2003-04	2.15

Source: VHLSS [84]

Monthly income per capita in the poorest households increased by 37.1%, yet this represented only 12% of the increase among the richest quintile. Table 5.3 presents trends that indicate a growing disparity between rich and poor households.

**Table 5.3. Trends in income disparities, 1996~2004**

Year	Ratio of household income between the richest and poorest quintiles	Ratio of household income between the richest and poorest deciles
1996	..	10.6
1999	7.6	12.0
2001-2002	8.1	12.5
2003-2004	8.4	14.4

Source: VHLSS [84]

In 2003-2004, the average monthly income per capita in all regions increased substantially compared to 2001-2002, with an increase of 38% in the Red River Delta, 41% in the Northeast, 34.9% in the Northwest, and 59.8% in the Central Highlands. However, income per capita differs substantially among regions, eg, income in the Southeast was 3.1 times higher than that in the Northwest where income is the lowest. (Income in the Southeast had been 2.5 times higher in 2001-2002).

Because per capita income has continued to grow at a rapid pace since 2001-2002, the living standards of all strata of the population in all regions have steadily improved, positively affecting the health of the population.

As regards household expenditures, the poor tend to spend most of their income to meet food needs. This situation is changing, and a greater share of expenditures are for non-food items, eg, clothing, housing, travel, home furnishings, health care, education, cultural activities, tourism. A decrease in the proportion spent on food indicates an increase in income, and vice versa. Since Vietnam is still a poor country, the food share of the total household expenditure is relatively high, but clearly decreasing (Table 5.4).

**Table 5.4. Share of household expenditures spent on food, 1993~2004**

Unit: %

Years	Food share of total household expenditure		
	Overall	Poorest Quintile	Richest quintile
1993	60.3	73.3	53.6
1994	53.0	70.7	43.6
2001-2002	57.0	70.1	49.6
2003-2004	53.5	66.6	46.9

Source: VHLSS [84-87]

Progress in economic growth, hunger eradication, and poverty reduction has been achieved in the past 5 years. The poverty rate has declined rapidly, and the living standard of the population has improved considerably. But, according to the report by the Central Executive Committee to the 10<sup>th</sup> Communist Party Congress, there are still difficulties and constraints in economic development: “Economic growth does not match the available potential. The resources and potential of the country are not fully utilized. Economic development has not been accompanied by environment protection, and this has led to heavy pollution. Results of hunger eradication and poverty reduction are not sustainable, and differences in income and living standards between social strata and between regions are widening. The needs for employment has not been satisfied”.

Although the achievements and gaps in the economy have impacted greatly on the people's health, the predominant impact has been positive, and the people's health has improved, as described in Chapter 1. However, differences in health status persist between regions and social classes, which requires a comprehensive socioeconomic strategy, including health services in poor regions and policies to support health care for the poor.

## Chapter 6

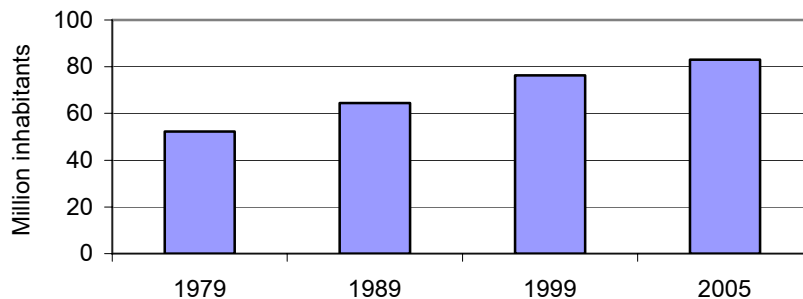
### DEMOGRAPHIC DETERMINANTS

Demographic factors affect many aspects of individual, family, and community health. The effects can be direct (eg, giving birth many times creates a higher risk for mother and child in pregnancy and delivery), or indirect (eg, large family size leads to economic difficulties and an unfavorable living environment resulting in malnutrition, infectious diseases, or physical and mental disorders). The same applies to a community, or a nation. For a low-income country, rapid population growth creates a socioeconomic burden – society faces problems in developing, and the life and health of its people cannot be improved as expected. The Vietnamese demographic situation has improved remarkably in terms of size, structure, and quality of the population.

#### 6.1. Population Size and Distribution

Survey results indicate that Vietnam's population continues to increase (Figure 6.1). The 1999 Population and Housing Census (1/4/1999) reported Vietnam's population at 76.3 million people, an increase of 11.9 million since 1989[88]. By 1/4/2005, the country had a population of 82.9 million. In 1999, Vietnam was the thirteenth most populous country in the world. It is estimated that in 2006, Vietnam's population reached 85.3 million, an increase of 9 million people compared to 1999, overtaking Germany to become the 12<sup>th</sup> most populous country in the world [89]. Hence, every 10 years, Vietnam's population increases on average 11 to 13 million people, an increase equivalent to the population of some average-sized countries (115 countries and territories in the world have populations below 12 million people) [89].

**Figure 6.1. Population of Vietnam, 1979~2005**



Source: 1979, 1989, 1999 – Population Census [20] ; 2005 – GSO Statistical Yearbook [80].

Although the population increases by more than 1 million inhabitants per year, the rate of natural increase of Vietnam's population has declined remarkably. Over the 10-year period from 1979 to 1989 the population of Vietnam increased 22.1%, while from 1989 to 1999 the rate of increase had declined to 18.6% [20]. According to 2005 data, average family size is 4.3 people, smaller by 0.3 people compared to 1999 (4.6 people), and families of 4 or fewer members are common (59.1%) [9].

The continuous growth in population size has created strong pressures on the health sector in its efforts to care for the population's health. In fact, from 2000 to 2005, the number of beds (including hospital and planned inpatient beds at CHS) per 10 000 inhabitants

declined (from 24.7 beds in 2000 to 23.7 beds in 2005 [79]. At the same time, people are faced with severe environmental pollution, many dangerous communicable diseases, and steadily decreasing living space as population density increases (Table 6.1).

**Table 6.1. Population density of Vietnam by region, 1989-1999**

Unit: Persons/ km<sup>2</sup>

Regions	Population density		
	1989	1999	2005
<b>Whole country</b>	<b>195</b>	<b>231</b>	<b>252</b>
Red River Delta	1030	1180	1218
Northeast	139	162	147
Northwest	50	62	69
North Central Coast	170	196	206
South Central Coast	167	195	213
Central Highlands	41	67	87
Southeast	219	285	387
Mekong River Delta	364	408	435

Source: Population Census 1989, 1999 [20]; GSO Statistical Yearbook 2005 [80]

Table 6.1 shows the uneven distribution of population among regions. Population density in the Red River Delta is 17 times higher than in the Northwest region, where it is lowest. A survey conducted in 2005 indicates that while the combined area of the Red River Delta and Mekong River Delta accounts for only 17% of total land area of Vietnam, it accounts for up to 42% of the national population [80]. Population distribution not in line with the natural and other resources available in each region will have major effects on socioeconomic development. A high population density in some regions, but a widely dispersed population in others, creates major challenges for healthcare policymaking and resource distribution.

Urbanization is one of the main reasons for the difference in population distribution. Migration to cities has led to unbalanced population growth between urban and rural areas. The growth rate of urban populations is 4.6 times the growth rate of rural populations. One in four inhabitants lives in an urban area – the urban population accounted for 26.9% of total population in 2005. Although the annual increase in Vietnam’s urban population has reached the average level of Asian countries (3.2% per year), the urban share of the population is still lower in Vietnam compared to countries of the region.

Aside from urbanization, migration is another factor that strongly influences population distribution and the urban-rural ratio. Industrialization has always been higher in the Southeast region, with its rapidly developing industrial zones. Hence, the Southeast has attracted the greatest immigration, where the net immigration rate has always been the highest in the country. The rate of the flow of workers migrating from other regions and provinces to cities and industrial zones has been increasing due to urbanization and the developing industrial zones. In 2004, about 420 000 people moved out of their provinces into cities and concentrated industrial zones, including HCMC (111 438 immigrants), Hanoi (43 565 immigrants), Binh Duong (24 696 immigrants) and Da Nang (6672 immigrants) [9].

The total population of Vietnam is predicted to increase slowly because of the decreased natural population growth, and population distribution is not expected to change greatly in comparison with the current situation. (Table 6.2) However, due to increasing migration, in many regions health planning based on the number of permanent residents may be incapable of satisfying the healthcare needs of the de facto population in the locality.

**Table 6.2. Population projections by region, 2004-2024 (Declining fertility variant)**

Unit: 1000 persons

	2004	2009	2014	2019	2024
<b>Whole country</b>	80 895.4	85 544.6	90 461.3	95 153.3	99 275.3
Red River Delta	17 389.9	17 958.9	18 562.7	19 116.6	19 536.6
Northeast	9 210.4	9 597.9	10 043.2	10 471.6	10 837.0
Northwest	2 420.6	2 623.9	2 845.3	3 050.8	3 225.1
North Central Coast	10 317.8	10 618.4	10 970.8	11 332.0	11 609.8
South Central Coast	6 830.8	7 103.5	7 385.7	7 668.5	7 921.4
Central Highlands	4 765.6	5 496.2	6 271.8	7 050.3	7 806.2
Southeast	13 001.7	14 319.5	15 674.7	17 026.7	18 345.1
Mekong Delta	16 958.6	17 826.3	18 707.1	19 436.8	19 994.1

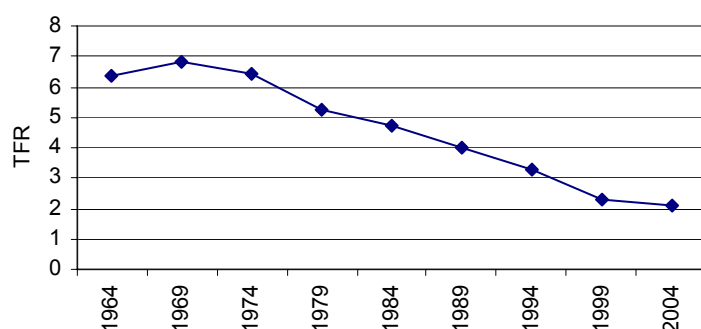
Source: Vietnam population projections, 1999-2024 [90]

## 6.2. Population Growth

### 6.2.1. Fertility

Fertility is measured by the total fertility rate (TFR), an indicator to estimate the average number of children a woman will give birth to in her lifetime. In Vietnam, the TFR in 1964 to 1969 was nearly 7 children per woman, but declined to 2.1 children by 2004, equivalent to replacement-level fertility (Figure 6.2).

**Figure 6.2. Total fertility rate, 1964-2004**



Notes: From 1965 to 1994, TFR is calculated based on the number of births in the previous 5-year period. In 1998 and 2003, TFR was based on the number of births in one year.

Source: 1964-1994 – Census monograph on marriage, fertility, and mortality [1]; 1999 and 2004. Survey of population change and family planning 1/4/2005 [9]

The total fertility rate differs between regions and ethnic groups. The Survey of Population Change and Family Planning (1/4/2005) indicated that TFR had declined to below the replacement level in the Red River Delta, Southeast, and Mekong River Delta regions. TFR is highest in the Central Highlands, at 3.07 children per woman. In urban areas, TFR is very low, only 1.73 children, while in rural areas it is 2.28. The differences in TFR among ethnic groups were obtained from the Population and Housing Census of 1999. The highest TFR was found among ethnic minority groups (H'mong 7.06; Gia Rai 5.32; Dao 3.62) while other ethnic groups had TFRs below 3.0.

### 6.2.2. Mortality

General mortality can be measured by the crude death rate (CDR), ie, the ratio of the number of deaths in one year compared with the average population of the same year. The

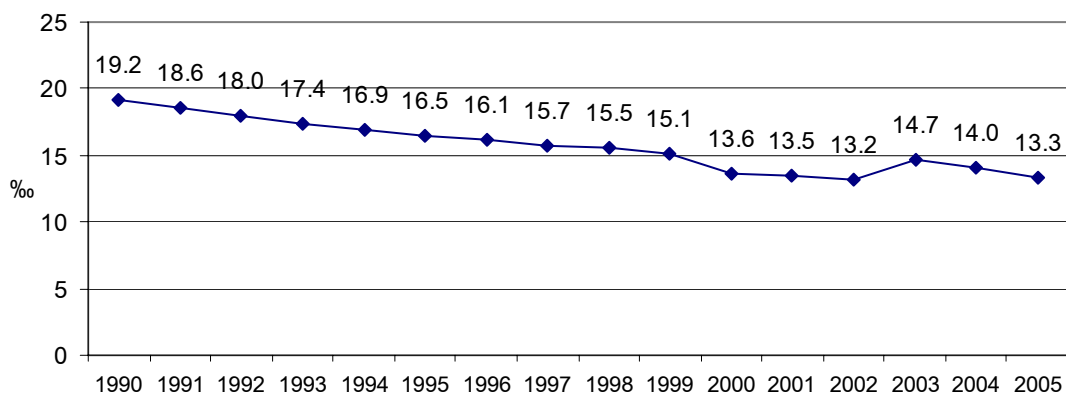


CDR was 5.7 per thousand (‰) in 1999, 5.4‰ in 2004, and 5.3‰ in 2005 [9]. However, CDR is not an appropriate indicator to measure mortality in a population because it is highly sensitive to the age structure of population. Infant mortality rate (IMR) is a better indicator to assess the mortality of a country. IMR in Vietnam declined sharply during recent years (see Part A, Chapter 1).

### 6.2.3. Natural increase in population

Despite a decline in fertility and mortality, Vietnam’s population continues to rise as the number of children born per year exceeds the number of deaths per year. In 2005, based on crude birth rate (CBR) and CDR, an estimated 1.5 million children were born, while there were only about 440 000 deaths [9]. Nevertheless, the rate of natural increase declined from 16.5‰ in 1995 to 13.2‰ in 2002, then increased slightly in 2003 and 2004 as mortality continued to decline and the number of women of reproductive age increased. Moreover, the years 2003 and 2004 were considered as auspicious years for giving birth. But, in 2005 the population growth rate decreased again to 12.2‰ as the authorities paid more attention to population and family planning policies (Figure 6.3). In 2005, the large 10-19-year-old cohort consisted of 18.4 million people. Members of this cohort will enter reproductive age over the next 10 years, leading to population growth even if the TFR remains at replacement level. Population growth is an important factor influencing the need for health services and one of the key factors considered when developing plans and policies for the health sector.

**Figure 6.3. Rate of natural increase of the population, 1990-2004**

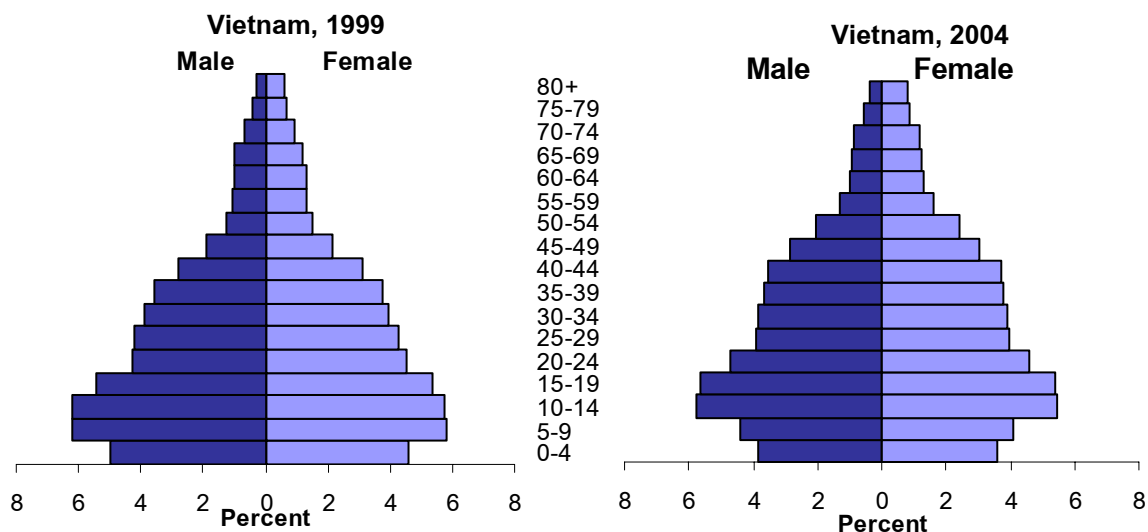


Source: GSO –Statistical Yearbooks 2002 and 2005 [79]

### 6.3. Population Structure

The population structure by age and sex in Vietnam (1979) reflects the traditional structure of a high fertility country. The 3 largest sections at the base of the population pyramid belong to the youngest groups, aged 0-14 years, which accounted for 43% of the population [91]. Twenty years later (1999) this proportion had declined to 32%, yet the population continues to have a young age structure. By 2005, this age group had declined to 26.4% of the total (Figure 6.4), showing that fertility has decreased continuously over the years. The continuously increasing proportion of elderly illustrates the trend towards an aging population.

**Figure 6.4. Population pyramids, 1999 and 2004**

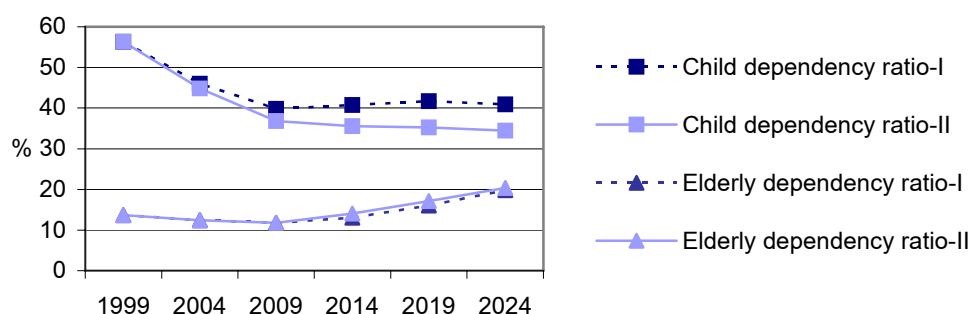


Source: 1999 Population and Housing Census [20]; Survey of Population Change and Family Planning 1/4/2005 [9].

**Short-term trend:** The rapid decline in fertility along with decreased mortality supports the trend toward a younger population structure in the next decade. Adolescents, youth, and people of working age will be in the majority. In addition, the burden of child dependence (number younger than 15 years per 100 people of working age) has decreased from 84 in 1979 to 40 in 2005. This age structure offers an ideal opportunity to invest in health before the disease burden of an aging population places pressure on the healthcare system, ie, around 20 years from now in Vietnam.

**Long-term trend:** The population projection for 2024, calculated by the General Statistics Office (GSO), is based on 2 variants, ie, declining fertility and stable fertility. The child dependency ratios indicated by the projections (Figure 6.5) would decrease to 35 or 40 children per 100 people of working age and will be stable at this level from 2009. At the same time, from 2009 the elderly dependency ratios would increase and reach 20 elderly per 100 people of working age by 2024. The very elderly (75 years and older) would increase from 25% of total elderly in 2000 to 30% in 2010. The high proportion of elderly in the population will raise the needs for social welfare and health services for the elderly.

**Figure 6.5. Trends in dependency ratios, 1999-2024**

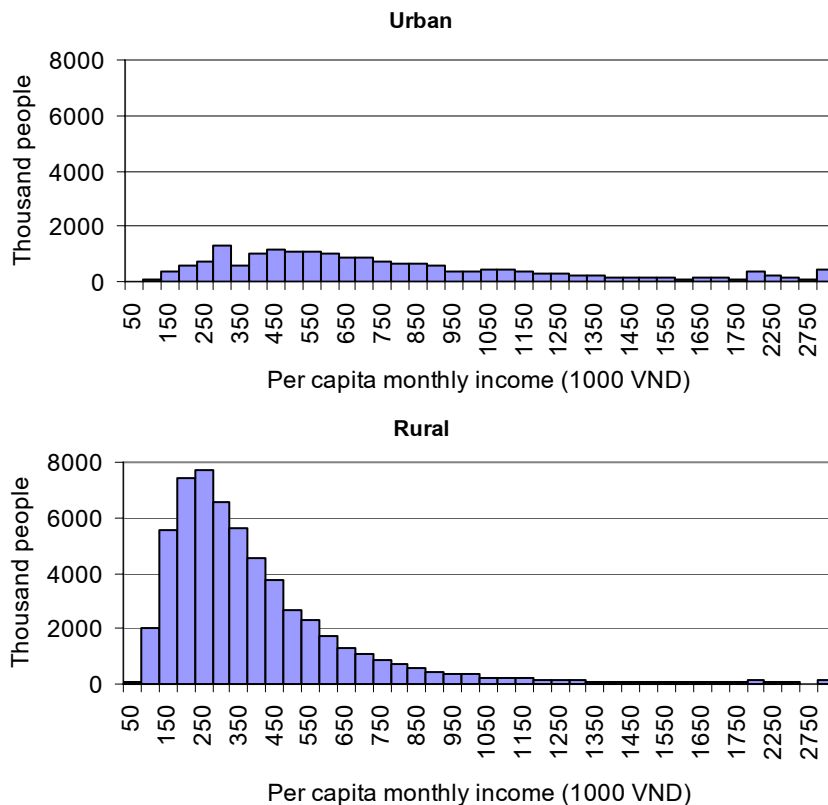


Notes: I is based on stable fertility variant; II is based on declining fertility variant

Sources: Results of population projection for the whole country, regions, and 61 provinces/ cities, Vietnam 1999-2024 - GSO - 2001 [90]

Population structure can also be considered in terms of living standards. Figure 6.6 shows the income distribution of the Vietnamese population. The higher columns on the left of the figure indicate that Vietnam has a low-income population. Of the population with an average monthly income per capita of 500 000 VND or less, 38% are urban and 80% are rural inhabitants. As living standards increase, the number of high-income people will also increase. Hence, the number of people demanding expensive, high-tech health services will increase. Currently, however, very few people are able to afford these expensive services.

**Figure 6.6. Income distribution of the population in Vietnam, 2004**



Source: VHLSS 2004 [92]

#### 6.4. Migration and Health

Migration not only affects the migrant population, but also affects the health of the destination community. The immunity of immigrants to diseases endemic to the destination area tends to be weaker than the immunity of people native to that region (eg, malaria, Japanese encephalitis, and typhoid), so they are more likely to become infected and die from these diseases. Immigrants may also be a disease vector bringing infection from their areas of origin and spreading it to their new communities. Because of harsh working conditions, lack of traditional community constraints on behavior, migration may also be the root of social problems such as illicit drugs, prostitution, and violence. In addition, immigrants usually have greater difficulties in accessing health services in the destination area, leading to delays in detecting disease and thereby increasing the chances of spreading disease.

Due to strong economic development, spontaneous migration was substantial during the 5-year period from 2001 to 2005. In a single year (from April 2004 to March 2005), 278 000

people nationwide migrated away from the locality where they lived, totaling 3.36 migrants per 1000 inhabitants. The Northwest and Southeast are regions with net in-migration. The remaining 6 regions are experiencing net out-migration. The North Central Coast and South Central Coast regions have the highest out-migration rates (2.38‰ and 2.77‰, respectively). The Central Highlands (0.18‰) and Red River Delta (0.59‰) have the lowest migration rates [9]. Immigrants into the Southeast come mainly from the Mekong and Red River Delta areas due to a lack of jobs in their provinces of origin, while the Southeast has a strong demand for workers.

Many people migrate from the countryside – out of 1.1 million migrants, about 60% come from rural areas. The number of female migrants is 1.5 times higher than the number of male migrants. Rural to rural migration is highest (38.3%), followed by urban to urban (27.1%), rural to urban (22.7%), and urban to rural (11.9%). Driven by job seeking and schooling, migration is highest in the group aged 20 to 29 years (46.6%) [9].

Health problems generated by migration should be studied in Vietnam to provide a baseline in working toward more effective health education, disease prevention, and treatment.

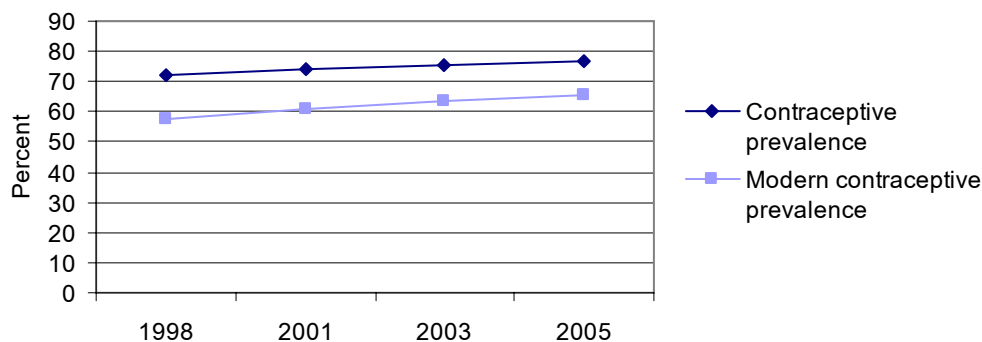
## 6.5. Population and Family Planning Policies

### 6.5.1. Family planning

Policies on population and family planning have been actively implemented as part of Vietnam’s development strategy. The main objective of the population policy is to reduce population growth by encouraging the use of contraceptive measures. The Ordinance on Population (2003) reflects a new orientation toward improving the quality of the population while maintaining the low fertility level achieved in previous periods and giving people more choice in their fertility decisions.

Figure 6.7 reflects a major achievement in terms of reducing fertility to the replacement level in the short term (by 2004). Also, the percentage of women giving birth to a third child is stable at about 21% of total births in the last 4 years.

**Figure 6.7. Contraceptive prevalence rates of married women aged 15 to 49 years, 1998-2005**



Source: Survey of Population Change and Family Planning 1/4/2005 [9]

The contraceptive prevalence rate increased gradually from 72% in 1998 to 76.9% in 2005. According to data from the Survey of Population Change and Family Planning (1/4/2005) [9], women continue to bear the responsibility for family planning through use of the IUD, accounting for 55% of all couples using contraception. The proportion using contraceptive pills or injections increased slightly, from 10.7% to 13.6%, in the 2001-2005 period. Sterilization accounts for only 6.6% of all couples using contraception, and mainly refers to female

sterilization. Condoms are used by 9.7% of married couples using contraception, while 14% of couples use traditional methods, eg, periodic abstinence or withdrawal. Government health facilities or family planning volunteers are the main sources for obtaining contraceptive methods, accounting for 80% of all couples and 86% of couples in rural areas.

The widespread use of menstrual regulation and artificial abortion is a sign of non-use or ineffective use of contraceptive methods. Among currently married women aged 15 through 49 years, 1.0% had an abortion during the 12 months prior to the 2005 survey. This proportion had decreased from 1.4% in 1997 [9], but is still high. About 14.6 million women aged 15-49 years were married at the time, among whom there were 146 000 cases of abortion over 12 months. Hence, the survey found 1 abortion per 9.2 pregnancies among currently married women. Data were not available on the number and prevalence rate of abortion among unmarried women, especially among youth.

### **6.5.2. Current population policy issues**

The 1999 Population and Housing Census reported a population of 76.3 million inhabitants in Vietnam. The TFR is 2.3 children, and the rate of natural increase has declined markedly, from 2.1% in the period 1979-1989 to 1.7% in 1989-1999. These achievements earned Vietnam the International Population Prize, awarded by the United Nations in 1999. The rate of natural increase was stable from 2000 to 2005, although a slight increase between 2002 and 2004 raised concern about increased fertility due to greater freedom in fertility choices after the Ordinance on Population was issued in 2003. Between 2004-2005, the trend of population increase returned to its downward tendency, but Vietnam was unable to achieve its lower population growth rate target of 1.22% in 2005.

The principal cause for the situation described above is that cohorts from the periods of explosive population growth are entering their reproductive years. Given the greater number of people of reproductive age, it is difficult to prevent an increase in births. This situation will continue for the next 15 years since the current cohort of 10-24-year-olds is larger than the previous and later ones. Abrupt increases in the number of births in certain years are not unexpected given the customs and beliefs in Vietnam, where certain years are considered to be auspicious for giving birth, eg, the year of the goat (2003), and many families attempt to have babies in these years. Analysis of demographic data in 2004 and 2005 indicated that TFR continues its steady decline and that births in 2003 were mainly a first- or second-born child, not a third-born.

The population policy for the near future addresses not only controlling population size, but also implementing activities to improve quality of population and create a basis for rational population distribution. In the near future, Vietnam should implement the Ordinance and Decrees on Population, which include: promote family planning and raise the age of marriage and age at first childbirth; improve quality of education, information, and communication regarding how to change fertility behavior in a voluntary and sustainable way; increase the quality of population and family planning services; strengthen public administration to gradually and effectively manage population change; consolidate and enhance the quality of the organizational system and staffing of population services at different levels; complement policies to ensure the stability and quality of staff in population services, particularly at the commune level; promote social mobilization in population activities, gradually creating stable and sustainable development where targets on population quality gradually replace those on population size and growth.

## Chapter 7

### EDUCATIONAL STATUS

#### 7.1. Relationship Between Educational Level and Health

In the past 5 years, in parallel with economic development and implementing a rational population policy, Vietnam has made advancements in education. Education is one of the important determinants of health, a necessary condition to improve knowledge and skills for self-protection and raise the health of individuals and the community.

Generally, communities report better health status and greater longevity when the level of education is higher. This is evident from examining various health indicators, eg, under-5 mortality rate, infant mortality rate, maternal mortality rate, perinatal mortality rate, malnutrition, and average life expectancy at birth. Education provides a foundation for economic development of individuals, families, and the community, and a base for science and technology development.

#### 7.2. Literacy Rates

Literacy rates in Vietnam are high and have been increasing in recent years. Table 7.1 presents the literacy rates of the population aged 10 years and older, as reported in the Vietnam Household Living Standards Surveys (VHLSS) [123].

**Table 7.1. Literacy rates of the population aged 10 years and older, 1992~2004**

Unit: %

Surveys and dates	Total	Male	Female
VLSS 1992 – 1993	86.6	93.6	82.4
VLSS 1997 – 1998	89.5	93.6	85.6
VHLSS 2002	92.1	95.1	89.3
VHLSS 2004	93.0	95.9	90.2

Source: VHLSS [84-87]

However, the literacy rates of people aged 10 years and older differ between urban and rural areas, and between regions, social strata, and sexes. Table 7.2 shows that literacy rates are: 96.3% in urban areas, 91.9% in rural areas, 95.9% in males, and 90.2% in females. The Red River Delta has the highest rate at 96.2%. The lowest rates are found in the Northwest region (80.0%) and the Central Highlands (87.7%). These two regions also have the highest prevalence of low-income people. In low-income households (poor and near poor living standard quintiles), the literacy rates of people aged 10 years and older are below the average for the country. The literacy rate in the highest quintile (97.6%) is much higher than the rate in the lowest quintile (84.7%).

**Table 7.2. Literacy rates of the population aged 10 years and older by gender, urban-rural residence, living standards quintiles, region, and age group, 2001-2004**

	2001- 2002			2003 - 2004		
	Total	Sex		Total	Sex	
		Male	Female		Male	Female
<b>Whole country</b>	92.1	95.1	89.3	93.0	95.9	90.2
<b>Urban-rural</b>						
Urban	96.0	97.7	94.3	96.3	98.1	94.7
Rural	90.9	94.3	87.7	91.9	95.2	88.7
<b>Living standard quintile</b>						
Poor	83.9	89.0	79.6	84.7	89.7	80.2
Near poor	90.3	94.0	86.9	91.4	94.9	88.1
Average	93.2	95.9	90.6	94.3	96.9	91.8
Better off	95.2	97.1	93.3	96.0	98.0	94.1
Rich	97.0	98.3	95.7	97.6	98.9	96.4
<b>Region</b>						
Red River Delta	95.8	98.3	93.4	96.2	98.6	93.9
Northeast	90.8	94.2	87.4	93.1	96.2	90.1
Northwest	79.9	88.8	71.3	80.0	89.0	71.3
North Central Coast	94.2	97.1	91.5	94.1	97.1	91.3
South Central Coast	93.1	96.1	90.4	93.4	96.5	90.4
Central Highlands	86.0	90.4	81.6	87.7	91.4	84.0
Southeast	94.0	96.0	92.1	94.5	96.4	92.8
Mekong Delta	89.2	92.0	86.5	90.6	93.6	87.8
<b>Age groups</b>						
10-14	97.4	97.6	97.2	97.9	98.1	97.8
15-19	96.5	96.6	96.5	97.4	97.7	97.0
20-24	94.3	94.9	93.7	95.9	96.3	95.4
25-29	93.7	94.6	92.9	94.2	94.8	93.5
30-34	93.8	94.5	93.1	93.5	94.0	93.0
35-39	94.8	95.8	93.9	94.8	96.0	94.0
40-44	94.7	96.3	93.3	95.1	96.4	94.0
45-49	93.8	96.1	91.8	95.0	97.1	93.2
50-54	92.0	95.8	88.7	93.4	96.0	91.0
55-59	88.7	94.3	84.0	91.7	95.9	88.0
60-64	84.5	94.2	76.9	86.7	95.1	80.1
65+	65.6	85.2	51.5	69.0	88.4	55.9

Source: VHLSS 2002 and 2004 [84, 87]

Adult literacy rate is defined as the percentage of people aged 15 years and older that can write and read a brief text describing his or her daily life. In 1990, literacy rates were 94% for males and 87% for females [6]. The target by 2010 is 98% [93].

Youth literacy rate refers to people aged 15 to 24 years. In 1990, the rate was 94% for both males and females, and is equivalent to that in Thailand and the Philippines.

In 2003, the Survey Assessment of Vietnamese Youth (SAVY) report, based on a sample of 7584 people aged 14 to 25 years from 42 provinces in Vietnam [94], showed that 96.2% of respondents had attended school at some time (rates were 98.6% in urban areas and 95.4% in rural areas).

### 7.3. Average Years of Schooling and Educational Equity

Table 7.3 shows that the average number of years of schooling is 8.6 years for males and 8.7 for females, and the proportions of males and females are similar at each level of educational attainment. At the highest level, however, the proportion of females is slightly higher. Hence, there is no evidence of differential educational attainment between male and female youth.

**Table 7.3. Educational attainment by gender and age group of youth, 2003**

Unit: %

Educational levels		Total	Gender		Age groups		
			Male	Female	14 -17	18 -21	22 -25
Average number of schooling years		8.7	8.6	8.7	8.0	9.4	8.7
Educational levels completed	Illiterate	3.0	0.2	0.31	0.2	0.2	0.4
	Incomplete primary	8.4	8.4	8.43	5.8	8.2	13.4
	Primary	34.4	35.3	33.43	47.0	22.1	29.1
	Lower secondary	32.5	32.9	32.08	44.5	29.2	15.7
	Upper secondary	10.9	11.0	10.80	0.2	23.2	12.6
	Post secondary	9.7	9.3	10.15	0.0	12.9	25.6
	Unspecified	3.9	2.9	4.77	2.2	4.3	6.2
Total		100.0	100.0	100.0	100.0	100.0	100.0

Source: SAVY 2003 [94]

Table 7.3 also shows a higher rate of schooling among the younger generation than among their predecessors, and the older the age group the greater the extent of illiteracy and incomplete primary education.

UNESCO defines the expected years of schooling as an estimate of the total years of schooling that a typical child at the age of school entry will receive, including years spent on repetition, given the current patterns of enrollment across cycles of education. In Vietnam, this indicator was 11 for males and 10 for females in 2002, equivalent to the levels in low- or low-middle-income countries (India 10.8, Indonesia 11.11, Thailand 13.12, England 11.13, United States 20.23, and Japan 15.14) [6]. However, there is a difference in educational level between ethnic groups and rich versus poor regions. On average, individuals of the Kinh or Hoa ethnicity attend school for 9.17 years, while members of other ethnic groups attend 6.56 years (about 7<sup>th</sup> grade), and 58% of Kinh Hoa people have basic secondary education, while the rate among other ethnic groups is 40%. Regarding general secondary education, 12.09% of Kinh Hoa achieve this level, but the rate is only 3.17% among other ethnic groups [95].

Hence, a distinct difference exists in educational attainment between the ethnic majority Kinh and ethnic minorities. This problem is related to differences in health status between various ethnic groups and regions as discussed in Part I. For example, in 2002, the adult literacy rate in the Red River Delta was 94.5%, and the infant mortality rate was 15 per thousand (‰), while in the northern mountainous region, adult literacy was 73% and the lowest IMR was 37‰ (Thai) and the highest was 56‰ (H'mong).



## 7.4. Enrollment and Health-Related School Dropout Rates

The SAVY results indicate that 96.2% of respondents aged 14 to 25 years answered that they had attended school, 98.6% in rural areas and 95.4% in urban areas. The survey results reported almost no difference in primary school enrollment between males and females. Only 3.8% of respondents had never attended school, mainly because their family was too poor and had no money to pay for schooling (44.1%), and 21.2% had to work to help their family. Only 4.4% of those never attending school reported poor health as the reason for not going to school.

About 30% of students drop out of school after finishing 5<sup>th</sup> grade, and cumulatively by the end of lower secondary school 75% of children have dropped out.

Findings of the VHLSS indicated that enrollment rates (Table 7.4) have increased remarkably at all educational levels, even in the poorest living standards quintile. However, a wide difference remains in enrollment rates between rich and poor quintiles at lower secondary and higher levels of education.

**Table 7.4. Enrollment rates, 1993~2002**

Unit: %

	Primary education			Lower secondary education			Upper secondary education		
	1993	1998	2002	1993	1998	2002	1993	1998	2002
<b>Whole country</b>	86.7	91.4	90.1	30.1	61.7	72.1	7.2	28.6	41.8
<b>Living standard quintiles</b>									
Poor	72.0	81.9	84.5	12.0	33.6	53.8	1.1	4.5	17.1
Near poor	87.0	93.2	90.3	16.6	53.0	71.3	1.6	13.3	34.1
Average	90.8	94.6	91.9	28.8	65.5	77.6	2.6	20.7	42.6
Better off	93.5	96.0	93.7	38.4	71.8	78.8	7.7	36.4	53.0
Rich	95.9	96.4	95.3	55.0	91.0	85.8	20.9	64.3	67.2
<b>Ethnicity</b>									
Kinh and Hoa	90.6	93.3	92.1	33.6	66.2	75.9	7.9	31.9	45.2
Ethnic minorities	63.8	82.2	80.0	6.6	36.5	48.0	2.1	8.1	19.3
<b>Residence</b>									
Urban	96.6	95.5	94.1	48.5	80.3	80.8	17.3	54.5	59.2
Rural	84.8	90.6	89.2	26.3	57.9	69.9	4.7	22.6	37.7

Source: VLSS 1993, 1998, 2002 [85-87]

In brief, educational attainment and literacy in the period 2001-2005 increased substantially, and no difference was observed between genders regarding educational enrolments. This is a favorable factor in improving the people's health. However, disparities remain among various regions of the country and between low- and high-income strata in society. The inability to afford school fees and having to work to earn a living are the main reasons for dropping out of school. As regards ethnic minorities, the inability to speak the national language (Vietnamese) remains an obstacle in educational development and in health protection and care.

## Chapter 8

### CLEAN WATER AND ENVIRONMENTAL SANITATION

Clean water and environmental sanitation are important factors directly affecting health of the people. In the past few years, the work of ensuring clean water and a clean environment has seen some positive changes, and the share of the population using clean water has increased. Nevertheless, the quality of water does not yet meet the need. Water and living environment that are not ensured to be safe are the causes of many health problems.

#### 8.1. Clean Water Supply

##### 8.1.1. Water-related health problems

The World Health Organization has reported: “In the Western Pacific region, including Vietnam, there are about 580 000 deaths every year caused by lack of clean water and poor sanitation” [96]. According to the Vietnam Administration of Preventive Medicine, Ministry of Health, these factors also cause 50% of the communicable diseases in Vietnam with the highest mortality rates, eg, diarrhea, cholera, bacillary dysentery, and typhoid fever.

Many waterborne diseases such as cholera and typhoid fever still affect the people's health. Table 8.1 indicates that from 2001 to 2005, more than 5 million people were infected and 90 people died from 5 infectious diseases related to sanitary conditions, mainly diarrhea. These data are based only on the number of patients contracting digestive diseases reported by health facilities. Hence, the total number of patients could be higher than that presented in Table 8.1. In addition, other health problems such as parasitic diseases are related to pollution of drinking water by untreated sewage.

**Table 8.1. Situation regarding 5 waterborne infectious diseases, 2001-2005**

Unit: Number of cases

Year		2001	2002	2003	2004	2005	Total over 5 years
Cholera	cases	15	317	343	62	0	737
	deaths	0	0	0	0	0	0
Typhoid	cases	9 796	7 090	5 946	4 237	4 565	31 634
	deaths	3	3	2	1	1	10
Bacillary dysentery	cases	50 995	45 715	43 732	43 146	42 780	226 368
	deaths	7	4	6	1	0	18
Amoebic dysentery	cases	30 272	24 747	21 156	17 992	18 132	112 299
	deaths	0	0	1	0	0	1
Diarrhea	cases	1 093 864	1 062 440	972 463	894 800	898 753	4 922 320
	deaths	21	14	10	17	0	62
Total	cases	1 184 942	1 140 309	1 043 640	960 237	964 230	5 293 358
	deaths	31	21	19	19	1	91

Source: Health Statistics Yearbook [4]

Aside from infectious intestinal diseases directly related to drinking water and solid waste, many other health problems affect family and community, eg, high prevalence of intestinal parasites affecting an estimated 61% to 88% of the population [22, 23, 97] or tens of millions of people per year. The increasing prevalence of cancer in several localities around Vietnam might be related to chemical pollution in sources of drinking water.

### 8.1.2. Water supply

Because clean water plays such an important role in community health, the water supply is a priority and a strategic national objective. The Vietnam National Health Survey (VNHS) 2001-2002 assessed the water supply situation across regions and population groups (Table 8.2). Clean water as defined here includes only water sources having the potential to be clean. Hence, the proportion of people with access to clean water reported in this survey is higher than that reported by other information sources with more precise definitions of clean water. Variations in access to clean water among regions and between rural and urban areas have also been reported. On average, 81% of the population use a clean water source, but the percentage is lower in the Northwest, Mekong Delta, and Central Highlands.

**Table 8.2. Proportion of people using clean water, 2001-2002**

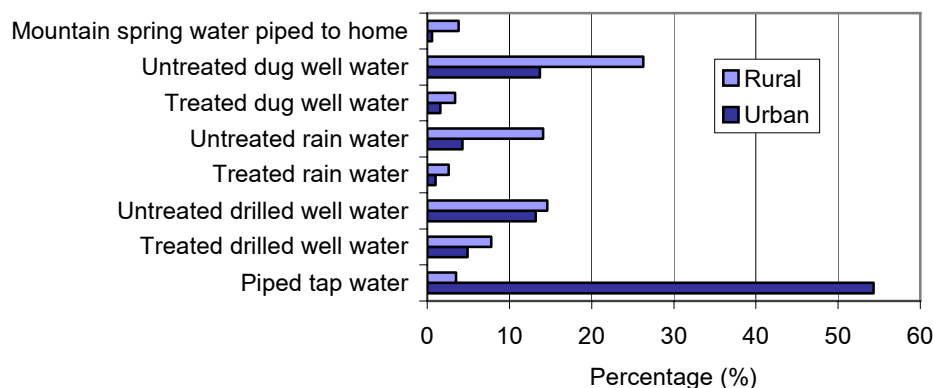
Unit: %

Region	Proportion of people using clean water		
	Urban	Rural	Total
<b>Whole country</b>	93.7	77.2	81.0
Red River Delta	98.7	95.5	96.1
Northeast	85.7	75.0	76.8
Northwest	93.9	48.2	53.6
North Central Coast	92.2	74.5	76.6
South Central Coast	92.0	80.7	83.9
Central Highlands	83.0	65.9	93.9
Southeast	98.3	89.8	93.9
Mekong Delta	88.2	57.6	62.7

Source: VNHS 2001-2002 [3]

Clean water, as defined in the VNHS, includes: piped tap water, drilled-well water, rainwater, mountain spring water piped to the home, and dug-well (if no pollution source is within 7 meters of the well). Figure 8.1 and Table 8.3 present the structure of water sources. In urban areas, the government has invested in water processing plants to provide clean water for the population, but they now serve only 54% of urban inhabitants. The proportion of urban households using well water is still high. Dug wells, rivers, springs, ponds, and lakes remain the main water sources in rural areas. However, these sources cannot be ensured clean, especially in the Mekong Delta where water for daily living is taken primarily from rivers and canals.

**Figure 8.1. Drinking water sources used in urban and rural areas**



Source: VNHS 2001-2002 [3].

**Table 8.3. Proportion of households using different water sources, 2001-2002**

Unit: %

Water sources	Tap water	Drilled well	Dug well	Rain water	River, spring, pond, lake	Piped mountain spring	Purchased water	Total
Urban area	53.8	17.5	19.0	5.91	2.2	0.7	0.9	100.0
Rural area	3.70	22.4	38.8	18.9	12.0	2.9	0.6	100.0

Source: VNHS 2001-2002 [3]

The national strategy for rural clean water supply and sanitation by 2020, prepared by the Ministry of Construction and Ministry of Agriculture and Rural Development, was approved by the Prime Minister in Decision No 104/2000/QĐ-TTg dated August 25<sup>th</sup>, 2000. The objective of the strategy is that 85% of rural inhabitants will have 60 liters of clean water per day by 2010, and by 2020 all rural inhabitants will have 60 liters of clean water (meeting national quality standards) per day. The program for clean water and environmental sanitation, implemented in the period 1999-2005, achieved the target of 60% of rural households having access to clean water. Although most regions achieved the target, the number of inhabitants without access to clean water remains high (Table 8.4).

About 40 million rural inhabitants had access to clean water by the end of 2005, or 23 million more than in 1998 (an average increase of 4.3% per year). Hence, 60% of rural inhabitants had access to clean water by the end of 2005. Part of this result can be attributed to the increase in household income, a favorable condition for investing in clean water to improve family life. In cities, the government has invested heavily in building water processing plants. Investment is also needed in rural areas, especially for low-income households and regions where geographic conditions make it difficult to access clean water.

**Table 8.4. Results of the clean water supply program for rural areas by region, 2005.**

Unit: %

Regions	Water supply coverage compared with targets			
	Number of inhabitants having access to clean water (1000)	Percent age (%)	Target	Number of inhabitants lacking access to clean water
<b>Whole Country</b>	<b>39 913</b>	<b>62</b>	<b>60</b>	<b>42 120</b>
Red River Delta	9 743	66	60	8 093
Northeast and Northwest	5 560	56	60	6 210
North Central Coast	5 708	61	60	4 797
South Central Coast	3 924	57	60	3 058
Central Highlands	1 594	52	60	3 080
Southeast	3 259	68	60	9 931
Mekong River Delta	10 126	66	60	6 950

Source: Ministry of Agriculture and Rural development [98].

It is estimated that by the end of 2005, the program on rural water supply and sanitation provided clean water to 70% of schools, kindergartens, and nursery schools, to 58% of commune health stations, and to 17% of markets [98].

In all regions, the coverage of clean water shows an upward trend in comparison to 5 years before, but coverage varies among programs and target groups.

In urban areas, traditional measures to ensure clean water supply and environmental sanitation are not appropriate. Therefore, the government pipes clean water from water processing plants to households. This water meets designated hygiene standards for use in households, and a network of sewers remove household wastewater, some of which is treated by industrial methods.

Although progress has been achieved in supplying water to communities, access to drinking water that meets hygienic criteria remains limited. In reality, the scope of access to clean water might be much lower than reported since clean water sources are defined as: tap water, drilled wells, rainwater, mountain spring water piped to household, and dug wells (if there is no polluted source within 7 meters of the well) [99]. Hence, water source classification is based only on observational methods, not laboratory testing.

Water from sources such as dug wells, drilled wells, and rainwater collection systems have not been treated, and since environmental pollution of ground, air, and surface water is increasing, the cleanness and safety of the water is not assured. Even some piped tap water in cities is not actually clean. In some regions and urban areas, including major cities like Hanoi and HCMC, tap water could be polluted. Another problem requiring attention concerns urban households that use water tanks. Tap water is held in the tank before running into a pipe system for family use. Water tanks often fail to prevent contamination for several reasons, eg, no cover, no monitoring and regular cleaning, or polluted water leaks into the tank. Therefore, even though some inhabitants have been provided tap water, it is not clean water.

Reports from the national program on clean water and environmental sanitation present the results of surveys conducted by the Ministry of Health and results of the Vietnam Household Living Standards Survey (VHLSS) by the General Statistics Office (GSO). However, it has not been possible to assess the extent to which the water quantity supplied meets public needs or convenience in accessing and using water. The coverage of clean water could be lower if satisfaction about water quantity and the convenience of access to clean water are considered. The people's access to clean water remains limited.

## 8.2. Hygienic toilets

A review by the national program on clean water and environmental sanitation (1999-2005) indicates there were about 6.4 million households with hygienic toilets by the end of 2005, an increase of 3.7 million households compared to when the program started [98]. Based on the total number of rural households (around 12.8 million), about 50% have access to hygienic toilets. However, variations in coverage are evident among the regions.

The target set for 2010 by the National Strategy for Rural Clean Water Supply and Environmental Sanitation is for 70% of rural households to have hygienic toilets and practice good personal hygiene (Table 8.5). Currently, the coverage of hygienic toilets is below the target.

**Table 8.5. Proportion of households having hygienic toilets by region, 2005**

Unit: %

Geographic regions	Proportion of households having hygienic toilets
<b>Whole country</b>	<b>50</b>
Red River Delta	65
Northeast and Northwest	38
North Central Coast	56
South Central Coast	50
Central Highlands	39
Southeast	62
Mekong Delta	35

Source: Ministry of Agriculture and Rural Development [98]

The report referenced above states that the objective of rural environmental sanitation aims only at increasing the number of households with hygienic toilets. But in reality, many households with hygienic toilets did not use them effectively, so the effectiveness and sustainability of the program are not as high as expected.

In households having a toilet, the quality of toilet is still a problem. The coverage of hygienic toilets (septic tank, semi septic tank, sulabh flush compost toilet) differs between the rich and poor (Table 8.6).

**Table 8.6. Proportion of households having hygienic toilets by living standard quintile and region, 2002**

Unit: %

Geographic regions	Percentage of households having hygienic toilet			
	Poorest 20%	Middle 20%	Richest 20%	Total
<b>Whole country</b>	<b>1.9</b>	<b>10.9</b>	<b>75.4</b>	<b>24.6</b>
Red River Delta	1.5	11.1	79.0	26.4
Northeast	0.4	2.9	56.3	10.2
Northwest	0.5	10.1	61.7	8.1
North Central Coast	3.0	8.4	65.6	13.4
South Central Coast	3.4	19.1	87.9	34.1
Central Highlands	1.4	22.7	82.4	19.0
Southeast	8.7	20.8	87.2	57.3
Mekong Delta	0.9	6.3	51.5	15.5

Source: VLSS 2002 [87]

The proportion of public toilets meeting hygienic standards has been surveyed in primary and secondary schools (Table 8.7), but not yet in other facilities, eg, markets, commune health stations, and commune people's committees. Hence, no information is available about these institutions.

**Table 8.7. Proportion of schools having hygienic toilets by region, 2003**

Region	Coverage of schools having hygienic toilets		
	Total number of schools	Total number of toilets	Hygienic toilet %
<b>Whole country</b>	<b>35 000</b>	<b>30 321</b>	<b>42</b>
Red River Delta	7 311	7 092	53
Northeast and Northwest	7 036	5 245	32
North Central Coast	6 265	5 179	46
South Central Coast	4 029	3 504	36
Central Highlands	2 129	1 853	41
Southeast	2 675	2 328	48
Mekong Delta	5 885	5 120	37

Source: Results of survey on rural clean water and environmental sanitation in Vietnam, 2003 [100]

The survey (Table 8.7) found that the proportion of schools having public hygienic toilets is low, ie, 42% of all schools nationwide, lower than the coverage of households (50%). This is a consequence of limitations in planning and implementation.

The assessment of hygienic toilets was based mainly on classification defined by the program. Septic tanks, double vault compost toilets, ventilated improved pit latrines, and sulabh flush compost toilets are considered hygienic types of toilet. This assessment did not consider the use and maintenance of toilets. If toilets are not maintained properly they could become nonhygienic, eg, septic tanks that lack water for flushing, or double vault systems where solid waste is composted incorrectly.

In 2005, the Ministry of Health promulgated Decision 08/2005/QĐ-BYT on standards for hygienic toilets. These criteria address the 4 types of hygienic toilets mentioned above, but criteria for using and maintaining them should also be met. Early in 2005, an assessment survey on toilets based on criteria defined in Decision 08 was conducted in 3 districts: Phu Ninh (Phu Tho province), Ba Be (Bac Kan province), and Duc Tho (Ha Tinh province). The survey found that only 7.58% of toilets met hygienic standards [101]. In the Mekong Delta, where floods often occur in the rainy season, some types of toilets cannot be used. Several research groups are studying a floating toilet to develop a model that would be appropriate to these ecological conditions.

Currently, Vietnam has no evaluation standards or clear allocation of responsibility to a particular government agency for supervision, evaluation, and regular classification of the quality of toilets and household hygiene. No institution has the responsibility for managing toilets in the community. Households must do this themselves, sometimes in collaboration with neighbors. From 2003 to 2005, in a pilot project focusing on the “culture and health village”<sup>2</sup> model, the Vietnam Administration of Preventive Medicine in collaboration with UNICEF suggested some criteria for evaluating the toilet situation in relation to culture and health villages. However, these criteria are not sufficiently detailed.

### 8.3. Treating Medical Waste

Hospital waste containing contagious material presents a risk to the environment and community health, but also to health workers. In addition, the hospital environment is a source of infection if sanitation is not well managed.

<sup>2</sup> This is government campaign to change behavior in communities by setting up standards of what it is to have good culture and health, and putting in place IEC programs to encourage households in the community to meet these standards, eg, food safety, using clean water, having a sanitary toilet, reduce smoking and drunkenness, wear helmet when riding a motorcycle, and practice family planning.

The current sanitary status of hospitals and health facilities is presented in a report by the Vietnam Administration of Preventive Medicine, Ministry of Health, on results from the survey on environmental sanitation in hospitals, 2004. This report is based on up-dated data from the Institute of Occupational Medicine and Environmental Sanitation, Pasteur Institute in Nha Trang, Institute of Hygiene and Public Health in HCMC, and the Central Highlands Hygiene and Epidemiology Institute.

Several factors are responsible for unhygienic environments in hospitals, eg, the high volume of people needing treatment, the overcrowding of hospitals, and lack of synchronization in the infrastructure. According to Decision No 64/2003/QĐ-TTg of the Prime Minister, a plan has been developed to address severely polluting facilities. Of 497 severely polluting facilities, 89 are hospitals in different localities around the country [102]. The list of pollution-causing hospitals includes central hospitals (20%), provincial regional hospitals (22%), sectoral hospitals (13%), and district hospitals (4%). These hospitals are considered to be priority facilities for investments to improve wastewater and solid waste treatment systems in the period 2003-2007.

To ensure a hygienic environment in and around hospitals, the proper management and technical treatment of hospital waste must be priorities for hospital and health facility managers. Hospital hygiene and environmental protection should be closely related to therapeutic activities to raise the effectiveness and safety of medical treatment in hospitals.

About 21 000 tons of solid hospital waste are discharged each year from the medical diagnosis, treatment, and care of patients in hospitals, sanatoriums, and other health facilities. The average volume of harmful solid hospital waste discharged by central and general provincial hospitals is about 0.3 to 0.4 kg per bed per day, which accounts for around 20% of total waste quantity per bed per day. This harmful waste must be thoroughly treated through a strict management process and proper treatment technology.

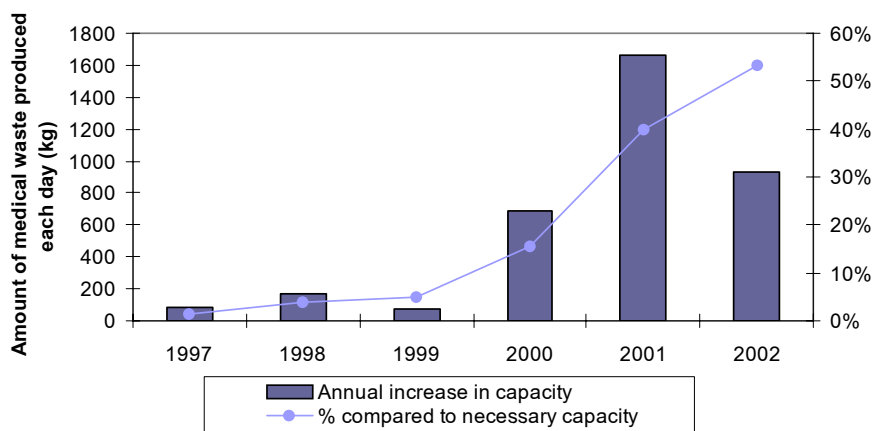
Hospital waste management and treatment improved appreciably between 1997 and 2004, particularly after the Ministry of Health promulgated the hospital regulations and regulations on medical waste management. In 2002, Vietnam had 43 modern medical waste incinerators in use, with a total capacity for destroying 28.8 tons of waste per day. This is equivalent to 50% of the requirement for treating hazardous medical solid wastes in Vietnam.

Investment in hospital waste treatment has focused mainly on general provincial hospitals. Although the provinces often have 3 to 5 provincial hospitals and many district hospitals, no mechanism for collaboration has been developed that would promote the shared use of incinerator capacity. A model has been applied in HCMC and Hanoi where an urban environment company like Urenco invests in incinerators and becomes a service provider for hazardous hospital waste treatment. This model indicates a trend toward specialization and is appropriate for large cities with many hospitals, but has not yet been expanded to other areas. The model of solid hospital waste treatment for a cluster of hospitals has been piloted and evaluated.

From 1998 to 2002, investing in hospital waste treatment was addressed and increased markedly, as illustrated in Figure 8.2. The government budget covered much of the investment in medical waste incinerators.



**Figure 8.2. Investment in medical waste incinerators, 1997-2002**



Source: Vietnam Environmental Monitor 2004- Solid waste – World Bank [103]

The capacity for hospital waste treatment has been strengthened, but remains operationally limited, both technologically and managerially. The total investment in incinerators would enable Vietnam to destroy 50% of total hazardous medical waste. However, a lack of funds to operate and maintain medical waste incinerators has led to underutilizing their capacity. Improper technical operation increases the chance that secondary pollution, eg, smoke and foul odors, will be discharged from incinerators. In several provinces with no incinerator, hazardous hospital waste is being treated the same as regular waste. Most of the domestic and foreign investments are limited to the purchase of equipment, which means that hospitals face the financial burden for fuel, electricity, materials for collecting waste, and salaries. Management and operation of hospital waste treatment should take an integrated, consistent, and realistic approach. Collection of hospital waste from private health facilities is also a difficult problem, because they need to pay for hospital waste treatment, which affects profits. Moreover, no regulations identify the waste that health facilities must treat through specialized hospital waste treatment.

#### **8.4. Water Pollution**

Water-pollution-related diseases are complicated by the industrialization process, and some diseases have heavily affected rural areas where people still depend on rivers and dugwells for drinking water. Pathogenic agents, especially microorganisms causing typhoid fever and dysentery, are still widespread due to untreated wastewater discharged from cities, hospitals, the countryside, households, livestock production, and fisheries. Chemicals, especially heavy metals in water are related to birth defects, cancer, and skin diseases. The prevalence of these diseases is increasing, especially in areas near factories, industrial zones, major cities, and in the Southeast region, mainly because of rapid industrialization that involves chemicals in agriculture and the development of traditional craft villages.

##### **Industrial waste**

Industrial production is increasingly becoming a major source of water pollution. About 70 industrial zones and 1000 hospitals discharge about one million cubic meters of wastewater per day into rivers. According to data from the Ministry of Natural Resources and Environment, 4000 enterprises are discharging polluted wastewater. Of these, 284 production enterprises, 15 pesticide stores, and 3 toxic chemical storage areas are on the list of severely

polluting facilities and will be moved, closed, or subject to mandatory wastewater treatment between 2003 and 2007, according to Decision No 64/QĐ-TTg, 2003 of the Prime Minister on approval of the “Plan to thoroughly deal with severely polluting facilities”. All rivers in cities are polluted by untreated industrial wastewater. Oil spills from accidents involving crude oil transport ships and oil leaking from other sources cause severe pollution. Pollution caused by industrial waste that affects the environment and public health must be detected in time. Several polluted regions have harmed people’s health and agitated public opinion, but have not received proper attention (Table 8.8). The Minister of Natural Resources and Environment stated that late detection of high cancer prevalence in the community is due in part to mistakes of local authorities, and lessons should be drawn from the experience.

### ***Pollution from traditional craft villages***

As the economy diversifies, the growth of traditional craft villages is considered to be one of the ways to promote rapid economic development. However, pollution by traditional craft villages is a complex problem that adversely affects the health of workers and the nearby population. At the beginning of 2006, Vietnam had about 1450 traditional craft villages[104], 67.3% of which are located in the Red River Delta.

A workshop on “Environment and gaps in production of traditional craft villages in Vietnam”, organized by the Institute of Environmental Science and Technology, Polytechnic University and Ministry of Science and Technology, reported that 100% of wastewater samples from traditional craft villages exceed the permitted levels of pollution, ie, the surface and ground water have been polluted. The volume of harmful solid waste affecting the environment discharged by a traditional craft village is about 2200 tons per year in the Northern regions of the country and about 220 tons per year in the Central regions [105]. Traditional craft villages that produce construction materials and products made of ceramics, porcelain, plastic, metal and process foods also pollute the air in the form of toxic waste, gas, smoke, dust, and foul odors from decaying organic substances in wastewater.

A survey of the situation in traditional craft villages in 3 northern provinces, conducted by the Ministry of Health, indicates that workers in these villages suffer from dust, heat, chemicals, high risk of accidents, and lack of protective equipment [120]. Pollution-related hazards to health in traditional craft villages depend on the nature of the product. For example, the prevalence of bronchial and pulmonary diseases due to coal combustion is fairly high in villages producing mechanical, ceramic, and porcelain products. In villages specializing in food processing, digestive diseases are widespread. Cancer and heavy metal poisoning are found in villages with a high use of chemicals for paper and fabric production, metal plating, and reprocessing of lead, aluminum, bronze, zinc, and plastic.

### Box 8.1. Cancer villages

In 2005, several localities reported high morbidity and mortality rates from cancer in some population clusters. This raised public concern. The government is trying to clarify the causes and identify measures to support the public in prevention and control.

Province	Village, commune	Types of cancer	Suspected pollution sources	Other possible causes of cancer	Number of cancer cases and deaths
Phu Tho	Thach Son commune		Super – Lam Thao phosphate factory		106 deaths from 1991, 30 current cancer victims
	Yen Tap commune	Cancer of liver, lung colon	Pesticide stores, polluted well water	Hepatitis B	
Ha Tay	Luong Dinh village, Bac Son commune	Breast cancer			80 women
	Thong Nhat village, Dong Lo commune	Cancer of lung, liver, stomach, throat	Drinking and irrigation water polluted by Nhue river ; arsenic in drinking water		22 deaths over 10 years
Nghe An	Co Do village, Dien Hai commune	Cancer of liver, stomach	Polluted drinking water	Hepatitis B	40 deaths over 10 years
	Hong Son village, Duc Than commune		Pesticide stores of agriculture cooperative polluted well water		28 current cancer victims, 19 deaths
Quang Ngai	An Tap hamlet, An Hoi Bac village, Nghia Ky commune	Cancer of liver	Drinking water polluted by DDT and 666	Hepatitis B	Dozens of patients; 15 deaths from liver cancer

Actual cancer-causing agents in hundreds of deaths in the areas mentioned above have not been identified. Many villages have severe pollution sources, eg, factories, pesticide stores, and polluted drinking water. Various agents are suspected of causing the cancer, including hepatitis B and harmful consumption of home-brewed alcohol.

The Ministry of Natural Resources and the Environment has conducted surveys and taken measures to eradicate severe pollution sources. The health sector should monitor public health in clusters with many cancer patients. Cooperation between the health and environmental sectors is needed to clarify pollution sources. Moreover, the health sector should find financial sources to support treatment of victims/patients.

Source: [104, 106-119]

More than 120 hectares of vegetable land in a village of Thanh Tri district, Hanoi, have been irrigated by To Lich river water (accounting for over 50% of urban wastewater volume, about 200 000 m<sup>3</sup>/day). The farmers have contact with various toxic organic and inorganic chemicals discharged from the city. The effects can be observed in the prevalence of contagious diseases, eg, typhoid fever, diarrhea, and viral hepatitis, in Thanh Tri district. [121]

### 8.5. Air Pollution

The World Health Organization estimates that urban air pollution worldwide leads to about 800 000 deaths and 4.6 million years of life lost annually. Epidemiological studies show

that various acute and chronic health problems occur because of long- or short-term exposure to substances in polluted air. Air pollution is most hazardous for the elderly and those with respiratory ailments and heart disease. The health sector monitors the health aspects of air and dust pollution, eg, the prevalence of respiratory diseases, sore throat, and allergy in urban inhabitants, and recommends environment-related health measures to policy makers.

Major sources of air pollution in Vietnam include industry, traffic, construction, traditional craft villages, forest fires, and households. Among severely polluting facilities, identified for action by the government 13% cause severe air pollution, primarily consisting of cement factories, refuse dumps, and traditional craft villages using coal and wood. In urban areas, traffic is the main cause of air pollution (70%).

Environmental air pollution caused by particulates in urban residential areas is currently a major problem, which severely affects daily life and health.

An important achievement in reducing harm from air pollution is the directive against the use of leaded gasoline in Vietnam starting from July 1, 2001 (Directive No 24/2000/CT-TTg of the Prime Minister) in accordance with the law on environment protection. Implementation of this decision has led to a substantial decrease in blood-lead concentrations among urban residents [122]. Advice from several sectors contributed to this decision.

## **8.6. Disposal of Solid Waste**

Solid waste and waste disposal methods can seriously affect the health of people living nearby. The urban population comprises only 24% of the population in Vietnam, but discharges about 50% of the solid waste. Urban solid waste is more dangerous and less biodegradable than is rural waste, and about 71% of waste is collected. In rural regions, only about 20% of solid waste is to be collected.

The main method of treating solid waste is the open refuse dump. The list of severely polluting facilities includes 52 refuse dumps that must be closed, moved, or upgraded to control pollution of waste and wastewater. Of the 91 refuse dumps nationwide, only 17 are considered to be hygienic dumps. Many localities use methods such as burning, burying, and discharging waste into rivers, canals, and fields. Open waste dumps cause many environmental problems for nearby communities, eg, water and soil pollution due to untreated waste leaking out and air pollution due to burning, which is an important reason for increases in the prevalence of skin, digestive, and respiratory diseases.

Several villages and communes have organized volunteer groups to collect domestic solid waste to be buried or moved far away from residences. Households pay a small sum for this service (in some villages rice is used as payment). This is a method of social mobilization, and although new, it appears to be effective and accepted by local inhabitants. Some communes have built waste water drainage systems to help reduce local waterlogging, minimize pollution of villages, and enhance the protection of water sources.

About 160 000 tons of hazardous solid wastes are discharged annually, of which 64% comes from industry, mainly in the Southeast region. Hazardous wastes are not treated safely. Many factories now use urban sanitation companies to collect industrial wastes, which are discharged into city waste dumps, stored in production sites, sold to recyclers, or illegally dumped [103].

Annually, about 8600 tons of hazardous agricultural waste are discharged, consisting of agricultural chemicals and used containers of agricultural chemicals. In addition, 27 000 tons of prohibited agricultural chemicals are waiting to be destroyed. The most common methods of

destroying chemicals involve incineration or chemicals. However, this is expensive and has not been done properly as evidenced by harmful environmental effects, eg, ash and smoke containing heavy metals, dioxin, and furan [103].

The health of people who collect recyclables, especially children (accounting for 9% of all trash scavengers), is at risk because of disease. Every day, these people work at waste dumps and are exposed to accidents, chemicals, infections, and injuries from sharp objects.

## **8.7. Environmental Protection Activities**

As affirmed by the above overview, the environment has a strong impact on the health of people in Vietnam. Supplying clean water and addressing water pollution should be prioritized since it is a basic human right to access and use clean water. This right is not currently assured. Severe pollution sites should be treated to reduce health risks to the community. Regulations are needed to limit and supervise pollution caused by production and consumption and to ensure compliance with regulations so the people have a safe environment. The responsibility to deal with the problems rests partly with the Ministry of Health, but the involvement of other sectors is necessary. The roles and responsibilities of the health sector and other sectors as regards environmental pollution and health are described below.

### **8.7.1. Ensuring clean water and environmental sanitation**

Most cities and towns provide services to provide a clean water supply, wastewater drainage, collection of domestic solid wastes, street sanitation, lake sanitation, etc. The Natural Resources and Environment sector has overall responsibility for water resource management. The Construction sector is responsible for building urban clean water supply and sewage systems. Clean water supply and solid waste treatment have been carried out by urban environment and water supply companies.

With the financial and technical support of various international organizations, nearly all cities and towns with concentrated populations have an urban water supply system, and the proportion of households with tap water is fairly high and increasing. However, little attention is given to wastewater treatment in urban areas, and according to the press only about 5% of wastewater is treated in Hanoi. Urban wastewater is discharged into canals and rivers. This canal and river water flows past many communities in rural areas, and rural households use this water for daily life and growing vegetables. Hence, the health of communities has been affected by wastewater, and vegetables and fruits produced in suburbs of Hanoi are affected by pollution.

The Ministry of Agriculture and Rural Development is responsible for the National Program on Rural Clean Water and Sanitation. It is chaired by the Center for Rural Clean Water and Sanitation. Many international organizations such as ADB, AusAID, DANIDA, DFID, JICA, UNICEF and the World Bank have supported Vietnam in implementing the rural clean water supply and sanitation program. In 2005, a strategy for rural clean water and sanitation (up to year 2020) was evaluated, and measures to overcome limitations and restraints in implementing this strategy have been developed.

Concerned institutions are aware that along with providing a clean water supply, it is important to promote effective environmental sanitation to substantially improve sanitation in communities. Household sanitation would be promoted and improved in rural and urban areas through improvements in, eg, toilets, bathrooms, domestic waste collection and treatment, and livestock handling. The health sector has the responsibility to promulgate criteria for clean water and sanitation, and to monitor and supervise how these criteria are implemented in practice. Table 8.9 presents legal documents on clean water and hygienic toilet standards issued in the past 5 years.

**Table 8.8. Current legal documents establishing clean water and hygienic toilet standards**

Date	Code of documents	Content	Scope of application
18/4/2002	1329/2002/QĐ-BYT	Clean water standard	Drinking water, water for food production and processing facilities, water supplied through pipes from water supply plants in urban areas or supplying 500 or more people.
11/3/2005	09/2005/QĐ-BYT	Clean water standard	Clean water supply for households, water supply station providing water to a group of less than 500 people.
11/03/2005	08/2005/QĐ-BYT	Hygienic toilet standard	Hygienic toilet standards: Requirements on design, materials, size, technical construction, durability, and others aspects of toilets following guidelines of the Ministry of Health.

The responsibility for monitoring and supervising the quality of drinking water also belongs to the health sector. However, at the local level, the provincial centers of preventive medicine find it difficult to do this in time and to analyze these criteria. Also, many provinces are unable to perform this duty, and the district health level does not yet have the capacity to monitor and supervise water quality through common indicators [123]. The indicators should be regularly monitored as described in the guidelines.

Concerning rural clean water and sanitation, a main activity of the health sector is to use information, education, and communication (IEC) to raise public awareness about hygiene and health. In addition, the health sector could suggest how to re-use human excreta as fertilizer and is responsible for monitoring the quality of water and sanitary facilities. The Ministry of Health needs to strengthen and use the basic health system in implementing rural sanitation objectives [124].

### **8.7.2. Dealing with sources of severe environmental pollution**

The government has assigned responsibility to the Ministry of Natural Resources and the Environment for environmental protection. Facilities identified as inducing serious environmental pollution should be considered as priorities for action, as stated in the Prime Minister's Decision No 64/2003/QĐ-TTg, dated April 22, 2003.

Two phases are planned: In the first phase (2003-2007), 439 facilities will be radically transformed. From 2003 to 2005, 51 major pollution-inducing facilities must be treated, and the remaining 388 could be reformed by upgrading to new technology, setting up waste treatment equipment, controlling pollution, upgrading or building pollution treatment systems at waste dumps, and treating pollution in hospitals that are on the list of severely polluting facilities.

In the second phase (2008-2012), based on the experiences drawn from phase one, 3856 major pollution-inducing facilities (old and new) will be radically transformed by comprehensive measures.

Ministries (including the Ministry of Health), sectors, and local authorities responsible for facilities which are causing severe pollution should cooperate with ministries such as the Ministry of Natural Resources and Environment, Ministry of Planning and Investment, and Ministry of Finance to assess and approve the pollution treatment project for institutions, mobilize capital, and direct the implementation of plans to ensure progress within the suggested timeframe. The facilities inducing serious environmental pollution, including hospitals, specified in the plan have the responsibility for developing, financing, organizing, and implementing the pollution treatment projects.

Regarding "cancer villages" detected in recent years, the health sector in collaboration with the Ministry of Natural Resources and the Environment and Ministry of Science and

Technology is conducting a study to clarify causes, carry out prevention and control, and identify accountability. The polluted areas have been screened, but regulations on the responsibility for compensation payments to cover curative care or damages have not yet been developed.

### **8.7.3. Ongoing environmental protection**

To ensure sustainable development of the country and to protect the people's health, legal regulations need to be established on pollution prevention and control and environmental protection. The National Strategy for Environment Protection by 2010 and the vision for 2020 has been promulgated by Government Decision No 256/2003/QĐ-TTg, dated February 2, 2003. The general objectives of this strategy emphasize slowing the rise in pollution and treating environmental deterioration in industrial zones, populous areas, major cities, and several rural areas. Environmental pollution of rivers, lakes, ponds, and canals should also be addressed and treated.

In 2004, the Politburo promulgated Resolution No 41/NQ/TW on environmental protection during the period of industrialization and modernization of Vietnam. This resolution addressed the views, objectives, and duties of environmental protection and clearly specified environmental protection objectives in rural and urban areas. These include: stop the discharge of untreated wastewater and solid waste into rivers, canals, ponds, and lakes; collect and treat domestic and industrial wastes by appropriate methods, prioritizing the reprocessing and reuse of waste; and minimize buried waste, especially in urban areas with a lack of surface area for waste dumps. In rural areas, the resolution calls for restraint in the use of chemicals in agriculture and fisheries and the collection and treatment of used packaging material that had contained fertilizers and chemicals.

## Chapter 9

### FACTORS RELATED TO SAFETY IN DAILY LIFE AND WORK

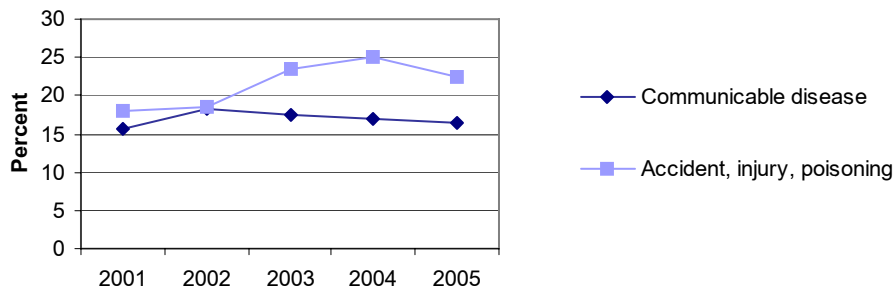
Accidents, injuries, and poisonings have become prominent health problems in recent years. Accidents and injuries in the community, at the workplace, and in traffic have all been increasing. Ensuring food hygiene and safety is a challenging area requiring considerable improvement.

#### 9.1. Accidents and Injuries

Accidents and injuries represent an emerging health problem in Vietnam. The number of deaths and disabilities is increasing rapidly even though many intervention programs have been established to reduce accidents and injuries.

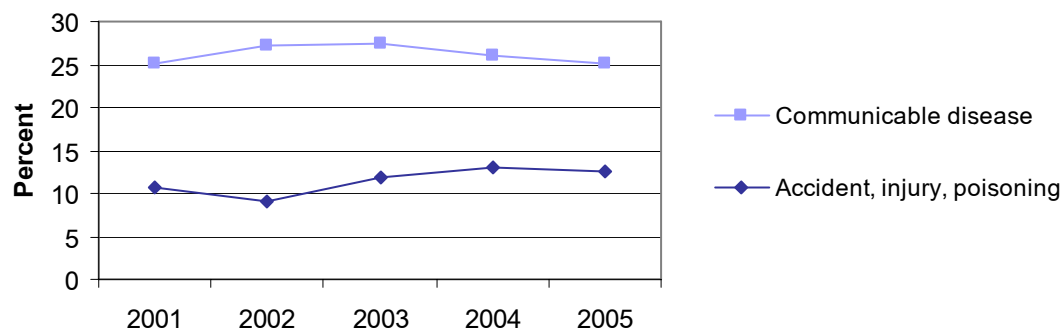
In the 10-year period from 1989 to 1999, the number of accidents and injuries increased four-fold, leading to 43 000 deaths and 137 000 injured [83]. Hospital statistics indicate that the number of deaths from accident, injury, and poisoning is increasing nationwide, exceeding the number of deaths from communicable diseases since 2003 (Figure 9.1). Although the share of hospital admissions due to accidents and injuries is not high, the share is increasing (Figure 9.2).

Figure 9.1. Trends in mortality, 2001-2005



Source: Health Statistics Yearbook 2005 [4]

Figure 9.2. Trends in morbidity, 2001-2005



Source: Health Statistics Yearbook 2005 [4]



In the period 2001-2005, the share of morbidity due to accidents, injury, and poisoning increased from 10.61% of all hospital admissions to 13.16%. The share of all accident-related deaths in hospitals increased from 18.05% of all deaths in hospitals to 25.09% (versus 17% for communicable disease).

The group aged 10 to 24 years suffers the highest mortality from accidents. Traffic accidents (especially involving motorbikes, no helmet, alcohol-related) constitute the leading cause of injury, followed by occupational accidents [94]. Hence, accident and injury prevention and control should receive proper attention, especially for adolescents and youth.

## 9.2. Accident and Injury Among Children

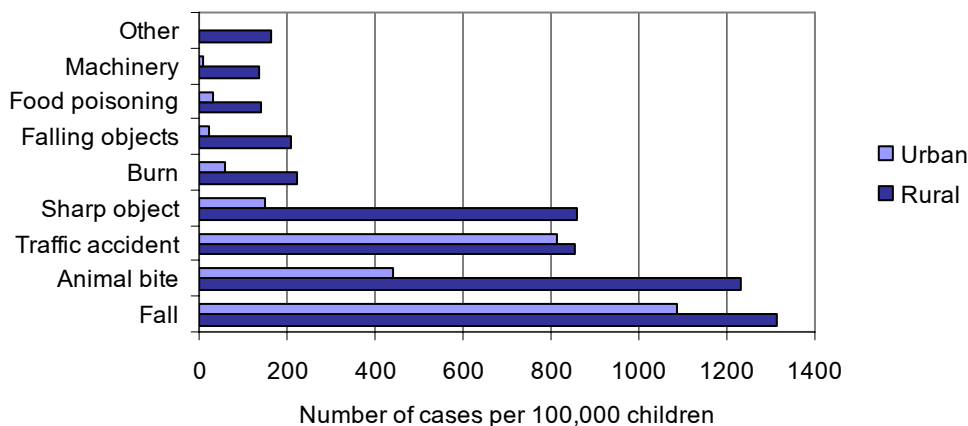
Accidents and injury among children represent a health and social problem in households and schools. Injury of children, especially when it occurs at home or on the street, often has severe consequences, in many cases leading to death. Although there are many causes of injury, interest is focused on those that can be controlled and reduced, eg, drowning, traffic accidents, and various types of burns.

The report from the Vietnam Multicenter Injury Survey (VMIS), conducted in 2003 [125] using a sample of 27 000 households selected from throughout the country, indicates that injury has become a leading cause of death in children under 18 years of age in Vietnam. The results indicate that injury causes nearly 75% of all deaths in children, compared to only 12% from noncommunicable diseases and 15% from chronic diseases. The annual mortality rate from accidents in children is 82.3 per 100 000 children, ie, 1 in every 1000 children will die from injury.

Data analysis also indicates that in the population under 20 years of age, the proportion of injury-related morbidity is 57% compared to 23% for communicable diseases and 20% for noncommunicable diseases. The prevalence rate of non-fatal injury in children is 4818 per 100 000 children per year, or approximately 5%.

The prevalence rate for non-fatal accidents in rural children is 5134.8 per 100 000 children per year, much higher than in urban children at 3770.4 per 100 000 children per year. Figure 9.3 illustrates that injuries related to falls and traffic accidents are the leading causes of morbidity in children in urban areas. Children in rural areas suffer not only from falls and traffic accidents, but also from sharp objects and animal bites.

**Figure 9.3. Incidence of non-fatal injuries in children aged 0-10 in urban and rural areas, 2003**



Note: Other includes drowning, poisoning, electrocution, and miscellaneous causes

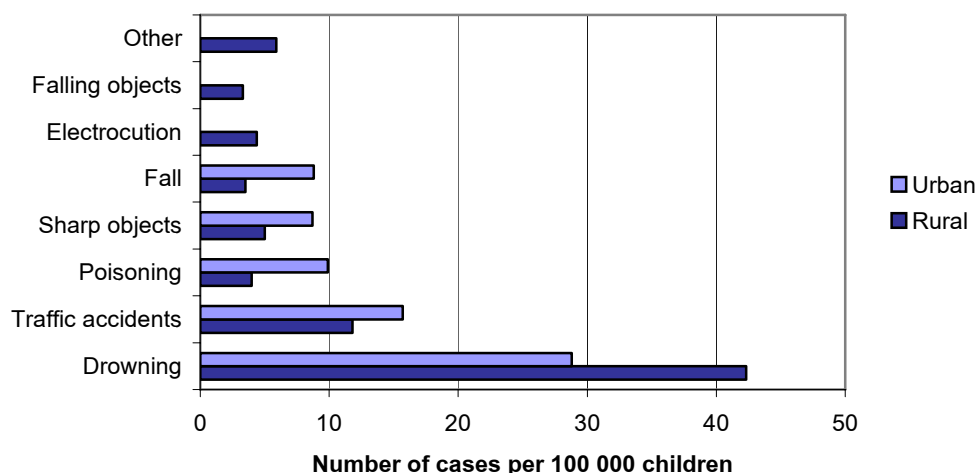
Source: VMIS 2003 [125].

The crude mortality rate in rural children is 86.6 per 100 000 children per year, higher than that in urban children, 71.8 per 100 000 children per year. Drowning is the highest cause of child mortality, followed by traffic accidents. Rural children were more likely to die from drowning than urban children while urban children were more likely to die from traffic accidents than rural children.

Figure 9.4 presents the main cause of fatal injury in two groups of children. The epidemiological pattern of fatal childhood injury in Vietnam depends on the age group. From the youngest group to the group in puberty (13-14 years of age), drowning is the leading cause of mortality. From post-puberty to adulthood, fatal injury related to traffic accidents is the main cause of mortality. The number of traffic-injury-related deaths increases in parallel with increases in age.

Patterns of these two main causes are similar to those reported in several countries near Vietnam, eg, Thailand, China, Malaysia, and Bangladesh. Mortality from two causes, ie, drowning and road traffic accidents, account for about two thirds of injury-induced deaths in children. Hence, to reduce mortality, these causes need to be given higher priority for intervention.

**Figure 9.4. Mortality rates from injury by cause in children aged 0-19 years in urban and rural areas, 2003**



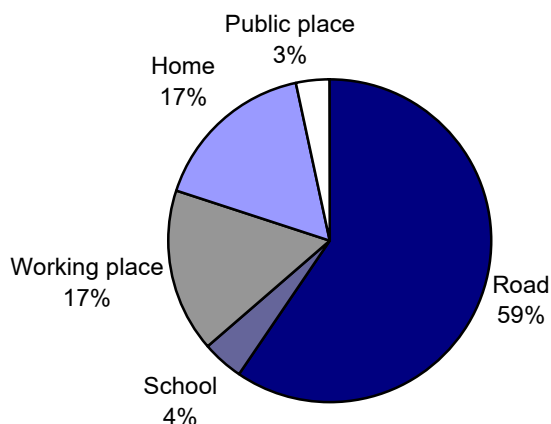
Note: "Other" includes food poisoning, animal bites, burns, machinery, and miscellaneous causes

Source: VMIS, 2003 [125].

The Survey Assessment of Vietnamese Youth (SAVY) with a sample aged 14 to 25 years found that 7.4% had been injured in the 12 months preceding the survey. The proportion among males was higher than among females (11.0% and 3.7% respectively). Hence, the 2003 SAVY results show the incidence of childhood injury to be higher than that reported by VMIS 2001. Geographically, the lowest rate is in the Red River Delta (5.4%), and the highest rate is in the Southeast region (10.7%).

The rate in the southern regions is higher than that in the northern regions. The proportion of injury in male youth and children in urban areas is higher (13.9%) than in rural (10%), urban females (5%), and rural females (3.3%). Females suffered from accidents in traffic (59.8%), at home (16.7%), and at the work place (16.7%). (Figure 9.5)

**Figure 9.5. Distribution of locations where accidents occur, 2003**



Source: SAVY 2003 [94]

In the future, priority needs to be given to supporting families and communities in preventing and controlling drowning, traffic accidents, animal bites, and sharp objects. This is not only a responsibility of the health sector, but also of the education and transportation sectors and the political system.

### **9.3. Accident and Injury Among the Elderly**

The elderly (aged 60 years and older) are a high-risk group for injury and accidents, eg, burns, electrocution, and especially falls. Falls induce severe health consequences such as intracranial damage and bone fractures, particularly femur fractures, which require prolonged treatment, long recovery times, and may lead to complications caused by long bed stays, eg, pneumonia, bed sores, and even permanent disability.

Findings from Vietnam National Health Survey (VNHS) 2001-2002 showed that among 15 195 people aged 60 years and older, 1.4% suffered from injury during the 4 weeks between two interviews [3] (urban areas 1.5%, rural areas 1.6%, males 1.5 %, females 1.4%). The disability rate among elderly people is also high, with the main cause being accident and injury. The prevalence of disability is 11.7%, (urban areas 10.5%, and rural areas 12.1%, males 12.6%, females 11.2%, despite 4 year longer female life expectancy at birth compared to males).

In a study on health care of the elderly in 2005-2006 [8] in 3 provinces in 3 regions of Vietnam (Hai Duong, Ninh Thuan, Vinh Long), 1132 elderly interviewees were asked about any falls and consequences of falls they had experienced between the age of 50 and the time of the survey. Of the respondents, 546 people reported having fallen (48.2% of the total), and on average elderly people experienced 1.2 falls during the reference period [8]. The consequences of falls include bruising and inflammation (48.3%), dislocation 15.7%, broken arm or leg (13.8%), intracranial injury (1.5%), and the remainder suffered relatively slight consequences. Women were more likely to fall than men (51.9% and 42.9% respectively). Among the elderly, the poorer were more likely to report falls (Table 9.1).

**Table 9.1. Falls among the elderly aged 50 and older by gender, age group, and living standard, 2006**

	Number of surveyed persons	Prevalence of falls	
		n (Number of people who have fallen)	%
<b>Overall</b>	1 132	546	48.2
Gender			
Male	459	197	42.9
Female	673	349	51.9
<b>Age groups</b>			
60-64	175	65	37.1
65-69	263	109	41.4
70-74	242	117	48.4
75-79	225	116	51.6
80-84	131	81	61.8
85 and older	96	58	60.4
<b>Living standards</b>			
Poorest	68	40	58.8
Poor	265	144	54.3
Middle	576	258	44.8
Rich	223	104	46.6

Source: Health Strategy and Policy Institute Health policy unit - Assessment of health care for the elderly – 2006 [8]

Thus, falls are a critical health problem among the elderly and require attention by the family and community. It is necessary to create a safe living environment by reducing risks and prevalence of accidents and injuries among the elderly.

## **9.4. Domestic Violence**

### **9.4.1. Domestic violence directed at women**

Violence toward women seriously affects their physical and mental health. According to a study conducted by the Vietnam Women’s Union, among women beaten by husbands, about 6% need to be admitted to a hospital and 51.8% of the wives had received bruises lasting several days [126]. A survey in 5 communes of Binh Duong province (2001) showed that among 19 women interviewed in depth, 7 had been beaten by their husband many times during pregnancy (2 suffered miscarriages), 7 had been forced to have sexual intercourse, and 2 had divorced [127]. A study of 1090 women in Ba Vi district, Ha Tay province, found that 60% of married women incurred violence (physical, sexual, or psychological) inflicted by their husband at least once during their life, over 30% were victims of physical violence, and 6% were victims of sexual violence, of which over 14% suffered severe physical violence. Low income, low level of education, polygamous husband, etc are risk factors for violence toward female family members [128].

The Declaration on the Elimination of Violence against Women, approved by the United Nations General Assembly in 1993, defines violence toward women as: “any act of gender-based violence that results in, or is likely to result in, physical, sexual, or mental harm or suffering to women, including threats of such acts, coercion, or arbitrary deprivation of liberty, whether occurring in public or in private life [129].”

Studies of violence toward females in Vietnam have found this problem to be widespread in both urban and rural areas, and in all social strata. According to a study in 2000 [130], the commune authorities estimate that woman are subjected to verbal and emotional abuse in

about 20% to 50% of households and have suffered injury from physical violence in 5% to 20% of households. Studies by the Vietnam Women's Union found that physical abuse perpetrated by husbands on their wives was common, and estimated that 30% to 60% of divorce cases result from violence directed toward females [131]. A survey conducted by Vu Manh Loi, et al [130] showed that in considering all types of maltreatment from physical, verbal, emotional, and sexual abuse, about 80% of females are being maltreated by their husbands, 10% to 25% of females (from better off to poor families) had been beaten and 16% to 25% (depending on income level of the family) had been forced to have sexual intercourse.

The health sector's role is not only to treat the victim's injuries, but also to detect victims of violence early and establish files to record events to support women in case of a legal suit, and in collaboration with the authorities and the Women's Union, to monitor, intervene, and support victims after hospital discharge.

#### **9.4.2. Domestic violence against children**

Several institutions have studied violence toward children in Vietnam. According to SAVY (2003), 2.2% of adolescents and youth were beaten by family members (very low compared to Europe and America) [53]. However, younger children appear to be beaten more than older children, with 2.7% in the group aged 14 to 17 years versus 2% in the group aged 18 to 21 years [94].

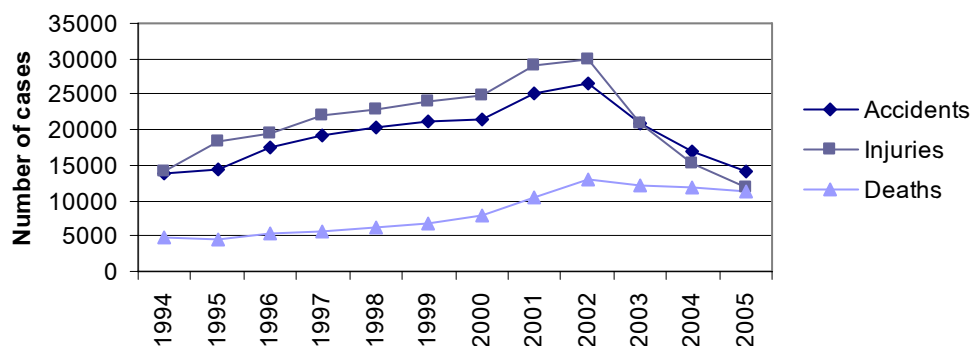
Analyzing data from the Vietnamese Supreme Court showed that in 2001 the courts considered and passed verdicts on 1407 cases involving violence, whereof 50% involved violence towards children and youth. A study by the Central Committee of Science and Education and the Central Youth Union indicates that from 1993 to 1997 the People's Supreme Court considered 1000 cases and local courts considered 2644 cases of violence towards children [83].

Violence has seriously affected the health of women and children, and the problem requires the involvement of various ministries, sectors, and society at large. Reducing violence toward women requires that women gain greater awareness of this problem, improve their role and position in society and the family, and take measures to protect themselves.

#### **9.5. Traffic Accidents and Injuries**

At present, Vietnam has a road network of 2 million kilometers, whereof intervillage roads (considered as rural roads) account for 131 000 kilometers. Although this network has developed rapidly, road quality remains low, especially in rural areas. Mechanization of transportation has occurred rapidly. The number of automobiles increases about 12% per year, while the number of motorbikes increases 40% per year. Hence, the number of 2-wheeled vehicles is increasing at 16.5 times the rate of 4-wheel vehicles.

**Figure 9.6. Trends in traffic accidents, injuries, and mortality, 1994-2005**



Source: Health Statistics Yearbook-MOH 2005 [4]

Data from the Ministry of Health (Figure 9.6) shows that from 1994 to 2002, the number of people injured in traffic accidents increased two-fold and the number of deaths more than two-fold [4]. The main objectives of traffic injury prevention and control are to reduce the number of incidents, number of deaths, and number of injured. The communication and transport sector has implemented several strong and decisive measures, eg, eradicate hazards in places that injuries often occur, strictly control vehicles and gradually eliminate obsolete and unsafe vehicles, strengthen supervision of training and testing for obtaining a driving license. Results of these interventions are apparent from Figure 9.6. From 2002 onward, the number of incidents, number of injured, and number of deaths from traffic accidents have decreased. Nevertheless, traffic accidents remain the main cause of morbidity and mortality from accident and injury, accounting for 53% of total injuries and 44% of total deaths[132].

According to the National Traffic Safety Committee, the mortality ratio nationwide is about 11 deaths per 10 000 motorcycles, similar to other Southeast Asian countries. In the past 10 years, the number of vehicle crashes increased by 38% on average, the number of injury cases increased 52%, and number of deaths increased 37%. Vehicle crashes occur more often in urban than in rural areas. However, vehicle crashes in rural areas are more serious on interprovincial, interdistrict, and intercommunal roads. The National Traffic Safety Committee has estimated that at least 2% of GDP in Vietnam is lost each year to traffic accidents.

Several studies in provinces showed that traffic accidents have induced a high proportion of neck and facial injuries, eg, these injuries account for 37% of the total in HCMC, 62% in Thai Nguyen, 26% in Lam Dong, and 30.5% in Thai Binh. In 2001, in Viet Duc hospital, statistics data showed that 81% of intracranial injuries were caused by traffic accidents. A longitudinal study at Viet Duc hospital (1998-2001) of emergency patients from traffic accidents found that the group not wearing a helmet while driving a motorbike had the highest proportion of severe intracranial injury (46%), four-fold higher than in the group wearing a helmet (11.8%).

Although traffic accidents are beginning to be controlled, risk factors are showing an increasing trend. The Minister of Transport explained before the 11<sup>th</sup> National Assembly that traffic accidents have been difficult to control because of 5 causes: public demand for transportation has increased, especially in months of many festivals; travel density is high, but the traffic police force is inadequate; the density of automobiles and motorbikes is increasing; the direction of public policy at different levels is unclear, corruption among some state employees, and mass-media involvement is not yet strong.

An important cause of traffic accidents is that many people drive under the influence of alcohol. According to incomplete data from the National Traffic Safety Committee, about 6% of traffic accidents are related to alcohol. In reality, the figure is probably much higher because of underreporting. For instance, in Bac Lieu province, during the first 10 months of 2005 there were 30 recorded traffic accidents caused by drivers under the influence of alcohol, accounting for 24.5% of total recorded traffic accidents. These accidents caused 6 deaths, 36 injured, and a loss of 82 billion VND [133]. In Ba Ria-Vung Tau, about 8% of total traffic accidents reported are alcohol-related incidents [134].

The household survey of the project “Assessing Alcohol Abuse in Vietnam, 2006” found that 3.6% of users of spirits and wine, and 1.2% of those using beer had suffered from traffic accidents [135].

Results of this qualitative survey in various provinces clearly reflect the rapidly increasing problem of alcohol-related traffic accidents.

## 9.6. Labor Safety

Occupational diseases and work-related accidents present the greatest threat to workers’ health. The high share of men dying during working ages, described in Part A, reflects this alarming situation.

### 9.6.1. Occupational diseases

In 2005, 32 provinces implemented medical examinations for detecting occupational diseases. In total, 53 863 workers were examined who had been in contact with risk factors for occupational diseases. Of these, 5018 (9.3%) were diagnosed with occupational diseases, and within this group 948 (18.9%) underwent medical examination to assess their level of disability. Based on the results, 219 were awarded a one-time disability payment, and 318 were awarded ongoing disability payments (56.6% of total assessed cases) [136]. Periodic medical examinations showed that 12.6% fell within categories 4 and 5 (poor health), which was 2.3% higher than in 2003. The most common diseases for which workers are assessed for disability are silicosis (45.8%) and occupational deafness (34.5%) (Table 9.2).

**Table 9.2. Results of medical examinations to detect occupational diseases, 2006**

Occupational disease	Number examined	Number diagnosed with occupational disease	Number assessed for disability	Number provided one-time compensation	Number given on-going disability benefits	Cum. number assessed as disabled
Silicosis	13 965	1 536	434	114	238	17 262
Asbestosis	28	1	..	..	..	3
Byssinosis	431	..	..	..	..	278
Chronic bronchitis	2 420	244	24	..	21	99
Lead and other chemical compound poisoning	482	69	14	..	1	309
Benzene poisoning	7 645	822	..	..	..	2
Mercury poisoning	..	..	..	..	..	14
Occupational TNT poisoning	12	..	..	..	..	151
Occupational nicotine poisoning	304	..	..	..	..	259
Pesticide poisoning	1 246	47	7	6	..	292

Occupational disease	Number examined	Number diagnosed with occupational disease	Number assessed for disability	Number provided one-time compensation	Number given on-going disability benefits	Cum. number assessed as disabled
X-ray and radiation poisoning	485	37	4	..	..	7
Noise-induced deafness	21 994	1 870	327	99	45	3 722
Mechanical vibration injuries	103	2	..	..	..	20
Occupational skin disease	2 076	277	130	..	6	570
Contact dermatitis	2 088	101	..	..	..	9
Occupational tuberculosis infection	8	8	8	..	7	53
Occupational viral hepatitis infection	..	..	..	..	..	111
Occupational Leptospirosis	396	4	..	..	..	3
<b>Total</b>	<b>53 863</b>	<b>5 018</b>	<b>948</b>	<b>219</b>	<b>318</b>	<b>23 164</b>

Source: Report by the Vietnam Administration of Preventive Health – 2005 [70]

Silicosis is one of the most widespread diseases in the world and in Vietnam. From 1976 to 1997, 88% of all workers with occupational-related diseases that received financial compensation were silicosis patients. The Provincial Center of Preventive Medicine reported that 112 956 workers were exposed to silica dust. This figure appears to be underreported because 3 sectors alone (construction, industry, and communications and transport) reported 240 744 cases. The mineral exploitation sector, particularly the coal sector, has the most exposed workers. About 83% of all workers exposed to silica dust are found in 10 provinces where coal is mined or construction materials are produced [137].

Production in traditional craft villages benefits from low costs, but affects the health of workers and their family members. A survey conducted by Nguyen Duc Hung of the Institute of Labor and Social Sciences in 6 traditional craft villages found that most production facilities are located near residential dwellings. Most of these facilities lacked systems for ventilation and solid waste treatment, and residential dwellings have very high levels of toxic gas, eg, CO, SO<sub>2</sub>, NO<sub>2</sub> [138].

### **9.6.2. Industrial working environment**

Working conditions and the work environment have improved considerably, especially as investors and factories have imported comprehensive and technologically adequate production lines that approach ISO standards (ISO-2000 and ISO-14000). Progress has been more rapid in enterprises driven by foreign investment or international integration, eg, enterprises that produce goods for export. However, several factories producing goods for the domestic market still use technologically primitive production lines that foster environmental pollution and poor hygienic conditions in the workplace.



**Table 9.3 Proportion of polluted industrial enterprises, 2002-2006**

Unit: %

Agents	Percentage of enterprises exceeding safety standards				
	2002	2003	2004	2005	2006
<b>Total</b>	<b>21.2</b>	<b>22.0</b>	<b>18.2</b>	<b>18.2</b>	<b>16.9</b>
Dust	20.7	23.9	17.5	15.9	16.1
Noise	31.0	27.6	28.2	28.1	13.7
Lighting	10.8	18.0	17.1	21.4	25.0
Toxic gas	13.4	13.5	11.9	11.4	17.5
Micro climate	23.9	22.8	17.6	16.7	11.9
Vibration	34.7	22.5	14.5	12.9	13.4
Radioactive and magnetic waves	6.8	10.3	3.8	6.6	11.9

Source: Report by the Vietnam Administration of preventive health and HIV/AIDS, 2002-2004 [70, 136].

According to reports from the Vietnam Administration of Preventive Medicine, (Table 9.3) some environmental factors in industrial workplaces have improved in recent years, while others have deteriorated [136]. However, the data include only enterprises with occupational health systems in place. Work-related conditions and the environment are not yet monitored in small enterprises, private enterprises, and facilities in traditional craft villages, and the level of supervision is low. Many workers migrate from rural to urban areas to earn a living, eg, as construction workers, solid waste collectors, and waste reprocessing workers, in jobs where the working environment is unprotected and filled with risk factors to health, and where workers do not yet receive support from an occupational health system.

### 9.6.3. Work-related accidents in industry

Accidents in the workplace remain a major problem. Work-related accidents lead to losses in human resources, production means, and infrastructure, and reflect a complicated trend, especially in small enterprises. Official data from concerned organizations reflect only reported cases, mainly from large enterprises. Statistical data are not available on work-related accidents in small construction projects, or unreported economic activities, eg, unlicensed mining or other hazardous jobs.

The annual statistical bulletin from MOLISA (2002-2003) reported 3896 work-related accidents, accounting for 4089 victims and 513 deaths.

Data from industrial health institutions indicated that work-related accidents claimed 8013 victims and 172 deaths in 2004 (Table 9.4).

**Table 9.4. Work-related accidents in industrial production facilities, 2002-2004**

Contents	Work-related accidents		
	2002	2003	2004
Number of work-related accidents	4,298	3,896	..
Number of persons suffering from work-related accidents	4,521	12,566	8,031
Number of deaths caused by work-related accidents	514	513	172
Number of disabled	..	103	24
Number of workers compensated for work-related accidents	..	278	88

Source: Report by the Vietnam Administration of Preventive Health, 2003, 2004 [136].

In general, reporting systems indicate that work-related accidents continue to rise. Quang Ninh, Thai Binh, and Tay Ninh provinces, HCMC, and the transport sector all report a high number of deaths from work-related accidents.

#### **9.6.4. Agricultural chemical poisoning**

Pesticides constitute the most important occupational risk among farm workers. According to VNHS 2001-2002, nearly 50% of households have members in contact with pesticides while preparing and spraying chemicals, or washing containers. Households reported that 19% of the persons in contact with pesticides used no means of protection, and others had inadequate protection. Section 3.2.11 above presented data on the number of cases and deaths due to poisoning from agricultural chemicals.

A survey of farmers involved in preparing and spraying pesticides in the Mekong Delta [139] reported that 39% indicated symptoms of pesticide poisoning. After performing laboratory tests, 35% of these persons were found to suffer from various degrees of pesticide poisoning (chronic 21%, acute 5%, and slight 9%).

Workers using chemicals in agriculture not only suffer from poisoning themselves, they could also generate environment pollution in conjunction with pesticide storage, use, and the disposal of packaging. Many pesticide stores generate serious environmental pollution, which needs to be addressed soon to reduce poisoning risks in the community.

### **9.7. Food Safety and Hygiene**

#### **9.7.1. Safety and hygiene in food production**

The quality of food safety and hygiene is determined by every phase in the food provision chain, the first of which is food production itself (feeding animals, growing crops). International trends in economic integration, production scale, and technology are promoting industrialization and modernization. This presents a major challenge to Vietnamese agriculture.

The storage system for agricultural products after harvest has yet to be developed, and Vietnam's hot and humid climate is responsible for substantial losses due to insects and fungi. Pesticide abuse and overuse is widespread due to, eg, lack of knowledge about harmful effects, noncompliance with dose regulations, time of application, unknown source of chemicals, and use of prohibited chemicals. In 2004, the Department of Plant Protection inspected pesticide use in areas ostensibly growing safe vegetables and found that 21% of households (438/2007 farm households) violated pesticide use regulations.

In livestock breeding, the use of feed supplements has remarkably increased the efficiency of feed consumption and productivity. From 2000 to 2003, data analysis revealed many problems concerning food hygiene and safety as a result of contaminated animal products, eg, due to chemicals, antibiotics, biological products, harmful microorganisms such as *E. Coli*, *salmonella*, fungi (*aflatoxin*) in raw materials for food production, heavy metals (lead, bronze, mercury), and other toxic substances. In the samples examined, the levels of these agents exceeded the threshold permitted.

Guidelines on the use and management of antibiotics in livestock and fish production are not rigorous, which leads to antibiotic abuse and affects the quality of food products from animal and fish.

Regarding slaughter hygiene, most provinces do not have a centralized slaughter system. Slaughtering cattle and poultry in the community and markets is still commonplace, in part because appropriate means of transport are not available. The emerging complex of problems related to slaughter hygiene concern, eg, slaughtering site, production process and product processing, wastewater system and unclean water use, animal inspections before slaughtering, epidemic control certificate before admission to a slaughterhouse, environment pollution induced by deficient veterinary hygiene in product storage.

Aquaculture has developed rapidly. However, the government along with aquaculture production facilities are studying and finding solutions for sustainable development of aquaculture. The Vietnam Administration of Food Safety and Hygiene undertakes frequent checks to identify unsafe aquaculture practices in a timely manner and finds appropriate solutions if aquaculture products do not meet food safety and hygiene standards.

### **9.7.2. Safety and hygiene in food processing**

Tens of thousands of enterprises are active in the food-processing sector. The Ministry of Health manages and inspects only some state enterprises, while the rest are managed and inspected by local authorities. To date, hygiene and food safety are regulated in only 5 branches of food production: spirits, wine, beer, and other beverages; vegetable oil; milk; cake and sweets; and food starch and its processing. Generally, food hygiene and safety are ensured in large enterprises and joint-venture factories producing, eg, alcohol, beer, nonalcoholic beverages, fish, meat, milk, cake, and sweets. Nearly 90% of enterprises and factories belonging to the Ministry of Industry have been technologically improved, and obsolete equipment affecting food hygiene and safety has been eliminated.

However, since small facilities with manual technology account for about 90% of total processing enterprises nationally, food hygiene and safety cannot yet meet requirements. Inspection of food processing facilities in various localities showed that a low percentage of facilities comply with standards (66.7% in 2001, 79.4% in 2002, and 76% in 2003). Most small- and household-sized food processing facilities did not ensure hygienic and safe food conditions in terms of infrastructure, equipment, processing tools, and workers. Violation of regulations on the use of additives, coloring, and preservatives, or the conditions for hygienic and safe production sites, is fairly widespread, particularly in traditional craft villages specialized in food production [15].

### **9.7.3. Safety and hygiene in fresh food service facilities**

Up to now, food service enterprises have been able to develop freely. Regulations are inadequate as regards the conditions for food safety and hygiene at food service facilities, the knowledge and behavior about hygiene among food sellers, and the standards concerning the health of people in direct contact with food, eg, at restaurants, cafeterias, cafes, and retail sellers of ready-to-eat food.

Many types of food service facilities serve the domestic market. In general, conditions of these facilities do not yet meet requirements of food hygiene and safety. In 2003, the Hanoi bureau of veterinary medicine conducted an inspection and stated that 65% of facilities selling meat do not meet required hygienic conditions, and 67% of facilities selling chicken cause environmental pollution. Likewise, shops selling ready-to-eat food do not strictly comply with regulations on hygiene and food safety: 44.1% of places selling draught beer, 11% of places selling cakes, and 41% of retail food sellers having no workers trained in food hygiene and safety, or who have had a medical checkup [140].

According to the report by the Department of Market Management, the production and trade of counterfeit and low-quality food in Vietnam are relatively common, especially in remote areas. The most common counterfeit products are foreign alcohol, monosodium glutamate, nonalcoholic beverages, cakes, and sweets.

The Ministry of Health issued Decision No 3742/2001/QD-BYT, listing permitted additives in food processing, but many chemicals and additives not on the list have been used widely, especially borax, saccharin, and coloring. Among traditional foods in Hanoi, eg, meat pie (wrapped in banana leaf), steamed rolls made of rice flour, and sweet cakes, 90% to 100%

of the samples contained borax (reported by the National Institute of Nutrition), and 100% of meat pies and grilled meat contained illegal coloring.

Unofficial cross-border trade in food flows into Vietnam primarily from China, Laos and Cambodia. Although many food products are imported, those causing the greatest concern are fruits, food additives, meat, and livestock or cattle supplements, many of which are not checked for hygiene and safety.

The “temporary stipulations on standards of food hygiene and safety” issued by the Ministry of Health (Decision No 2027/2001/QĐ-BYT) require all organizations and individuals involved in the food industry in Vietnam to declare the quality, hygiene, and safety standards of their food products. Businesses can be inspected, periodically or as needed, by inspectors or the appropriate public health officials when complaints or indications are received that regulations on food quality, hygiene, and safety have been violated. However, after the above decision was published, many problems were encountered due to the lack of an adequate enforcement system and the lack of equipment and specialized staff (most staff are part-time and inadequately trained).

Smuggling of animals or animal products across the border between Vietnam and Cambodia occurs continuously, negatively affecting the prevention of diseases that spread from livestock and poultry to humans and the ability to manage food hygiene and safety. Of particular concern, due to the recent risk of an avian flu pandemic, is the smuggling of chickens from China to Vietnam.

#### **9.7.4. Street food safety and hygiene**

A rapid expansion in street food vendors often accompanies urbanization and industrialization in developing countries. Street food varies from ready-processed food brought in from other places, to food prepared on-the-spot. In developing countries, the important contribution of street food to the economy and workers’ health is not questioned. However, contamination of street food is of concern to society.

Statistical data presented in a review by the Department of Food Hygiene and Safety [141] on ensuring hygiene and safety of street food indicated that, in a 3-year period, the main causes of street food contamination were:

- Casual purchase of food, unknown source of food: 88%
- *E. Coli*-infected ice used in street food: 35.6% in downtown vendors and 64.7% in suburban vendors
- Inadequate hygiene and safety in processing food: 49.1% to 91.6%
- Inadequate hygiene and safety in transporting and storing food: 85.9% to 99.2%
- Site, equipment, and utensils used in food processing are not hygienic and safe: 37% to 88%
- Vendors and food processing workers did not comply with regulations on food hygiene and safety: 43.8% to 88%

Many food poisonings are attributed to the above deficiencies and account for about 10% to 20% of all food poisonings annually.

#### **9.7.5. Food poisoning**

The prevalence of food poisoning is high in Vietnam. According to the preliminary provincial reports in 1999, there were 327 reported incidents of mass food poisonings resulting in 7576 cases, including 71 deaths. In 2000, there were 213 reported incidents resulting in

4233 cases, including 59 deaths. Using the WHO method of calculation, the number of poison victims is estimated at 8 million per year, about 10% of the total population (compared with 0.125% per year in Canada or 0.3% per year in Japan) due to many unreported cases of poisoning in families that self-medicate [15]. In the process of development and industrialization, risks for mass food poisoning could increase as large numbers of people working in factories are served through collective kitchens and food processed on an industrial scale.

Microbiological contamination is the most common cause of food poisoning (about 50% of all poisoning incidents) and contributed to most poisoning cases. Foods infected by microorganisms usually include meat from livestock and cattle, processed meat, fish and processed fish, and milk, especially fresh milk that has not been handled, conserved, and processed in compliance with safe and hygienic requirements. Food poisoning incidents often occur from May to October (mainly from June to September). Food poisoning caused by microorganisms is primarily reported from collective kitchens, particularly in HCMC and Bien Hoa city where many business and factories with collective kitchens and canteens are located.

Street food is another high-risk category for microbiological food poisoning since food sources for shops and restaurants are difficult to regulate, restaurant hygiene remains a problem, penalties for violations are hard to impose, and the lack of awareness and concern on the part of consumers who buy street food. Therefore, street food is a priority area that authorities are focusing on to find appropriate solutions to ensure food hygiene and safety.

Chemicals, especially agriculture-related chemicals such as pesticides and some food preservatives, account for about 25% of total food poisoning incidents. Food poisoning from natural toxins in food, eg, poisonous mushrooms, puffer fish, and certain types of octopus, account for about 10% of total food poisoning accidents. The number of poisoning cases resulting from each incident of natural poisons in food is relatively low, but the consequences are severe. For example, over a 4-year period, 43.4% of all food poisoning deaths (92 of 212 deaths) were attributed to puffer fish. Spoiled food is becoming more prominent as a cause of food poisoning, particularly since food inspection and control in Vietnam are limited [15].

As described above, the situation of food hygiene and safety continues to be a concern in Vietnam. Legal violations against food hygiene and safety occur in every phase of the food provision chain, from production and processing to trade and consumption. Addressing this situation requires collaboration between concerned ministries and sectors to effectively manage and control food quality, hygiene, and safety, from raw materials to final products.

## **9.8. Natural Disasters and Climate**

Vietnam is located in a tropical region, along a coastal area of the Western Pacific, with particular climatic and ecological features. As such, it has been affected by natural disasters that impact on the lives, health, and livelihood of the population.

Climate relates strongly to the health of the population. When seasons change, climatic factors can change dramatically. Modern medicine has shown that sudden changes in weather can affect health, eg, blood circulation in the brain. In many people, this can lead to headache, fatigue, backache, and aches in bones. Ischemic heart disease is more frequent in the coldest season of the year. High blood pressure, angina, blood clots, and aneurysms often occur during the change from autumn to winter when atmospheric pressure suddenly shifts. When the seasons change from winter to summer in northern Vietnam, chronic illnesses often worsen. The higher temperature and humidity create a favorable environment for bacteria, mold, and mildew that cause illness and allow insect vectors of disease to reproduce rapidly.

Natural disaster also strongly affect health. Table 9.5 shows that between 2000-2005, Vietnam was affected by 20 major floods and 11 typhoons or tropical storms. Other natural disasters, although rare, include tornados, droughts, landslides, and forest fires.

**Table 9.5. Natural disasters in Vietnam by type, 2000-2005**

Years	Flood	Typhoon/tropical storm	Storm	Tornado	Drought	Land-slide	Forest fire	Total
2000	2	2	4	1	0	2	0	11
2001	4	3	0	0	0	0	0	7
2002	3	0	1	0	1	0	1	6
2003	3	1	0	0	0	0	0	4
2004	3	2	0	0	0	1	0	6
2005	5	3	1	0	1	0	0	10
<b>Total</b>	<b>20</b>	<b>11</b>	<b>6</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>44</b>

Source: EM-DAT: The OFDA/CRED International Disaster Database [www.em-dat.net](http://www.em-dat.net) - Université Catholique de Louvain - Brussels – Belgium [142]

Data provided by OFDA/CRED shows that from 2000 to 2005 there were 128 to 591 deaths caused by natural disasters. The cumulative number is 1815 deaths over 6 years. At least 594 people were injured. The number of people affected by natural disasters ranges from 403 000 to 5 million. Epidemic prevention, first aid, and maintenance of basic health services are major challenges when natural disasters strike (Table 9.6).

**Table 9.6. Number of Vietnamese affected by natural disasters, 2000-2005**

Year	Number of deaths	Number of injured persons	Number of persons affected	Number of houses lost
2000	591	248	5 042 505	15 860
2001	392	95	1 785 895	23 100
2002	207	116	2 516 500	0
2003	128	81	402 880	18 880
2004	189	23	535 900	0
2005	308	31	851 817	18 205
<b>Total</b>	<b>1 815</b>	<b>594</b>	<b>11 135 497</b>	<b>76 045</b>

Source: EM-DAT The OFDA/CRED International Disaster Database [www.em-dat.net](http://www.em-dat.net) - Université Catholique de Louvain - Brussels – Belgium [142]

Although natural disasters are increasingly violent, in comparison with previous years (1996-2000) the losses have been reduced due to good forecasting, prevention, and effective recovery (Table 9.7)

**Table 9.7. Comparison of losses caused by natural disasters, 1996~2005**

Periods	Total number of deaths	Average number of deaths/year	Economic losses
1996-2000	6 083	1 217	2.3 billion USD
2001-2005	1 224	245	

Source: 1996-2000- Vietnam Administration of Preventive Medicine [143]; 2001-2005 EM-DATA the OFDA/CRED international Database Belgium. Université Catholique de Louvain [142].

Regions suffering the most from natural disasters are the Mekong Delta and the South Central Coast regions because of severe hydrographic and geographic conditions and difficulties in prevention and control.

The health sector plays an important role in natural disaster prevention and control, and reducing and overcoming consequences of disasters. The Ministry of Health has established a Committee on Natural Disaster Prevention and Control, headed by one of the vice-ministers.

In the provinces, mobile health teams travel to disaster sites to provide emergency care, transport victims to referral facilities, provide medicines and disinfectant agents, life vests, and address the consequences of natural disasters to prevent epidemics.

The National Program on Natural Disasters aims at a comprehensive response involving:

- Availability of measures to respond immediately, eg, to forecast and treat losses and consequences in a timely manner.
- Sustainable, long-term measures, eg, forestation and forest protection, flood distribution, dike consolidation, dredging rivers and canals, solid construction methods.
- Overcoming disaster effects, eg, recovery, disease prevention and treatment, restoration of production, homes, and public facilities.

## Chapter 10

### FACTORS RELATED TO LIFESTYLE

Choice of lifestyle could affect, positively or negatively, the health of individuals and the community. Addictive substances, eg, tobacco, alcoholic beverages, and illicit drugs, directly harm health. Non-users, particularly women and children, may suffer externalities such as passive smoking, family violence, traffic accidents, and exposure to HIV/AIDS. Unsafe sex is a lifestyle-related behavior that could have severe consequences for the health of the individual, and spouse or sexual partner. Other lifestyle-related behaviors can have positive effects on health, eg, regular physical exercise and a diet rich in vegetables and low in fat and sugar. Health-promoting changes in lifestyle and consumption patterns are currently a major concern in Vietnam.

#### 10.1. Smoking

Smoking is a leading cause of morbidity and mortality. A government program on tobacco-related injury has taken steps to limit the harmful effects of tobacco through prevention and control.

##### 10.1.1. Tobacco and health

The World Health Organization identifies tobacco as one of 10 leading risk factors behind morbidity and mortality in the world [144]. Annually, tobacco causes about 4.9 million deaths worldwide. This number could increase two-fold if interventions are not developed soon to prevent and control tobacco use [145].

Tobacco is a cause or contributory factor in many human diseases, especially noncommunicable diseases such as cancer and cardiovascular, respiratory, and digestive diseases [145-149]. The morbidity risk of smokers versus nonsmokers has varied from 106% (ovarian cancer in woman), to 477% (cerebral vascular complications), to 748% (throat cancer) [145].

Tobacco harms not only smokers, but also the health of the people around. The babies born to women smokers often suffer from malnutrition or respiratory diseases. Passive smokers are also at risk of contracting respiratory and other diseases [149].

Tobacco smoke contains about 4000 chemicals, of which 43 are potentially carcinogenic and dangerous to adults and children. Vietnam is among the group of nations having the highest prevalence of male smokers and thus has a high risk of tobacco-related morbidity and mortality. According to WHO estimates, tobacco-related diseases could kill about 8 million Vietnamese (10% of current population), half of whom could die prematurely [150].

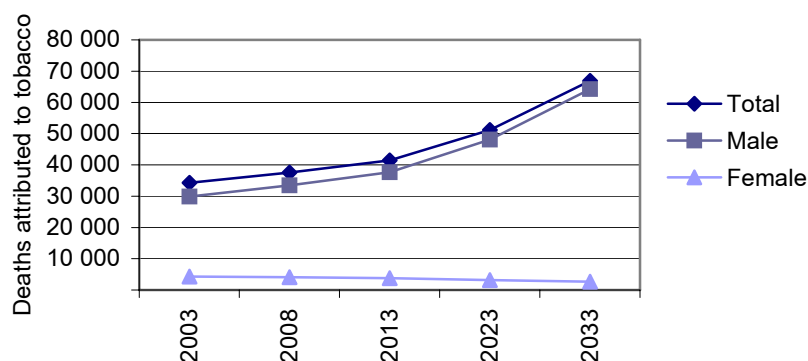
Although studies show the association between tobacco and morbidity and mortality, Vietnam does not yet have a monitoring and control system for tobacco-related diseases. Research on smoking in relation to lung cancer in the National Cancer Hospital indicates that smokers account for a very high share of lung cancer and other cancer victims (96.7% of total lung cancer patients and 83.7% of other cancer patients). The research also found that smoking increases the risk of lung cancer five-fold, and this risk increases in parallel with smoking time – people who smoked 40 years or more had a risk for lung cancer 20 times higher than that of nonsmokers. This difference is even more apparent among tobacco smokers who use a water pipe [151].



Physicians at the Institute of Cardiology studied clinical profiles and selected coronary angiography images of 165 smoker and nonsmoker patients and found substantially higher rates of myocardial infarction, angina pectoris, hypertension, and blood lipid disorders in smokers compared to the nonsmoker group. The severity of coronary damage depended on the average number of cigarettes smoked per day and the number of years spent smoking [152].

Based on information about smoking patterns in Vietnam, and data from Taiwan on the probability of mortality from tobacco [153], a simulation model estimates that about 30 000 deaths were caused by tobacco in Vietnam in 2003, and if smoking patterns do not change, the number of deaths caused by tobacco would reach 67 000 in 2033 (Figure 10.1).

**Figure 10.1. Predicted tobacco-attributable deaths, 2003-2033**



Source: Levy et al. 2005 [153].

Mortality from tobacco is often observed in groups of middle-aged and elderly people because cumulative damage over the years causes death. Smoking is harmful to the health of smokers and passive smokers, especially children.

### **10.1.2. Tobacco use and high-risk groups**

#### **Smoking prevalence**

According to WHO statistics, the epidemiological pattern of smoking has different characteristics in different countries. While the prevalence of smoking has decreased in developed countries, it tends to increase in developing countries, especially among adolescents, youth, and women [144].

Tobacco consumption (including industrially produced cigarettes, hand-rolled cigarettes, water pipe tobacco) in Vietnam shows an increasing trend. In 1998, the adult male smoking prevalence was 50% [85]. In 2002 it was 56% [3]. A male aged 15 years and older consumes 12.5 cigarettes on average per day, and a female aged 15 years and older consumes 8.1 cigarettes per day [3].

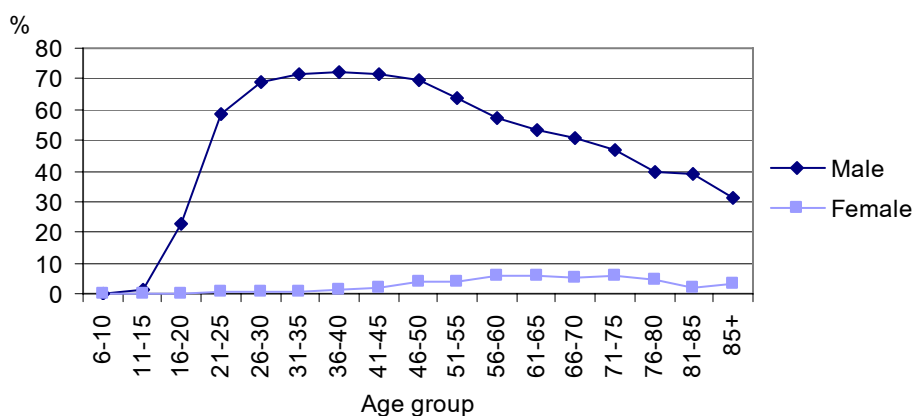
According to the Vietnam National Health Survey (VNHS) 2001-2002 [224], the prevalence of male smokers aged 15 years and older is 56.1%, while the prevalence of female smokers at that age is 1.8%. Although the smoking prevalence among females is low in comparison to males, the increase in recent years warns of potential risks related to smoking among females. Female smokers have a two-fold higher risk of lung cancer than males do, their odds of conceiving a child decrease 40%, while their odds of miscarriage or having a low birthweight baby increase, and their odds increase for contracting disorders commonly found in women, eg, osteoporosis, early menopause, and early aging. Female smoking also affects

child health. Children who regularly breathe tobacco smoke have a greater tendency to become ill and have a higher risk of respiratory disease, middle ear infection, asthma, sudden infant death syndrome, cancer, and leukemia [154].

Figure 10.2 illustrates that the highest prevalence of smoking, according to VNHS 2001-2002 [3], is found in males aged 36 to 40 years (72.1%) and females aged 61 to 65 years (6.0%). Most smokers started smoking before 25 years of age. Among younger smokers (those between the ages of 15 to 30 years), 29.7% of male and 1.7% of female smokers began smoking at 18 to 19 years of age according to the Survey Assessment of Vietnamese Youth (SAVY).

The SAVY 2003 report indicated that over 43.6% of males aged 14 to 25 years had smoked at some time, and the prevalence of smokers increased with age. Among those who said they had smoked, 71.7% were smoking at the time of the survey [94].

**Figure 10.2 Smoking prevalence by gender and age group, 2002**

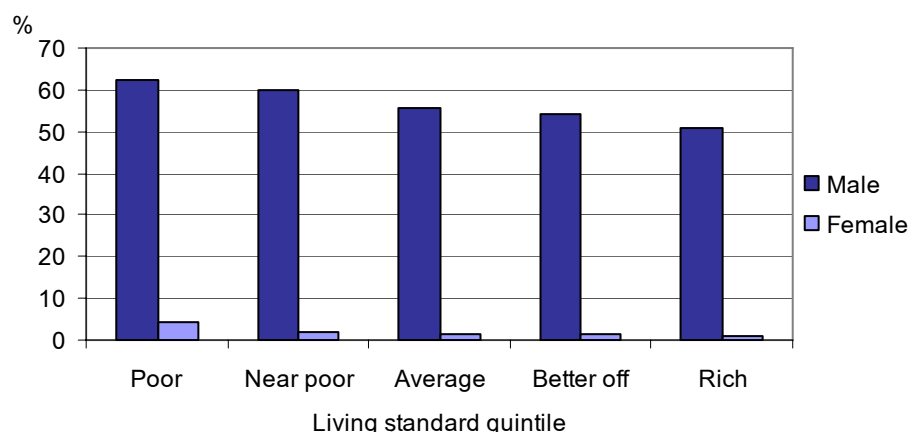


Source: VNHS 2001 - 02 [3]

Level of education influences smoking prevalence, according to VNHS 2001-2002. The lowest prevalence of smoking is found among those with higher levels of education, especially females with higher education. The association between smoking prevalence and occupation is not clear. Prevalence is slightly lower in the nonworking group compared to other groups, while prevalence is high in service occupations, eg, drivers, sales, and construction workers.

Living standards have a strong influence on smoking prevalence (Figure 10.3). The lowest prevalence of smoking (cigarettes and water-pipe tobacco) is found in the richest group. These results differ from those presented in the Vietnam Living Standards Survey (VLSS) 1997-98 [85], which reported that the rich smoke more cigarettes than the poor do, and inversely that the poor smoke more water-pipe tobacco than the rich do.

**Figure 10.3. Smoking prevalence by living standard quintile and sex, 2002**



Source: VNHS 2001-2002 [3]

### **Passive smoking<sup>3</sup>**

Passive smoking among children, primarily inhalation of tobacco smoke from parents or other family members, differs from that in adults who may choose to avoid environments with tobacco smoke. Children have no choice. According to VNHS 2001-2002, in Vietnam, 71.1% of children under 5 years of age live together with smokers. The poor and near-poor groups have the highest proportion of under-5 children living together with smokers (Table 10.1).

**Table 10.1. Proportion of children under 5 years of age living with a smoker, 2002**

Unit: %

	Urban	Rural	Overall
<b>Overall</b>	<b>71.8</b>	<b>70.9</b>	<b>71.1</b>
<b>Living standard quintile</b>			
Poor	75.5	73.3	73.5
Near poor	76.9	70.9	71.5
Average	74.9	70.4	71.1
Better off	71.5	69.2	69.8
Rich	68.8	66.4	67.7

Source: VNHS 2001-2002 [3].

A survey conducted in Hanoi indicates that over 50% of children under 5 years of age, and 56% in group aged 5 to 14 years, are exposed to passive tobacco smoke [155]. Passive smoking is hazardous to health, but public awareness about the dangers of tobacco remains limited [156].

### **Smoking cessation**

Results from a survey on a sample of people aged 14 to 25 years (SAVY 2003) showed that 71.2% of smokers have quit at least once. At the time of the survey, however, 71.7% of those who smoked at some point still smoke. Hence, smoking cessation is not an easy challenge for youth.

<sup>3</sup> Passive smoking is inhalation by non-smokers of the exhaled smoke of smokers.

According to the VNHS 2001-2002, about 11.6% of male and 14.6% of female smokers have quit smoking. Since the better off and rich groups report the highest rates of smoking cessation, the level of wealth appears to have positive effects on cessation (Table 10.2).

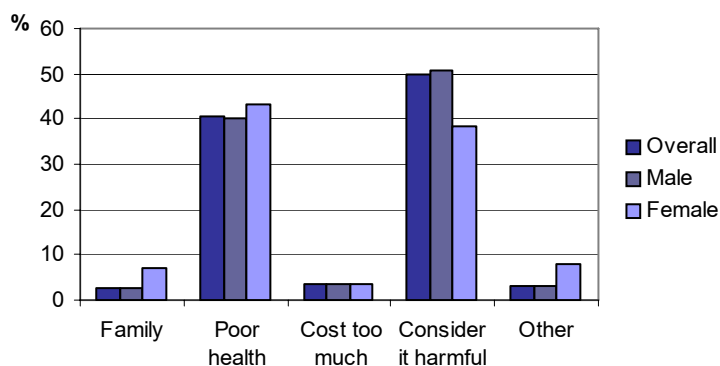
**Table 10.2. Smoking cessation rates among ever smokers aged 15 years and older in the last 5 years, by living standard and sex, 2002**

	Unit: %	
	Male	Female
<b>All groups</b>	<b>11.6</b>	<b>14.7</b>
<b>Living standards quintile</b>		
Poor	8.1	9.9
Near poor	11.2	16.4
Average	12.2	13.8
Better off	13.1	18.7
Rich	12.9	21.8

Source: VNHS 2001-2002 [3]

The reason reported for giving up smoking is that smoking could affect health. This suggests an increase in public awareness about tobacco-related hazards (Figure 10.4).

**Figure 10.4. Reasons for quitting smoking, 2002**



Source: VNHS 2001-2002 [3].

### 10.1.3. Tobacco control policy in Vietnam

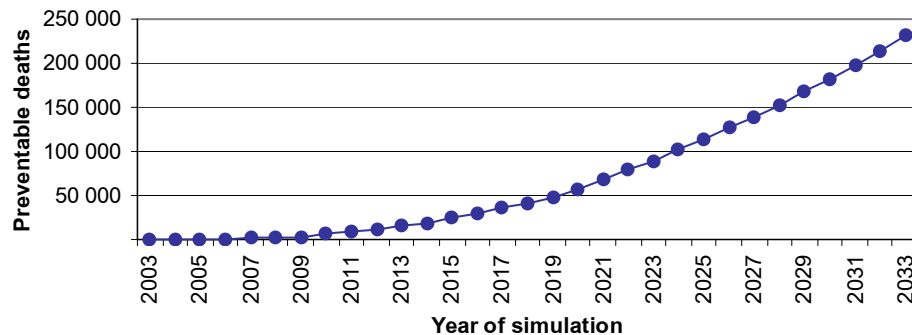
#### **Tobacco control policy**

In August 2000, the Vietnamese Prime Minister signed the government resolution, “National Policy on Tobacco-Related Harm Prevention and Control, for the period 2000-2010” aimed at “decreasing tobacco-related morbidity and mortality through controlling and lowering the supply and demand for tobacco products”.

Vietnam signed the Framework Convention on Tobacco Control on August 8, 2003. Then, on November 11, 2004 the Vietnamese government ratified the Framework Convention on Tobacco Control as recommended by WHO. The signing of the Convention and the promulgation of the National Policy on Tobacco-Related Harm Prevention and Control shows the strong commitment and resolution of the government to prevent tobacco-related harm.

Implementing the comprehensive policy on tobacco-related harm prevention and control can contribute toward reducing mortality from tobacco use (Figure 10.5).

**Figure 10.5. Cumulative number of deaths that could be prevented by implementing the comprehensive policy on tobacco control over 30 years, 2003-2033**



Source: SimSmoke Vietnam [153]

### ***Projections of patterns to reduce smoking in Vietnam***

The short- and long-term effects of the Policy on Tobacco-Related Harm Prevention and Control vary in terms of reducing smoking prevalence and thereby the tobacco-related mortality rate. A simulation model, “SimSmoke Vietnam” [153], shows that the implementation of existing policies to avoid losses, including short-term losses, needs to be intensified. Measures with a strong potential to be effective in decreasing the prevalence of smoking are; increase tax, increase information and education (IEC), strictly enforce smoke-free areas, ban advertising, use warnings, and prohibit access to tobacco by adolescents.

Given the characteristics of the natural progression of diseases related to smoking, the first phase might, in the short term, have little effect on lowering the prevalence of smokers and the number deaths. Effects of a comprehensive policy on tobacco-related harm over the past 5 years are fairly minor compared to the potential effects 30 years from now. In 2033, nearly 17 000 deaths caused by smoking could be prevented if policies are implemented comprehensively and effectively.

The trends also indicate that under a comprehensive and strong policy, the prevalence of smokers has decreased more than 35%, but the number of smokers could increase slightly over time due to population growth. If there were no effects from the policy, the number of tobacco-related deaths would increase sharply.

However, morbidity and the quality of life in the smoke-reduction model in Vietnam should be studied more in the coming years.

### ***Cost and financial burden of smoking***

A study from 2006 calculated the treatment costs of 3 diseases closely associated with tobacco use. The results of the study show that on average, per inpatient admission, lung cancer patients will spend 31.4 million VND, chronic obstructive pulmonary disease patients will spend 12.4 million VND, and ischemic heart disease patients will spend 3.7 million VND. Based on the total number of cases for all 3 diseases and the prevalence of smoking in these patients, the annual treatment costs in Vietnam for these 3 tobacco-related diseases are estimated at 1161.8 billion VND, accounting for 0.22% of GDP and 4.3% of total health spending [157].

Aside from the burden of morbidity and mortality, smoking leads to financial burdens. Documentation used in drafting the National Policy on Tobacco Prevention and Control for 2001-2010 indicated that smoking cost Vietnam about 6000 billion VND in 1998 (equivalent to

494 million USD). According to VNHS 2001-2002 [3], this cost had risen to about 8213 billion VND in 2002 (equivalent to 540 million USD), a sum that would be sufficient to purchase 2.4 million tons of rice and adequately feed 15.9 million inhabitants for one year.

Vietnam has taken steps to eliminate smoking, especially among low-income groups, as one of the measures to eradicate hunger and reduce poverty. A study on the association between smoking and expenses for basic household needs in Vietnam [158] estimated that 11.3% of households short of food (implying hunger) have smokers. These households could avoid poverty if the money used to buy tobacco would be spent on food.

To achieve favorable results in preventing and controlling tobacco-related harm, and to protect and promote community health, the effectiveness of implementing the policies on tobacco-related harm must improve. Applied to Vietnam, SimSmoke showed that many smoking-related deaths could be avoided if tobacco taxes were raised and other steps were taken, eg, enforce smoke-free areas, prevent adolescents from gaining access to tobacco, prohibit advertising, issue warnings, and integrate large mass media campaigns in policy implementation. It is estimated that the prevalence of smokers could be reduced more than 35%, and about 17 000 tobacco-related deaths could be avoided per year by 2033. By simply increasing the tobacco tax, the number of deaths from smoking would decrease considerably. A tax increase also means increased revenue to the state budget [159]. Aside from the number of deaths avoided, health service costs and tobacco-related losses in productivity would also be reduced.

## **10.2. Alcohol Consumption**

### **10.2.1. Alcohol-related harm**

Alcohol can be pleasurable for the drinker at festive occasions or after a hard day at work, but it is also a factor in traffic accidents, labor accidents, violence, and many diseases, especially mental disorders. For many years, alcohol-related problems have been viewed as a major public health problem in Western countries. Harmful alcohol use has been identified as one of the problems that public health systems in developing countries should pay considerable attention to [160].

The World Health Report 2002 indicates that 3.2% of all deaths worldwide (1.8 million deaths/year) and 4% of disability-adjusted life-years (DALYs) lost, ie, 58.3 million years, can be attributed to alcohol [54]. Also, according to the report, alcohol is the leading cause of harm to health in low-mortality, developing countries like Vietnam, accounting for 6.2% of DALYs. Among DALYs lost, one third are due to alcohol-related accidents and violence, over one third are related to mental illness, and the remaining are due to other diseases caused by alcohol. In low-mortality developing countries, alcohol is related to 8.5% of total male mortality and 1.6% of total female mortality [54].

Statistically, the proportion of alcohol-related traffic accidents and labor accidents has not yet been comprehensively and accurately calculated. At a workshop on the prevention and control of harmful alcohol use, organized by the Social Affairs Committee of the National Assembly in 2003, the National Traffic Safety Committee reported that drunk drivers caused 5.8% of road traffic accidents (from 8000 cases analyzed) [161]. However, this percentage is low in comparison to the actual situation since the police had few resources to test alcohol concentration in blood and breath at the time of the accident. Furthermore, in many cases where the victim died, the family did not agree to a test. In HCMC, 24% of accidents in 2002 were caused by drivers with alcohol detected on their breath [162]. Tien Giang province reported around 300 traffic accidents in 2002, most of which the police attributed to alcohol use [163].

Alcohol is also an agent behind family and community violence. However, in Vietnam, official data on violence associated with alcohol, eg, rape, homicide, and social disorder, are not yet collected adequately. The report by Tien Giang province at the workshop mentioned above indicated that 51% of social disorder incidents receiving administrative penalties were related to alcohol use [163].

Harmful alcohol use is also responsible for mental health problems with manifestations such as delusions, mental disabilities, or schizophrenia, and is identified as a leading cause of the mental disease burden. According to data from the National Institute of Mental Health, alcohol-related mental disorders constitute about 5% to 6% of all mental patients [135]. Harmful alcohol use can also lead to changes in the personality and mental astuteness of drinkers. The Ministry of Health report on evaluating public health programs (2002-2003) found in a survey of 67 380 persons that 14.9% had manifestations of mental illness, of which 5.3% had alcohol-related disorders and 0.3% were addicted to drugs. Hence, alcohol is a leading cause of mental disorders.

Harmful alcohol consumption has a cause-effect relationship in many chronic diseases. International studies show that alcohol correlates with more than 60 chronic diseases, eg, liver cirrhosis, gastric ulcer, digestive hemorrhage, arteriosclerosis, myocardial infarction, cerebral vascular complications, fetal defects, and peripheral neuritis [164, 165].

Harmful alcohol use also creates a heavy economic burden on society, mainly because of curative care costs and losses incurred by accidents. According to a study in France [166] losses relating to alcohol problems comprised 1.5% of GDP in 1997, exceeding the losses from tobacco-related problems (1.2%). A study in the United States reported a higher figure, 2.1% of GDP [167].

### **10.2.2. Current situation of alcohol consumption**

#### ***Alcohol consumption by gender and age***

Recent research in Vietnam reported that the percentage of males drinking alcohol is higher than that of females, though the published rates differ due to different definitions and age limitations. According to preliminary results from the “World Health Survey” conducted by WHO in 2003, of the 1820 men and 2187 women aged 18 years and older surveyed in Vietnam, the proportion of males drinking 5 or more standard drinks of alcohol<sup>4</sup> at least once a week was 61.5%, while the corresponding proportion in females was 4.8% [168].

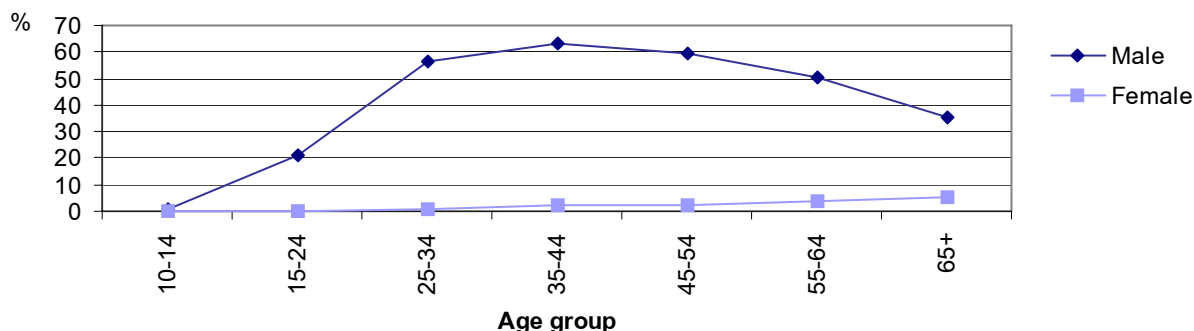
VNHS 2001-2002 found that 45.7% of males and 1.9% of females aged 15 years and over drink once or more per week, and on each occasion drink 100 ml of spirits/wine or 1 can/bottle of beer, or more [3]. SAVY reported that 69% of males and 28.1% of females aged 14 to 25 years used alcohol [94]

Alcohol use varies by age group, and available research appears to show similar trends. The proportion of males drinking alcohol has increased rapidly in those below 25 years of age and peaked with the group aged 35 to 45 years. The proportion of alcohol drinkers in working ages is high, suggesting that alcohol consumption is related to the work-related social environment (Figure 10.6). At retirement age, the proportion of male alcohol drinkers decreased, to below 40% in the group aged 65 years and older.

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<sup>4</sup> Standard drink calculated on pure ethanol concentration. Commonly, one standard drink is equivalent to 10g pure ethanol (1 can of beer 333 ml 4% alcohol content, or 135 ml wine 12% alcohol content)

**Figure 10.6. Percentage of people aged 15 years and older who consume alcohol by gender and age group, 2002**



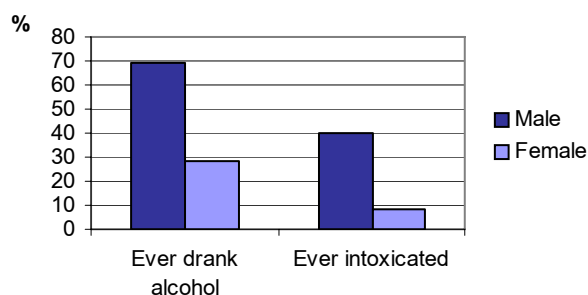
Source: VNHS 2001-2002 [3]

### **Age at initiation of alcohol consumption**

Alcohol consumption by adolescents and youth is a problem in many countries. Since young people often have a lower capacity for self-control than adults do, young people could demonstrate more dangerous behavior under the influence of alcohol, eg, causing accidents, driving at high speeds, fighting, and sexual abuse.

VNHS 2001-2002 found that one third of males aged 15 years and older who currently drink alcohol at least once a week began to drink before the age of 20 [3]. SAVY [247] indicated that in 2004, among 7584 people aged 14 to 25 years in 42 provinces/cities, 34.9% of those aged 14 to 17 years and 57.9% of those aged 18 to 21 years consumed alcohol. Figure 10.7 illustrates that 58% of male alcohol drinkers and 30% of female drinkers reported having ever been intoxicated [94].

**Figure 10.7. Percentage of youth aged 14-25 reporting alcohol use and intoxication by gender, 2003**



Source: SAVY 2003-2005 [135]

As mentioned in the VNHS 2001-2002 report, early drinking of alcohol is observed among school dropouts, low-income people, ethnic minorities in northern mountainous areas and the Central Highlands, and people living in rural areas, both male and female. Hence, intervention programs should focus on educating youth, the priority target group for limiting the negative impact of alcohol abuse.

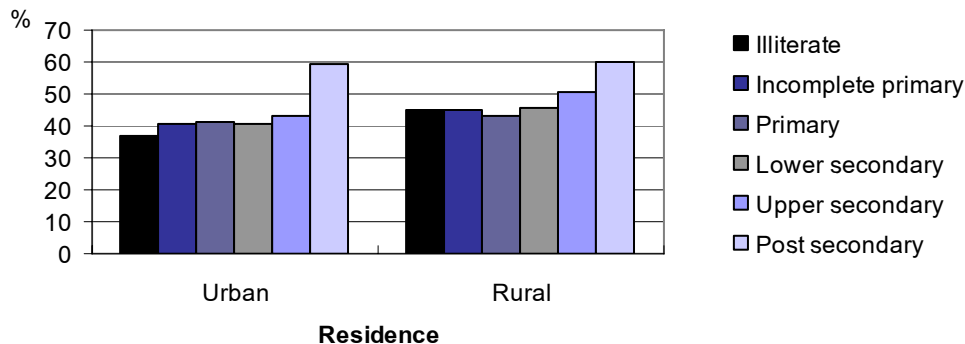
### **Alcohol consumption by sociodemographic characteristics**

All studies indicate that the prevalence of alcohol consumption is higher in the group with a higher level of education and lower among those with a lower level of education. Results presented in VNHS 2001-2002 showed that the prevalence of alcohol consumption



among males with upper secondary education and beyond is 60%, including rural and urban areas, while the corresponding prevalence among the group with less education is about 40% [3] (Figure 10.8). The study in 3 provinces mentioned above [135] found that 30% of illiterate people used alcohol at least once a week, while 77% of those in the post-secondary group did.

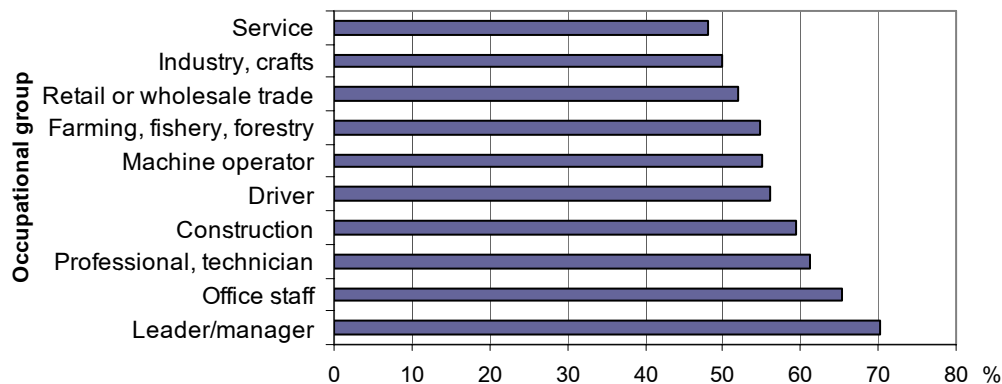
**Figure 10.8. Proportion of males drinking alcohol by educational level and area, 2002**



Source: VNHS 2001-2002 [3]

Figure 10.9 below presents the VNHS 2001-2002 results on the prevalence of alcohol consumption among males by occupation. Certain issues involving the prevalence of alcohol consumption by occupation should be of concern. First, the highest prevalence of alcohol consumption is found among leader/manager and the office staff groups, which could relate to many festive occasions, banquets, and receptions organized by public and private organizations. Secondly, a high prevalence is found in the machine operator and driver groups, which should be a concern due to the risk for accidents in traffic and the workplace.

**Figure 10.9. Proportion of males consuming alcohol by occupation, 2002**

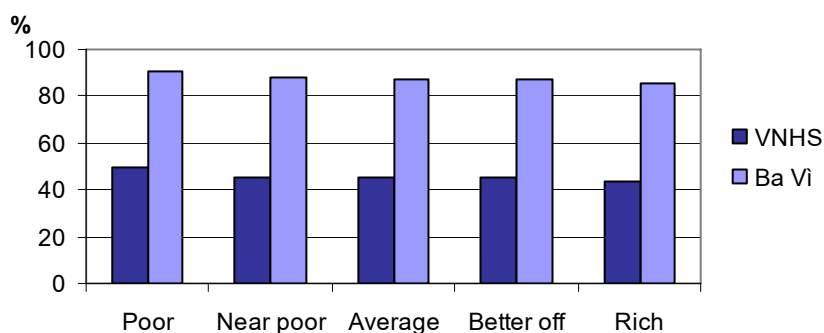


Source: VNHS 2001-2002 [3]

A study conducted in a district of the Red River Delta region shows that managers/government employees tend to drink alcoholic beverages more than farmers and others do (91% compared with 85%-87%) [169]. The study on alcohol abuse [135] also indicates that government employees consume alcoholic beverages more than farmers and others do (49%, 35%, and 20%, respectively).

Reports to date have not shown any substantial differences in the prevalence of alcohol consumption across living standard quintiles. However, prevalence among the poor in rural areas tends to be higher than that in other groups. (Figure 10.10).

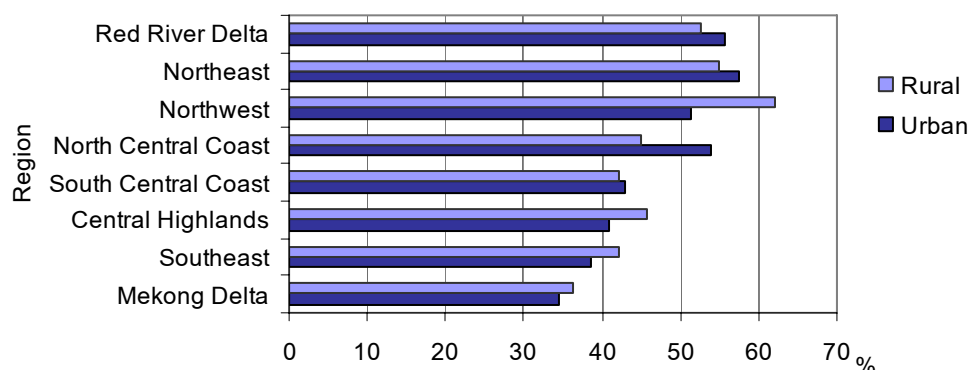
**Figure 10.10. Percentage of people consuming alcohol by living standard quintiles - Results from VNHS and a Ba Vi district survey, 2002**



Source: VNHS [3] and Ba Vi district survey [169]

Alcohol consumption is closely related to social and cultural contexts, eg, customs, tradition, ethnicity, and occupations in different regions. Hence, a clear difference is observed between regions in Vietnam regarding the proportion of males who consume alcohol. Figure 10.11 shows that the prevalence of alcohol consumption among men in the Northeast, Northwest, and Central Highlands is higher because the share of ethnic minorities in the population is higher in these regions, and they tend to have a higher prevalence of alcohol use. This proportion is also higher in the Red River Delta than in other regions due to the availability of low-cost, home-brewed alcohol. The production and sale of alcohol is widespread, due in part to the tradition of using the dregs from the distillation process to feed livestock.

**Figure 10.11. Proportion of males consuming alcohol by rural/urban and geographic regions, 2002**



Source: VNHS 2001-2002 [3]

Urban youth drink alcoholic beverages much more than rural youth do (57% and 46% respectively), according to SAVY [94]. Hence, the disparity between regions and the reasons for this disparity should be considered in planning and in forming the strategy for preventive interventions against alcohol abuse in the community.

### 10.2.3. Alcohol abuse and alcoholism in Vietnam

Alcoholism (dependence on alcohol) is the strong constant craving for alcohol consumption, which leads to the frequent urge to drink alcohol. Frequent and prolonged alcohol drinking affects the body's systems, leading to diseases such as liver cirrhosis and cancer, arteriosclerosis, high blood pressure, memory loss, depression, and alcohol-induced psychoses. Alcoholism also leads to harm in the family and community, eg, inability to work and increased criminal activity, and can easily lead to other vices such as drugs and prostitution.

The WHO standards for harmful use of alcohol are defined as follows; alcohol use is harmful when a male drinks beyond 3 cans/glasses of beer (330 ml) of concentration 5%, or 3 glasses of spirits of 30% and over (30 ml) in a day, and when a female drinks more than 2 cans of beer or 2 glasses of spirits. According to ICD-10, harmful alcohol use refers to the consequences for health caused by alcohol including mental illness, diseases of the heart, liver and stomach, and injuries. Harmful use of alcohol is also related to accidents, injury and alcohol poisoning.

National prevalence rates for alcoholism are not available for Vietnam. Only a few, small-scale assessment studies have addressed this issue. Alcohol-related morbidity in Ba Vi district was researched through clinical checkups of 585 people aged 18 to 60 years in 2003. This study found alcoholism in 8%, of the males and none of the females [169]. A study in Trung Truc commune of Hanoi in 1994 included 7986 subjects aged 15 years and older. This study detected alcoholism only in 1.9% of the males [170], of whom 50% to 60% were aged 30-50 years.

Regarding harmful use of alcohol, in Ba Vi district 2% of males aged 18 to 60 years reported harmful use of alcohol [171], while in Trung Truc commune, the corresponding rate was 6.7% [170]. Neither study detected harmful use of alcohol among females. In 2004, a questionnaire (AUDIT) survey of 3423 persons in Ba Vi found harmful alcohol use and alcoholism in 25.5% of male and 0.7% of female respondents. Research results on harmful alcohol use in 3 provinces [135], distinguished harmful use of wine and spirits from harmful use of beer. The results indicate that 36% of males used wine and spirits harmfully and 10% of males used beer harmfully, while only 1% of females used any of these substances harmfully.

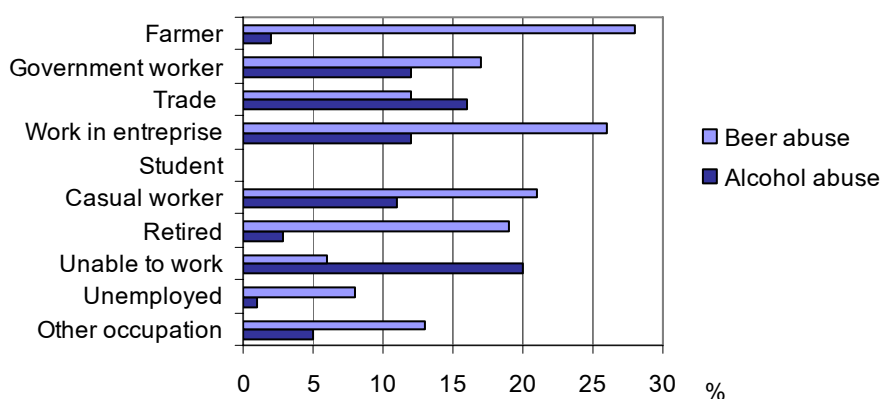
No studies adequately reflect the differences in harmful alcohol use by occupation, educational attainment, and income. However, a study from 1994 in Trung Truc commune of Hanoi showed that drivers comprised the occupational group with the greatest share (68%) of harmful consumers of alcohol, but the casual worker group had the most alcoholism [170]. According to a study by the Institute of Health Strategy and Policy on harmful alcohol use in Vietnam (2006), farmers and people working in enterprises have the most harmful consumption of spirits and wine, but retired people and small traders have the most harmful consumption of beer. The proportion of state employees reporting harmful alcohol use is at an average level, about 17% of interviewees [135].

Aside from the prevalence of alcohol use, the prevalence of heavy drinking<sup>5</sup> is an important indicator in assessing alcohol abuse since this indicator is closely associated with health and socioeconomic problems caused by alcohol. The SAVY 2003 report found that 69% of males and 28% of females aged 14 to 25 years had consumed alcohol at some time, of which 58% of males and 30% of females had ever been intoxicated. A study in Ba Vi district of Ha Tay province reported that the proportion reporting ever having been intoxicated among males was 5.7%, while the corresponding proportion among females was only 0.06% [169].

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<sup>5</sup> WHO defines heavy drinking as consuming more than 40g of ethanol in a day for males and 20g for females.

**Figure 10.12. Proportion consuming alcohol by occupation, 2005**



Source: Report on alcohol abuse - HSPI [135].

Though the studies mentioned above do not comprehensively describe the alcohol situation in the country as a whole, they provide a starting point for understanding alcohol-related harm in Vietnam and generate ideas for further research.

#### **10.2.4. Trends in alcohol consumption**

Alcohol use is widespread throughout Vietnam, in urban and rural areas alike. Drinking alcohol is a long-established habit, and alcohol is used most in social events, eg, ceremonies, weddings, lunar new year (Tet), anniversaries of death, and festivals. With socioeconomic development, the Vietnamese people have more favorable conditions for consuming alcohol, such as greater purchasing power, more social contacts, and exposure to sophisticated alcohol marketing methods.

The rapid increase in alcoholic beverages on the market has led to a rising increase in the average consumption level of beer per capita and year, which now stands at 15.8 liters in Vietnam, or nearly two thirds of the average consumption worldwide (22 liters). Average alcohol consumption per capita and year in Vietnam is 3.9 liters compared to the worldwide average of 6 liters. Comparing with Asian countries, Vietnam's alcohol consumption is at the mid-level [167]. However, it should be emphasized that the actual level of alcohol consumption in Vietnam is much higher than that reflected by reported data since the volume of alcohol produced, imported, and consumed is not comprehensively controlled or accounted for. An FAO report indicates that Vietnam has experienced a marked upward trend in alcohol consumption over the past 2 decades, with average annual consumption rising from 0.8 liter per capita in 1989 to 1.4 liters per capita in 2000 [172], however these figures only reflect industrially produced alcoholic beverages.

Alcohol consumption in the near future in Vietnam is predicted to continue rising. In recent years, GDP per capita and year increased 7% on average, but alcohol consumption increased 8% to 10%. The master plan for development of the alcohol, beer, and beverage sector in Vietnam calls for continued increases in the production targets for alcohol and beer.

#### **10.2.5. Existing policies**

The following policies on prevention and control of harmful alcohol use are being implemented in Vietnam:

- State policies on regulation of production and trade in alcoholic beverages, eg, setting tax rates, licensing of establishments selling alcohol, prohibiting the sale of alcohol in some locations, and regulations on advertising and financial support

- State policies on alcohol consumers, eg, regulations on the blood alcohol level in drivers, prohibiting state employees from drinking alcohol during working time
- Several localities have their own policies appropriate to the local situation.

However, policy implementation faces many difficulties, eg, lack of devices for alcohol breath testing, illegal alcohol imports, and widespread home-brewing of alcohol. Many policies are lacking, and existing policies have gaps and deficiencies because they are not appropriate to world realities and trends, for instance: beer with a high alcohol concentration is advertised in the mass media; domestically produced alcohol with a 15% or less concentration of alcohol is restrictively advertised; guidelines to limit the number of liquor shops are lacking; policies on controlling the production and trade of home-brewed alcohol are lacking; no policies address education, information, and communication in preventing and controlling harmful alcohol use; and policies are lacking on health care for harmful consumers of alcohol, alcoholics, and alcohol consumption by pregnant women and breastfeeding mothers.

Preventing harm from alcohol consumption is not only the responsibility of the health sector, but requires multisectoral cooperation, especially involving the following: culture and information, education, transport, industry, trade, tax, law enforcement, and mass organizations under the direction of the government. Hence, it is necessary for the government to put in place a comprehensive policy on the prevention and control of alcohol-related harm to have a basis for intersectoral cooperation to restrain the risks of health and socioeconomic problems caused by harmful alcohol use.

### **10.3. Illicit Drugs**

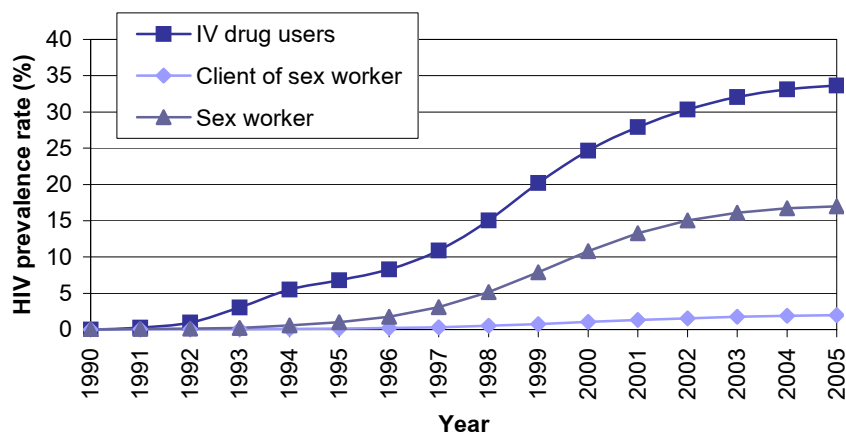
#### **10.3.1. Health problems related to illicit drug use**

Illicit drugs used in Vietnam are derived mainly from opium (opium and heroin). Marijuana, amphetamines, and ecstasy are also used to some extent. In recent years, the number of illicit drug users in Vietnam has increased rapidly, especially among young people.

In Vietnam, HIV/AIDS is closely associated with drug use, as Figure 10.13 illustrates. An estimated 56.9% of people infected by HIV/AIDS in Vietnam have contracted the disease from drug injection [28]. Thirty-three percent of intravenous drug users in Vietnam are infected by HIV, but some localities (eg, Hai Phong, Quang Ninh, and HCMC) report higher rates [27]. The Behavior Surveillance Survey 2000, reported that 9% (Can Tho province) to 42% (HCMC) of intravenous drug users shared a syringe and needle [173].

The proportion of intravenous drug users having sexual relations with female sex workers in the past 12 months is high, ranging from 18% to 59%. Hence, the risk of HIV infection among intravenous drug users, sex workers, and their partners is also high. This represents a complex problem in HIV/AIDS prevention and control [173]. The proportion of intravenous drug users has increased, and the habit of sharing or re-using needles has elevated the seriousness of the spread of HIV/AIDS.

**Figure 10.13. HIV prevalence rates in Vietnam among selected population groups aged 15-49: Intravenous drug users, clients of sex workers, and sex workers, 1990-2005**



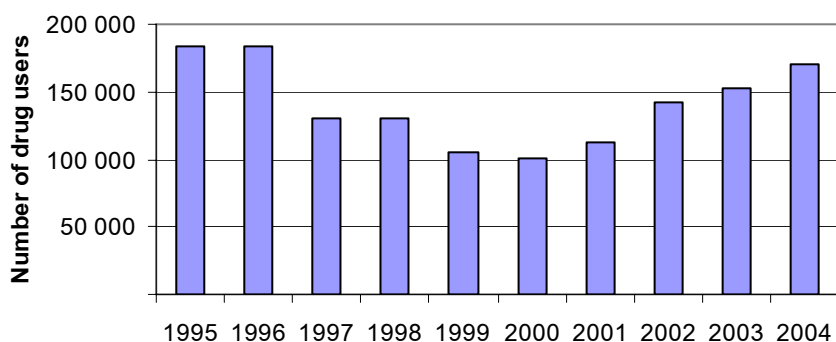
Source: MOH and VN AIDS, 2005, estimation and prediction of HIV/AIDS in Vietnam 2005-2010 [27]

Besides HIV/AIDS, other diseases spread via blood, eg, viral hepatitis and infectious diseases, due to nonhygienic syringes and needles constitute important health problems for intravenous drug users. Morbidity rates of mental and behavioral disorders related to drug use are closely associated with the prevalence of illicit drug use.

### 10.3.2. Illicit drug use

According to a UNODC report, the number of drug users in Vietnam is high and appears to be increasing, with an estimated 170 400 drug addicts at the end 2004 [174]. It is estimated that 70% of drug users use intravenous injection to take drugs. Also, according to UNODC, in 2003-2004 there were 61 775 addicts who attempted to give up drugs, of which 98% were opium addicts [175]. However, the drug rehabilitation centers can only meet 30% of the need, and the relapse rate is high, 70% to 75% [174] (Figure 10.14).

**Figure 10.14. Number of drug users, 1995-2004**



Source: UNODC, country profile Vietnam 2005 [174].

The use of drugs derived from opium has shifted from adults in mountainous regions to young people in cities/towns. In particular, opium use has changed to heroin use. The number of drug users and the prevalence of intravenous drug users continues to rise. More recently, amphetamine use presents a new challenge in illicit drug control.

Illicit drug use is widespread among males (about 90% of total users) and youth. Currently, 80% of drug users are younger than 35 years of age, and 52% are younger than 25 years [174]. The Behavior Surveillance Survey 2000 (Table 10.3) studied the distribution of drug users by educational level and found the highest prevalence among people with only a primary and lower secondary education. Also, 65% to 94% of drug users are unmarried [176].

**Table 10.3. Characteristics of intravenous drug users in 5 provinces surveyed, 2000**

Unit: %

Characteristics	Hanoi	Hai Phong	Da Nang	HCMC	Can Tho
<b>Age</b>					
<15	0.0	0.3	0.7	1.4	1.8
15-19	6.4	4.6	10.1	17.1	23.2
20-24	35.3	22.1	14.1	46.2	23.7
25-29	20.3	31.8	14.1	30.7	8.3
≥30	38.1	41.1	60.9	4.5	43.0
<b>Average age</b>	27.9	28.4	32.9	22.9	28.8
<b>Education levels</b>					
Illiteracy	0.6	0.6	2.0	15.8	4.4
Primary school	10.3	26.4	21.5	40.6	29.7
Lower secondary school	49.7	46.6	41.8	34.8	53.4
Upper secondary school	35.8	23.9	32.7	7.6	12.0
Postsecondary	3.6	2.5	2.0	1.2	0.5

Source: Behavioral Surveillance Survey Vietnam 2000 [176]

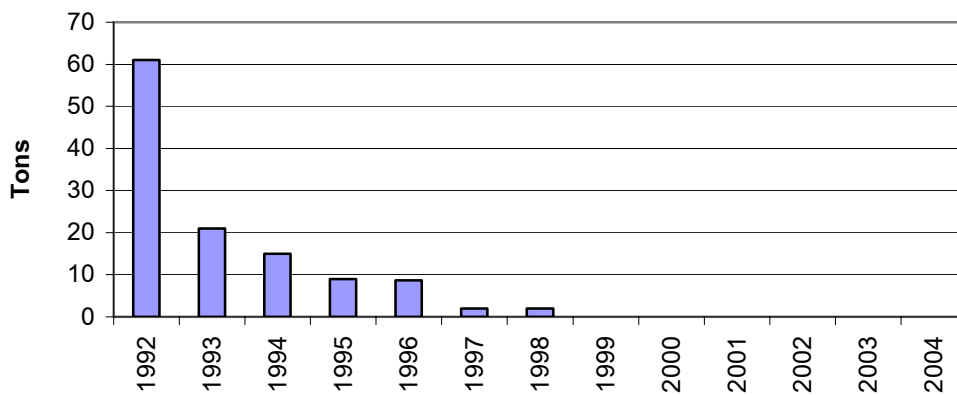
Knowledge among intravenous drug users about prevention of transmission of HIV infection is limited. The share of drug users able to answer correctly about the 3 methods of preventing HIV infection (single sexual partner, always use condom, and do not share syringe and needle) is 50% [176]. The proportion of intravenous drug users having sexual relations with sex workers is fairly high, but varies from 0.7% to 23.1%. However, a survey to assess the risk of HIV infection in 7 provinces, found a variation between 18% and 59.4% [173]. Hence, risk of HIV transmission through sexual relations is high.

### **10.3.3. Illicit drug control**

Measures taken by the program on drug control in Vietnam aimed to: eliminate opium poppy planting, prevent and control the illicit drug trade, reduce the number of addicts, implement drug rehabilitation, and reintegrate former addicts into the community.

In 2001, opium cultivation in Vietnam covered 324 hectares, and opium output was 2 tons (versus 134 tons in Laos and 1097 tons in Myanmar). Drug use continues to increase despite decreases in the area used for opium cultivation and the output of opium. Statistical data from Vietnam and UNODC show a trend of decreasing opium output in Vietnam.

**Figure 10.15. Opium production in Vietnam, 1992-2004**



Source: UNODC – Vietnam Country profile, 2005 [174].

Illegal importation of opium into Vietnam has been mainly across the border with Laos from Myanmar, Thailand, and China. Vietnam's drug control program must deal with a drug trafficking network that has widened and trades in greater quantities of opium.

The 10th National Assembly, 8<sup>th</sup> session, passed a law in 2000 on drug prevention and control, which:

Strictly prohibits drug use and illegally organizing, inciting, forcing, encouraging, possessing drugs, or supporting drug use.

Addicts aged 18 years and older, after being rehabilitated at home, in the community, or receiving education many times at the grassroots level (commune, town), who still use drugs, or those with no fixed residence, should be admitted to a rehabilitation center.

The master plan on drug prevention and control, up to 2010, specifies 6 main duties, as follows:

- Enhance public awareness about the harmful effects of drugs, develop active behavior of individuals to participate voluntarily in drug prevention and control in community.
- Prevent, stop, detect in time, and treat illegal drug transport.
- Prevent, detect in time, and eradicate opium poppy and other plants containing addictive substances. Eliminate illegal distribution of addictive, psychotropic drugs. Strictly control raw materials and prevent and stop illegal drug production from raw materials.
- Restrain the increase in new addicts, reduce relapse into drug use, strive by 2010 to achieve a 20% to 30% reduction in addicts compared to 2001, aim for 70% of communes, towns to have no addicts or drug-related violence, and aim for 90% of organizations, enterprises, administrative units, professional units, schools, and army units with no addicts.
- Diversify methods for drug rehabilitation. Aim to admit over 80% of addicts to rehabilitation in centers offering medical treatment, education, and social work by 2010
- Prevent intravenous drug use to reduce the spread of HIV/AIDS and other communicable diseases. Reduce crime among drug addicts.



## 10.4. Unsafe Sex

### 10.4.1. New norms in sexual behavior

Unsafe sexual behaviors harmful to health constitute a problem associated with lifestyle changes in Vietnam. Early sexual contact before and outside of marriage and failure to use condoms have led to higher rates of sexually transmitted diseases (STDs), especially HIV/AIDS, and higher rates of unwanted pregnancy, abortion, and births at very young ages, with risks for fatal complications.

Puberty in Vietnam is occurring at an earlier age than in the past. A comparison of data between 2000 and 1970 showed a 1-year decrease in the age of puberty [177]. Results from the SAVY report indicate that the average age of puberty is 14.5 years in females and 15.6 years in males [94]. Although 3% of males and 17% of females experience puberty at 13 years of age, the age of marriage is often later than it was in previous generations. Hence, young people currently experience a longer period between puberty and marriage, and premarital sex has become more common, including sexual contact with commercial sex workers.

According to SAVY [94], 9.6% of unmarried young people aged 14 to 25 years report having had sex (males more than females). The overall rate for males is 15.4%, although it is higher (33.4%) among urban males. Regarding first intercourse, 71.9% reported that their first experience was with a girlfriend/boyfriend, 10% with a friend, and 9.1% with a sex worker. About 85% reported having sex with only one person during the past 12 months [94]. Among married young people, 92% of people having premarital sexual relations reported having sex only with the person who later became their spouse.

Due to the sensitivity of this issue, adequate data on safe sex could not be collected.

### 10.4.2. Sexually transmitted diseases (STD)

Sexually transmitted diseases result from unsafe sexual behaviors, but the morbidity data on STDs are incomplete since many carriers have not been diagnosed. Some high-risk groups have been examined to detect their morbidity rates, which are reported in the Health Statistics Yearbook. The proportion of long-distance truck drivers, migrant workers, and intravenous drug users with STD symptoms varies from 1.1% to 7.3% (Table 10.4).

**Table 10.4. Proportion of long-distance drivers, migrant workers, and intravenous drug users with STD symptoms over the past 12 months, 2000**

	Unit: %				
	Hanoi	Hai Phong	Da Nang	HCMC	Can Tho
Long-distance truck drivers	7.3	5.6	1.3	4.8	1.7
Migrant workers	5.7	1.1	3.7	1.6	2.0
Intravenous drug users	1.6	3.8	5.3	3.7	1.8

Source: Behavioral Surveillance Survey Vietnam 2000 [176]

The prevalence of STDs among female sex workers is much higher than in the above mentioned groups (Table 10.5).

**Table 10.5. Proportion of people having STD symptoms in the last 12 months among sex workers, 2000**

	Unit: %				
	Hanoi	Hai Phong	Da Nang	HCMC	Can Tho
Street sex worker	45.4	10.4	11.1	28.0	35.0
Sex worker in Karaoke bar	33.1	13.4	7.2	33.0	3.0

Source: Behavior Surveillance Survey 2000 [176]

A quantitative survey on HIV risk, conducted in Thai Binh province, reported evidence of STD transmission from migrant workers to their spouse [178]. Regarding HIV/AIDS in Vietnam, the Ministry of Health and UNAIDS report that in 2000 about one third of sex workers had STD symptoms. The proportion of sex workers using drugs is also high, which leads to a high risk of contracting HIV and then transmitting it to others.

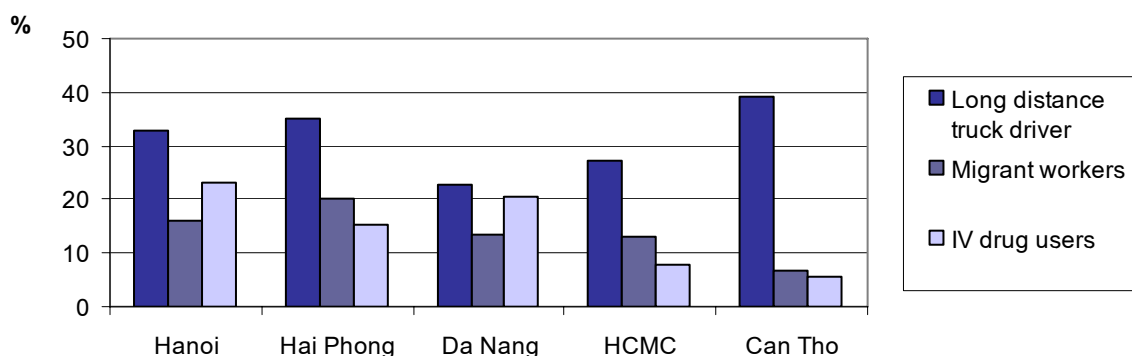
### 10.4.3. Unsafe sex

Safe sex is defined as sexual intercourse using measures such as condom to prevent the spread of STDs like HIV/AIDS. Having sex with a sex worker or with multiple partners without using condoms is considered unsafe sexual behavior with a high risk of contracting STDs.

Prostitution in Vietnam is considered to be a social vice and is prohibited. Nevertheless, prostitution is widespread. According to data from the Department of Vice Prevention and Control, MOLISA [179], Vietnam had 26 077 sex workers in June 2005. In a study on sex workers in HCMC, people concerned with prostitution indicated that the number of sex workers is increasing, and they are younger compared to those in the past [180].

Many people from different social strata have had sex with sex workers, eg, state employees, laborers, Vietnamese living abroad, foreigners, migrant workers, and students [179]. A survey on the risk of HIV infection in 7 provinces indicated that the proportion of male youth having sex with sex workers varies from 12.5% to 34.6% [173]. A Behavioral Surveillance Survey concerning HIV/AIDS in Vietnam found that [176] the proportion of males having sex with sex workers during 12 past months depends on occupation and place. The highest rate is found among long-distance drivers, for instance in Can Tho where 39% of drivers admitted to having sex with sex workers in the past 12 months (Figure 10.16).

**Figure 10.16. Proportion of males having sex with sex workers by occupation of client and province, 2000**



Source: Behavioral Surveillance Survey Vietnam 2000 [176]

Extramarital sex not involving prostitution is also widespread. The Behavioral Surveillance Survey on HIV/AIDS 2000 [176] indicated that 6% to 29% of long-distance drivers reported having extramarital sex.

### 10.4.4. Use of measures for safe sex

The prevalence of condom use is an important indicator of safe sex. However, to be safe, the correct use of condoms during every sexual intercourse should be ensured. According to SAVY [94], 98.5% of adolescents and youth know that using a condom could prevent HIV and STDs, but 70% of adolescents and youth say that condoms inhibit pleasure, implying that they may avoid condom use.

The Behavior Surveillance Survey on HIV/AIDS [176] found that knowledge among sex workers about preventing HIV by using condoms is high, from 89% to 100%, depending on where they work, ie, on the street, or in shops. A high proportion (90%) of sex workers reported using a condom during their last sexual encounter with a client. However, the proportion of sex workers reporting use of a condom in every sexual intercourse is much lower, from 32% to 79%, depending on locality and where they work. The proportion of sex workers reporting regular use of condoms when having sex with clients or boyfriends is also low [176]. The proportion of interviewed males who used a condom during every sexual encounter with sex workers varies from 50% to 85%, depending on occupation (eg, drivers or migrant workers) and locality. SAVY [94] shows that 93% of those aged 14 to 25 years use condoms when having sex with sex workers. Females and illiterate adolescents and youth in ethnic minorities are particularly vulnerable groups due to a lack of knowledge about the risk for infection with more frequent premarital sex, and condom use is lower than among the Kinh majority.

The situation mentioned above indicates that education, information, and communication (EIC) on safe sex should be promoted more effectively, especially targeted at sex workers, clients of sex workers, and drug addicts.

## **10.5. Diet and Physical Exercise**

Diet and physical exercise both play important roles in maintaining and strengthening health. Vietnam is still burdened with a high prevalence of child malnutrition (see Part A, Chapter 1). Micronutrient deficiencies, eg, vitamin A, iron, and iodine, still exist, but the prevalence of diseases caused by micronutrient deficiencies have declined substantially, eg, xerophthalmia, anemia, and goiter. Physical exercise comes mainly from manual labor and daily activities such as taking in water and wood, washing clothes, and performing other activities that burn many calories. Consequently, the prevalence of overweight and obesity remains low in Vietnam. VNHS [3] 2001-2002 shows that 2% of children younger than 10 years, and 12% of people aged 16 years and older, are overweight. The prevalence of obesity is still very low.

### **10.5.1. Diet**

According to the Nutrition Census 2000 [181], the Vietnamese diet and its nutritional value has improved considerably in comparison with the diet in 1990 (Table 10.6). While consumption of certain types of food, eg, rice, various roots, tubers, and sauces is decreasing, consumption of other types is increasing, eg, meat, oil/fat, legumes, and certain types of fresh fruit and vegetables.

Regarding nutritional value, the number of kcal has not increased, but the composition of kcal from lipid and animal protein has changed. Micronutrients in the diet have also improved. The quantity of calcium, vitamin A, carotene, B1, B2, and C has increased substantially, mainly because the consumption of fresh fruit has increased from 4 g per person and day to 62 g per person and day. The VLSS 2004 reported that monthly per capita rice consumption declined from 13.1 kg in 1999 to 12 kg in 2001-2002, and to 11.9 kg in 2003-2004. The corresponding decrease in urban areas was 9.7 kg to 9.6 kg, to 9.2 kg, respectively, but consumption of meat, legumes, peanut, sugar, honey, and molasses increased more than in previous years [84]

**Table 10.6. Nutritional value of the Vietnamese diet, 1990 and 2000**

Nutritional value	1990	2000
Energy (kcal)	1928.0	1930.9
<b>% energy from</b>		
Protein	12.3	13.2
Fat	8.4	12.0
Carbohydrates	79.3	74.9
% protein from animal	26.7	33.5
% fat from animal	92.8	90.2
Ca (mg)	488.3	524.5
Fe (mg)	9.53	11.16
A (mcg)	30.0	89.3
Carotene (mcg)	2310.0	3109.4
B1 (mg)	0.69	0.92
B2 (mg)	0.36	0.53
C (mg)	53.2	72.5

Source: Nutrition census 2000 [181]

Many chronic, noncommunicable diseases related to nutrition and lifestyle have increased. These diseases can be prevented mainly by controlling overnutrition, or unbalanced diet and nutrition. The National Institute of Nutrition has suggested recommendations on nutrition appropriate to the situation in Vietnam. Generally, the Vietnamese diet today is high in vegetables and fruit and low in fat, which is an important protective factor in public health. But, this situation could change rapidly, especially among risk groups in cities where access to high energy foods is easy.

### **10.5.2. Physical exercise**

In the World Health Report 2000, WHO identified lack of physical exercise as a risk factor for noncommunicable disease. WHO has also defined 4 types of physical exercise:

- Exercise and sports
- Manual labor
- Travel by nonmotorized means
- Housework, eg, getting water, collecting firewood, house cleaning, which requires strong physical effort.

Vietnam is still primarily an agricultural country, and 80% of the population are farmers engaged in heavy manual work. Sports and exercise are undertaken mainly by young people, the elderly, and white-collar professionals. The VNHS estimates that 65% of people aged 15 and older do not participate in physical exercise, among those with sedentary jobs this share is 57% [3].

Exercising regularly is a protective factor for health. Evidence from research shows that regular exercise helps increase levels of high density lipoproteins or “good cholesterol”, reduce hypertension, and improve body composition by burning fat, promote healthy blood sugar levels, strengthen bone density, boost immunity, alleviating stress, and reducing the risk of depression. Simply by walking regularly, people can strengthen their cardiopulmonary system

and reduce the risk of heart disease, cerebrovascular complications, diabetes complications, muscle and joint pain, hypertension, and high cholesterol. It also helps to increase bone solidity, strengthen muscles, reduce obesity, and improve and maintain body form.

The Vietnamese government is concerned with directing and investing in physical exercise and sports, and how to develop these activities widely across the population, primarily among young people and the elderly. From 2005, a program has been implemented on improving the stature and health status of the Vietnamese population. The objective of this program is to use exercise to increase height and cardiac output in male and female youth to a level equivalent to that of average Japanese youth. The main interventions involve advising families on nutrition, physical exercise, and sports.

To promote physical exercise and sports, the government launched the slogan, “Stay healthy to build and protect our country”, aimed at getting 18% to 20% of the population to participate in regular physical exercise and sports by 2010. VNHS 2001-2002 found that 34.9% of people aged 15 years and older get physical exercise or participate in sports, of which half do it regularly, 5 or more times per week.

However, as mentioned above, the proportion of manual laborers is high in the occupational structure of Vietnam. Hence, most Vietnamese people maintain health through the physical exercise required in their daily lives. As regards those with sedentary jobs, eg, managers, professionals, technicians, office staff, service workers, traders, and drivers, 43% get regular physical exercise [3]. The proportion of school children getting regular physical exercise is high since the schools provide physical education programs. The lowest rate is found in the group aged 25 to 34 years, but this rate increases to 55% among the group aged 55 to 64 years, and then drops to 37% in the group aged 65 and older.

The average time spent on exercise is 151 minutes per week (about 20 minutes per day). Maintaining and increasing the number of people doing exercise is useful in protecting people’s health and promoting health in the future.

## **10.6. Conclusion**

Lifestyle choices have major positive and negative impacts on health. However, in the past 5 years (2001-2005), society has become more aware of the negative effects of tobacco, alcohol, addictive drugs, and unsafe sex, and about the potentially positive effects of diet and physical exercise. Many intervention policies have been developed and implemented with the aim to encourage and motivate health-promoting behavior. In Vietnamese society, lifestyle choices are considered to be individual choices, but the government has a responsibility to ensure that people can make informed choices. Moreover, the government also has a responsibility to reduce externalities resulting from lifestyle choices affecting the health of other individuals and the community, eg, reducing smoking and decreasing traffic accidents caused by alcohol or drugs.

# PART C. HEALTH SERVICES

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The chapters in this section of the report provide contrasting viewpoints on healthcare services from user and provider perspectives. The section begins by assessing the need for health services among the population, the health-seeking behavior of various population groups, the substantial financial burden that falls on households when they seek care, and the various programs designed to assist specific vulnerable population groups in seeking care. The following chapters analyze how the healthcare network, including grassroots health care, preventive medicine, and the hospital network develop to meet the healthcare needs of the people.

## Chapter 11

### HOUSEHOLD PERSPECTIVE ON HEALTH CARE

The need for health care varies considerably by age and sex. As the living and working environments of population groups differ, so their lifestyles also differ, resulting in variations in healthcare demands according to living standards and geographic area. In general, the delivery of preventive health services is not driven by individual demands, but by social needs and the responsibilities of health service providers. The delivery of medical care, however, is driven more by the patient's condition, including factors such as the pattern and severity of illness, geographic region, and ability to pay.

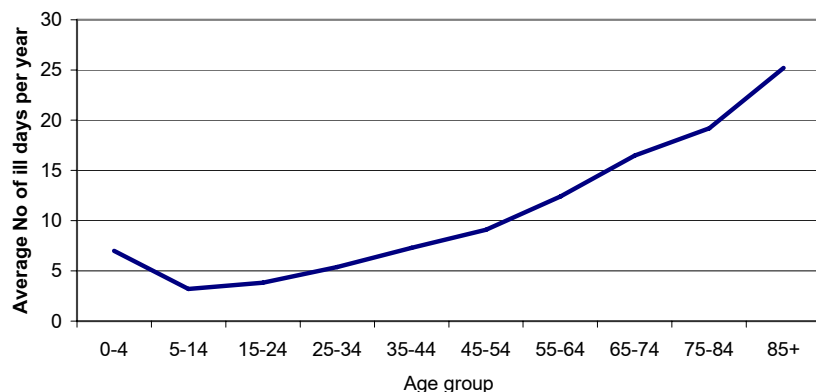
This chapter analyzes the need for health care from the perspective of the care recipient, ie, from a household perspective.

#### 11.1. Need for Healthcare Services

The Vietnam National Health Survey (VNHS) 2001-2002 reported that the average number of illnesses in Vietnam is 1.5 episodes per capita per year (includes only episodes affecting normal activity, eg, work or school). Hence, the Vietnamese population experiences 123 million episodes of illness annually. The survey also reported that 3% of the population, particularly the elderly, have different disabilities that place special demands on health care. Vietnam has 1.5 million births annually, requiring a broad range of services, eg, prenatal, delivery, and newborn care [9].

Health conditions vary widely by age group. Children are prone to infectious diseases, while adolescents are more likely to suffer from injury, and the elderly are susceptible to noncommunicable and chronic diseases. Over a 4-week period, 17% of children younger than 5 years reported illness, versus 7% of adolescents and youth in the group aged 15-24 years. Among the middle-aged (45-64 years) and elderly, illness increases with age, ie, the higher the age, the higher the prevalence of illness. In the group aged 85 years and older, 18.5% self-reported having some illness within the past month. Mean days of illness within the past 12 months follow the same pattern (Figure 11.1). Children have 7 days of illness yearly while adolescents have 3.8 days, and this increases to 25 days of illness by 85 years of age. The prevalence of disability increases with age, as does self-reported poor health, eg, 5% of the 15-24 age group report having poor health. This rate increases to 50% in the 65-74 age group to as high as 81% at 85 years of age and older [3].

**Figure 11.1. Annual days of illness by age group, 2001-2002**



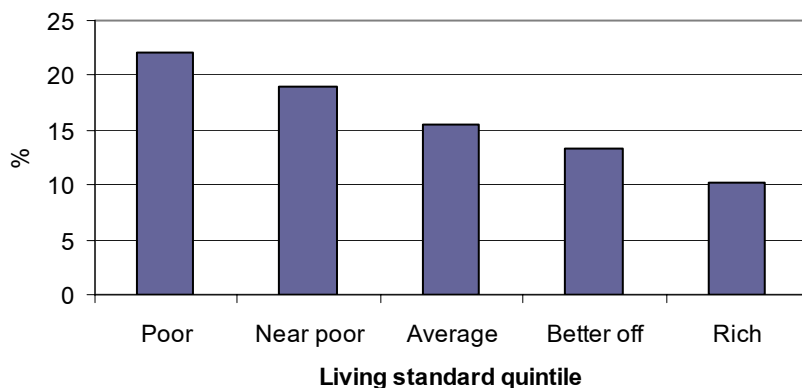
Note: Illness days refers only to illness that affected normal activities, eg, work or school

Source: VNHS 2001-002 [3]

Living standards also affect healthcare needs. Among people aged 15 years and older, 22% of poor people reported weak health, compared to 15.5% among average income people and 10% among rich people (Figure 11.2). About 18.2% of poor households have a disabled member, versus 13% and 8.3% of middle and rich households, respectively. Data from VNHS indicate a greater demand for reproductive health services among the poor, eg, within the previous 5 years, 70% of poor women aged 15 to 49 years gave birth, versus 48% of average and 39% of rich women, respectively.

The prevalence of severe illness requiring the patient to be bedridden is 6.4% among the poor versus 3.3% among the rich. Cause-of-death data show that 5.2% of deaths among the poor occur in the perinatal period and an additional 21.2% are from infectious diseases versus 2.2% and 12.0%, respectively, among average-income people [3].

**Figure 11.2. Proportion self-reporting weak health among people aged 15 and older by living standards (age standardized for each quintile), 2002**



Source: VNHS 2001-2002 [3]

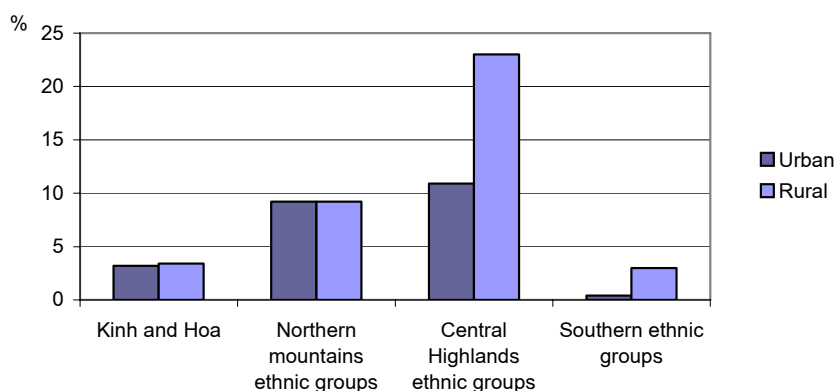
The model of health service utilization varies along with variations in the patterns of disease, severity, living standard, and residence. One concern is that the target group is comprised of people who need health services, but are unable to access the appropriate level of care. Another concern is affordability, ie, so that health services do not lead to impoverishment of households.

A third concern is whether health insurance would alter people's behavior in seeking health services. Can health insurance enhance the possibilities for the poor to seek the level of service most appropriate to their healthcare needs (particularly people in mountainous areas that face many geographic and language barriers)?

## 11.2. Untreated Illness

Generally, the rate of untreated illness is fairly low (Figure 11.3). Most sick people want to recover rapidly. Their choice of treatment depends partly on the severity of illness. Some diseases run their course, and the patient recovers without treatment, while some people are highly resistant to illness. In these cases, an untreated illness may not affect the person's state of health. About 4% of health problems go untreated [3], but in the elderly the rate is rather high, about 30% [182].

**Figure 11.3. Proportion of ill people not seeking treatment by ethnic group, 2002**



Source: VNHS 2001-2002, Table E.1.4 [3]

Untreated illness is more common in the poor than in other groups. As mentioned above, the poor present a high need for health care, but their access to care is somewhat lower than that of other groups. The Sentinel Surveillance Survey 2001-2002 undertaken by the Ministry of Health in selected provinces found that in North Vietnam as many as 40% of the poor go untreated when ill [183]. Figure 11.3 shows a higher rate of nontreatment among ethnic minorities in the North and Central regions and the Central Highlands compared with the Kinh-Hoa ethnic and ethnic minority populations in the South. In rural areas, particularly in the Central Highlands, 22.3% do not seek treatment when ill. [3]

Many reasons can explain nontreatment. The most common is that people can recover from mild disease episodes without treatment. Another reason relates to incurable diseases in the elderly. Although these are the most evident reasons, financial problems also present a major concern. Data from VNHS 2001-2002 show that among people who self-reported being critically ill and who did not seek treatment, 32% were unable to pay or were already in debt, and 3% reported that facilities were too far away or they had no means of transportation [3]. Results from multivariate analysis of health service utilization in diarrhea patients has shown that severity of disease has a greater impact on utilization of health services than do financial issues [184].

In contrast to the general population, the poor give "economic difficulty" as the leading reason for nontreatment [185, 186]. Among the poor, 53% in the poorest quintile report that economic difficulty is the main reason they do not seek treatment when they suffer severe illness [3]. The same result applies among the poor in some rural areas. Financial factors, including indirect expenses for health care, are a major obstacle in access to health services among the poor [3, 183].



### 11.3. Self-Medication

Self-medication is a common health behavior among people seeking health care. While the nontreatment rate is relatively low, the self-medication rate is very high, even among the rich. This rate is lower in people having health insurance. According to VNHS, the rate of self-medication represents 73% of all episodes of illness annually. In children younger than 5 years, the rate is lower (66.5% of cases) [3]. Another study shows that the rate of self-medication is also high among the elderly, about 50% to 70% of illness episodes [182].

There are many reasons behind the high rate of self-medication in Vietnam. People with previous experience of mild or moderate illness (even severe illness) commonly self-medicate with available drugs. Self-medication in chronic patients, particularly the elderly, is often based on utilization of previous prescriptions or experience treating similar symptoms.

Self-medication presents high risks to health, including errors in diagnosis and treatment and drug misuse with the risk of adverse effects or drug interactions [187]. In Vietnam, drug resistance is at alarmingly high levels [188]. Moreover, self-medication can lead to wasteful expenditures for patients and health services alike. Free trade in drugs and self-medication are growing due to deficient drug management legislation, expansion of drug marketing and trade, and progressively increasing personal income.

### 11.4. Utilization of Health Services

The annual rates of access to health services are; 280 contacts per 100 inhabitants for public health services and 287 contacts per 100 inhabitants for private health services (VNHS 2001-2002) [3]. The utilization of health services varies by economic and geographic conditions. Health service researchers need to investigate where people seek care and the quality of services they use. The following analysis addresses economic and geographic factors and the influence of health insurance on quality of health services that people choose.

#### 11.4.1. Inpatient services

Utilization of inpatient services does not differ between the rich and poor (5.8 times per 100 inhabitants per year). However, the choice of health service quality differs markedly. Low-income people do not have the access to high-quality health services that high-income people do. The poor tend to seek inpatient care at commune health stations (CHS), regional polyclinics, or district hospitals whereas the rich are increasingly likely to access provincial/central hospitals. A higher share of the poor choose to use district hospitals for inpatient care, representing 42% of inpatient stays versus 16.9% among the rich quintile. About 14.4% of the poor versus 5.4% of the rich use the CHS for inpatient care. In contrast, the poor use provincial/central health services for inpatient care at a markedly lower rate than the rich do (Table 11.1) [3].

**Table 11.1. Distribution of inpatient stays by facility and living standard quintiles, 2002**

Living standard quintile	CHS/ Regional polyclinic	District hospital	Provincial hospital	Central hospital	Other public facility	Private facility	Total
<b>Overall</b>	<b>15.8</b>	<b>33.3</b>	<b>34.5</b>	<b>7.6</b>	<b>4.5</b>	<b>4.3</b>	<b>100.0</b>
Poor	24.4	42.0	23.4	3.9	2.3	4.0	100.0
Near poor	22.8	36.9	26.4	5.9	3.5	4.5	100.0
Average	15.6	37.4	33.1	5.5	4.2	4.2	100.0
Better off	10.1	32.4	39.4	9.3	5.3	3.6	100.0
Rich	5.4	16.9	51.0	13.8	7.5	5.4	100.0

Source: VNHS 2001-2002 [3]

The percentage of patients going directly to inpatient care facilities compared to the percentage referred from a lower level differs markedly by standard of living. The poor are less likely than the rich to go directly to an inpatient facility (about 69% versus 85%, respectively), but the poor are more likely than the rich to be referred from a lower level of care (27% versus 11%, respectively) [3]. Hence, the rich are likely to access health services directly as they wish, while the poor tend to be referred. The high referral rate of low-income people may be due to having poor access to health services, meanwhile poor people face the risk of their illness becoming more severe if not treated promptly. Difficulty in choosing an appropriate health service and difficulty in transportation contribute to lower access to health services among the poor [183].

#### 11.4.2. Outpatient care services

People in Vietnam commonly choose private providers for ambulatory care. About 53% of the poor and 63% of the rich use private outpatient services [3]. Results from other studies have shown that the percentage using private health services fluctuates between 20% and 30% [183]. There is a marked difference in the annual mean episodes of care from private providers, with 2.9 episodes for the poor versus 4.7 episodes for the rich [3].

**Table 11.2. Distribution in utilization of outpatient facilities by living standard, region, and health insurance coverage, 2001-2002**

	CHS/Regional polyclinics	District hospital	Provincial/central hospitals	Total	Number of observations
<b>Overall</b>	<b>50.2</b>	<b>24.0</b>	<b>25.8</b>	<b>100.0</b>	<b>19 572</b>
Poor	63.8	23.3	12.9	100.0	3 486
Middle	56.7	26.0	17.3	100.0	6 940
Rich	37.3	22.4	40.3	100.0	9 146
<b>Mountainous areas</b>					
Overall	61.5	25.3	13.2	100.0	5 021
Poor	70.6	21.8	7.6	100.0	1 783
Middle	63.1	26.4	10.6	100.0	1 831
Rich	41.1	30.1	28.9	100.0	1 407
<b>Delta region</b>					
Overall	45.6	23.5	30.9	100.0	14 551
Poor	53.9	25.5	20.6	100.0	1 703
Middle	54.2	25.8	20.0	100.0	5 109
Rich	36.6	21.1	42.3	100.0	7 739
<b>Health insurance</b>					
Overall	34.3	33.0	32.6	100.0	4 437
Poor	46.7	39.4	13.9	100.0	502
Middle	44.8	39.1	16.1	100.0	1 196
Rich	26.0	28.4	45.6	100.0	2 739
<b>No health insurance</b>					
Overall	54.4	22.0	23.6	100.0	11 950
Poor	64.1	21.6	14.3	100.0	2 268
Middle	58.2	23.7	18.0	100.0	4 680
Rich	44.0	20.1	35.9	100.0	5 002

Source: VNHS 2001-2002 [3]

### **11.4.3. Living standards and utilization of health services**

Table 11.2 shows the high percentage of poor people accessing grassroots health care. This percentage is also high in the group with middle incomes. About two thirds of the poor, half of the middle-income group, and one third of the rich use the CHS for outpatient care.

The percentage using district hospitals shows no marked differences by standard of living, with one fourth to one fifth of all people using the district hospital for outpatient care. A relatively high percentage of the rich (about 40%) use provincial/national hospitals, which is markedly higher than groups with middle and poor living standards.

### **11.4.4. Geographic factors and utilization of health services**

Geographic conditions greatly affect access to health services. In general, people in mountainous areas (regardless of economic condition) access health services less frequently than do people in delta regions. In mountainous areas, the poor mainly contact the CHS (up to 70%), markedly higher than people in lowland regions. Few people in mountainous areas have the possibility of reaching the higher levels of health services. In this respect, their possibility to reach higher-level health services is about one third that of people in lowland regions (see Table 11.2). In mountainous areas, the rich have 4-times greater access to high-level health services than poor people do. Combined, the double influences of geographic and economic factors mean that access to health services by the poor in mountainous areas is 6-times lower than access of the rich in delta areas, a relatively wide gap. Given the difficult access to health services by poor people in delta regions, the difficulty of poor people in mountainous areas is even more accentuated. Geographic factors not only affect the poor, but also affect all other income groups. This effect, however, is most marked among the poor.

### **11.4.5. Health insurance and utilization of health services**

Among the insured, the utilization of higher-level health services differs between high-income (rich) people versus middle- and low-income (poor) people, despite the availability of health insurance. The VNHS analysis shows a difference of 3.2 times between the rich and poor, and a difference of 2.8 times between the rich and middle-income people. Hence, wide gaps exist between the rich and all other groups in accessing higher-level health services. Astonishingly, the gaps are smaller among people with no health insurance compared to those with health insurance. Utilization of higher-level health services by rich people without health insurance is 2.5 times higher than utilization by the poor, and 2 times higher than utilization by the middle-income group. Among the rich, utilization of higher-level health services by the insured is markedly higher than utilization by the uninsured (46% versus 36%), while among the poor the rates are nearly the same (13.9% versus 14.3%).

Although health insurance appears to have only minor beneficial effects on utilization of higher-level health services by the poor, it has noticeable beneficial effects on the utilization of district-level health services by both the low- and middle-income groups. Low-income people with health insurance utilize district hospitals 2 times as much as people with no health insurance (utilization by middle-income people with health insurance is 1.6 times as much). This indicates that health insurance can help low- and middle-income people gain access to health services at the district level. A well-designed health insurance program can help households that have a poor economic situation. In the future, it is important to increase health insurance coverage and invest in appropriate health services at the grassroots level to ensure access to essential health services for the poor and other groups.

#### **11.4.6. Reproductive health care**

Utilization of prenatal health services markedly affects maternal and neonatal mortality and the quality of life for the child. Place of birth is an important indicator reflecting healthcare standards and utilization of health services by women. Delivery at home is less safe than in healthcare facilities due to the risk of obstetric complications. The VNHS 2001-2002 shows marked differences in place of birth among different population groups. In general, about one fifth of childbirths take place in the home, about one third at the CHS or polyclinics, and more than one third in hospitals. Place of birth, however, differs by living standard. Nearly half of low-income (poor) women deliver at home, 10 times higher than the rate for high-income (rich) women. Inversely, the percentage of high-income women delivering at a hospital is 3 times that of the poor and 2 times that of middle-income women. Geographic area markedly affects whether or not delivery takes place at home. More than 70% of poor women in mountainous areas give birth at home, i.e. 3.5 times higher than among women in delta regions. About half of deliveries in mountainous areas are assisted by health workers. The main reasons for delivery at home in mountainous areas are remoteness, ie, too little time to reach health service facilities, women do not consider it necessary to deliver at a health facility and to a lesser extent, economic difficulty (VNHS) [3]. Regardless of the reason, this situation means that over half of the women living in mountainous areas face high risks when they deliver a baby. This can be attributed to the fact that the healthcare network in mountainous regions is insufficient and inappropriate, and people do not fully understand the importance of giving birth in a healthcare facility.

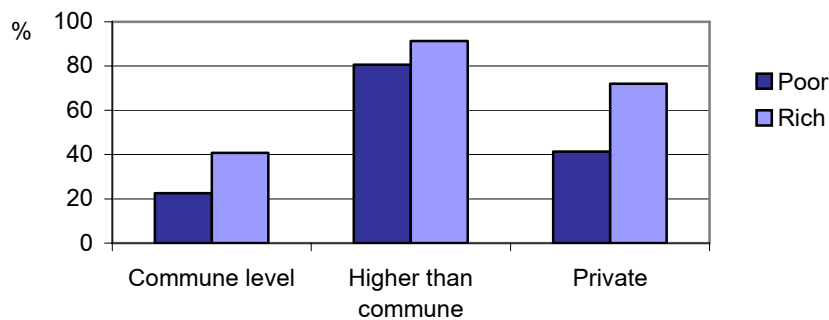
Such high percentages of home deliveries will certainly contribute to difficulties in further reducing maternal and infant mortality rates (MMR and IMR). To enhance life expectancy of the Vietnamese people, and reduce the fertility rate and maternal and infant mortality rates, the health system (particularly health programs concerning reproductive and maternal and child health) must focus on women in mountainous and remote areas.

#### **11.4.7. Contact with doctors**

Many factors can affect the quality of health services, eg, physical facilities, equipment, drugs, health service management, and especially human resources (including knowledge, competence, spirit, attitude, and professional ethics). Patients base their assessment of the quality of care mainly on their impressions about the type of health facility or the actual caregiver who treated them. Usually, people perceive that higher-level facilities provide a higher quality of care than lower level services do, and also that contact with a doctor is better than contact with an assistant doctor or nurse. The analysis presented above indicates that the poor usually have contact with grassroots health services and rarely contact a level of care higher than the district level. Likewise, this section shows that the poor also have less contact with doctors than do people with a higher standard of living (Figure 1.4).

Results of the VNHS show that a much higher percentage of pregnant women from the high-income group (63%) versus the low-income group (26%) are examined by a doctor when obtaining prenatal care. The proportion of pregnant women immunized against tetanus is much lower among the poor (54%) than among the rich (83%) [3]. Analysis of patients with diarrhea has shown that access to hospitals among the richest group is 4 times higher than among the poorest group. The percentage of the rich receiving medical care from a doctor is very high (85%) in contrast to the poorest group (29%) [3]. Likewise, satisfaction with health services is shown to be highest among the rich (22%) in contrast to the poorest group (7%). Analysis of the effects of Decision 139 (Healthcare Fund for the Poor) arrived at the same conclusion [189]. The quality of health services received by the rich and the poor differ. In outpatient services, the rich are more likely to receive medical care from a doctor than are the poor.

**Figure 11.4. Share of outpatients examined/treated by a medical doctor by type of facility in the richest and poorest living standard quintiles, 2002**



Source: VNHS 2001-2002 [3]

In conclusion, the quality of health services received varies substantially by income group, with low-income groups using lower-level health services to a greater extent than high-income groups.

## **11.5. Health Spending and Burden of Expenditures**

Health expenditures are a burden when a household member is ill, even in rich households. The analysis presented above has shown that the poor tend to seek health services at a lower level than do the rich. However, in response to the question of whether lower-level health services reduce the burden of health expenditures for the poor, the answer is that health expenditures, even when lower, remain a major financial burden for the poor.

### **11.5.1. Burden of health expenditures for inpatient care**

Generally, expenditures for inpatient treatment are considerable. Rich groups spend 2.5 times more than poor groups. Inpatient treatment accounts for the greatest share of health service expenditures. Among 3 income groups, the opportunity cost of time lost due to illness accounts for the highest share in the poor (26%), representing one fourth of total healthcare costs. As reflected in Table 11.3, health expenditures remain a substantial burden for the poor, even though they seek lower-cost health services at the commune and district levels more than the higher-income groups do.

**Table 11.3. Total household expenditures for an inpatient stay compared to monthly per capita non-food expenditures, 2002**

	Inpatient care spending for insured patient	Inpatient spending for patient benefiting from exemption/reduction in fees	Inpatient spending for patient paying entirely out-of-pocket	Monthly per capita non-food expenditures
<b>Level of spending (thousand dong)</b>				
<b>Overall</b>	<b>874</b>	<b>631</b>	<b>1265</b>	<b>128</b>
Poor	476	438	769	44
Middle	546	542	1003	77
Rich	1138	1194	1817	219
n*	2275	1555	5978	28 415
<b>Ratio between spending for one inpatient stay compared to monthly per capita non-food expenditures</b>				
<b>Overall</b>	<b>6.9</b>	<b>4.9</b>	<b>9.9</b>	
Poor	10.7	9.9	17.4	
Middle	7.1	7.1	13.1	
Rich	5.2	5.4	8.3	

Source: Healthcare financing from a household perspective [190]

In the low-income group without government assistance for illness, the mean expenditure for an episode of inpatient treatment is equivalent to 17 months, or about one and a half years, of per capita non-food household expenditures. Even with health insurance or exemptions, the burden of healthcare expenditures remains very high for the poor, equivalent to 10 months of per capita non-food household expenditures. Although health insurance or exemptions somewhat reduce the expenses, the poor find it difficult to seek inpatient treatment. For the rich, however, health insurance can markedly reduce health expenditures, ie, 5.2 months of per capita non-food expenditures in the group with health insurance versus 8.3 months in the group without health insurance.

### **11.5.2. Burden of health expenditures for outpatient treatment**

The burden of expenditure on the poor for outpatient treatment is also higher than that for the rich, but the differences are not major. In the groups paying for health care entirely out-of-pocket, the rich spend about 1.6 times more than the poor. It is evident that outpatient expenditures are much lower than inpatient expenditures. For patients with health insurance or an exemption, hospital fees expenditures are at an acceptable level, i.e. 7% to 25% of monthly per capita non-food expenditures. However, for poor households paying out-of-pocket, these expenses can represent up to 75% of monthly per capita non-food household expenditures. This remains a great burden, particularly with chronic illness requiring prolonged treatment and repeated outpatient medical visits [190].

### **11.5.3. Burden of spending for catastrophic health care**

One must be constantly on guard against the "poverty trap" of catastrophic episodes of expensive health care [191]. For the poor, or even for the well-to-do, a catastrophic episode of expensive inpatient treatment can easily lead to indebtedness or poverty. As examples, this study looks at common illness such as pneumonia in children, appendicitis in adults, stroke in the elderly, and intracranial injury that can present in any age group. Inpatient expenditures are compared to monthly household income, and the analysis shows that expenditures for inpatient episodes constitute a major burden on people.

The Health Policy Unit studied hospital expenditures in more than 30 large hospitals nationwide and in 2004 reported that the average cost for an episode of care was 835 000 VND for acute pneumonia in children younger than 5 years, 1 457 000 VND for appendicitis, 1 943 000 VND for stroke, and 2 806 000 VND for intracranial injury [192]. These costs, in comparison to average non-food expenditures of 128 000 VND in 2002, indicate the enormous burden of healthcare expenditures [87].

Other studies have also addressed the burden of health expenditures on the poor in Vietnam. A study of diarrhea found that health expenditure of the poorest quintile is 3 times higher than that of the richest quintile. Among the poor, the opportunity cost of seeking medical care for an episode of diarrhea accounts for about two thirds of monthly non-food expenditures, about equal to the cost of the healthcare expenditure itself [184]. The burden of these expenses on the poor is markedly greater than the burden on the rich, where these expenses represent only one fourth of monthly non-food expenditures. An assessment by the World Bank also shows that the burden of health expenditures on the poor is markedly greater than on other groups [193].

Another way to assess the burden of health expenditures is to study indebtedness due to health care. A study on the effects of the Healthcare Fund for the Poor found that 60% of the indebted poor had gone into debt to pay for inpatient care [189]. The VNHS reported that one third of inpatients went into debt to pay for health expenditures, and that 10% of these patients had to sell their assets and 3.3% still remained in debt after selling their assets. The percentage in the low-income group who go into debt to pay for inpatient treatment is markedly higher than the percentage in the average- and high-income groups. Up to two thirds of the poor sell assets or become indebted to cover health expenditures. Also, a high percentage of people with an average living standard, but without health insurance, must sell assets or go into debt. This situation indicates that health care is a heavy burden even in households with average living standards. Health expenditures for people with health insurance are somewhat lower, and the percentage of households that must sell assets or go into debt is lower than in people without health insurance [190].

Recently, Vietnam promulgated policies to enhance accessibility to health services for the poor [186]. Preliminary evaluations reveal encouraging results: the poor are better able to access health services, and health expenditures are lower among people having a free healthcare card (under Decision 139, the Health Care Fund for the Poor) due to reduced out-of-pocket payments [189]. However, bridging the gap between the poor and those with average living standards is currently no small challenge for the Vietnamese health system.

## **11.6. Benefits of State Policy Targeted at Vulnerable Groups**

### **11.6.1. Decision No 139 and the poor**

Many low-income people are benefiting from the promulgation of Decision No 139, ie, the Health Care Fund for the Poor (HCFP). This program covers 14.3 million people, ie, about 17.5% of the general population. In 2003, there were 11.0 million low-income people benefiting from Decision No 139, which was 3 times the number reported in the previous period [194].

A study on the effects of the HCFP on poor households in some rural areas in Vietnam has shown that its implementation has contributed toward reducing self-medication and has enhanced access to and utilization of health services. Up to 30% of low-income people benefiting from the HCFP reported that they utilize health services more frequently than before. Over 70% of low-income respondents gave "reduction of expenditures" as the main reason for their increased utilization. In this study, the CHS was the site most frequently visited in seeking health care (58% and 81% respectively in the two provinces studied) [189]. The primary reason for the increase in the use of commune-level health services by the poor is that the HCFP directly pays the CHS [3].

The HCFP has had a positive effect on the utilization of health services by the poor, particularly as regards inpatient services. Findings from a study on the effects of the HCFP clearly show an increase in annual inpatient care utilization when compared to VNHS data. Prior to the HCFP, 5.8% of low-income, rural inhabitants utilized inpatient services [3], but with the HCFP this rose to 8.4% and 11.2% in the two provinces studied [189].

A study on the effect of the Healthcare Fund for the Poor indicates a low utilization rate of the health insurance card. In the two provinces studied, only 55.4% and 76.6% of low-income households used their health insurance card when seeking medical care from public health services. Given this situation in two provinces of the delta region, it is highly probable that the rate is even lower in the mountainous regions. Findings from household surveys and qualitative studies indicate that the most common reason for not using the health insurance card is the lack of knowledge about the card and its benefits. Over 60% of the non-users state that they do not know "how to use the card" when seeking health care. Despite some limitations in the use of the HCFP, most poor people (84% and 94% in the two provinces studied) perceive it to be beneficial [189]. A study by the Health Policy Unit of the Ministry of Health [195] in 10 provinces/cities shows that, owing to the health insurance card, utilization rates for health services have increased considerably, contributing to enhanced function and quality of the commune health network.

However, after 2 years of implementation, the policy has yet to be adequately deployed. To fully benefit from the HCFP, certain aspects must be addressed, including IEC activities [189] and increasing the knowledge among the poor about utilization (of the card) and their rights in seeking health care when ill.

#### **11.6.2. Health care for children under 6 years of age**

Utilization of health services by children is affected by the general fact that children are more prone to illness, especially to diseases like acute respiratory infection, diarrhea, etc. At the same time, children are a priority concern of households. Despite government assistance policies on child health care, economic factors have a marked effect on the use of health services by children. The VNHS has shown that about one third of children younger than 6 years in high-income household receive no treatment or self-treat when ill, versus half of children in average-income households and two thirds in low-income households. The inverse applies to outpatient care, ie, it is used by one third of children in low-income households, one half in average-income households, and two thirds in high-income households. Regarding inpatient care, the utilization rates are similar in all groups, only about 3% of children. Hence, when children are critically ill and require inpatient treatment, low-income children receive necessary health care like children in other groups. However children in high-income groups have greater access to higher-level hospitals than do children in the low-income group, who seek care mainly at the CHS [19].

#### **11.6.3. Health care for the elderly**

Patterns of health service utilization by the elderly present particular problems since this group is prone to chronic diseases and requires more care. Also, the elderly often have difficulty in accessing health services due to impaired mobility. The percentage of high-income elderly accessing inpatient services is not much greater than that of average- and low-income elderly. Utilization of health services by the elderly increases with their standard of living. When contracting chronic diseases, the high-income elderly tend to use provincial or central hospitals more frequently than do average- and low-income elderly. With their limited mobility and dependence on children and grandchildren, the elderly find it easier to access the CHS than higher-level healthcare facilities.



Important indicators are the percentage of people 90 years and older having health insurance and percentage of people aged 60 through 89 years having health insurance (Table 11.4). Theoretically, the elderly older than 90 years have the right to obtain a healthcare card from local authorities, but in fact, the percentage remains very low.

**Table 11.4. Percentage of elderly having health insurance or medical fee exemption card, 2004**

Age group	Health insurance	Reduction/ Exemption card	No assistance	Total
60-89	24.5	9.0	66.6	100.00
90 and older	24.9	12.2	62.8	100.00

Source: VHLSS 2004 [92]

## 11.7. Conclusions and Recommendations

When people require health care, the system of health care from the commune to central levels can partly satisfy this need. If illness is not too severe, the poor usually take no action, or self-medicate. People, poor or rich, having a critical illness will seek treatment at health service facilities. Since the poor in mountainous regions have limited access to higher-level health services, they seek health care at the commune level, even for severe illnesses. In contrast, the rich often use higher-level health services more frequently than both the low- and average-income groups do. Hence, health services at the commune level serve mainly the poor, and health services at the higher level serve mainly the rich. The quality of service received is higher for the rich than for the poor and average-income groups. Investment in the district health system is needed to enhance accessibility to high-quality health service by low- and average-income groups. Otherwise, the poor cannot access higher-level services because their indirect expenses represent a major share of total expenditures. Practical assistance with indirect expenses can be a suitable approach to improve care for the poor.

The rate of self-medication is high and represents a potential risk for patients and society. Having an appropriate drug policy is a key issue. To achieve a rational solution to this problem, the health system must enhance its performance, and together with the promulgation of appropriate healthcare policies, aim at improving assistance for people.

The elderly, children, and mothers/newborns are groups with major needs for health care at the commune level. However, the commune level does not fully meet these needs, particularly in the mountainous region. Aside from prevention activities, health stations in the future must enhance their performance in treating diseases, focusing primarily on vulnerable groups. The commune level must be able to treat common acute diseases in children, inform people about reproductive health, provide prenatal care, and be capable to assist in childbirth. Moreover, the commune level must be able to manage healthcare for the elderly and treat chronic diseases that are common in the elderly.

The burden of health expenditures is heavy for the poor and even for people with average incomes. The role of health insurance is to lessen this burden. Hence, aside from the assistance policy for the poor and near poor, there is a need for specific and comprehensive solutions regarding assistance. Without financial assistance from the healthcare system, the poor and near poor without health insurance will face poverty. Health insurance can give people greater accessibility to health services and lessen the burden of health expenditures. Providing health insurance for the entire population is challenging, and requires a high level of the commitment by the health system and society at large.

Given the health-seeking behavior of the population, as discussed in this chapter, how does the healthcare system deal with these issues? The next chapter addresses this question.

## Chapter 12

### GRASSROOTS HEALTHCARE NETWORK

The decision to develop a network of “grassroots” health services, including commune/ward (hereafter referred to simply as commune) and district levels, as the foundation for the people’s health care has achieved many benefits. In particular, it has contributed toward attainment of national healthcare goals for the entire population. However, the grassroots healthcare network, which was developed during the period before *Doi Moi* when all health services were provided without charge, is now encountering difficult challenges.

Demographic and epidemiological transitions have resulted in changes in healthcare needs at the commune level. In disadvantaged and remote areas where poor people are concentrated, the focus of health care at the commune level remains on communicable disease and maternal and child health care, whereas in the urban and delta areas, health care at the commune level must address the health problems of aging, mental health, and noncommunicable diseases. People in remote areas have limited access to healthcare facilities beyond the commune health station. In contrast, commune/ward health stations (hereafter simply referred to as CHS) in the delta and urban areas provide few curative care services due to competition from private facilities and hospitals. The CHS tend to focus more on vertical preventive health programs rather than on a coordinated strategy to deal with emerging public health problems, eg, noncommunicable diseases and aging.

Another problem at the grassroots level is the low standard of care. The physical infrastructure at the commune level is being upgraded to meet national benchmarks for commune health services, which focus on achieving basic minimum standards regarding the workforce and medical equipment. However, recent changes in the organizational structure of grassroots health services, whereby district health centers were divided into 3 entities with specialized functions, threaten the important linkages between primary health care at the commune level and hospital care at the district level. The district hospitals are no longer in charge of training and supporting health workers at the commune level. Policies to encourage doctors to work in remote areas are insufficiently attractive to bring in health workers where needed, or to improve the standard of care at the commune level. In some instances, district doctors who provided care on a part-time basis at the commune level have been pulled back to district hospitals. Consequently, hospitals are overloaded whereas commune health facilities do not meet people’s needs for health services.

The Party, Government, and Ministry of Health call for a strengthening of primary health care. However, statistical findings indicate a low level of effectiveness in the primary healthcare system in preventing and treating communicable and noncommunicable diseases. This results in excessive dependence on hospitals to provide inpatient care for diseases, eg, acute respiratory infection, asthma, epilepsy, hypertension, and diabetes, when these diseases should be prevented or treated early. Affected patients and families should be educated to better manage illness, thereby avoiding inappropriate demand on expensive inpatient resources. A more realistic action plan is needed to develop the grassroots level of health care.

In this context, an overview of the grassroots healthcare network is necessary as a basis for orienting investments in physical infrastructure, staff training, development of managerial institutions, and organizational restructuring, especially in relation to the incentive system for commune health workers.

## 12.1. Organizational Structure of the Grassroots Healthcare Network

The grassroots healthcare network is organized under state administrative units at the district and commune levels. By the end of 2005, Vietnam had 671 districts and 10 876 communes/wards serving a population of more than 83 million people. Annually, the population grows by around 1.1 million people. Population growth in urban areas exceeds that in rural areas, with an increase of 3.6 million people in urban areas compared to only 1.8 million people in rural areas between 2000 and 2005.

**Table 12.1. Quantity and scope of health facilities at the grassroots level, 2005**

	No. of facilities	No. of beds	Average number of beds per facility
District hospital	564	43 427	77
Regional polyclinic	838	10 534	13
Maternity homes	28	1 124	40
CHS	10 679	45 176	4

Source: Health Statistics Yearbook 2005 [14]

In forthcoming years, improvements in living standards will enable people to choose different healthcare facilities and levels of quality. The gradually improving transportation infrastructure will promote easy and quick access to higher-level health facilities. The private health sector will continue to develop in terms of the number of facilities and beds and improved quality of care. The need to decrease costs by enhancing efficiency in using health technology, eg, laboratory testing and radiography, will require organizing these services in new ways. To achieve economies of scale, districts/communes in close proximity should collaborate to provide healthcare services requiring high-tech equipment. In this context, it is necessary to reform the healthcare system in populated areas.

Apart from public health facilities, the private health sector and other sectors are involved in delivering primary care, eg, school health programs and civilian and military collaboration.

### 12.1.1. District health facilities

From 1998 to 2004, Government Decree 01/1998/ND-CP on the system of local health organizations, and Joint Circular 02/1998/TTLT-BYT-BTCCBCP guiding the implementation of the above-mentioned Decree, designated the district health center as the sole unified public health unit with both preventive and curative missions at the district level. The centers were also responsible for managing the commune/ward health services. Because of differences in administrative and socioeconomic parameters between regions, the organizational structure of district health centers varied throughout the country. District health centers in urban areas that are located near central- or district-level healthcare facilities provided mainly preventive and emergency services. In contrast, district health centers in rural areas played the leading role for all medical activities in the area, from preventive to curative care.

To reform the organizational structure of the basic healthcare network through decentralization, the government enacted Decree 171/2004/ND-CP and Decree 172/2004/ND-CP on September 29, 2004, Joint Circular 11/2005/TTLT-BYT-BNV of the Ministry of Health and Ministry of Interior (April 12, 2005). These decrees defined the new organizational model for health services at the district level, including the District General Hospital and District Preventive Medicine Center that are directly under the Provincial Health Service, and the District Health Office under the District People's Committee, responsible for managing the CHS. Provincial governments are implementing the new organizational model at the district

level. The districts, however, are encountering major difficulties in restructuring. Many advantages of the former district health center model are being lost in the present model, and mechanisms have yet to be developed to overcome these problems. For example, the former model stressed the integration of curative and preventive care between the district and communal levels, but under the new model many districts have not yet found effective coordinating mechanisms.

### **12.1.2. Regional polyclinics**

Regional polyclinics under the district hospitals mainly provide health services within certain communes/wards in the district. Prior to *Doi Moi*, the regional polyclinics were established to ease the burden on public hospitals, which had a shortage of beds. Polyclinics made it easier for people to seek health care, and facilitated early diagnosis and timely treatment without visiting a hospital. Regional polyclinics also assisted the CHS to improve their professional capabilities. During *Doi Moi*, the regional polyclinics continue to play a role in reducing the burden on district hospitals in their areas, taking on many of the responsibilities of a district hospital. In 2005, Vietnam had 880 regional polyclinics, a decrease of 56 units compared to year 2000. According to the master plan for Vietnam's health system development by 2010, the health sector will maintain and develop regional polyclinics under district hospitals in mountainous and remote districts to ensure basic health services for local residents.

### **12.1.3. Commune health stations**

The CHS is the primary unit for delivery of health care in the public health system. These health stations are responsible for implementing primary health care and delivering technical health services for people in the area, and for the operational management and direction of village health. In 2005, Vietnam had 10 613 CHS, and the number continues to increase annually to guarantee that newly established communes/wards have primary healthcare facilities. From 2000 to 2005, Vietnam added 342 newly formed CHS. By December 31, 2005, 100% of communes had health workers and 98% had a CHS.

### **12.1.4. Village health**

Village health is the extended arm of commune health, focusing on information, education, and communication and contributing to national health programs and primary health care. During the *Doi Moi* reform process, the village health network in many localities disappeared as their incomes could not be guaranteed. In recent years, the government and health sector has been strengthening, promoting, and developing the village health network. Village health workers have been assigned specific tasks as stipulated in Decision 3653/QĐ-BYT of the Health Minister on November 15, 1999.

- Health information, education, and communication
- Instructions on hygiene and disease prevention
- Maternal and child health care and family planning
- First aid and care of common diseases
- Implementation of national health programs

Village health workers are under the direct management and direction of the CHS and village leaders and coordinate with community and social organizations in the villages.

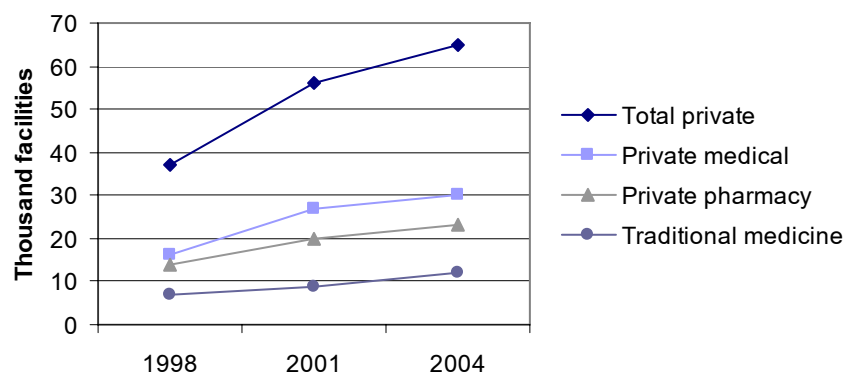
The healthcare strategy for 2001 to 2010 emphasizes the need for village health workers, with the aim that 100% of rural villages and urban quarters will be served by health workers. By December 31, 2004, 82.4% of all villages nationwide had health workers. Although some

villages have health workers, services are not sustainable, and the percentage of village health workers without professional qualifications remains high (more than 26% of village health workers had not received the requisite 3 months of professional training. Since they cannot fully perform the duties expected of a village health worker, quality of care is affected. Furthermore, the stipends for village health workers are low and vary across localities.

### 12.1.5. Private health facilities

Apart from state health facilities, private facilities also provide healthcare services in districts and communes. Since the Standing Committee of the National Assembly issued the Ordinance on Private Medical and Pharmaceutical Practice, private facilities including modern medicine, traditional medicine, and pharmaceutical practices have been established and are gradually expanding. According to the Ministry of Health, by the end of 1999, Vietnam had 41 667 private medical (modern and traditional practice) and pharmaceutical facilities in operation, whereof 19 836 facilities were medical practices (about 47.6%). By 2004, the total number of private facilities had risen to about 65 000 private facilities (Figure 12.1).

**Figure 12.1. Trends in development of private health sector facilities, 1998-2004**



Source: Situation, role, and potential of the private health sector [196]

Private health facilities have not developed rapidly across the regions, and the size of facilities tends to be small with a low level of equipment and professional technology. Nevertheless, the private sector is widespread throughout Vietnam. Private practitioners play an important role in most communes and benefit patients in many ways, eg, short waiting times, proximity to home, good attitude of staff, reasonable prices, and fair competition with public health facilities. The continuing development of the private healthcare sector is important. Vietnam's Government and Ministry of Health should reinforce management of private medical and pharmaceutical practices, create a clear legal corridor to facilitate the private medical and pharmaceutical system, and have policies to support and subsidize the rapid development of the private health sector as regards quantity, size, scale, and technical level to contribute effectively to people's health care.

### 12.1.6. Military and civilian collaboration in providing medical services

Apart from the role of the commune health network, for many years the collaboration between military and civilian medicine has enhanced efficiency in healthcare delivery and offered protection and technical support for village health workers, especially in border and mountainous areas. In 2001 (Decision 1026/QD-TTg), the Prime Minister approved a project aimed at further coordinating military and civilian medicine to enhance people's health and serve national security and defense during the 2001-2010 period.

Specifically, the project aims to build and consolidate joint military-civilian medical stations and centers in border and island areas to protect and care for the health of civilians and servicemen, to develop qualified mobile health forces that can respond quickly to natural disasters and emergency situations, and to propose mechanisms and policies to the government for joint military-civilian medical activities in disadvantaged areas.

### **12.1.7. School health**

The educational sector and the health sector have collaborated to implement school health programs that complement primary health care. Staff at the CHS assist the director to monitor and manage school health. Staff at schools are responsible for school health.

National benchmarks for health care at the commune level include school health goals for the 2001-2010 period:

1. Percentage of students in the commune having an annual health examination should reach:
  - Kindergarten: 80% (or higher)
  - Primary and secondary schools in rural areas: 60%
  - Primary and secondary schools in mountainous areas: 40%.
2. Percentage of students given dental care services annually should reach:
  - Rural areas: 50% or higher
  - Mountainous areas: 30% or higher.
3. All students should receive an annual health examination, and the exam records should be sent to the student's family; and 90% or more of illness cases should be registered and treated.

Tasks assigned to school health programs are outlined in interministerial circular 03/2000/TTLT-BYT-BGDDT (March 1, 2000) on guidelines for implementing the school health program:

- Handling cases of first aid and common diseases at school
- Organizing periodical health examinations for students
- Implementing annual health education, care, and protection programs in schools, conducted jointly by the health and education sectors
- Screening for school-age disorders (short-sightedness, scoliosis, and other common childhood disorders)
- Instructing teachers and students on hygiene and control of epidemic diseases, eg, malaria, HIV/AIDS, social vices, and food safety, and implementing population and family planning.

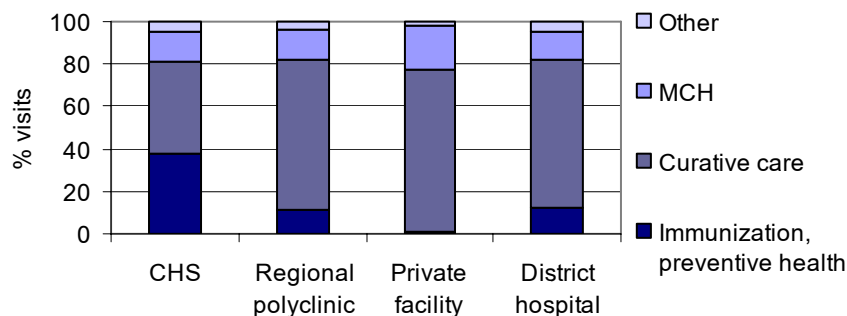
The school health program includes a school dental program, which encompasses 3071 dental clinics with the necessary equipment and staff to ensure regular care for 5 million children. The plan for 2006-2010 is to organize 200 to 300 additional school dental clinics per year with full-time staff and the necessary equipment to provide dental care for an additional 400 000 to 600 000 students in schools.

## 12.2. Primary Healthcare Activities

### 12.2.1. Primary curative care

The grassroots healthcare network provides both curative and preventive care. Of total outpatient visits to the CHS, nearly 40% relate to immunization or preventive health, over 40% relate to health care for people aged 6 years and older, and nearly 15% relate to prenatal care and children younger than 6 years, including rehabilitation, health examinations, and other services (Figure 12.2).

**Figure 12.2. Distribution of services provided during outpatient visits by provider, 2002**

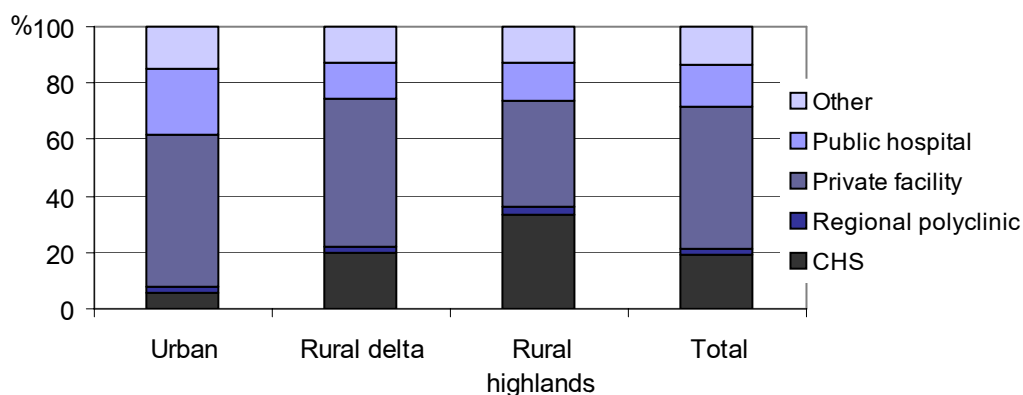


Source: VNHS 2001-2002 [19]

In the Vietnam health system, the district and commune health levels are the first services that people access when they become ill. Health care at the district and commune levels has been fairly well implemented, reduced the healthcare burden on higher levels, and effectively checked diseases, reduced poverty, promoted social stability, and decreased healthcare costs, especially among the poor. The CHS have widened their focus, from examination and treatment not only at the CHS, but also at home. However, this network has faced limitations in staff quality and quantity, physical condition of the facility, and service prices. On the other hand, as the socioeconomic situation improves, the people's demand for health care rises. People with higher incomes are willing to pay for health care in high-technology facilities, which leads to overloading higher-level care and reducing efficiency in the healthcare network.

People have an increasing number of options for outpatient care. According to Vietnam National Health Survey (VNHS) 2001-2002, various types of health facilities provided an estimated 20.5 million outpatient visits annually. In urban areas, less than 10% of outpatient visits were to the CHS and regional polyclinics, whereas the proportion was 20% in the rural delta areas and 35% in the rural highlands (Figure 12.3). Private medical clinics accounted for the highest proportion of outpatient visits in all 3 areas, ranging from around 53% in urban and rural delta areas and 37% in highland rural areas. Hospitals provided about 25% of outpatient visits in urban areas, versus 13% to 14% in rural areas. The proportion of outpatient visits to other facilities, mainly traditional health clinics, was 12% to 15% in all 3 areas. These figures reflect the important role of the CHS in outpatient care in highland areas. In all areas, including mountainous areas, many people used private medical facilities to meet their healthcare needs.

**Figure 12.3. Provider structure of outpatient care visits by region, 2002**



Source: VNHS 2001-2002 [19]

To understand the user profile at the grassroots level, especially at the CHS, figures 12.2 and 12.3 describe basic characteristics of patients visiting CHS and other primary healthcare facilities.

Patients visiting primary healthcare facilities do not differ substantially by gender; around 60% of outpatient visits are female. The proportion of patient visits by people aged 6 through 14 years and 60 years and older were similar. However, pediatric patients accounted for a greater share of patients in the CHS and private facilities than in polyclinics and district hospitals. Patients visiting private traditional-care facilities were older than patients visiting other types of facilities, with only 13% of patients younger than 15 years and 22% of patients aged 60 and older (33% of the national population are younger than 15 years, and 8% are aged 60 years and older) (Table 12.2).

**Table 12.2. Sex and age structure of outpatients by type of facility compared to sex and age structure of the population, 2002**

	CHS	Regional polyclinic	Private medical facility	Private traditional practitioner	District hospital	Population
Unit: %						
<b>Gender</b>						
Male	38.9	41.6	42.9	38.5	42.7	48.5
Female	61.1	58.4	57.1	61.5	57.3	51.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
<b>Age groups</b>						
Under 6	19.1	14.9	22.9	5.6	11.7	13.7
6-14	11.3	12.9	12.3	6.9	11.6	19.4
15-59	54.9	54.5	49.0	65.4	61.0	58.8
60 and older	14.8	17.7	15.9	22.2	15.8	8.0
<b>Total</b>	100.0	100.0	100.0	100.0	100.0	100.0

Source: VNHS 2001-2002 [19]

Patient distribution among 4 types of health facilities depended on the patient's economic situation. Table 12.3 indicates that the rich and the better-off comprised 32% of the total number of patients in the CHS, 52% in regional polyclinics, 48% in private health facilities, and 43% in district hospitals. Conversely, the poor and near-poor comprised 46% in the CHS, 28% in regional polyclinics, 30% in private health facilities, and 32% in district



hospitals. Financial “socialization” is shown to be lower in the CHS than in other types of facilities. People living in urban areas represent 23% of the national population, but account for only 7% of the health service contacts at CHS. People living in the rural delta areas represent 53% of the national population, but account for 64% of the health service contacts at CHS and private facilities. People living in rural highland areas represent 53% of the national population, but account for only 12% of the health service contacts at private facilities due to the limited development of private health services in this area.

Characteristics of patients seeking health services at the CHS varied by residence (Figure 12.4). People in urban areas were wealthier than people in the rural areas (70% of the urban population were in the rich and better-off quintiles). Hence, of the few CHS outpatients, most represented the better-off group. In rural delta areas, there are fewer rich and poor CHS patients than near-poor and better-off patients. In rural highland areas, most CHS outpatients were poor and near-poor.

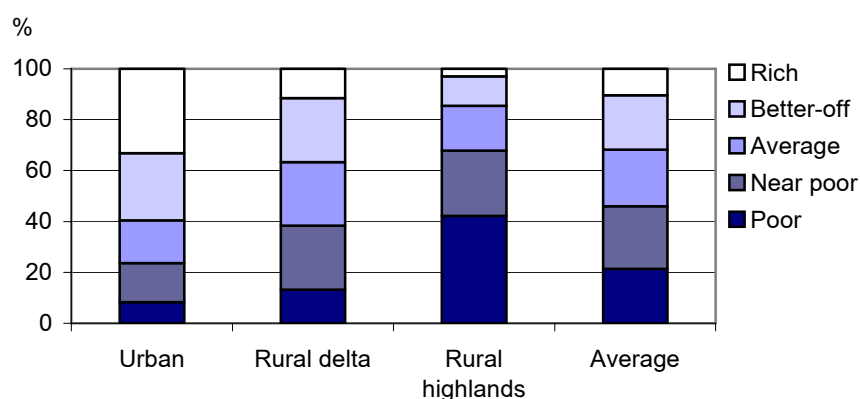
**Table 12.3. Structure of living standards and region of residence of outpatients by type of primary healthcare facility compared to the structure for the national population, 2002**

Unit: %

	CHS	Regional polyclinic	Private medical facility	Private traditional practitioner	District hospital	Population
<b>Living standards quintile</b>						
Poor	21.3	11.9	9.6	10.8	12.5	20.0
Near poor	24.7	16.6	21.0	18.1	19.9	20.0
Average	22.3	19.8	21.3	24.2	24.9	20.0
Better-off	21.3	27.3	24.2	23.1	23.1	20.0
Rich	10.5	24.3	24.0	23.8	19.6	20.0
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Region</b>						
Urban	6.5	20.1	23.1	23.4	23.8	22.8
Rural delta	64.4	57.6	64.6	62.3	54.4	52.6
Rural highlands	29.1	22.3	12.3	14.4	21.9	24.6
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: VNHS 2001-2002 [19]

**Figure 12.4. Living standard quintiles of outpatients at commune health stations by residence, 2002**



Source: VNHS 2001-2002 [19].

Patients at the CHS in urban areas were older than patients in rural areas (Table 12.4). In all 3 areas, women accounted for 60% of health service contacts at the CHS.

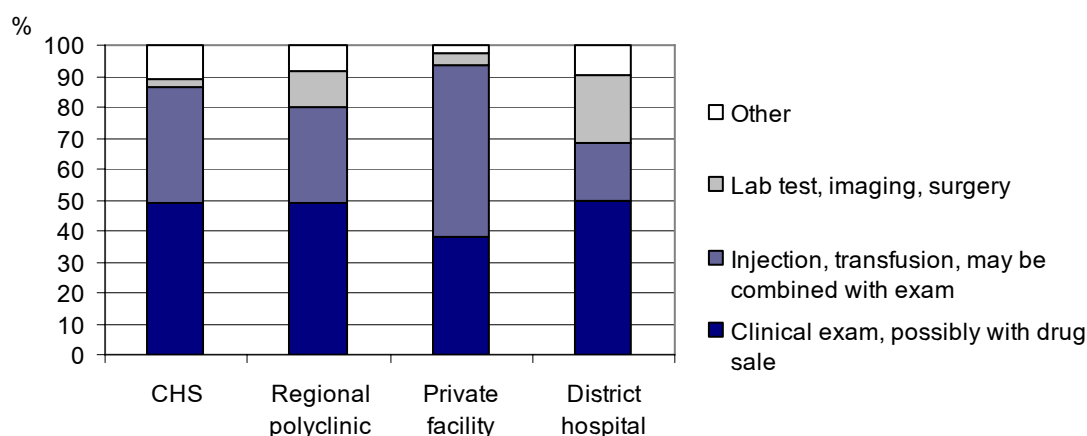
**Table 12.4. Patient profile at commune health stations by region, sex, age, and living standard, 2002**

	Urban	Rural delta	Rural highlands	Overall
<b>Sex</b>				
Male	37.4	38.6	39.9	38.9
Female	62.6	61.4	60.1	61.1
<b>Total</b>	100.0	100.0	100.0	100.0
<b>Age group</b>				
Under 6	15.4	18.0	22.4	19.1
6-14	6.8	11.4	12.0	11.3
15-59	48.8	55.8	54.2	54.9
60 and older	29.0	14.9	11.4	14.8
<b>Total</b>	100.0	100.0	100.0	100.0
<b>Living standard quintile</b>				
Poor	8.3	13.2	42.2	21.3
Near poor	15.3	25.1	25.7	24.7
Average	16.8	25.0	17.5	22.3
Better-off	26.3	25.2	11.6	21.3
Rich	33.2	11.5	3.1	10.5
<b>Total</b>	100.0	100.0	100.0	100.0

Source: VNHS 2001-2002 [19]

Curative care in the grassroots healthcare network covers common health services. Nearly 50% of health service contacts involved clinical examination, at times combined with the sale of medicine (Figure 12.5). Only a small proportion of health service contacts involved laboratory tests, x-ray imaging, or surgery. At the commune level, nearly 40% of health service contacts involved clinical examination (no x-ray imaging, surgery, or laboratory tests) combined with injections or transfusions. The percentage was higher in private health facilities, over 60% of health service contacts involved injections or transfusions, although this percentage was lower in polyclinics and district hospitals.

**Figure 12.5. Structure of outpatient health services provided at basic healthcare facilities, 2002**



Note: Cases in which injection and transfusion are combined with lab tests, imaging, or surgery, they are counted in the category of lab tests, imaging, and surgery.

Source: VNHS 2001-2002 [19]

The percentage of CHS using traditional health practices, eg, acupuncture or traditional medicine, was low. According to VNHS 2001-2002, only 1.9% of health service contacts at the CHS involved acupuncture, massage, or traditional herbal medicine. In private traditional facilities, 87.7% of health service contacts involved traditional herbal medicine and 26.2% involved acupuncture or massage [3].

### 12.2.2. Preventive health

Primary health care includes both disease prevention and treatment. Among the facilities providing primary health care, CHS play a most important role in disease prevention, as do school health and dental services. The program to coordinate military and civilian medicine also plays an important part in preventive health and the early detection of disease in schools and remote areas.

Apart from providing examinations, treatment, prenatal care, and childbirth assistance, the CHS participate in many public health programs (Table 12.5).

**Table 12.5. Percentage of CHS implementing national target programs, 2001-2002**

Name of program	% of ward/town health stations	% of CHS
Expanded program on immunization	99.4	95.3
Tuberculosis control program	93.2	83.0
Malaria control program	73.4	79.7
HIV/AIDS control program	84.0	50.0
Clean water and environmental sanitation (monthly)	21.6	28.9
Food hygiene and safety (monthly)	25.0	25.2
Diarrhea control program	95.4	91.6
Acute respiratory infection control program	96.0	94.6
Malnutrition control program	82.4	78.9
Population and family planning	90.7	83.2
Anemia control program	80.4	70.3
Community-based rehabilitation for disabilities	11.2	8.7

Source: VNHS 2001-2002 [3]

Village health workers play the leading role in preventive health, and a high percentage of villages have health workers, many of whom are well qualified and newly trained. Their duties mainly involve health communication, monitoring malnourished children, expanded program on immunization, and epidemic disease surveillance (Table 12.6). Village health workers also participate in first aid, disease examination and treatment, prenatal care, and assistance at delivery.

**Table 12.6. Proportion of village health workers performing different tasks, 2001-2002**

	Curative care	Prenatal care, assist at delivery	IEC	Nutrition monitoring	Encourage immunization of children	First aid	Epidemic disease surveillance
Urban	27.0	7.8	98.2	94.0	98.3	69.0	93.9
Rural	41.5	13.7	98.1	94.8	99.3	79.0	96.3

Source: VNHS 2001-2002 [3]

## **12.3. Human Resources**

### **12.3.1. Workforce norms of grassroots healthcare network**

According to the State Planning Committee's Decision 07/QDUB (1975) on workforce norms in the healthcare sector, the workforce norm for polyclinics was set at 1 staff person per 12 000 to 15 000 inhabitants. Given the advancements in socioeconomic conditions, science, and technology, and the increasing demand for health care, the earlier workforce norm is no longer appropriate. The Ministry of Health has been working to propose a new workforce norm suitable to the new situation. Under the earlier norm, most polyclinics had insufficient human resources. The Master Plan for 2010 aims to expand polyclinics in remote areas and minimize the barriers in attracting qualified health workers to these facilities.

Decision 58/TTg (February 3, 1994) and Circular 08/TTLB (April 20, 1995) established the CHS workforce norms:

- Midland and delta areas: 3 to 4 staff in communes with up to 8000 inhabitants; 4 to 5 staff in communes with 8000 to 12 000 inhabitants; 6 staff in communes with more than 12 000 inhabitants.
- Mountainous, highland, and island areas: 4 staff in communes with up to 3000 inhabitants; 5 to 6 staff in communes with 3000 or more inhabitants.
- Urban/town areas: 2 to 3 staff per ward health station

Resolution 37/CP (1996) on the strategic orientation of public health care and protection, 1996 to 2000, mentioned the aim of consolidating the grassroots healthcare network to achieve the goal of having a doctor in 40% of all CHS nationwide by 2010. The strategy on public health care and protection in the 2001-2010 period specified the objective that by 2005, 100% of polyclinics will have doctors, 65% of communes will have doctors (the corresponding figure for mountainous communes is 50%), 100% of the CHS will have midwives, 60% of whom are secondary midwives. By 2010, 80% of communes will have doctors (the corresponding figure for mountainous communes is 60%), 80% of all CHS will have secondary midwives, all CHS will have assistant pharmacists in charge of pharmacies and some medical staff trained in traditional medicine.

National benchmarks for health care at the commune level during the 2001-2010 period, enacted by Decision 370/2002/QĐ-BYT (February 7, 2002), stipulate targets for human resources. A sufficient number of staff should be ensured according to the existing regulation on workforce norms. Each CHS has at least 3 staff, including:

- Doctor or assistant doctor (doctor required in delta areas)
- Midwife or obstetric-pediatric assistant doctor (secondary midwife or obstetric-pediatric assistant doctor required in lowland areas)
- Nurse (secondary nurse or higher required in lowland areas).

A CHS having 4 or more staff members must have at least 1 full-time person in traditional medicine. If the CHS has fewer than 4 staff, it must have someone with supplementary training in traditional medicine. The CHS must have assistant pharmacists (possibly only part-time) to manage the pharmacy in the commune. National benchmarks for health care at the commune level specify that 100% of villages should have health workers with at least 3 months of professional training.

The Master Plan for 2010 on health system development in Vietnam was promulgated in 2006. According to the plan, communes with more than 10 000 inhabitants are allowed to have more permanent staff or recruit contracted staff. In mountainous communes with far

distances, difficult transportation, and few people, the existing regulations allow a lower workforce norm due to the small population served. Each CHS must have at least 5 staff and an expanded force of village health workers.

### 12.3.2. Number and structure of human resources in the grassroots healthcare network

For many years, the healthcare sector and localities have been taking important steps toward increasing the number and quality of healthcare staff at the commune level. First, the healthcare sector has organized training of various types, eg, local selection, technology transfer, and continuous training and re-training, to develop the workforce based on human resources already in place. Second, well-qualified health staff, particularly doctors, have been transferred to work at the commune level. Third, some localities have arranged attractive compensation packages for doctors to work at their health facilities.

As shown in Table 12.7, the number of commune health workers has increased annually. From 2000 to 2005, the number of commune health workers increased by 4934 staff, achieving a level of 57.5 to 59.7 staff per 100 000 inhabitants.

**Table 12.7. Number of commune health workers, 1994~2005**

	1994	2000	2001	2002	2003	2004	2005
Total	37 577	44 655	45 656	46 634	47 668	49 358	49 589
Commune health workers per 100 000 people	53.1	57.5	58.0	58.5	58.9	60.2	59.7

Source: Health Statistics Yearbooks [4]

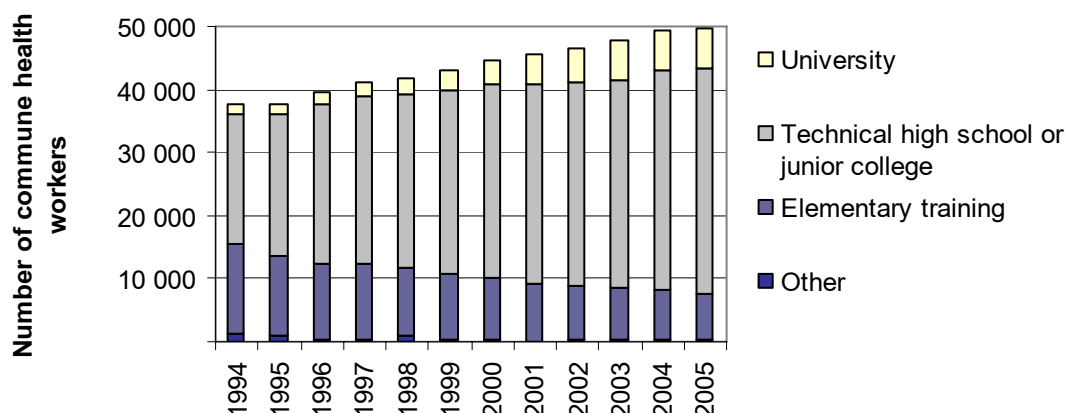
Also, the professional qualifications of commune health workers have been improving to meet the people's needs for health care (Table 12.8, Figure 12.6). The share of staff with a university degree increased from 3.9% of total commune health workers in 1994 to 12.8% in 2005. In the same period, commune health staff with technical high school or junior college education increased from 55.0% to 72.0%, and staff with only elementary training decreased markedly, from 38.0% in 1994 to 14.8% in 2005.

**Table 12.8. Qualification level of commune health workers, 1994~2004**

	1994	2000	2001	2002	2003	2004	2005
Total number of staff	37 577	44 655	45 656	46 634	47 668	49 358	49 589
<b>Level (%)</b>							
University	3.9	8.9	10.3	11.7	13.0	12.8	12.8
Technical high school or junior college	55.0	68.4	69.4	69.2	69.3	70.4	72.0
Elementary training	38.0	22.1	20.0	18.5	17.2	16.2	14.8
Other	3.1	0.6	0.3	0.7	0.5	0.6	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Health Statistics Yearbooks [4]

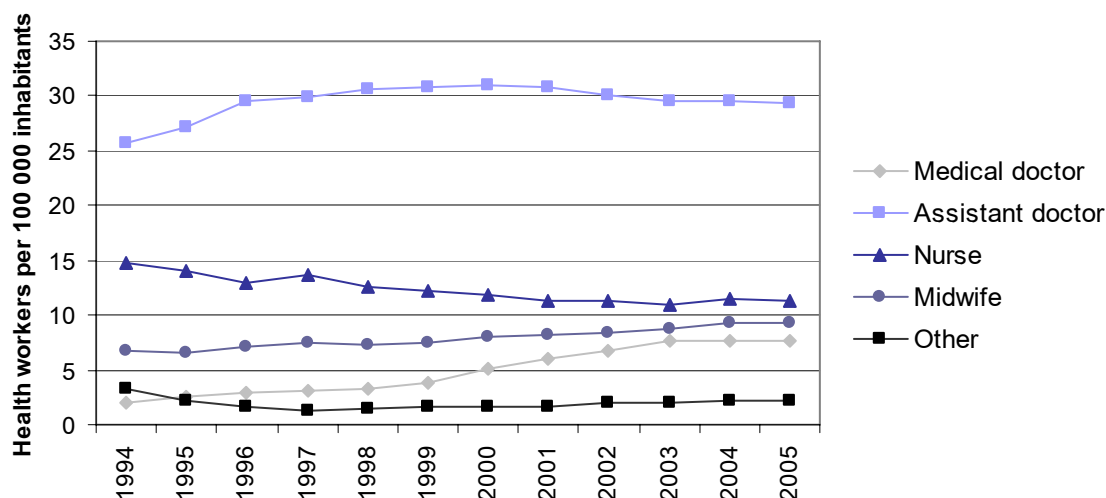
**Figure 12.6. Qualification structure of commune health workers, 1994-2005**



Source: Health Statistics Yearbooks [4]

Annual increases in population require the number of health workers to increase accordingly. Figure 12.7 illustrates that in 1994, Vietnam had only 3.3 doctors per 100 000 inhabitants, but by 2005 this had doubled to 7.6 doctors per 100 000 inhabitants. The number of midwives per inhabitant also increased, whereas the number of assistant doctors and nurses per 100 000 inhabitants had decreased.

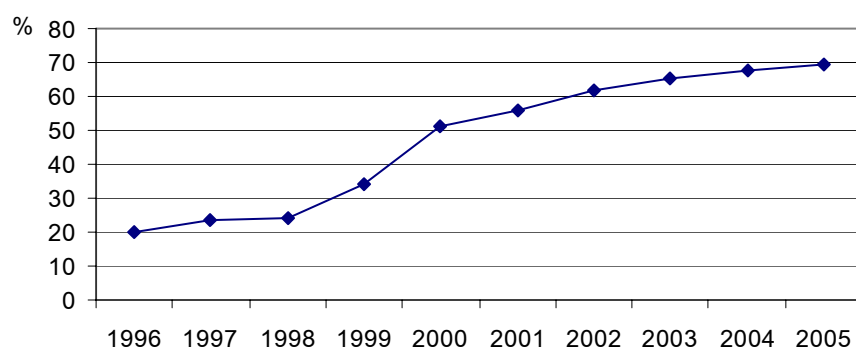
**Figure 12.7. Number of health workers per 100 000 inhabitants, 1994-2005**



Source: Health Statistics Yearbooks [4]

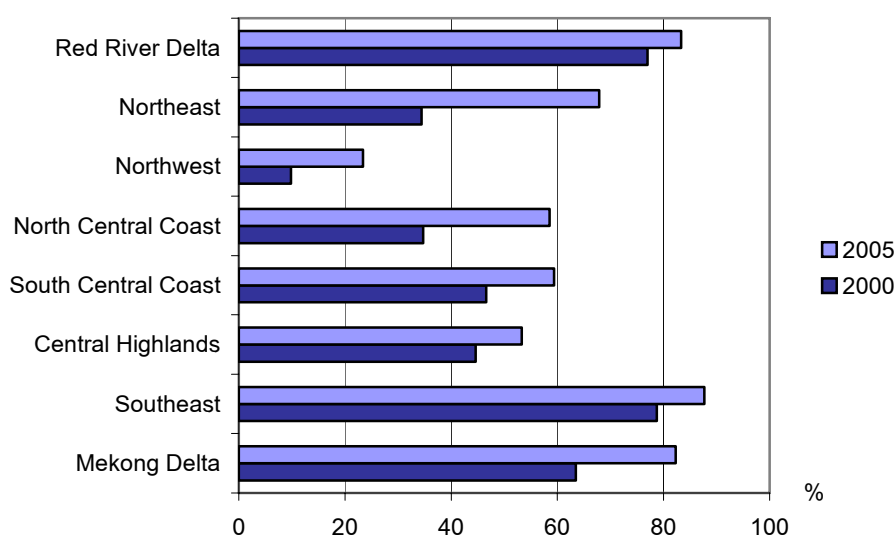
The health sector is making a major effort to assure that every CHS has a doctor. Figure 12.8 presents the trend in meeting this objective, illustrating that 70% of communes had a doctor by 2005. Government objectives are that 80% of delta communes and 60% of mountainous communes should have a doctor at the CHS. Nationally, 39 provinces report that at least 65% of all communes have a doctor, whereof 7 provinces have a doctor in 100% of their communes. In disadvantaged provinces, the percentage remains low, eg, Lai Chau (3.3%), Dien Bien (16.1%), Son La (21.9%), and Cao Bang (23.8%) (Figure 12.9) [14].

**Figure 12.8. Proportion of communes with a doctor, 1996-2005**



Source: Health Statistics Yearbooks [4]

**Figure 12.9. Proportion of communes with a doctor by region, 2000 and 2005**



Source: Health Statistics Yearbook 2005 [14]

To ensure an adequate number of staff the CHS may contract with health workers outside of the regular staff (Table 12.9). However, it is not easy to implement this policy, and contracted staff members accounted for only 5% of the total number of healthcare staff at the commune level.

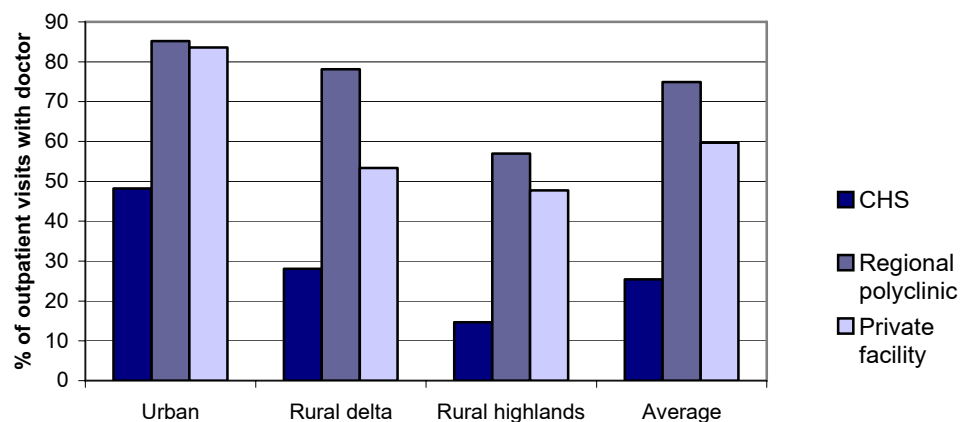
**Table 12.9. Number of additional contracted staff at the commune level, 2001-2004**

	2001	2002	2003	2004
Commune level (workers)	2652	2305	2440	2602
% of all commune health workers	5.5	4.7	4.9	5.0

Source: Department of Planning and Finance, MOH [197]

The greater number of doctors in the basic healthcare network has facilitated people's access to doctors for health care. According to the findings of VNHS 2001-2002, the percentage of health service contacts provided by a doctor is 25% at the CHS, 75% at regional polyclinics, and 60% at private facilities. The possibility of accessing a doctor for care at all commune health facilities is higher in urban than in rural areas, and much higher than in the rural highlands (Figure 12.10).

**Figure 12.10. Proportion of outpatient consultations performed by a doctor by type of facility and region, 2001-2002**

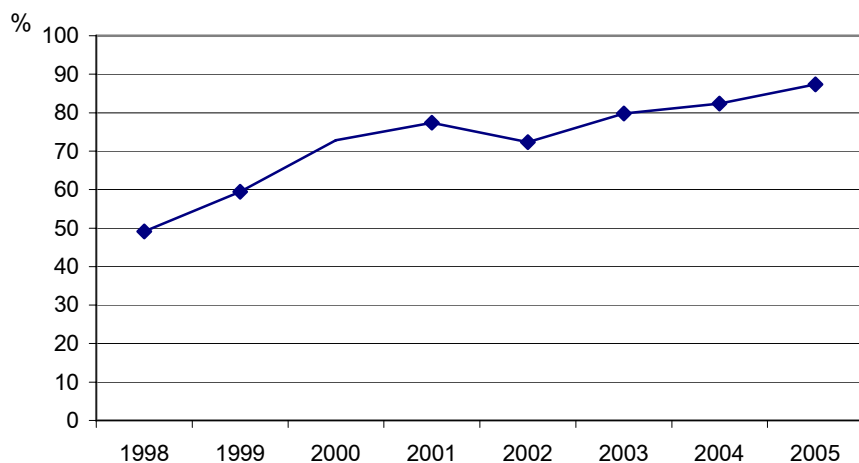


Source: VNHS 2001-2002 [3]

### 12.3.3. Village health workers

In recent years, the village healthcare network has been consolidated and developed. By December 31, 2005, there were 92 223 village health workers in Vietnam, and more than 87.4% of villages had health workers (Figure 12.11), although this percentage was not stable. Professional skills among village health workers vary, and over 26% of village health workers did not have a professional degree, or meet the requirement for an elementary degree according to Decision 35/2001/QD-TTg.

**Figure 12.11. Proportion of villages with village health workers, 1998-2005**



Sources: Department of Planning and Finance [197]

On the other hand, compensation policies for village health workers vary widely, depending on locality (the state budget only allocates funds for compensation for village health workers in mountainous and island areas, in the amount of only 40 000 VND per person and month), and many lowland localities do not compensate village health workers.



## 12.4. Physical Infrastructure

### 12.4.1. Infrastructure of commune health stations and regional polyclinics

An objective of the National Strategy on Public Health Care and Protection 2001-2010, is for 100% of polyclinics to be permanent structures by 2005. According to VNHS 2001-2002, 38.4% of polyclinics were permanent structures, 62.7% have a regular source of electricity, 76.9% have a telephone, 42.4% have piped water, drilled well, or rain water at the facility, and 61.3% have a sanitary toilet [3].

Instruction 525/1993/TTg by the Prime Minister calls for the elimination of “white communes” (communes having no CHS and no health workers). In 1995, Vietnam had 10 165 communes, whereof 954 communes had no CHS, 58 were considered “white communes”. By 2005, there were no longer any communes without health workers, although 197 communes with health workers still do not have a CHS facility (Table 12.10). Usually, some newly separated communes/wards appear every year, and these new communes have no CHS at the time of separation.

**Table 12.10. Number of communes having no CHS by region, 1995-2005**

Region \ Years	Total	Red River Delta	North-west	North-east	North Central Coast	South Central Coast	Central Highlands	South-east	Mekong River Delta
1995	920	30	163	296	108	152	72	68	31
1996	722	10	118	162	138	135	77	48	34
1997	697	15	61	206	120	124	80	42	49
1998	545	15	38	243	53	58	88	22	28
1999	478	8	25	190	54	51	86	21	43
2000	355	12	19	132	32	38	68	32	22
2001	221	3	9	96	16	33	30	15	19
2002	257	0	23	52	92	18	27	20	25
2003	145	9	20	32	13	8	25	12	26
2004	149	7	11	16	7	16	30	12	50
2005	197	2	11	9	17	26	36	43	53

Source: Health Statistics Yearbook [4]

In general, the number of communes having no CHS decreased because of investment from the central government and the localities through projects such as elimination of “white” communes and Program 135. This figure declined quickly in the Northeast region and slowest in the Mekong River Delta. Although the healthcare sector and localities have put considerable effort into dealing with communes having no CHS, about 60 new communes/wards/towns are created each year by adjusting administrative borders. Hence, this is one of the difficulties in ensuring that all communes have CHS and health staff.

In 2000, Vietnam had 880 polyclinics with 8156 beds. By 2005, the number of polyclinics decreased to 838, but the size of each facility had increased so the total number of beds is 10 534 [4].

### 12.4.2. Medical equipment and instruments

The Ministry of Health developed an essential medical equipment list for CHS in 2002 (Decision 437/2002/QD\_BYT). To further enhance the professional capacity of doctors, the essential medical equipment list for CHS was supplemented in 2004 (Decision 1020/2004/QD-BYT).

Project and state budgets have enabled many CHS to acquire basic sets of equipment and instruments for general health care, reproductive health care, and instrument sterilization. However, due to the lack of funds for procurement, replacement, and repair, there is still a shortage, especially in certain specialties.

**Table 12.11. Equipment at commune health stations, 2002**

Unit: %	
Type of equipment	% CHS
Sufficient equipment for diagnosis and treatment of common ailments	97.0
Adequate refrigeration equipment (refrigerator or cold chain)	9.9
Sufficient equipment for reproductive health care	24.7
Sufficient equipment for child health care and nutrition	86.1
Sufficient equipment for selected specialized care	12.2
Sufficient equipment for traditional medicine treatment	10.6
Sufficient equipment for sterilization of equipment and instruments	51.0
Telephone	37.6
Full set of equipment according to Ministry of Health standards	0.13

Source: VNHS 2001-2002 [3]

Difficulties are being encountered in assuring that the CHS has all essential equipment on the CHS list. To avoid waste and ensure that the equipment meets their actual needs, each CHS should carry out their own planning process for buying equipment based on guidelines from a higher level. Also, the quality and efficiency of equipment used in diagnosis and treatment should be assessed. Implementation of equipment policies should not be monitored against a standard list that may or may not be appropriate to the needs of a particular health facility. Rather, progress should be judged on acquiring equipment to meet needs defined in the plan and adjusted for changes in population and quality of care based on the CHS service model.

According to the list of essential equipment, a village health worker must have a medical bag with 17 basic instruments and supplies. Data from VNHS 2001-2002 indicate that 63.1% of village health workers have a thermometer and 56.1% have a syringe and injection needle [3]. The types of equipment needed by village health workers depends on the tasks they are responsible for undertaking. At present, many village health workers are not sufficiently trained to use all of the equipment in the medical bag.

#### **12.4.3. Essential drugs at the CHS**

Data from VNHS 2001-2002 indicated that 86.9% of CHS have drug dispensaries, except in the Central Highlands region where the figure was only 50%. Supplies of essential drugs at CHS were largely sufficient (about 74 categories), of which 80% were domestic drugs and 8% were traditional drugs. As regards the national target program for diarrhea control, only 95.9% of all CHS reported having sufficient drugs for oral rehydration therapy. A low proportion (39.5%) of CHS reported using traditional drugs (Table 12.12).

**Table 12.12. Selected indicators of essential drugs at the CHS, 2001-2002**

Indicators	% of CHS
Sufficient antibiotics	86.0
Sufficient antibiotics for treating respiratory infection	97.5
Sufficient drugs for treating cold and influenza	82.3
Sufficient emergency drugs	43.3
Sufficient oral rehydration therapy	95.9
Sufficient drugs for reproductive health care	75.7
Sufficient drugs for malaria treatment	53.7
Using traditional herbal medicine	39.5

Source: VNHS 2001-2002 [3]

In the past, some communes implemented revolving drug funds under the Bamako Initiative, but capital was gradually eroded due to people's inability to pay, especially in poor communes and ethnic minority areas. In the lowland areas, nearly all CHS have become sellers for drug enterprises, using capital contributions from CHS staff and partial funding from the commune. Essential CHS drugs are not ensured in disadvantaged areas, which affects healthcare delivery. In these areas especially, people depend on subsidies, and appropriate policies are needed.

## **12.5. Commune Health Finances**

### **12.5.1. Compensation for commune and village health workers**

Compensation packages for commune and village health workers are important factors in attracting health staff and encouraging them to perform well. Government Decision 58/TTg in 1994 placed commune health under the public health system and changed the policy for compensating commune health staff from paying stipends to paying salary. This was accompanied by other policies bringing compensation of CHS staff in line with that of other permanent health staff in government service, eg, annual salary increase, social insurance, health insurance, and additional compensation for on-call duty, hazardous working environments, and for positions requiring higher responsibility. This represented an important turning-point in the operation of commune health services since it allowed staff to achieve greater stability in life and focus more on work performance, quality, and efficiency.

In 2005, the Prime Minister enacted Decision 276 regulating compensation for staff in public health facilities. For commune staff providing health care services directly to patients, compensation varies from 20% to 30% of basic salary depending on the area where they work, ie, urban, rural, mountainous, island, or remote area.

In 2004, the Prime Minister promulgated Decision 182/2004/QĐ-TTg on calculation of cumulative employment time for commune health workers to receive social insurance. Decision 58/TTg had left many commune health workers with no health insurance. Decision 182 addressed this problem by retroactively paying for social insurance to ensure a retirement pension for commune health workers with a long record of service.

In 2004, Decree 204/2004/NĐ-CP adjusted the salary system for government employees. In 2001, Decision 97/2001/QĐ-TTg supplemented the compensation regulations for staff in the health sector. In 2003, Decision 155/2003/QĐ-TTg modified and supplemented certain compensation regulations for work in the health sector, eg, for on-call duty and epidemic disease control.

Under the regulations on compensation for village health workers, the government budget guarantees funds only to disadvantaged communes. Other communes must mobilize other funds to compensate village health workers. By 2002, according to the VNHS 82% of village health workers received compensation, on average 35 000 VND per month.

To assure compliance with the regulations for health workers, the Ministry of Health enacted an inspection process to monitor policy implementation at the grassroots level. In the financial decentralization process, some regulations are at risk of not being fully implemented, particularly in the circumstances of the district health office in charge of the CHS being separated from the district health centers and the transfer of financial responsibility to pay commune health staff salaries from the district to the commune budgets. Many policies have not been fully implemented, eg, retroactive pay for social insurance, allowance for on-call duty, and allowances to attract health staff from delta areas to highland communes. Some communes have not yet increased salaries to comply with the new minimum wage.

### **12.5.2. Operating budget of the commune health station**

The state budget finances 73% of the total operating budget for the CHS. Joint Circular 119/2002/TTLT from the Ministry of Finance and Ministry of Health on December 27, 2002 set

the minimum norm for recurrent (variable) CHS costs at 10 million VND per CHS and year. The central budget guarantees the CHS budget in communes affiliated with Program 135. Other communes received funding from provincial, district, and communal budgets. Many localities have not reached this norm due to an imbalance between revenues and expenditures in local budgets. In Vietnam, 80% of all communes receive their operating budget from the Commune People's Committee. This figure is highest in the Red River Delta and North Central Coast regions (90%) and about 60% in other regions.

According to VNHS 2001-2002, approximately 72% of all CHS collect service fees for providing health care, averaging around 3.7 million VND per CHS per year. In 2002, only 11% of all CHS received revenues from health insurance reimbursement, averaging 1.7 million VND per CHS per year. Revenues from user fees contribute to the operating budget for CHS, but not markedly, particularly in disadvantaged, highland, island, and mountainous communes. The Commune People's Council sets the user fee level for the communes. User fees are collected mainly for assistance at childbirth, but are not collected (or are very limited) for other services. [3]

The CHS budget is used mainly to pay staff salaries and allowances (68%). Recurrent costs, eg, cotton, gauze, alcohol, electricity, and water, are covered partly from higher-level budget allocations and partly from the commune budget. Around 55% of CHS have funds available for non-salary expenditures below the regulated minimum level (10 million VND per year) [19].

## **12.6. Policy and Plans for Strengthening the Grassroots Healthcare Network**

The grassroots healthcare network has served the north of Vietnam since the August Revolution of 1945 and the south of Vietnam since national unification in 1975. Before the *Doi Moi* (renovation) period, the grassroots healthcare network experienced a recessive period when the cooperative system collapsed and the Commune People's Committee had no source of revenue to subsidize the budget for health and social services. In 1987, to deal with the degradation of many CHS, the government decided to pay salaries for commune health staff from the provincial budgets. However, only one third of the CHS staff were paid according to this decision. In 1994, the Prime Minister signed Decision 58/ TTg that defined commune health workers as government staff and allocated funds from the provincial budget to pay salaries.

On January 22, 2002, the Central Executive Committee promulgated Directive No 06 CT/TW to consolidate and strengthen the grassroots healthcare network. Directive No 06 stated that the Vietnamese Communist Party and Government have always given due attention to developing the grassroots healthcare network for improving primary health care and have contributed to economic development and stable social policies. Directive No 06 required all party and government agencies, community and social organizations to properly undertake 5 specific tasks:

1. Improve awareness and reinforce the leadership of the Party and government at all levels
2. Consolidate the organizational structure and reform working style to improve the quality and effectiveness of health services in the grassroots health network
3. Increase human resources and equipment in the grassroots healthcare system
4. Increase investment to further develop the grassroots healthcare system
5. Enhance management and supervision as regards development of the grassroots healthcare system.

Directive 06 emphasized the priority of people's health care in mountainous and remote areas, especially for ethnic minorities. To achieve this objective, the Minister of Health issued Decision 370/2002/QD-BYT (February 7, 2002) promulgating national benchmarks for health care at the commune level, 2001-2010. These benchmarks provided criteria and targets for implementation of commune/ward/town health stations.

In 2005, the Party Central Committee promulgated Resolution 46 NQ/TW, and the Government then promulgated an action plan to implement the resolution. These documents noted the main tasks of consolidating and improving the grassroots healthcare network in terms of infrastructure, equipment, and staff. Resolution 46 specified the need for major investments to upgrade healthcare facilities. The Government's action plan proposed implementation of projects including: training health workers and officials using strong affirmative action for ethnic minorities in the Mekong River Delta, central, and northern mountainous regions; developing a policy system to encourage health workers to serve in mountainous, remote, and difficult areas; and investing, building, repairing, and upgrading the CHS.

The Master Plan to develop Vietnam's health system by 2010, with a vision for 2020, and a 5-year plan (2006-2010) for health protection and promotion, affirmed that the basic healthcare network must ensure primary health care. To fulfill this task, the Master Plan developed targets, and the plan proposed training projects, investing in necessary physical facilities to ensure early diagnosis and timely treatment of common diseases, first aid, emergency care for accidents and injuries in populated areas, and gradually developing the ability to implement basic procedures in diagnosing and treating more specialized areas, eg, eye disorders, dental care, ENT, reproductive health, and pediatrics. The objectives for 2010 are that 75% of communes will reach national benchmarks for health care, 80% of all CHS nationwide will have doctors, 100% will have midwives, and 80% will have secondary midwives. On average, each hamlet/village should have 1 to 2 health staff with at least elementary medical training.

Private health practice has been legally sanctioned since the mid 1980s. To institutionalize regulations on private medical and pharmaceutical practice, on September 30, 1993 the National Assembly Steering Committee enacted the Ordinance on Private Medical and Pharmaceutical Practice. However, given recent economic and social developments it has been necessary to amend the regulations. Hence, the National Assembly Steering Committee passed Ordinance 07/2003/PL-UBTVQH dated February 25, 2003 on Private Medical and Pharmaceutical Practice, further defining the legal conditions for private practice and allowing the private health sector to continue developing to diversify the options for health care.

## **12.7. National Healthcare Benchmarks at the Commune Level**

The number of communes achieving national benchmarks for health care at commune level remains low. By the end of 2006, only 45% of communes had met the standards [198]. Compared to the delta areas, the communes in mountainous and remote areas face many difficulties in achieving national standards. A monograph on national health goals, based on data from VNHS 2001-2002, offers a preliminary assessment of each national benchmark for health care at the commune level [199]. At that time, the situation related to each benchmark was as follows:

### ***Benchmark 1: Social mobilization in health care and health IEC***

- Nearly every commune in Vietnam had a committee for health care, except in the Central Highlands and Northeast where fewer exist.
- Social mobilization for community health funds had not been achieved in all communes.
- A small proportion of communes in the rural northern mountainous and central coastal regions had loud-speakers.
- A small proportion of communes in the Northwest region had a person in charge of health education and communication.
- Nearly all villages had village health workers.

- Nearly all communes had implemented programs to inform households about child health care.

***Benchmark 2: Preventive health care***

- The percentage of households using safe water and having a hygienic latrine in rural areas remained far from the benchmark for 2010.

***Benchmark 3: Health care and rehabilitation***

- Training of technical skills for commune health workers and rehabilitation in the community remained far from the benchmark for 2010.

***Benchmark 4: Traditional medicine***

- The percentage of CHS having an herbal medicine garden remained far from the benchmark for 2010, especially in urban areas. Only a small percentage of CHS had traditional health workers.

***Benchmark 5: Child health care***

- Child health care is being implemented well and has high potential for reaching the benchmark before 2010.

***Benchmark 6: Reproductive health care***

- The goals could be achieved in the coastal, delta, midland, and low mountainous regions, but not in the high mountain region.

***Benchmark 7: Infrastructure and equipment***

- Around 57% of CHS were built as permanent or semi-permanent structures. Only 52% had a telephone. Over 90% of CHS had stethoscope, sphygmomanometer, thermometer, syringe, and injection needle.

***Benchmark 8: Health personnel***

- Potentially, the benchmark can be reached before 2010, except for full-time staff in traditional medicine and basic pharmacy.
- It will be difficult to reach the benchmark on training for village health workers in most regions.

***Benchmark 9: Plan and budget for CHS activities***

- Regarding the proportion of CHS financing supported by the Commune People's Committee, it will be difficult to reach the benchmarks in the northeast and northwest regions.

***Benchmark 10: Essential drugs; rational and safe use of drugs***

- It will be difficult to reach the benchmarks on drug dispensaries and the essential drug list at CHS.

Achieving 10 national benchmarks for health care at the commune level will be difficult. Since economic conditions differ between regions, the support, facilitation, and investments for reaching the 10 benchmarks vary. Also, because of the inappropriate distribution and mix of health workers, and limited sense of duty of the community to participate and take responsibility after 2 years of implementation, the results achieved are not high (and are even very low in some places).

Government and local authorities should pay greater attention to investing in health and the environment. The healthcare sector is considering targets adapted to the situations in different regions and areas. Government levels, community and social organizations must address and coordinate with the health sector to implement national benchmarks for health care at the commune level.

## **Chapter 13**

### **PREVENTIVE MEDICINE**

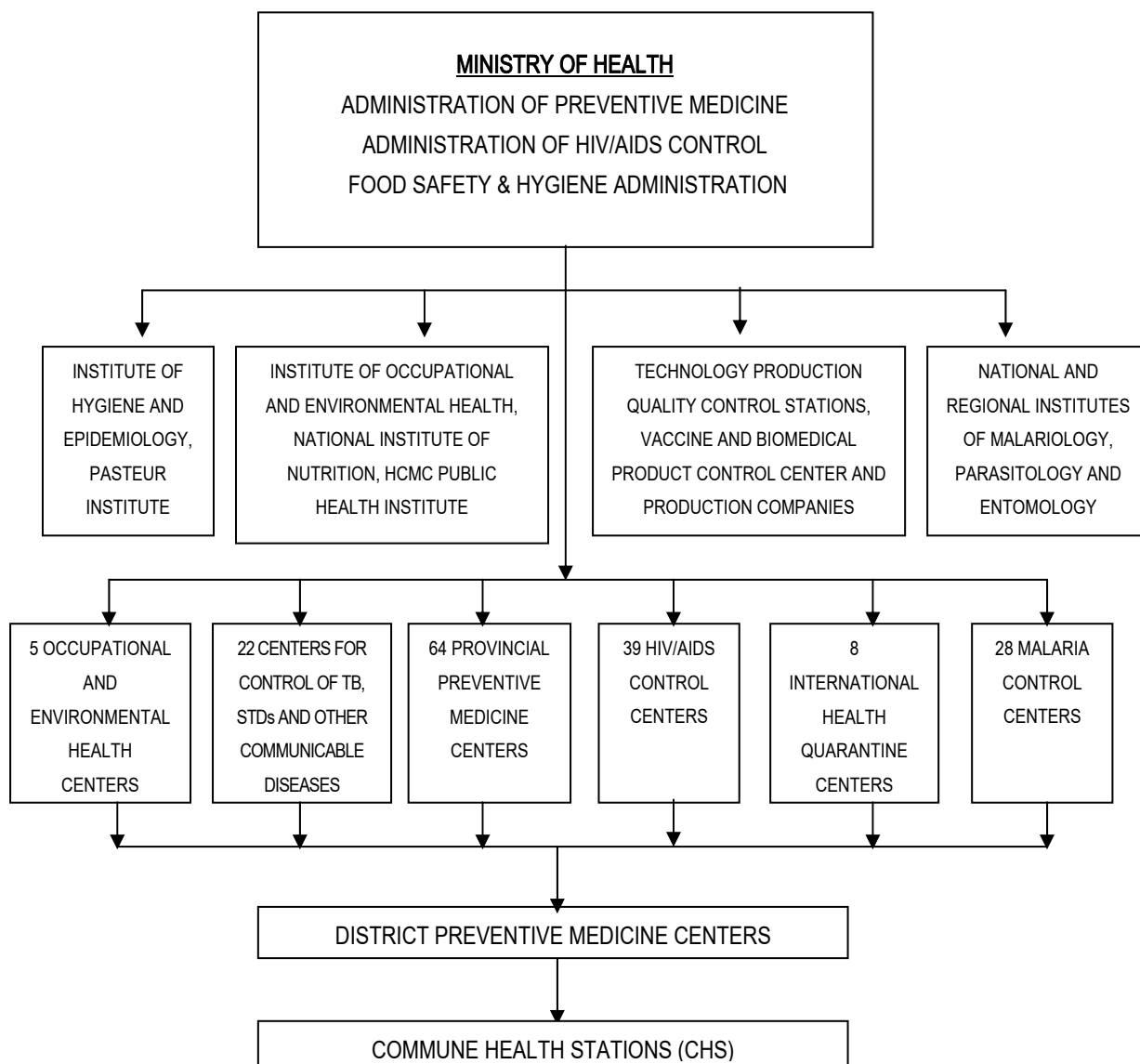
The importance of preventing illness was recognized early in the strategy to care for and protect people's health, and preventive health activities have been implemented at all levels for many years. Changes in living standards, morbidity patterns, lifestyles, and the environment during this period of rapid development in Vietnam are creating new challenges in preventive health that require new solutions. Intersectoral collaboration is needed to successfully implement programs to prevent illness and promote health throughout the entire population.

In light of the critical problems facing the health of Vietnam, combined with the demands of society, it is important to conduct a situation analysis of preventive health activities and review the plans to address these issues. This chapter reviews the preventive health activities in Vietnam over the past 5 years and addresses the challenges that need to be overcome in the near future.

#### **13.1. Organization of the Preventive Health System**

Many different organizational units in the health sector have responsibilities for different spheres of preventive health. Particularly noteworthy in the past 5 years is the division of the Vietnam Administration of Preventive Medicine and HIV/AIDS into two specialized agencies, one in charge of preventive health and the other in charge of HIV/AIDS. Hence, at the central level, 3 units currently address preventive health services, ie, the Vietnam Administration of Preventive Medicine, the Food Safety and Hygiene Administration, and the Vietnam Administration of HIV/AIDS Control (Figure 13.1). These are specialized agencies under the Ministry of Health, assisting the Minister of Health to implement state managerial functions, which includes enforcing policies and directing specialized activities in the fields of preventive health, food safety, and HIV/AIDS control. In contrast to the functions of other departments under the Ministry of Health, these agencies also have direct implementation functions for certain preventive health actions in the provinces. For instance, in the event of a flood, epidemic, or newly identified pollution source, the Vietnam Administration of Preventive Medicine not only provides advice and guidance, but also works directly in the provinces – sending staff, medicine, and chemicals to the localities affected to prevent disease outbreaks, treat water, ensure hygienic environment, stop the spread of disease, and otherwise help the local area to overcome the effects of disasters.

**Figure 13.1 Organizational chart of the preventive health network of the Vietnam Ministry of Health**



Directly under the Ministry of Health, many institutes specialize in preventive health, eg, the Pasteur Institutes, the Institutes of Malaria, Parasitology, and Entomology, the National Institute of Hygiene and Epidemiology, the Central Highlands Institute of Hygiene and Epidemiology, the Institute of Public Health, the Center for Control of Vaccine, and Biomedical Products, and the Institute of Occupational and Environmental Health. As illustrated in Figure 13.1, the central and regional levels include many institutes and specialized centers. All 64 provinces have a preventive medicine center that manages preventive medicine within the province. In 2005, the district preventive medicine center was split off from the district health center to allow for greater specialization of preventive health functions at the district level. Depending on need, regions may also have preventive medicine centers specializing in certain fields, eg, malaria or other social diseases. At the lowest level of the hierarchy are the commune health stations (CHS), which in combination with village health workers implement preventive health programs directly in communities.

Several sectors other than the health sector also play important roles in preventive health care and health promotion. For example, the Ministry of Education and Training participates actively in health education, the Ministry of Agriculture and Rural Development



plays an important role in food hygiene and safety, prevention of avian influenza in humans, and rural water and sanitation, the Ministry of Natural Resources and the Environment helps ensure an environment conducive to disease prevention, and the State General Administration of Sports promotes exercise and participation in sports to maintain and strengthen the health of the population. Private health facilities are also active in reporting social diseases and epidemics. This chapter, however, focuses on the role of the state health sector in preventive health.

## **13.2. Monitoring and Controlling Outbreaks and Epidemics**

### **13.2.1. Epidemic management and monitoring system**

Management and monitoring of diseases and epidemics is executed by the office of communicable disease control and management of vaccines and biomedical products (under the Vietnam Administration of Preventive Medicine). This office is charged with advising and assisting leaders in the Vietnam Administration of Preventive Medicine to manage and direct the work of preventing communicable and social diseases, and to manage vaccines and biomedical products. Apart from this office, the system of preventive medicine institutes helps manage and monitor disease and epidemics throughout the country and in each region, eg, the National Institute of Hygiene and Epidemiology, the Central Highlands Institute of Hygiene and Epidemiology, the National Institute of Malariology, Parasitology, and Entomology, and the branch institute in Quy Nhon and the Pasteur Institutes in Nha Trang and HCMC. The national health target programs play an important role in the control and prevention of disease and epidemics.

The preventive health system faces many challenges resulting from different demands and emerging diseases throughout Vietnam. The surveillance system to identify disease outbreaks in many localities is inadequate, ie, lacking staff, technical equipment, and funds to actively monitor, prevent, and control disease outbreaks.

There is a risk that diseases will break out or invade from overseas, especially dangerous emerging diseases such as SARS, avian influenza A(H5N1), and encephalitis due to ARBO virus. This presents difficult challenges in predicting, preventing, and controlling epidemics. Concurrently, the increasingly polluted environment, unusual weather patterns, natural disasters, rapid urbanization, problems of clean water and sanitation, and greater domestic and international interaction creates favorable conditions for the development and spread of diseases, complicating the disease situation and making it hard to control. Hence, community-based activities to control communicable diseases need continuous strengthening – especially in disadvantaged mountainous and remote areas – to maintain the achievements gained in controlling epidemics and to avoid new outbreaks and major epidemics.

### **13.2.2. Communicable diseases**

During the past 5 years, Vietnam has made substantial progress in actions to prevent communicable disease. However, many challenges arising from different causes remain to be overcome – especially problems associated with the nature of communicable disease itself. This section describes activities in Vietnam aimed at preventing communicable diseases (of which the national health target programs play a crucial role), immunizing children, and preventing digestive diseases. Section 13.6 describes activities targeting clean water and sanitation.

#### **SARS and Avian influenza control**

Vietnam was the first nation to effectively control SARS. Soon after detection of the disease, the preventive health system developed control actions to prevent its spread and reduce mortality from SARS. In addition to major investments in artificial ventilators and monitors to detect disease at airports and border crossings, a broad information campaign was developed on the prevention, detection, and control of SARS. Since 2003, no cases of SARS have been detected in Vietnam [200].

Activities targeting avian influenza include major state investments in equipment and drugs to control a potentially large epidemic of avian influenza. The health system rigorously coordinates with diverse disciplines and localities to prevent human transmission of avian influenza. Active preventive measures, eg, sufficient drug and equipment storage, have been developed to anticipate any large epidemic. Moreover, an early detection system has been developed for prompt intervention to localize and control epidemic sites. Also, continuous information on epidemic prevention has been widely disseminated. Avian influenza has been largely restricted to poultry and waterfowl, with some rare cases of human avian influenza. In Vietnam, avian influenza has not yet manifested as human-to-human transmission. IEC campaigns have begun to change practices in poultry farming, trade, and processing, which ultimately are the most important aspects of primary prevention.

In addition to success in controlling these two dangerously infectious diseases, the preventive health system has also developed prevention activities to control infectious disease in livestock, eg, bovine spongiform encephalopathy (BSE) and "foot and mouth" disease, to quarantine epidemic sites to prevent the spread of disease and transmission to humans.

**Box 13.1. Basic measures currently applied to control avian influenza**

- Intensification of information and education about the epidemic; transparency about severe conditions, abnormalities, or death. Inform and educate about infectivity and transmission of the disease and about prevention and control measures.
- Localization of the epidemic site
- Eradication of disease and prevention of relapse
- Education of the population about promoting health and changing lifestyle and practices (not eating raw coagulated blood and dead poultry, no direct contact with diseased or dead poultry) to prevent human transmission.
- Intensification of veterinary check points
- Development of quarantine stations at every border crossing to prevent the transmission of disease in and out of Vietnam
- Development of immunization for domestic poultry
- Intensification of epidemic information and detection in every district
- Training of health workers at every level in surveillance, detection, and prevention.
- Strengthening of communication with WHO and other nations about the epidemic and experiences in prevention

An unwarranted optimistic attitude, however, still persists in many localities when the disease has temporarily subsided, or is not flaring in the community. The great challenge facing the preventive health system is the low level of public knowledge about disease prevention and control. Penalties for violating poultry trade regulations are not sufficiently severe. Controls on veterinary measures are inadequate, as are protective measures for people in direct contact with livestock and poultry, mainly butchers and poultry sellers.

Activities related to information and disease detection vary by locality – some are better, some are worse. Despite the investments in equipment, the quantity and quality remain inadequate. Manpower engaged in preventive health is insufficient and assigned to diverse activities. Currently, vaccines have a limited effect, and although research is ongoing, vaccine production has not yet expanded. Real challenges face the preventive health system due to the changeability in disease patterns and the slow pace in changing lifestyle and practices related to poultry breeding, trade, and consumption. To control the disease, the preventive health system must reinforce active intervention, even in case of a broader epidemic.

## ***HIV/AIDS control***

During 2001 to 2005, actions to control HIV/AIDS infection were implemented relatively well at every level. The Ministry of Health, in cooperation with other sectors, developed the Law on Prevention and Control of HIV/AIDS and other legal and procedural documents to create a legal basis for interventions. Moreover, the Ministry of Health promulgated several documents providing guidance and direction for HIV/AIDS control activities to enhance the effectiveness of the legislation. HIV/AIDS control is now receiving considerable political attention.

State investment in HIV/AIDS control is ongoing and stable. Intersectoral commitment to preventive health activities is strong, which promotes participation from mass organizations and the population and attracts generous international aid.

The most notable success in HIV/AIDS control is found in the outcome of the HIV/AIDS control program under the National Target Health Programs for 2001 to 2005 [15]. Following the project, over 90% of state officials, members of popular organizations, servicemen, and students, and over 80% of urban and 70% of rural and mountain populations had good knowledge about HIV/AIDS and participated actively in HIV/AIDS intervention. In 2005, 40 provinces/cities were capable of making their own assessments and projections about changes in HIV/AIDS infection in their locality. One hundred percent of blood units have been screened for HIV prior to transfusion at every level. By 2005, 90% of known HIV-infected patients were under medical supervision, care, and advice at various levels in the healthcare system. One hundred percent of known HIV-infected pregnant women have been counseled and provided appropriate treatment. One hundred percent of universities, junior colleges, and upper secondary schools have carried out education on HIV/AIDS control. One hundred percent of the centers for rehabilitation of sex workers and drug addicts, prisons, penitentiaries, and education centers have developed information and interventions to control HIV/AIDS. Seventy percent of all communes and ward have started to implement HIV/AIDS control.

In spite of the success in HIV/AIDS control, Vietnam's preventive health system must continually cope with change as the disease progresses. Complex population conditions and socioeconomic trends present considerable challenges to the preventive health system. The HIV/AIDS epidemic is on the increase and is concentrated in high-risk groups, ie, drug abusers, sex workers, and venereal disease patients. This epidemic is affecting an increasingly younger cohort, as demonstrated by the proportion of people living with HIV/AIDS in the group aged 20 through 29 years, which was 15% in 1993 and had increased to 53.8% by 2005. [4]. The epidemic is beginning to exhibit signs of spreading to the general population.

Intervention against HIV/AIDS infection is unified at the national level only. At the local level, workers assigned to HIV interventions often have many other tasks as well and tend to have poor technical skills in HIV/AIDS diagnosis, management and treatment. Interventions have not fully developed due to an inadequate legal framework, contradictions in views, and inconsistencies in direction. When developing intervention programs, some localities have no coordination between local police, the Office of Labor, War Invalids, and Social Affairs, and the health services. Many intervention programs are inadequate, and evaluation of HIV/AIDS control programs is lacking.

Moreover, information campaigns change behavior do not cover the entire country. This information does not always reach high-risk groups and may not focus adequately on education, safe attitudes, and changing the behavior of the population. The safety level is still low as regards blood screening before transfusion, with over 80% of health services offering only simple screening techniques. Professional blood sellers, many belonging to high-risk groups, account for a high share of blood donors. Blood reserves are also lacking, and the promotion of voluntary blood donation is limited.

Investment and equipment aimed at preventing HIV infection are also insufficient, particularly as regards standardized laboratories. Counseling centers including voluntary anonymous testing have not yet been established to help prevent HIV transmission from mother to fetus.

The legislative basis for intervening is inadequate, especially as regards programs to promote condom use and reduce harm among intravenous drug users. Moreover, there is lack of consensus on interventions. Interventions are limited to pilot projects that cannot be expanded. Hence, the HIV/AIDS epidemic continues to grow.

No policies address the children orphaned due to HIV/AIDS infection in their parents. Implementation of policy on treating HIV/AIDS carriers has faced difficulties.

### ***Malaria control***

Through government investment under the direction of the Ministry of Health, and specialized health authorities at every level, the national program for malaria control has succeeded in reaching and exceeding the objectives assigned by the State and the Ministry of Health [15]. Malaria has been prevented and incidence reduced throughout Vietnam, as have related morbidity and incidence mortality, and there have been no malaria epidemics. Malaria is controlled in endemic areas. Factors to stabilize malaria control have been developed, eg, a grassroots health system network, improved primary health care, a system for malaria detection and control where staff from the national to commune levels can intervene promptly, improved public information about malaria prevention and control, and appropriate technical measures to prevent malaria. Objectives achieved in 2005 included successful implementation of antimosquito chemical spraying in endemic areas, detection through blood smears, annual reductions in malaria prevalence, and improved early detection and prompt management. The appropriate prescriptions for treating malaria are based on guidelines from the Ministry of Health.

Despite the success of the 2001-2005 program in malaria prevention and control, challenges remain. The risk of malaria relapse in the form of major epidemics (eg, 1990, 1991) still persists. Moreover, the project failed to provide a sustainable means for malaria control so the health sector (especially at the grassroots level) and the population could actively find their own solutions in the event of an epidemic recurring. Government funding for 2004 and 2005 is inadequate to provide mosquito nets as needed. The expenditure level of interministerial directive No 51/2002/TTLB/BTC-BYT by the ministries of Finance and Health is insufficient, impacting on the activities of health workers in malaria prevention and control.

Another challenge concerns the large population residing or traveling in endemic areas (38.6 million inhabitants, representing 48% of the general population). Migration flows are high, especially spontaneous migrants from northern and central provinces where the disease is endemic. In addition, people who stay overnight in the forest to exploit forest products are often outside of the scope of the health system. Some major government infrastructure and economic development projects are in endemic malaria areas, including hydroelectric plant construction sites in Son La, Gia Lai, and Ha Tinh, rubber plantations, aquaculture in coastal marshes and estuaries where the increasing population flows raise the potential for the spread of malaria or large malaria outbreaks unless preventive actions are effective.

Although the grassroots healthcare system is widely developed it covers only 80% of villages, often with a low level of skills and capacity, leading to a low quality of malaria surveillance and interventions in remote, mountainous, and border areas.

Malaria epidemiology is changing in complex ways, and all regions face a risk of malaria making a comeback, especially provinces such as Quang Binh, Quang Tri, Quang Nam, Khanh

Hoa, Gia Lai, Kon Tum, and Binh Phuoc. The problem of multiple-drug-resistant malaria is severe, threatening treatment outcomes and malaria prevention and control. Malaria mosquitoes are found in high density in many areas.

### ***Dengue (hemorrhagic) fever control***

Remarkable achievements in the dengue fever control component of the national target program were reported for the 2001-2005 period [15]. The project consolidated and enhanced the role of the steering committee for dengue fever control (established in 1999) from the national to local levels, mobilized different parts of society to participate in prevention and control activities, and added dengue fever disease control indicators to the general indicators of socioeconomic development in every locality. Networks of volunteers have been established in main areas of the provinces. Material with technical guidance for health workers has been prepared and disseminated, and training courses on preventive health have been offered to workers in relevant sectors, creating extensive human resources for disease prevention and control activities. The local steering committee and local experts in charge of dengue fever in the localities have years of experience in implementing public health programs.

Control and prevention of dengue fever has attracted the concern of organizations in many countries, all with the goal of reducing prevalence and mortality and preventing outbreaks. Vietnam operates many projects, approved by the government in cooperation with international organizations, to actively prevent and control dengue fever. Most notable is the cooperation between the Ministry of Health and the Government of Australia on dengue fever control. The first phase (1998-2000) was based in communities in 3 northern provinces, and the second phase (2000-2003) was based in central Vietnam. Aid was received from the organization "Lottery", of the United Kingdom, in accordance with Decision 599/CP-QHQQT to continue implementation of the dengue fever project in the Mekong Delta. The Government of Australia approved funding for a research project (during 2005-2010) on methods to control disease vectors that spread dengue fever in the Mekong Delta.

Nevertheless, the preventive health system faces many challenges related to dengue fever. The incidence of dengue fever in children and adults is likely to increase in the next few years. Severe cases of grades III and IV represent 10% to 13% of all patients. Social mobilization of the prevention and control of dengue fever has met considerable resistance since local authorities are not directing activities and intersectoral cooperation is weak. Larvae destruction campaigns, although organized, tend to be limited to "launching ceremonies" at provincial, district, and commune levels and lack direct instructions from authorities at each level, especially at the commune level. Hence, most campaigns are formalistic, ineffective, and cannot be maintained. Systems of disease surveillance, destruction of vectors, statistics, and reporting in accordance with regulations have reached only the first step of development.

Information and communication campaigns involving the mass media have been developed in 53 provinces/cities, but have not been implemented regularly and continuously. Many preventive health centers lack essential equipment and manpower to intervene. The network of volunteers in the project to prevent and control dengue fever is insufficient, and the project budget for 1999 to 2005 is only enough to assist 5% to 15% of communities nationwide.

The program for community-based prevention and control of dengue fever needs adequate time to train and educate health workers, invest in material and education, and establish the volunteer network. In particular, it needs time to change the knowledge and behavior of the population and legislate interventions as other nations in the region have done.

### ***Tuberculosis prevention and control***

Preventive health services have continued to implement the tuberculosis control program under the national health target programs. For many years, under a largely vertical framework, the national tuberculosis control program has worked to maintain a high implementation rate for the project and DOTS (directly observed treatment, short-course) coverage for 100% of the population. The most notable achievement of the tuberculosis control program is that the results of detecting and treating tuberculosis have always exceeded targets and national and WHO indicators. More importantly, these results have been maintained continuously for many years. WHO has praised the program and has ranked Vietnam's tuberculosis control program on par with the world's leading programs.

Prevention and control of tuberculosis has received attention at all levels, from central to local. Despite its limited scope and depth, the project has received support from the community and from local authorities and organizations throughout the country. Most communities are well-informed about tuberculosis. Accordingly, as knowledge improves, the shame and stigma associated with tuberculosis is decreasing. Tuberculosis patients have become more compliant with treatment regimes.

However, tuberculosis prevention and control must promptly address several challenges. Competence in organizing activities is not uniform among health workers of every level. Needed skills in foreign languages are limited. Interventions to prevent and control tuberculosis in mountainous and central highland provinces have been qualitatively and quantitatively insufficient. Socialization of tuberculosis prevention and control is inadequate in some provinces. Though the HIV/AIDS epidemic is growing, there is minimal cooperation between HIV and tuberculosis intervention at the Ministry level. The prevalence of multi-drug-resistant tuberculosis is increasing. The private sector develops and participates, but without sufficient direction, in detecting and treating tuberculosis. Of serious concern, the state has no mechanism to control tuberculosis drugs in the free market. Health workers avoid jobs in tuberculosis control for fear of becoming ill and because of low compensation. Moreover, staffing reductions under Decree 10 (autonomy of fee-collecting government service units) create the risk of a manpower shortage.

### ***Leprosy prevention and control***

As with the above-mentioned diseases, leprosy control and prevention is concentrated under a component project of the national target health programs (2001-2005). Prevalence of leprosy has decreased in recent years, and WHO indicators of leprosy eradication have been maintained (prevalence <1 per 10 000). A high percentage of people disabled by leprosy are under medical supervision and care. The project has received investment and attention of the government and the close direction of the Ministry of Health. Eleven international organizations were providing or preparing to provide financial aid for leprosy control projects (December 31, 2003). A network of dermatology units with health workers has been deployed from the national to local levels. Leprosy prevention and control have been integrated in the general health network at all levels, but especially at the commune level.

The preventive health service must cope with many challenges. The incidence of detected disease is high. Detected incidence in Vietnam is 1.18 per 100 000 population. After 2005, Vietnam still had 23 provinces not reaching the 4 indicators of leprosy eradication. The prevalence of disability in new patients is high at 18.86% (among nations in the region the level is <10%), and around 18 000 leprosy patients throughout the country suffer from leprosy-induced disabilities. In mountainous and remote regions the leprosy control network is weak and insufficient. Most leprosy patients are poor, and are still often stigmatized. Some provinces/cities, after having eradicated leprosy according to WHO standards, tend to loosen

control and pay inadequate attention to leprosy prevention and control. Three provinces, which had reached the national standard of eradicating leprosy according to 3 indicators, are at risk for leprosy relapse due to inadequate attention to program interventions (eg, assigned workers to other tasks or to too many concurrent duties, or reduced expenditures compared with previous years). Expenditures for leprosy control are progressively declining, making disease screening and detection difficult. There is no unified model for the organization of dermatology including leprosy at the provincial level.

### ***Child Immunization***

In the recent past, Vietnam has formally eradicated polio, neonatal tetanus, and leprosy according to WHO definitions. As for the 6 basic diseases preventable by immunization (poliomyelitis, diphtheria, whooping cough, tetanus, measles, tuberculosis), morbidity and mortality have been reduced to a minimal level, with a reported incidence below 400 cases annually (50 cases of death) [143]. Over 90% of children under 1 year of age are fully immunized with 6 main types of vaccine (polio, TB, DPT, and measles). Infectious diseases preventable by vaccine contained in the Expanded Program of Immunization (EPI) have been reduced 10- to 100-fold compared to before the intervention program. Immunization against other diseases, eg, hepatitis B, Japanese encephalitis, hemophilus influenza B, and typhoid fever has been developed with coverage progressively expanding. Booster immunization against measles is being carried out, sharply reducing the incidence of the disease. Starting in 2006, an annual booster immunization program against measles will immunize every child in the first grade.

Starting from 2003, the EPI added hepatitis B vaccine free of charge. In addition, Japanese encephalitis and hemophilus influenza B are under consideration to be added to the program. Vietnam continues to produce many diverse types of vaccine, particularly vaccines for children, of acceptable quality at low cost, about half the cost of imported vaccines.

Nevertheless, many substantial challenges remain as regards immunization. The immunization rates and quality of immunization services in remote and mountainous areas are lower than desired. Newly developed vaccines are insufficient to meet demand. Vaccine storage does not meet safety standards because of deficiencies in equipment, particularly in remote areas, and geophysical conditions make it difficult to access remote communities. Refrigeration equipment is obsolete at many levels, particularly at the provincial level, but impossible to replace due to lack of funds. Vaccine shortages have occurred at times, resulting in the relapse of diseases such as whooping cough and diphtheria in 2003. Although immunization programs are conducted well, the incidence of disease is still on the rise, eg, measles in 2000. Two million children under 5 years of age are not immunized against Japanese encephalitis, and several million others have not received typhoid fever and cholera vaccines. Hence, outbreaks of Japanese encephalitis, and the ongoing spread of hepatitis B and other diseases continue to burden society. Immunization safety has not been developed uniformly. Some areas have used unsafe vaccines, resulting in adverse events that make people apprehensive about immunizing their children. The surveillance system for adverse reactions to vaccines does not yet have nationwide coverage.

The EPI is taking steps to overcome these difficulties and maintain the achievements made in child immunization. These steps include: improving surveillance of the EPI to maintain high coverage of full immunization; ensuring that all children are immunized against diseases in the program; correctly managing all immunization facilities not participating in the EPI; managing the registration, importation, circulation, and production of vaccines; developing training and information for workers about the EPI and vaccine storage; intensifying communication on immunization; integrating the EPI with schools and

cooperating with local authorities and grassroots health workers in surveillance and information about the program; avoiding shortcomings in vaccine production, transportation, and storage until used in children; investigating other diseases to be included in the EPI for children; and developing international cooperation in the exchange, training, and formation of immunization workers, particularly with international organizations such as WHO and JICA.

### ***Digestive tract and other communicable diseases and epidemics***

Diseases of the digestive tract are characteristic of developing countries. Factors such as unclean water, poor hygiene, and environmental pollution promote infectious diseases such as diarrhea, dysentery, cholera, typhoid fever, dengue fever, and intestinal parasites [150]. The complexity and changeability of digestive epidemics are creating new challenges for the preventive health services.

Diseases related to water and hygiene have not declined during the past 5 years (except for typhoid fever), but have remained stable (bacillary dysentery), or increased (diarrhea, cholera). However, mortality from these diseases is markedly lower, with no deaths reported during 3 recent consecutive years. As for diarrhea, the figures given in section 3.1 above only account for the cases that were reported to the commune health stations. In fact, the true number is markedly higher because patients do not present to the health services.

Although a major epidemic has not occurred, many localities nationwide report a high incidence of viral encephalitis. Mortality from this disease is high. Acute respiratory infections, eg, acute upper respiratory tract infection and pneumonia, are other infectious diseases with high mortality rates, especially in children.

### ***13.2.3. Noncommunicable disease***

Disease patterns in Vietnam are changing. In addition to infectious and parasitic diseases (about 43% of all reported diseases), some noncommunicable diseases have a progressively high incidence. Many emerging health problems require the attention of society and the health system, eg, cancer, diabetes mellitus, hypertension, malnutrition, goiter, and mental illness. Currently, the management and intervention of noncommunicable diseases are assigned to the Department of Therapy, Ministry of Health.

### ***Control of child malnutrition***

Although malnutrition is not a disease, the control of malnutrition in children is of particular concern since it represents a high risk factor for infection from diseases that could be life threatening. The goal to reduce malnutrition in children has been included in the Resolution of the Communist Party Congress and other documents of the Government and Communist Party at every level. The Steering Committee for Prevention and Control of Child Malnutrition has been established from the central to grassroots levels to conduct interventions. Coverage includes 100% of provinces, districts, and communes throughout the country, and the network has been established at every level (national-province-district-commune-hamlet). Vietnam had 11 399 malnutrition workers at the provincial, district, and commune levels by the end of 2004. The total number of nutrition volunteers was 91 404 persons (to cover 95% of villages nationwide).

Eight essential interventions have been implemented at the grassroots level: Management of health and nutrition status for women who are of reproductive age, pregnant, and/or breastfeeding; Encouragement of breastfeeding within the first half-hour after birth and exclusive breastfeeding during the first 6 months; Guidance for appropriate food supplementation and continuation of breastfeeding until 24 months; Supplementation of vitamin A and iron for mothers and children; Improved care of children during and after



illness; Hygienic practices in the household and nursery school and control of intestinal parasites; Monthly weighing of children under 2 years of age to monitor growth, and provide education and information; Intensification of local food production from horticulture, aquaculture, and animal husbandry (the VAC model) for the household. The aim is to universally apply the 8 nutritional interventions in households.

Also, organizations are engaged in interdisciplinary cooperation, with active participation by the Woman's Union, the National Committee of Population and Family Planning, Ministry of Education and Training, Central Committee of the Youth Union, Ministry of National Defense (Department of Military Supplies, Department of Military Medicine, Department of Border Guards), Vietnam Confederation of Labor Unions, General Department of Statistics, and others addressing malnutrition in children.

Malnutrition decreased (reduction of underweight malnutrition) from 33.8% in 2000 to 25.2% in 2005, and is projected to decline to 20% by 2010 if interventions continue.

However, malnutrition interventions for children present several challenges. The malnutrition rate in Vietnam is much higher than the rates in other nations of the region. In Vietnam, 1.9 million children are underweight, 2.2 million children have short stature, and 243 000 are severely malnourished. The prevalence of malnutrition is high in remote areas: more than 1 in 3 children in the Central Highlands (34.5%), while the Northwest and North Central Coast report around 30% or higher. [14].

State investment in controlling malnutrition has increased in recent years, but the large number of children and pregnant women results in a low per capita expenditure. More resources should be considered to achieve the objective of reducing malnourishment to 20% by 2010. Assistance from international organizations is minimal and must be promoted in the future. Directive No 51 concerning financial administration of the national program must be adjusted to improve local implementation and management of interventions.

Although malnutrition represents a major challenge, the prevalence of obesity in children of some cities is also a problem that should be addressed and prevented.

### ***Control and prevention of goiter***

In the recent 5-year period, the project to prevent and control goiter (belonging to the national health target program) has achieved marked success due to broad implementation of the principal intervention. The system to prevent and control iodine deficiency has been established nationwide, and all interventions have been unified under the direction of the Ministry of Health, National Health Target Program, and Project for Prevention and Control of Goiter. In 2005, the program maintained its gains and developed goiter prevention and control activities in the Mekong Delta and Southeast Vietnam. The program aims to eradicate iodine deficiency goiter in every region throughout Vietnam. Change in the population's use of salt has been promoted on a large scale, especially in the delta and particularly in the Mekong Delta. The number of households using iodized salt has increased.

Improvement in the coverage of iodized salt tends to be greater in areas not attaining the objectives, while use is being maintained in areas with high iodized salt coverage. Manifestations of iodine deficiency are absent in the general population (15.1 mcg/dl), and the prevalence of goiter in children aged 8 to 10 years is markedly reduced. Community awareness about the damaging effect of iodine deficiency goiter is high, above 90%. From 2001 to 2004, the supervision system for iodized salt was continually engaged to ensure the progressive increase in iodized salt quality. With the broader use of iodized salt, the project to prevent and control goiter, in cooperation with UNICEF officials, has established a simplified and more effective supervision system. Intervention against iodine deficiency disorders during the 2001-2005 period was considered to be successful [15].

Goiter presents numerous challenges to the preventive health system. Public awareness about iodine deficiency goiter is less than optimal. The percentage of the population aware of the harmful effects of iodine deficiency, ie, cretinism and mental retardation, remains low (56.2% and 28.0%) despite some improvement. Although the quality of iodized salt is rather well supervised, some issues remain to be solved. Based on ICCIDD/WHO/UNICEF standards, the effective eradication of iodine deficiency disorders in Vietnam after 2005 requires certain adjustments and additions. Budget resources for iodized salt production and goiter prevention are restricted.

### ***Management of mental health***

During the 2001-2005 period, the community-based mental health project of the Vietnam Administration of Preventive Medicine developed a network and began to implement a model of integrating mental health into regular community healthcare services in 6120 communes. The program has detected, medically supervised, and treated 50 000 schizophrenic patients, in whom treatment is now stable without relapse for 35 000 patients. This allows them to reintegrate into the community and society. Interventions in mental health care have exceeded their targets, including detection, management, and treatment of schizophrenic patients.

The project has gradually enhanced knowledge of grassroots health workers about community mental health and basic knowledge of the public on mental health. It has been implemented in all in all provinces nationwide.

However, mental health management has met with difficulties. Annual budget resources are only about 38% as compared with the program in the 2001-2005 period, restricting many interventions. Education and communication are either lacking or not available in remote areas. Public awareness is limited, leading to added problems for mental patients.

Implementation of the project in many localities is poor due to lack of funds and slow supply of materials. The mental health system in Vietnam is inadequate, some localities have little understanding of mental health and offer no treatment facilities for mental patients. Equipment and services are still lacking, treatment facilities are insufficient, and specially trained health workers are few, especially in remote and mountainous areas. Many mental patients receive no treatment, again especially in mountainous provinces. Some localities have yet to give priority and suitable consideration to mental health care.

### ***Prevention and control of cancer***

Prevention and treatment of cancer are usually addressed by preventing the risk factors for cancer. Important risk factors include tobacco, alcohol, sedentary lifestyle, diet, obesity, human papilloma virus, contact with dangerous chemicals, and exposure to sunlight.

Vietnam does not yet have a comprehensive cancer prevention program. However, the health sector is beginning to form and implement important policies related to cancer risk factors. In 2000, the Prime Minister approved the policy on preventing harm from tobacco for the 2000-2010 period. The Ministry of Health is now developing a policy to reduce harm from alcohol abuse. Factors related to diet and food safety are gradually being addressed through methods to ensure food hygiene and safety and recommendations on dietary intake. Cervical cancer is one of the most prevalent cancers among women, and one that is possible to cure if detected early. The Vietnam American program on prevention of cervical cancer is currently implementing a Pap smear screening program in some cities, with aspirations to expand the program nationwide [201].

### ***Prevention and control of diabetes mellitus***

Diabetes, especially type 2 diabetes, is growing in prevalence. Type 2 diabetes represents 85% to 95% of total diabetic patients and is the most common noncommunicable disease in the world. Diabetes mellitus burdens economic and social development by its universality and

severe consequences resulting from delayed detection and treatment. Direct expenditures for type 2 diabetes mellitus represent from 3% to 6% of the total healthcare budget. The prevalence of diabetes mellitus in Vietnam shows an increasing trend, especially in large cities and industrial regions. Primary studies early in 1990 indicated that the prevalence of diabetes mellitus in Hanoi, Hue, and HCMC was 1.2%, 0.96% and 2.52%, respectively. By 2000, the prevalence of diabetes mellitus in the 4 largest urban areas was 4%, and a national survey on diabetes in 2002 reported the prevalence of diabetes mellitus to be 2.7% in Vietnam as a whole and 4.4% in the major cities. Community awareness about diabetes mellitus and knowledge about prevention remain at a low level, and 70% of communities have little knowledge about risk factors and prevention of the disease. Due to the lack of knowledge and health network with inadequate training, the percentage of undetected diabetes mellitus in the community is high (64.5%).

### **13.3. Administration of Vaccines and Immunological Products**

The Office for Control of Communicable Disease and Vaccines under the Vietnam Administration of Preventive Medicine is the unit in charge of state management of vaccines and biomedical products. Currently, the management of production, import, and supply of vaccines is assigned to the Department of Preventive Medicine and other relevant units, including the Scientific Center for Sabin Vaccine Production, Vaccine and Biomedical Products Enterprise No 2, National Center of Vaccine and Biomedical Product Control, and Nha Trang Institute of Vaccines.

New regulations on vaccines and biomedical products appeared during the recent 5-year period, including: regulations on registration; directives on management, utilization, and pricing; directives on import and export; and directives on advertising, labeling, and good manufacture practice (GMP) of vaccines and biomedical products. Also, the Ministry of Health approved a list of foreign vaccines and biomedical products to be issued licenses for distribution.

In the process of assessing and approving registration of vaccines and biomedical products to be distributed in Vietnam, and foreign enterprises involved in vaccine and biomedical production in Vietnam, the Vietnam Administration of Preventive Medicine had issued licenses to 164 products and 58 foreign enterprises by the end of 2003. Of these, 123 products still have valid licenses, and 18 enterprises still have valid permits [202].

In 2005, the Minister of Health approved the Master Plan for Development of the Scientific Center for Sabin Vaccine Production until 2010, and orientation to the year 2020. The objective of the plan is to transform the Center into a vaccine and biomedical product research and production center reaching national and international (WHO) GMP standards and ensuring an adequate supply of measles and poliomyelitis vaccines for the National EPI, with the eventual goal of exporting its products. Legislative documents support this plan by including vaccine and biomedical production among national research priorities and financing the laboratory from the state budget.<sup>6</sup>

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<sup>6</sup> The Governmental Plan of Action for the development and application of bioengineering in the service of industrialization and modernization of the country (Decision No 188/2005/QĐ-TTg dated July 22, 2005) proposed giving priority to production of vaccines and diagnostic preparations, drugs, antibiotics, and other biochemical pharmaceuticals. Decision No 67/2006/QĐ-TTg approves objectives and major scientific and technological tasks during the 5-year period of 2006-2010, in the area of biology to focus on the research, acquisition of expertise and application of advanced technologies in 3 domains, including the production of a new generation of vaccine. The laboratory of vaccine/biomedical preparation received State investments within the Project of Development of Major Laboratories, according to the Decision No 850/QĐ-TTg dated September 07, 2000 by the Prime Minister.

### **13.4. International Health Inspection and Quarantine and Administration of Insecticides and Disinfectants**

The Office of Quarantine and Management of Chemicals under the Vietnam Administration of Preventive Medicine is responsible for international border health inspection and quarantine and the regulation of chemical insecticides and disinfectants for medical and household use. This office directs and undertakes activities in health inspection and quarantine nationwide; organizes the issuance of quarantine inspector cards for local health agencies; organizes training and retraining of local health quarantine officers; develops the contents, directs the collaboration, and participates in implementing IEC in international health quarantine; implements research and international cooperation in health quarantine; collaborates with all departments, administrations, and inspectors of the Ministry of Health and other relevant agencies in implementing checks and inspections in international health quarantine.

In 2003, the Ministry of Health developed the Border Health Quarantine system in 33 of 42 provinces/cities with border entry points, including 7 centers of International Health Inspection and 26 stations and offices of health inspection integrated into local preventive health services. The 9 remaining provinces have not developed health inspection stations due to the low volume of cross-border exchange. Although regulations creating the legal basis for border health inspections were promulgated in 1988, there has been a shortage of equipment and qualified inspectors [203].

Since 1988, the Government has assigned the Ministry of Health to regulate chemicals, insecticides, and disinfectants for medical and home use. The Ministry of Health has promulgated nationwide procedures and regulations for managing and reorganizing production and trade activities involving these agents. Vietnam allows only safe and effective chemicals and agents with low-grade toxicity to be produced, imported, and used in the country.

Officials involved in regulating chemicals continue to develop chemical-related standards to facilitate local inspection of chemical trade and production and work to enhance public awareness about chemical use and storage for domestic and sanitation purposes. Problems related to inspection of chemicals include the lack of standardized laboratories for testing chemicals in circulation and the shortage of funding for local supervision and inspection.

### **13.5. Healthcare Management of Disasters**

For many years, the health service has viewed disaster control and prevention as a permanent mission of the healthcare system. Aware of the importance and role of the health system in managing natural and man-made disasters, the Ministry of Health formed the Standing Committee for Disaster Mitigation, under the direction of a deputy minister and with participation by relevant departments (Departments of Planning and Finance, Department of Therapy, Vietnam Administration of Preventive Medicine). When a major disaster occurs, the minister and deputy ministers are directly involved in directing operations, mobilizing resources, hospitals, institutes, and school health to intervene in the disaster to mitigate harm. The Standing Committee for Disaster Mitigation of the Ministry of Health, in close cooperation with the Central Committee for Flood and Storm Control and the Office of the Prime Minister work to overcome the consequences of disaster. Coordination between public health services and the military has been very efficient.

Grasping the guideline of *four on-site components* (command on-site, manpower on-site, materials and means on-site, and expenditures and logistics on-site), many provincial health services have developed mobile health teams, local healthcare boats capable of reaching population centers to deliver medical services and urgent care, and transport patients to

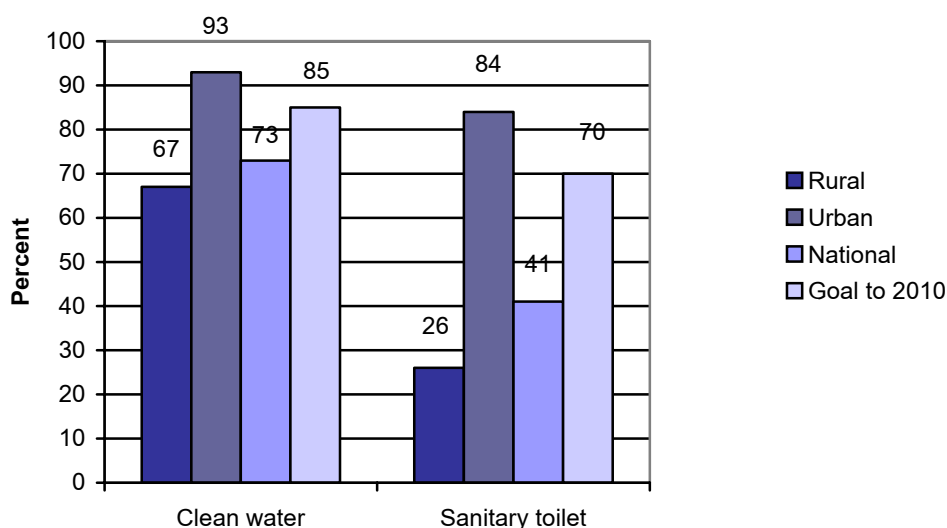
higher-level care. Grassroots health workers accompany the population to evacuation sites, adhering to the guideline "where there are people, there are health workers". Many health workers are on call around-the-clock at their offices. In floods, hospitals promptly evacuate patients and equipment to safety on the second floor so patients are out of danger and equipment is not damaged. The health system has reserve drugs, chemicals, and medical equipment in 3 regions, ready to supply disaster areas. Training courses in primary health care have fortified the role of communities in active control and prevention of disasters.

Natural disasters occur annually, but losses of people and materials have been minimized by active intervention. Despite the lack of a specific budget, the Ministry of Health has drawn 1 billion VND annually from its regular budget for disaster control and prevention. With this limited funding, during the past 10 years, the Ministry of Health has supplied local health services with nearly 10 000 units of drugs, over 20 million water disinfectant tablets, more than 9000 life-jackets, and hundreds of beds and medicine cabinets to damaged health services. The Ministry of Health, over the course of 10 years, has provided 5 billion VND in funding to overcome the consequences of natural disasters, including restoration of health facilities, purchase of drugs, ambulances, medical boats, etc. Mobile teams from national health institutions, eg, Viet Duc Hospital, Cho Ray Hospital, students from medical and pharmaceutical schools, have voluntarily worked to disinfect the environment and provide medical care free-of-charge to the population [143].

### 13.6. Clean Water and Environmental Sanitation

Intervention in clean water supply and environmental sanitation is not as independent as the EPI, or control and prevention of communicable and noncommunicable diseases. The preventive health system, in this field, must cooperate with many other sectors and ministries, eg, Ministry of Agriculture and Rural Development, Ministry of Natural Resources and Environment. Hence, achievements in preventive health are manifested largely through common progress toward clean water supply and environmental sanitation throughout the country. Progress in this field, and in preventive health, also reduce the risks to health. However, achievements have been limited. Figure 13.2 illustrates how UNICEF and WHO have assessed the coverage of clean water supply in Vietnam based on the Millennium Development Goals for clean water supply and environmental sanitation.

**Figure 13.2. Coverage rate of clean water and sanitation in Vietnam**



Source: UNICEF and WHO

As shown, most of the population has clean water for daily living, but a wide gap remains between urban (93%) and rural areas (67%). The major cities have worked to coordinate water supply and drainage.

A partnership group including government and international donors issued a report in 2004 on the actual situation of rural water supply and sanitation. The report concluded that the targets for clean water supply in the National Strategy for Rural Water and Sanitation could be reached as projected for 2005 and 2010.

Nevertheless, the current situation regarding clean water and sanitation pose major challenges to preventive health. Very low proportions of the population report using clean water and a sanitary toilet. In recent years, unusual weather and climate patterns, floods, and droughts have occurred in many areas, further complicating the water supply situation. In some areas, water resources become exhausted, resulting in critical situations for both production and living that require urgent and extraordinary measures. Total state funding for clean water supply and rural sanitation is small compared to the needs of the population. There is no center of technology transfer to supply equipment for clean water and rural sanitation. Knowledge about sanitation and health among the rural population remains inadequate. Most give little consideration to sanitation, thinking this is only a matter of personal comfort, not a question of community and environmental health. Moreover, customs with harmful effects on sanitation still persist, eg, using unprocessed human feces as fertilizer or for fish breeding. Hygienic practices are insufficient, leading to common diseases in rural areas, occasionally resulting in major epidemics, eg, cholera, typhoid fever, and dengue fever, adding to the burden of illness of people who are already poor. The environment around craft villages is highly polluted. Waste and residues from industry, hospitals, transportation, and households are increasing without thorough and safe processing. Food processing and production in many areas are informal and unsafe, creating potential risks to the environment and health. Epidemics related to water and environmental pollution and unsanitary habits are prone to increase.

Vietnam has deployed a major effort to protect water resources and the environment nationwide. In November 2004, the Politburo promulgated Decision No 41/NQ/T aimed at protecting the environment during the industrialization and modernization of Vietnam. The decision highlights viewpoints and objectives of environment protection. Actions to be taken by the preventive health system include: environment protection within the health system; issuing standards for environmental hygiene and sanitary toilets; quality inspection of drinking water, general water supply, and hygienic facilities; promotion, guidance, surveillance, and evaluation of health protection programs; protection of personal and family hygiene; reform of harmful customs affecting daily life and agricultural production; and enhancement of community health. Environment sanitation programs have been established in many communes and districts, helping the population change unsanitary and unsafe habits, use clean drinking water, and use sanitary toilets and other sanitary facilities. People are becoming more knowledgeable about hygiene and environmental protection. The preventive health system is helping local officials and people learn more about environmental improvement and health problems related to environment. Intervention by preventive health services has resulted in measures to control epidemics and assure safe water in disaster areas.

### **13.7. Occupational Health**

Occupational safety is a matter of concern to many state offices. Within the Ministry of Health, the Office of Occupational Health and Injury Prevention is a unit of the Vietnam Administration of Preventive Medicine, assigned to assist the Administration in directing occupational health care and injury prevention. Other bodies include the Institute of

Occupational and Environmental Health, the Offices of Occupational and Environmental Health of the Regional Institutes of Hygiene and Epidemiology, and the Institute for Examination of Medical Disability in every province. Centers and offices of occupational health are in charge of protecting the health of workers.

Other sectors also have special units in charge of protecting worker's health, eg, Department of Military Medicine, Department of Health-Ministry of Public Security, Office of Health in the Ministry of Transport, Center of Occupational Health in the Ministry of Agriculture and Rural Development, Institute of Occupational Sciences (Ministry of Labor), Institute of Sciences and Technology in Occupational Protection (General Confederation of Labor Unions), Health Center (Ministry of Construction), Airlines' Health Center, Board of Personnel-Occupation (Vietnam Post and Telecommunication), Health Center of the Textile and Garment Industry, Health Center of the Coal Industry, and Health Center of the Rubber Industry. These institutions carry out their missions within the formal sector (at factories, construction sites, offices). Occupational health of casual labor and rural workers who are not concentrated under a formal entity are managed by the health system.

During the past 5 years, the health service has carried out many activities to consolidate the occupational health network in every province, eg, as regards direction, education, and training in occupational health and prevention of occupational injuries and diseases. Annually, a National Week for Occupational and Fire Safety has been organized successfully by the Ministry of Health and other interministerial organizations. In addition, the Ministry of Health has strengthened inspections of facilities with multiple risk factors for occupational disease and accidents.

Although much progress has been made in improving the working environment, occupational health still faces considerable challenges. Working environments have been severely polluted by obsolete production lines, and occupational diseases persist. Small and private businesses have failed to control their working environments. Funding for occupational health is inadequate. Many ministries, sectors, and businesses have not fully executed regulations or invested in reducing pollution and occupational diseases.

Many businesses, particularly small- and medium-sized enterprises, have no health workers, resulting in insufficient health care for workers. Workers in rural areas are not well covered. Most workers do not receive periodic medical examinations – only 20% of workers have a periodic medical examination, and only 10% of workers at risk of occupational disease receive medical care for occupational disease [143].

IEC work and dissemination of basic knowledge about occupational safety for working people in general through the mass media is limited, so workers do not participate in protecting their own health and that of their communities. Manpower and equipment for provincial occupational health and examinations for medical disability are insufficient and inappropriate. Qualifications of workers at every level are low, and do not match current demand. Expenditures for training are insufficient, and needed equipment, even at the national level, is lacking.

### **13.8. Accident and Injury Prevention**

On December 27, 2001, Vietnam's Prime Minister approved the National Policy on Accident and Injury Prevention, 2002-2010. The goal is to gradually reduce accidents and injuries in all areas of life and society, eg, traffic, work, household, school, and other public places, to ensure human safety. The Ministry of Health holds principal responsibility, but collaborates closely with other ministries and sectors and the Provincial People's Committees to prevent accidents and injuries. Together, they are constructing a model for provinces,

districts, towns, communes, wards, and schools to become safe communities, gradually learning from their experience to expand and build safe communities throughout the country. Within the Ministry of Health, the Department of Preventive Medicine is principally responsible for these interventions [132, 204]. By the end of 2006, 14 communes/wards achieved Vietnam's standard for a safe community and 4 communes/towns in Hanoi, Hung Yen and Thua Thien Hue provinces have been evaluated and found to have achieved the international standards for safe communities.

Since the National Policy on Accident and Injury Prevention was put in place, the health system has actively developed and implemented regulations to implement the policy, such as Resolution No 13/2002/NQ-CP on solutions to control the growth and gradually reduce traffic accidents and traffic jams, Directive No 01/2003/TT-BGTVT on the use of safety helmets while riding motorbikes, and Decree No 15/2003/ND-CP stipulating fines for traffic violations. In addition, the Department of Preventive Medicine has: established an organizational model and plan of action to implement the National Policy on Accident and Injury Prevention; intensified information campaigns about the national policy and preventive measures in the population; progressively consolidated the surveillance, synthesis, analysis, and reporting system for traffic accidents; intensified the network of emergency care at every level; conducted pilot development of emergency care at the district and commune levels; and established a cooperation mechanism for domestic and international projects.

The Vietnam Administration of Preventive Medicine has encountered several problems in deploying the National Policy on Accident and Injury Prevention. To succeed, this initiative requires multisectoral participation, consistency, and close collaboration between sectors in all localities. The Ministry of Health does not have sufficient power to ensure good cooperation of all sectors and localities. IEC activities to mobilize society in preventing accidents and injuries are still superficial, and policies have not been widely disseminated in ministries and sectors, nor has consensus been reached among all necessary ministries and sectors. The system of information and monitoring, including statistical reporting on accidents and injuries, although institutionalized via health statistics reporting forms, is still limited and does not yet reflect the true and comprehensive situation concerning accidents and injuries. Means for first aid, rescue, and transport of victims are inadequate to satisfy the need. Government staff lack knowledge and experience in preventing and mitigating accidents and injuries. Funds for prevention and mitigation of accidents and injuries are severely short, making it possible to implement the policy in only a narrow set of localities. The Vietnam Administration of Preventive Medicine is working to find appropriate solutions to these problems [143].

### **13.9. Food Hygiene and Safety**

During the 2001-2005 period, many documents, directives, and programs on food safety were approved and promulgated. In particular, the Project for Food Hygiene and Safety was added to the National Health Target Program, marking an important turning-point in food safety intervention. Annually (normally from April 15 to May 15), a "monthly action for food safety" program is deployed nationwide, with two major interventions: organization of a campaign on food hygiene and safety communication, and interdisciplinary supervision of implementation of Directive No 08/1999/CT-TTg at the local level. Regulations on food hygiene and safety for production, processing, and trade facilities were promulgated on April 15, 1999 by the Government. In addition, Decision No 228/1999/QĐ-TTg complements the Project for Food Hygiene and Safety.

Efforts by the health sector, from the national to local levels, and interest from other ministries and institutions constitute the first steps toward improving consumer knowledge as well as food hygiene and safety. The Project for Food Hygiene and Safety has achieved all technical objectives as expected.



Besides these achievements, food hygiene and safety must still cope with considerable challenges. An upward trend can be seen in the number of mass food poisoning incidents at collective eating establishments, wedding receptions, death anniversary dinners, and parties with a large number of people. Vietnam has no national strategy or policy for managing the quality of food hygiene and safety. Nor are there laws or ordinance on foodstuffs. Although regulations exist, they suffer from inconsistencies and overlap. State officials regulating food quality, hygiene, and safety are too few and qualifications vary. Lab equipment for testing quality, hygiene, and food safety is inadequate and obsolete. Food processing enterprises, food sellers, and the community at large have limited knowledge and awareness about quality, hygiene, and food safety. The food processing industry remains underdeveloped, and many small producers are still involved in the fresh and processed food markets, causing difficulties in regulating food hygiene and safety. Multisectoral collaboration remains weak and ineffective. Decentralization of food hygiene and safety management to lower levels has yet to be implemented. Investments in basic resources for regulation are inadequate in terms of human resources, physical infrastructure, and skills. The management information system has not reached the level of sophistication needed. The post-harvest storage system for agricultural products is underdeveloped, causing high losses as food becomes contaminated by insects and fungi, which can affect consumer health.

The problem of residual pesticides and chemicals on fruits and vegetables is a concern to society at large. Causes include overuse of pesticides, allowing too little time to pass between spraying and selling products, use of pesticides of unknown origin, use of prohibited pesticides, and environmental (land, fresh water) pollution. Another widely discussed problem in society is the use of preservatives of unknown origin used to preserve vegetables and especially fresh fruit.

Regarding the production of livestock and poultry, the quality of food hygiene and safety for animal products is related to animal feed contaminated by chemicals, antibiotics, and other biological products. Of particular concern are harmful microorganisms (*E. Coli*, *salmonella*), heavy metals (lead, mercury, copper), antibiotics, harmful chemicals, and fungi (*aflatoxin*) that exceed acceptable thresholds, leading to residual contamination in animal products.

The risk of environmental pollution in aquaculture from pesticides and heavy metals leaching through the ground into water, and pollution from use of veterinary medicines constitute an ongoing threat to the quality of hygiene and safety of aquaculture products.

No specific administrative network from national to local level is engaged in quality management of food hygiene and safety. The regulatory system for food hygiene and safety is lacking, and slow to reform, in many areas. There are no specific inspectors in food hygiene and safety at all levels. Laboratories for analysis of food hygiene and safety at every level are not required to meet certain qualifications to control food contamination. To guarantee food hygiene and safety for domestic consumers and exports, it will be necessary to allocate responsibility for state management of food hygiene and safety for each stage in the process of production, processing, and sale of foodstuffs.

### **13.10. Difficulties of Preventive Health Systems in the New Situation**

Rapid industrialization, modernization, and urbanization have led to the emergence of new risks to health (environmental pollution, occupational disease, labor accidents). Many social problems have also emerged (unhealthy lifestyles, drugs, prostitution), increasing the burden on preventive medicine. The notion that preventive health belongs only to the health sector is still widespread. Responsibilities of other sectors and society at large have not yet been defined. In organizing management and policy mechanisms there remain many inconsistencies and deficiencies in intersectoral collaboration. Also, the compensation package

for staff remains inadequate and does not create adequate incentives for development of preventive medicine. The infrastructure does not yet meet the demands on preventive medicine. Equipment is lacking and obsolete, financial resources invested in preventive health are low, not in balance with resources spent on curative care. Staff are lacking in number and qualifications. Few staff have specialized training. Inadequate attention is given to health promotion. Disease patterns are changing toward an increase in noncommunicable diseases. The prevalence of communicable disease, while generally declining, remains high for some diseases with risk of relapse. Besides those issues, new highly pathogenic diseases are emerging, eg, SARS and avian influenza.

### **13.11. Policy, Strategy, and Programs in Preventive Health**

Since 2000, the Government and the Ministry of Health have developed and issued numerous documents on preventive health. The most prominent include the national program to control certain social diseases, dangerous epidemics, and HIV/AIDS for the 2001-2005 period, the law on HIV/AIDS Control, the draft law on the Control of Infectious Diseases, and the National Strategy in Preventive Health until 2010. This section reviews the achievements in policies and strategies for preventive health from 2000 until the present.

#### **13.11.1. Control of communicable disease**

The main priority in the strategy for the care and protection of human health (2001-2010) is to reduce the prevalence of infectious diseases and major epidemics. The Prime Minister's Decision No 190/2001/QĐ-TTg (December 13, 2001) approved a program to control certain social diseases, epidemics, and HIV/AIDS for the 2001-2005 period, eg, malaria, tuberculosis, dengue fever, leprosy, and 6 childhood diseases in the EPI and HIV/AIDS. This program also addresses malnutrition in children and ensuring food hygiene and safety as both relate closely to infectious diseases. The draft law on Control of Infectious Disease has been submitted to and debated by the National Assembly and after revisions is expected to be passed in a later session of the National Assembly.

HIV/AIDS and avian influenza are two dangerous and urgent communicable diseases requiring active control measures in Vietnam during the present planning period. Extensive resources from state budget and international aid have been invested to control these two diseases. Unlike previous communicable disease control programs, common measures such as immunization are insufficient to prevent these diseases. Combating both diseases requires a change in behavior of the population, especially in high-risk subjects. It is necessary to conduct the campaign of highly effective health education and communication on a large scale and over a prolonged period.

In 2004, the Minister of Health promulgated the "Guide for Diagnosis, Treatment, and Prevention of Viral Pneumonia" to assist in diagnosis, treatment, and supervision of an avian influenza epidemic. In 2005, the Ministry of Commerce promulgated an urgent intervention program to control avian influenza in Decision No 3024/2005/QĐ-BTM (December 7, 2005). Moreover, the state has established regulations on the slaughtering process, sanitary control in food transportation, processing, poultry trade, contraband of domestic animals, reorganization of aquaculture, circulation and distribution of *Tamiflu*, listing diseases requiring epidemic proclamations, dangerous diseases affecting domestic animals, and immunization of poultry with influenza vaccine.

Three decrees to enhance food hygiene and safety regulations have been promulgated in the past 5 years. Decree No 36/2001/PL-UBTVQH10 addresses vegetable sanitation inspection, ie, to protect human health. In 2003, the Permanent Committee of the National Assembly promulgated Decree No 12/2003/PL-UBTVQH11 on food hygiene and safety to

protect human health, to enhance the effectiveness of state administration in food hygiene and safety. This decree addresses food hygiene and safety in production and trade to prevent and overcome food poisoning and food-related diseases. Recently, with the occurrence of avian influenza, Decree No 18/2004/PL-UBTVQH11 was promulgated to regulate prevention and treatment in animals and to control epidemics in animals, animal sanitary inspections, animal products, control of slaughtering, veterinary sanitary inspection, management of veterinary drugs and biomedical agents, microorganisms, and chemicals used in veterinary medicine.

Furthermore, the state has continued and intensified interventions aimed at controlling prevalent diseases to avoid the risk of epidemic outbreaks, eg, malaria, dengue fever, tuberculosis, and leprosy. Although mortality from some diseases, eg, diarrhea, parasites, and respiratory infection in children, has been reduced, the prevalence is still too high and results in malnutrition and costly treatment processes. Among total hospital admissions in Vietnam, diseases such as acute respiratory infection, pneumonia, and bronchitis still prevail while in other nations, these diseases require only outpatient care and seldom result in hospitalization.

### **13.11.2. Control of noncommunicable disease**

The strategy for the protection and care of human health addresses the need to prevent and control noncommunicable diseases. In 2002, the Prime Minister's Decision No 77/2002/QD-TTg (June 17, 2002) approved a program to control certain noncommunicable diseases during the 2002-2010 period.

The increasing prevalence of noncommunicable diseases in Vietnam is attributed to the increased incidence over the years due to changes in nutrition, lifestyle, personal and community habits, and living and working environments. Science demonstrates that noncommunicable diseases have specific causes and risks, and can be prevented. It is important to control and eliminate all pathogens and risks, but concurrently to screen people to detect noncommunicable diseases early, eg, hypertension, diabetes, cervical cancer, and breast cancer.

Recent disease prevention policies have focused on risk factors, eg, cigarette smoking, risk of accident and injury, and alcohol abuse. The National Policy on Tobacco Control for the 2002-2010 period was promulgated according to Resolution No 12/2000/NQ-CP (August 14, 2000). This policy aims to reduce the prevalence of smoking and to supervise and reduce cigarette supply ultimately to reduce mortality and morbidity from cigarette-induced diseases. The National Policy on Accident and Injury Prevention for the 2002-2010 period was approved in Government Decision No 197/2001/QD-TTg (December 27, 2001). Its objectives are to reduce accidents and injury in every aspect of social life such as traffic, work, home, school, and public places to actively protect human life. Another policy being developed by the Ministry of Health aims to prevent and control alcohol abuse to reduce alcohol-induced diseases, accidents, and violence. Chapter 10 of this report describes these two policies in detail.

### **13.11.3. National Strategy for Preventive Health**

The Ministry of Health formulated the National Strategy for Preventive Health for 2010, with an orientation to the year 2020, which was approved by Prime Ministerial Decision No 255/2006/QD-TTg (November 9, 2006). This strategy aims to reduce risk factors affecting community health, detect early and contain outbreaks of disease, prevent major epidemics, and reduce the prevalence and mortality from disease. Concrete goals are: (1) Improve awareness and strengthen accountability at all levels of the Communist Party, government, mass organizations, the community, and each individual regarding prevention of disease and protection of health; (2) Reduce and eventually eliminate risk factors for communicable

disease; (3) Reduce by 10% per year the number of cases and deaths from communicable disease causing outbreaks compared to the average level in the 2001-2005 period. Prevent major epidemics; rigorously maintain the achievements in the eradication of polio and elimination of neonatal tetanus with prevalence falling to 0.04 cases per 100 000 inhabitants. Strive to eliminate measles and diphtheria by reducing prevalence of these diseases to below 0.1 per 100 000 inhabitants; reduce the prevalence of pertussis by reducing prevalence to 0.05 per 100 000 inhabitants; (4) Actively manage and control in a timely manner emerging, dangerous, communicable diseases; Control the prevalence of HIV/AIDS below 0.3% of the population and reduce new infections in the community; and (5) Limit and eventually control risk factors related to nutrition, environmental health, school health, occupational disease, accidents and injuries, noncommunicable disease, diseases related to behavior, and lifestyles harmful to health.

## **Chapter 14**

### **HOSPITAL NETWORK**

Vietnam's hospital network has been substantially upgraded through investments in physical infrastructure, equipment, and training of staff, which have helped to strengthen the ability to make accurate diagnoses and effectively treat disease, including diseases requiring a high level of medical technology. The number of hospitals and hospital beds continues to grow, and geographic distribution is relatively even, augmenting the ability of the population to access healthcare services.

Private hospitals have begun to develop, contributing to the provision of health care for the population and helping reduce the burden on public hospitals. In the near future, the private hospital network has the potential for substantial expansion due to Vietnam's accession to the WTO and the government's policy of encouraging the corporatization of public hospitals.

Regulatory mechanisms and hospital financing have also been reformed. Decree 10 on the financial management mechanism of fee-collecting public service organizations has been implemented at some hospitals, and preliminary effects on the efficiency of state hospital operations have been positive. In 2006, Decree 43 further expanded the accountability and rights of public hospitals. The Ministry of Health is studying options for changing the payment mechanism for hospitals to increase efficiency and reduce waste.

This chapter focuses on analyzing the developments in the hospital network over the past few years. Section D of this report describes financing, personnel, equipment, and other factors in greater detail.

#### **14.1. Organization of Vietnam's Hospital System**

##### ***14.1.1. Different levels of the hospital system***

The hospital system is organized according to the general government administrative system, with 3 levels, including:

**1. *District level*** includes district hospitals and hospitals of other sectors. This level provides inpatient services with basic techniques to solve and treat emergency cases and common diseases.

**2. *Provincial level*** under central management includes provincial general hospitals, regional hospitals, provincial specialized hospitals, some large general hospitals of other sectors, and some private hospitals that admit and serve patients whose conditions are beyond the capacity of district hospitals. Provincial hospitals are able to meet most healthcare needs for specialized care.

**3. *Central level, or the tertiary level*** includes general and specialized hospitals under direct control of the Ministry of Health, and some large general and specialized hospitals in major cities (eg, Hanoi, HCMC and Da Nang), and some large private hospitals offering specialized care. This is the final level of the treatment ladder, with specialized interventions and complex, modern techniques.

The division into treatment levels mainly relies on the administrative hierarchy, and there are not yet any regulations on linkages between levels across provinces or regions. Moreover, the quality of care in hospitals of the same level varies in terms of medical technology and professional skills, particularly at the district level and among hospitals in mountainous provinces. Bypassing directly to higher-level care overloads services at the

central hospitals, particularly neurosurgery, cardiovascular diseases, orthopedics, ophthalmology, neonatology, oncology, and pediatrics [205].

In 1976, after national reunification, Vietnam had 1557 hospital facilities of all types with 98 360 patient beds (Table 14.1). After 30 years, the hospital system continues to receive investments to enhance quantity and quality, including both the public and private sectors, although private hospitals still only account for a small proportion of hospitals and patient beds. Many health facilities have been newly constructed, including provincial, district general hospitals, and especially specialized hospitals (including hospitals for traditional medicine) to meet the growing healthcare needs of the people.

**Table 14.1 Number of hospitals, patient beds, 1976-2005**

Year	Public hospitals					Private hospital		Total	
	Hospital	Leprosy treatment village	Rehabilitation Hospital	Total	Patient beds	Hospital	Patient beds	Hospital	Patient beds
1976	547	22	93	1557	98 360			1557	98 360
1980	685	19	98	802	131 565			802	131 565
1985	742	20	99	861	143 770			861	143 770
1990	786	18	112	916	148 070			916	148 070
1995	847	20	141	1008	160 673	1	50	1009	160 723
1997	827	22	100	949	113 945	4	201	953	114 146
1999	803	18	85	906	119 475	6	306	912	119 781
2000	783	18	82	883	116 126	12	749	895	116 920
2002	803	15	57	885	119 527	32	2885	917	122 412
2005	910	17	73	1000	133 345	43	3245	1043	136 590

Source: Health Statistics Yearbook 1994-2002, MOH [4]; Ly Ngoc Kinh et al, 2005 [205]; Report on health care activities of Department of Therapy, 2005 [206].

According to data updated through July 2005, Vietnam had 1043 “hospital-like” facilities with 136 590 patient beds, of which the public sector accounted for 1000 facilities (95.9%) and 133 345 beds (97.6%). The 43 non-public hospitals (private, semi-private, and 100% foreign-owned hospitals) accounted for 4.1% of the total, with 3245 patient beds (2.4%). “Hospital-like” facilities include hospitals, health stations, leprosy treatment villages, rehabilitation hospitals in the public and private sectors (excluding facilities of Ministry of Public Security, Ministry of National Defense, and special facilities for severe war invalids managed by the Ministry of Labor).

Considering public hospitals alone, the Ministry of Health manages 31 facilities (including 10 general hospitals and 21 specialized hospitals), accounting for 3.1% of total hospitals, whereas local authorities manage 911 facilities (117 provincial general hospitals, 207 specialized hospitals and 597 district hospitals), accounting for 91.1%.

Although the total number of patient beds increased in recent years, the increases were not commensurate with population growth. Vietnam averaged 16.9 patient beds per 10 000 population in 1994. This increased to about 17.5 beds per 10 000 population in 1998-2000, but fell to 16.3 in 2004. The public sector accounts for the vast majority of beds with 133 345 beds versus 3245 beds in private facilities.

The number of patient beds per capita has declined slightly in recent years. When including also commune health station inpatient beds, Vietnam, nevertheless, remains one of the countries with the highest bed-to-population ratio in the region [207]. Vietnam has 24 patient beds per 10 000 population. This level is low compared to developed countries, but relatively high in ASEAN – surpassed only by Singapore and Brunei (Table 14.2). This suggests that Vietnam needs to focus on investing in quality improvement rather than only adding more hospital beds.

**Table 14.2. Patient beds per 10 000 inhabitants in selected countries**

Country	Patient beds per 10 000 inhabitants	Country	Patient beds per 10 000 inhabitants
Japan	143	Sri Lanka	22
France	77	Thailand	22
South Korea	71	Malaysia	19
New Zealand	61	Bhutan	16
England	42	PDR Lao	12
Canada	37	Philippines	10
Sweden	36	India	9
United States	33	Pakistan	7
Singapore	29	Myanmar	6
Brunei	26	Cambodia	5
China	25	Bangladesh	3
<b>Vietnam</b>	<b>24</b>	Nepal	2

Source: Health Nutrition Population (HNP) Stats, World Bank, 1999 – 2004 [208].

#### 14.1.2. Type and specialty of public hospitals

Table 14.3 presents a classification of public hospitals by type and specialty.

**Table 14.3. Structure of types of public hospitals**

Type of hospitals	Number
Central, provincial general hospital	116
District general hospital	579
General hospitals of other sectors	46
Specialized hospital (all types)	218
Institutes/centers-rehabilitation centers of all sectors	35
<b>Total</b>	<b>994</b>

General hospitals (including those of the Ministry of Health, provinces, district, and sectors) account for 74.6%, while the remaining 25.4% are specialized facilities, including traditional medicine, tuberculosis, mental illness, leprosy, dermatology, infectious and tropical diseases, obstetrics, pediatrics, ophthalmology, ENT, dental, oncology, endocrinology, rehabilitation, or other specialized facilities such as surgery, orthopedics, and cardiovascular diseases.

**Table 14.4 .Total number of public hospitals**

Unit: %

	Facilities	Patient beds	% of facilities	% of beds
General hospital of Ministry of Health	10	7 240	1.0	5.4
Specialized hospital of Ministry of Health	21	6 970	2.1	5.2
Provincial general hospital	117	39 184	11.7	28.9
Provincial Specialized hospital	207	26 179	20.7	19.6
District	597	49 175	59.7	36.9
Hospital of other sectors	48	5 200	4.8	3.9
<b>Total</b>	<b>1000</b>	<b>133 345</b>		

### **14.1.3. Hospitals in other sectors**

A characteristic of Vietnam's diversified hospital system is that, besides hospitals managed by the Ministry of Health and Provincial Health Service, some ministries and sectors have their own health facilities, including health stations of factories, plantations, and some general and specialized hospitals and centers for nursing care, rehabilitation, and treatment of occupational diseases. Currently, ministries and sectors outside of the health sector (and not including military and police medical facilities) manage 43 facilities (accounting for 4.3% of all hospitals) with a total of 2725 beds. In terms of professional capacity, most hospitals in these other sectors are similar to the district level, with only a few at the provincial level.

Most hospitals managed by other ministries/sectors are small and were established to meet the needs for service in different periods of development. During the central economic management period, because of government subsidies, these hospitals operated with large budgets from their respective ministries and made important contributions in providing health services for their staff.

However, in recent years, with the shift in government management mechanisms, the health system, and sectoral hospitals in particular, have faced many changes. Several ministries and industrial sectors have merged and established large corporations. Healthcare financing mechanisms also changed through policies on user fees and health insurance. In principle, all salaried staff have compulsory health insurance, and two thirds of the insurance premiums to support health care, irrespective of beneficiary, come from the budgets of ministries, sectors, and factories. Several ministries and industries have restructured their hospitals to merge them into the national health system, facilitating more efficient operation of hospitals. Any unnecessary or ineffective hospitals have been dissolved or converted into polyclinics. Other hospitals have been transferred to local health authorities for management. Twenty sectoral hospitals have been handed over to local health authorities for management, or have changed their tasks and functions.

Apart from general hospitals, ministries/sectors manage many centers for nursing care and rehabilitation under various names, eg, nursing and rehabilitation hospital, center or home. Performance at these facilities should, however, be reviewed. The Ministry of Health has issued instructions to strengthen the organizational structure and change professional activities in a way that better integrates nursing, rehabilitation, and treatment of occupational diseases, although to date, no fundamental changes have been made. Many facilities continue to provide only nursing services because they have limited human resources and equipment.

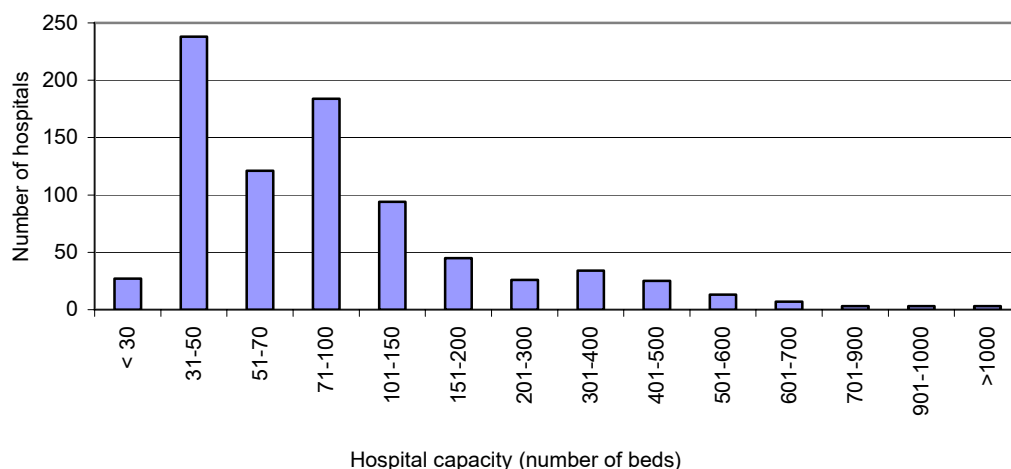
Although certain contributions of sector hospitals have been recognized, many issues need review and assessment, especially regarding organizational operation and the efficiency of utilization and investment.

### **14.1.4. Hospital bed capacity**

In general, Vietnam's hospitals are small (Figure 14.1), with 570 hospitals (70%) having fewer than 100 beds, and 27 of these having fewer than 30 beds. Hospitals with 101 to 300 beds account for 20% (165 hospitals) of the total, those with 300 to 500 beds account for 7.2%, and the 20 hospitals with 501 to 700 beds account for 2.4%. Eight hospitals (1%) have over 700 beds, 3 of which have over 1000 beds (Bach Mai: 1400 beds; Hue Central Hospital: 1090 beds; and Cho Ray Hospital: 1050 beds).



**Figure 14.1. Hospitals by number of beds, 2000**



Source: Report From Hospital Inventory 2000, Department of Therapy.[209]

The number of beds per hospital in different countries in the region varies widely, from 20 to 1538 beds (hospital RSU Dr. Soetomo of Indonesia) or 2520 beds (Hospital Kuala Lumpur, Malaysia). The average number of beds per hospital in China is 138.7, traditional medicine hospitals have 95.2 beds, and hospitals affiliated with medical schools have 724.1 beds. Only 7% of China's 15 413 hospitals have 400 or more beds, and only 67 hospitals have over 800 beds. Malaysia averages 288 beds per hospital. Hospitals of other sectors in Malaysia average only 8 patient beds/hospital. Studies on patient bed capacity show that 150 to 470 beds are needed to ensure economies of scale [210].

#### **14.1.5. Distribution of hospitals and patient beds by region**

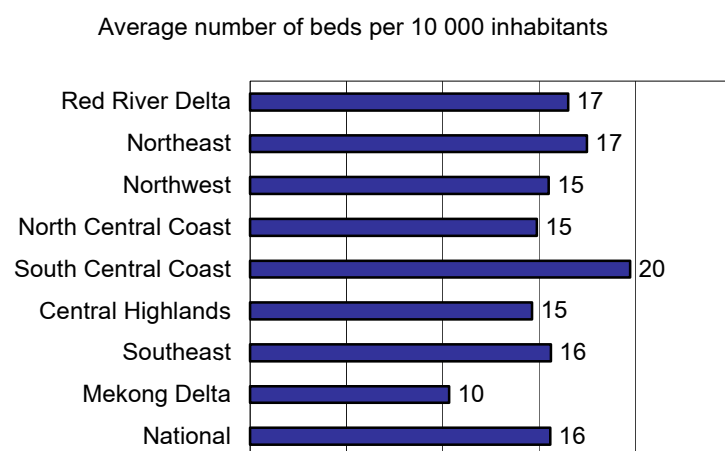
The distribution of hospitals and patient beds varies across regions in Vietnam (Tables 14.5). The regions with the highest density of hospitals include the Red River Delta and North Central Coast (19.8-20 hospitals/province) and regions with the lowest density are the Northwest and Mekong regions (11 hospitals/province). These indicators, however, merely reflect a distribution in number of hospitals, not in technical capacity and quality of care. The Red River Delta and Southeast regions have a concentration of general and specialized hospitals, mainly in Hanoi and HCMC.

The average number of beds per hospital is around 125, indicating small-sized hospitals. A fairly even distribution of patient beds per 10 000 inhabitants is found across the Red River Delta, Northwest, South Central Coast, and Southeast regions (Figure 14.2). The Mekong Delta region is lowest with 6 beds below the national average and 10 beds below the highest region.

**Table 14.5. Number of hospitals and beds by region, 2001**

Region	Central general	Central specialized	Provincial general	Provincial specialized	Town	District hospital	Sector hospital	Total hospitals	Total beds
Whole country	9	21	106	197	36	545	77	990	123 936
Red River Delta	3	15	20	57	6	95	22	218	30 615
Northeast	2	0	18	32	4	100	10	166	15 340
Northwest	0	0	5	7	1	28	2	43	3 560
North Central Coast	1	3	7	18	10	72	15	126	14 980
South Central Coast	1	1	8	17	5	53	4	89	10 845
Central Highlands	0	0	6	10	2	45	8	71	6 045
Southeast	2	2	21	32	2	61	16	136	25 677
Mekong River Delta	0	0	21	23	5	92	0	141	16 874

Source: Report of Hospital Planning, Department of Therapy, 2001 [211]

**Figure 14.2. Average patient beds per 10 000 inhabitants by region, 2005**

Source: Health Statistics Yearbook, 2005 [14]

## 14.2. Medical Workforce in the Hospital System

### 14.2.1. Average number of health workers per patient bed

In 2005, Vietnam had an average of 1.15 health workers (including contracted staff) per patient bed. Excluding contracted staff, the number would be 0.92 [212]. Because of quotas on the number of government-paid staff in hospitals, most hospitals must contract for additional staff. Contracted staff account for nearly 18% of the medical workforce in all hospitals, highest in central hospitals (20.9%) and provincial hospitals (22.2%). Contracted staff in district-level hospitals account for 11.8% of the workforce. The average number of health workers per patient bed in hospitals managed by the Ministry of Health (1.38) is slightly higher than the averages in provincial (1.13) and district (1.09) hospitals. Hospitals in other sectors/ministries also have a lower ratio of health workers per patient bed (around 1.00).

**Table 14.6 Average number of health workers per patient bed in selected countries**

Country	Type of hospital (a)	Health workers/ patient bed
Colombia	I, II	2.6
China	I	1.9
	II	1.8
	III	1.5
Dominican Republic	I	2.1
Fiji	I	1.4
	III	1.0
Indonesia	I	2.8
	II	2.1
	III	1.0
Jamaica	I	1.9
	II	1.3
Papua New Guinea	I, II	1.1
	III	0.8
Singapore (*)		2.0
Developed countries (**)	>500 beds	3.0-4.0
	100 beds	1.0-2.0
Vietnam (b)	I	1.0-1.3
	II	0.9-1.0
	III	1.0-1.3

Note: (a) Type of hospital: Type I: Equivalent to tertiary central hospitals; Type II: Equivalent to provincial hospitals; Type III: Equivalent to district hospitals.

(b) Vietnam's indicators from the hospital inventory, 2004[213]; the lower indicators cover only government-paid staff; the higher number covers all government-paid and contracted staff. The number for district hospitals is high because it is not possible to separate preventive staff (District health center includes curative care, ie, hospital, and preventive care).

Source: Synthesis From Public Hospitals in Developing Countries, H. Barnum and J. Kutzin, 1993 [214]; (\*) State of Health'98, Ministry of Health Singapore [215]; (\*\*) National Health Systems of the World, Roemer, 1993, Volume Two [216].

On average, Vietnam has 2 doctors and 3 nurses for every 10 beds. The nurse-to-doctor ratio is inappropriately low. On average, the ratio is 1.50:1 (nurse-to-doctor). This ratio is lowest in hospitals under direct control of the Ministry of Health (1.22:1) and highest in provincial hospitals (1.56:1). These ratios lag far behind the Ministry of Health strategy for comprehensive-care-oriented nursing, which sets the minimum nurse-to-doctor target ratio at 2.5 nurses to 1 doctor, which is pending in all hospitals. Vietnam has a great and urgent need for more qualified nurses in all hospitals to improve the quality of comprehensive care for patients.

#### **14.2.2. Professional staff by level of hospital and region**

The distribution of qualified professional staff between hospital levels, provinces, and regions is unbalanced and not commensurate with tasks and functions. Highly qualified staff are concentrated mainly at the central, provincial, and township levels. The northern mountainous regions and the Central Highlands have a severe shortage of qualified staff. Many hospitals lack university-trained pharmacists, and the specialized staff in several specialties lack extensive experience.

In the nursing, midwife, and medical technician workforce, only 6.5% hold university or college-level degrees. There is a severe shortage of specialized nursing staff, especially in leading hospitals and specialist departments[206].

The number of university-level professional staff is very limited in many regions, eg, 2 staff (Northeast), 3 staff (Northwest), 5 staff (South Central Coast), 6 staff (Central Highlands), and 8 staff (Mekong River Delta). The Northwest and Central Highland regions have no medical staff with professor or doctoral qualifications. Very few medical staff have doctoral-level qualifications in the Northeast, South Central Coast, and the Mekong Delta regions.

#### **14.2.3. Central hospitals**

Central-level staff in 2005 totaled 31 668, accounting for 12% of all state health workers. Of this number, about 7.5% had a PhD or Masters degree, and 37% had a university degree. The central-level facilities engage 20% of the total number of state health workers with a university degree or higher and about 17% of all technicians working in public health facilities. Regarding nurses, however, the central level uses only 9% of all nurses working in public health facilities throughout the country, but 39% of all university-trained nurses [14].

#### **14.2.4. Province hospitals**

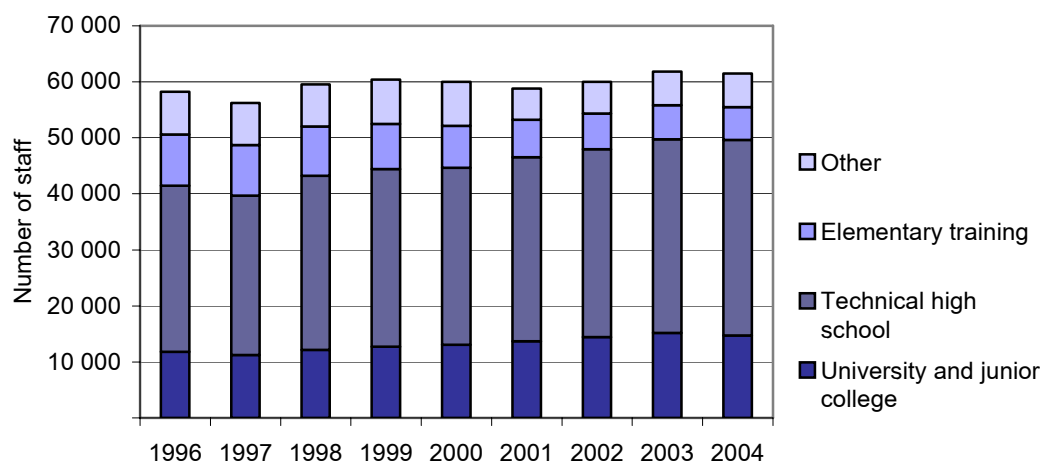
Staff at the provincial level in 2005 totaled 79 759, accounting for 31% of all public health workers (compared to 37% of all beds). Of provincial level health workers, 2% had a PhD or Masters degree, 28% had university training, 48% had junior college and technical high school training, 5% had elementary training only, and 16.5% had some other type of training. The provincial level uses 48% of all medical technicians and 40% of all nurses in the country [14].

#### **14.2.5. District health centers**

Nearly all districts rely on the staffing norms for the health sector as specified in Decision 07/QDUB (1975) of the State Planning Committee. This Decision sets the staffing norm at 0.7 to 0.8 staff per patient bed for district health facilities and 1.0 staff per 1200 to 1500 inhabitants for regional polyclinics. Decision 07/QDUB was issued at the end of the American war, and is now outdated given recent socioeconomic and technological progress and the growing demand for health care. The Ministry of Health has studied and proposed new staffing norms to better suit the modern context (at the district level the proposed government staffing norm is 0.9 to 1.0 staff per patient bed, but the decision has yet to be issued). Given the government staffing norms specified by Decision No 07/QDUB, most district health facilities are short of medical staff. On the other hand, due to the increase in administrative units (85 additional districts were established from 1975 to April 2004) and the rapid increase in population, health staffing at the district level is lagging behind, leading to a severe shortage in the medical workforce that influences performance and quality at district health facilities.

Not only is there a shortage in health staff, but the distribution of staff across regions is uneven in both quantity and structure, especially in remote, mountainous, and disadvantaged areas. Shortages are severe in these areas, especially as regards staff with university training or higher (doctors, pharmacists).

**Figure 14.3. Number and qualification of district health staff, 1996-2004**



Source: Data from Department of Organization and Personnel, MOH [217]

Figure 14.3 above illustrates that the professional skills of district health staff have improved between 1996 and 2004, with an increase of 3.53% in university degree staff, 5.31% in secondary level staff, and a decrease of 6.25% in elementary level staff.

**Table 14.7. Professional skills of health workers at the district level by region, 2004**

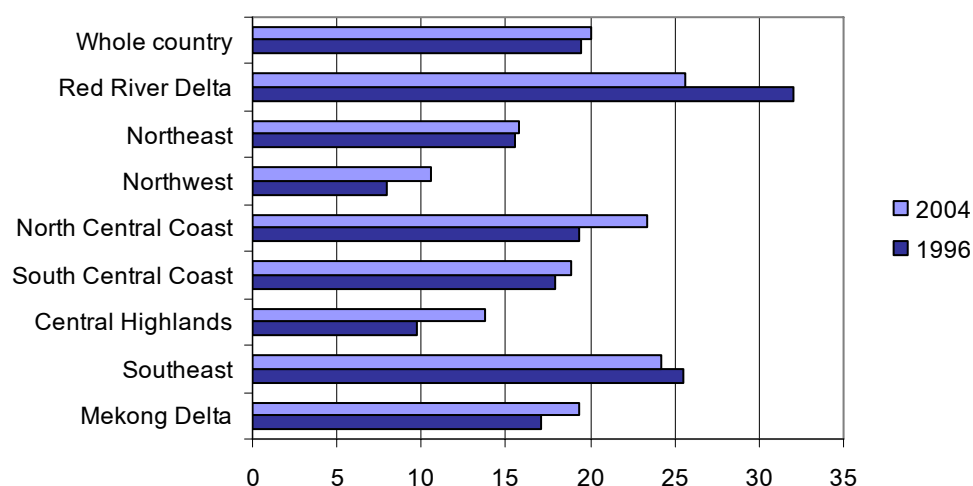
Region	Total staff	University, Junior college (%)	Technical high school (%)	Elementary training (%)	Other (%)
Whole country	61 991	24.5	56.2	9.5	9.8
Red River Delta	12 237	27.9	56.6	4.2	11.3
Northeast	8 228	24.1	60.5	6.8	8.6
Northwest	2 935	14.7	63.3	11.7	10.3
North Central Coast	9 376	23.8	58.3	8.0	9.9
South Central Coast	6 021	25.2	53.8	11.9	9.1
Central Highlands	2 690	23.3	51.4	14.3	11.0
Southeast	9 017	27.6	46.8	15.3	10.3
Mekong River Delta	11 487	21.9	59.2	11.0	7.9

Source: Data from Department of Organization and Personnel, MOH [217]

Table 14.7 above shows a fairly even distribution of staff with university/college education between regions except in the Northwest. Regions with a shortage of university/college-level staff have a higher proportion of staff at the secondary level. The Central Highlands and southern regions report a higher percentage of staff at the elementary level, and district health facilities in the Northwest report the lowest percentage of specialized staff.

Due to uneven distribution of staff, the proportion of doctors per district also varies across regions (Figure 14.4).

**Figure 14.4. Average number of doctors per district in 1996 and 2004**



Source: Health Statistics Yearbook, MOH [4]

The data above illustrate an uneven distribution of health staff in both quantity and qualifications across regions, with the greatest density in large cities (Hanoi with 31 doctors/district, HCMC with 40.4 doctors/district) and average density in lowland areas (from 15-24 doctors/district). Mountainous areas and remote districts have relatively few university-trained health staff, on average only 10.6 doctors per district, eg, Lai Chau (5.3), Kon Tum (6.4), Dien Bien (8.3), Ha Giang (9.2), and Ninh Thuan (10.8).

**Table 14.8. Average number of doctors per district, 1996-2005**

Year	Whole country	Red River Delta	North-west	North-east	North Central Coast	South Central Coast	Central Highlands	South-east	Mekong River Delta
1996	19.5	32.0	7.9	15.5	19.3	17.9	9.7	25.5	17.1
1997	18.9	28.5	8.5	14.1	18.5	17.0	10.3	24.7	17.5
1998	19.2	28.3	9.3	14.0	19.2	18.7	10.8	25.0	17.7
1999	19.5	28.0	9.4	14.0	20.3	18.5	12.5	25.7	17.3
2000	19.9	28.0	9.8	14.5	21.1	19.5	13.0	26.3	17.1
2001	19.8	28.2	11.1	15.0	22.0	18.9	13.2	22.0	18.3
2002	20.5	28.5	11.5	15.5	22.6	18.8	13.8	24.3	19.2
2003	21.0	27.9	12.0	15.6	23.6	18.7	14.7	26.4	20.0
2004	20.1	25.6	10.6	15.8	23.4	18.9	13.8	24.2	19.3
2005	20.6	28.1	16.6	11.1	22.6	18.4	16.0	24.4	19.7

Source: Health Statistics Yearbook, MOH [4]

### 14.3. Physical Infrastructure and Equipment

#### 14.3.1. Physical infrastructure

The average floor area per patient bed is about 105m<sup>2</sup>[218]. Although the hospital system has been upgraded in the past 5 years, it fails to fully meet the country's needs. Investments have been made in physical infrastructure and medical equipment evenly at the district and central levels. Many hospitals have been renovated and have constructed new facilities with local and foreign resources of about 1.5 trillion VND per year at the central and

local levels [219]. Systems for sterilization, drying, and laundry have been strengthened, and waste and sewage systems have received greater attention. Many hospitals have restored water supply and sewage systems and constructed incinerators to assure sanitation, hygiene, and infection control.

The share of investment allocated to development of the health sector is low, and inadequate to meet the needs of the hospital system. Compared to total investment for development of other sectors, total investment for the health sector and social relief in 2000 was 2.1 trillion VND (1.4% of the total). By 2005, the estimated total was 6.1 trillion VND (1.8% of the total), ranking the health sector 11<sup>th</sup> out of 18 sectors [80].

A comparison of regions (1998-2000) found the Red River Delta and Mekong Delta to have the highest level of investment in hospitals, about 32% to 34% of total hospitals in the region. The Northwest and Southeast regions have a very low level of investment in hospitals (13% in the Northwest and 16% in the Southeast).

#### **14.3.2. Investment in medical equipment and high technology**

Hospitals have advanced technically by investing in specialized medical equipment to perform, eg, magnetic resonance imaging (MRI), computerized tomography (CT) scanning, cardiovascular scanning, mammography, lithotripsy, Doppler ultrasound, intensive care monitoring, surgery, chemotherapy, and endoscopy.

Three specialized medical centers in Hanoi, HCMC, and Hue have received substantial funding to apply new high technology in medical diagnosis and treatment. Several new, sophisticated techniques have been successfully performed, eg, organ transplantation, in vitro fertilization, open heart surgery, angioplasty, laparoscopic surgery, phacoemulsification in removal of cataracts, cochlear implants, bone transplants, vascular surgery, facial plastic surgery, orthopedic rehabilitation, joint replacement, blood screening, kidney dialysis, and lithotripsy. At present, 9 hospitals in Vietnam have the capability of transplanting kidneys and bone marrow, and have treated over 150 kidney transplantation cases (adults and children). Many techniques have been applied in paraclinical areas, eg, diagnostic imaging, biochemical, blood, and microbiological testing, and blood transfusion. Nuclear medicine and lasers have been gradually introduced in diagnosis and treatment, contributing toward improving the quality and efficacy of health care. However, economic constraints prevent these centers from making needed investments. Total funds provided from 1994 to 2004 met only about 27% of the actual needs [220].

Despite their technical achievements, Vietnamese hospitals still lag behind hospitals in the region and in more technically advanced countries.

Recently, the Government issued a Decision to approve upgrading of district hospitals and some regional polyclinics (Government, QĐ 225/2005/TTg). The project will be implemented from 2005 to 2008, with total funding exceeding 8 trillion VND, and will upgrade over 300 hospitals. Upgrades focus on physical infrastructure, equipment, and professional skills for health staff to fulfill their duties at the district level and relieve overcrowding at higher-level facilities. This is an important opportunity for the Vietnam hospital system, but it is also a challenge to implement such a large-scale, well-funded project in such a short time.

#### **14.4. Hospital Financing**

In curative care, hospital budgets are determined mainly by the province, based on general norms for the health sector issued in Decision 139/2003/QĐ-TTg, and more recently Decision 151/2006/QĐ-TTg (26/2/2006). In practice, budgets of hospitals at the central level

are based on the size of the population served, while budgets of hospitals at the provincial and district levels are based mainly on the number of planned beds.

A strength of the above-mentioned payment mechanism is that it is simple and easy to implement. According to a recent study of the Health Policy Unit, Department of Planning and Finance [221], the policy of allocating health budgets that vary by level of socioeconomic development has had some positive results, for example, equalizing health budgets between regions. Nevertheless, because hospital budgets increasingly depend on the ability to collect user fees, severe disparities are arising with regard to socioeconomic conditions between localities. This will have different effects on the financial results of each hospital. The allocation of recurrent spending budgets to hospitals, especially within provinces, does not fully consider the differential ability to mobilize funds through user fees, which leads to problems related to equity and efficiency in allocation of the state budget.

The mechanism for allocating budgets by hospital beds may help ensure continued operation of hospitals, but tends to encourage growth in the number of beds not commensurate with investments in other areas – leading to a situation where more attention is paid to the quantity of hospital activities rather than their quality. Moreover, this mechanism is not a rational choice to serve the Government's call to shift towards budget subsidies through users instead of subsidizing facilities. Allocations based on population size represent a more appropriate way to meet the resource needs for curative care in localities and support the call for greater local autonomy. However, a mechanism to allocate funds based on the healthcare needs of the population by administrative area is more appropriate for preventive health, but may not be the best mechanism for hospitals since patients move between localities when seeking hospital care.

From the perspective of efficiency in coordinating and using the budget, both forms of budget allocation – based on number of beds or number of inhabitants – are still basically means of allocating budgets for inputs and have been viewed as rather outdated. These mechanisms lack incentives for higher productivity and efficiency in the use of resources, and lack leadership incentives for hospital managers. In reality, the activities of the curative care system and the government require a reform of the financing mechanisms and hospital budgeting methods.

Financially subsidizing the care of certain target groups and reimbursing hospitals through third-party payers are performance-based payment mechanisms for hospitals, in contrast to allocating hospital budgets based on demand for inputs. Over the next few years, a gradual shift from a budget allocation mechanism based on inputs, toward a performance-based payment mechanism – one assessed to be more dynamic and efficient – will be an appropriate direction for reform, and is in line with international trends.

## **14.5. Professional Activities**

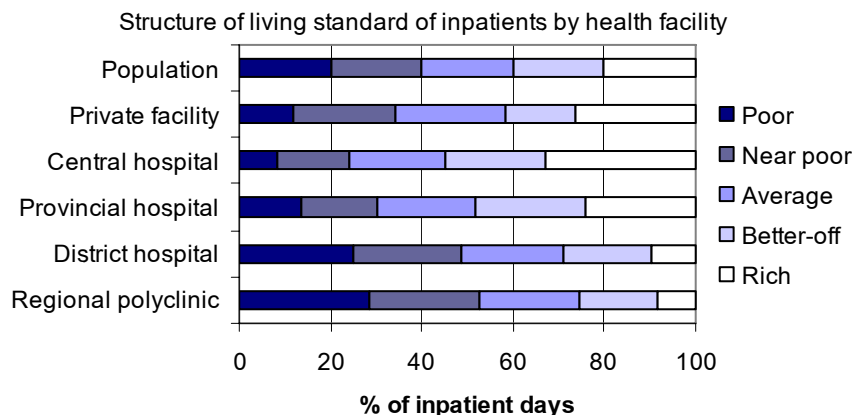
### **14.5.1. Sociodemographic attributes of inpatients**

A way to better understand the nature and attributes of hospital levels is to have a better knowledge of the patients. According to VNHS 2001-2002, the most frequent users of inpatient services in central hospitals are the better-off and the rich (accounting for over 50% of total patients). By contrast, in regional polyclinics and district hospitals, most patients are the poor and the near poor, with very few rich patients. The patient structure in private hospitals is similar to that of provincial hospitals (Figure 14.5). According to Figure 14.6, about one third of the inpatient days in provincial and central hospitals are consumed by urban patients (accounting for 23% of the total population). In contrast, urban patients consume only 6% of inpatient days in regional polyclinics, while close to 50% of outpatients at



polyclinics are from remote and mountainous areas. As patients of district hospitals and regional polyclinics are still primarily at the lower end of the income distribution scale, the government should consider the state budget allocation for these facilities to ensure sufficient operating budgets, reducing the pressure of cost recovery through high user fees for the primarily poor users of these services.

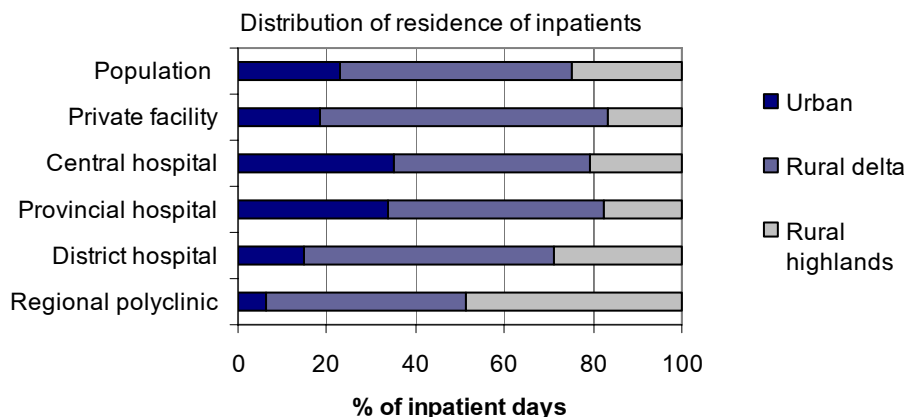
**Figure 14.5. Living standard structure of population and inpatients by type of health facility, 2002**



Notes: Structure is based on total inpatient days

Source: VNHS 2001-2002 [19]

**Figure 14.6. Distribution of residence of inpatients, 2002**

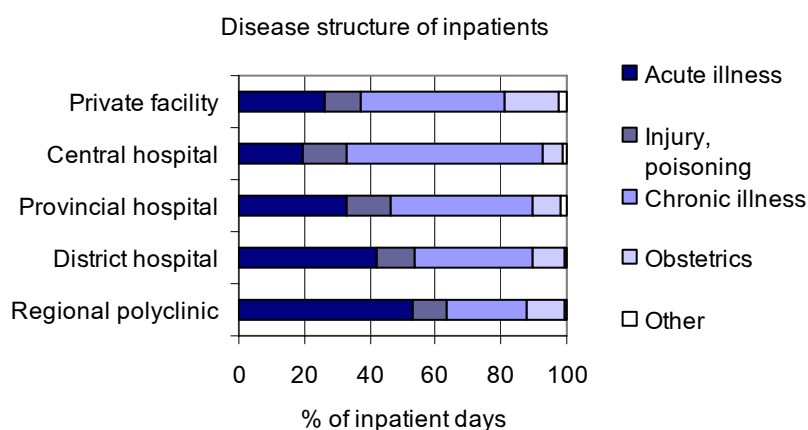


Notes: The structure is based on number of inpatient days

Source: VNHS 2001-2002 [19]

District hospitals mainly provide treatment for acute patients (53.4% total inpatient days) and people of working age, although about 23% of patients at this level are elderly. Provincial and central hospitals have a greater concentration of patients with chronic conditions. Inpatient days used by chronic patients account for nearly 60% of total inpatient days in central hospitals (Figure 14.7)

**Figure 14.7. Disease structure of inpatient stays, 2001-2002**



Notes: Structure based on total length of stay

Source: VNHS 2001-2002 [19]

**Table 14.9. Structure of total inpatient treatment days by health facility and attributes of patients, 2001-2002**

Unit: %

	Regional poly-clinic	District hospital	Provincial hospital	Central hospital	Private facility	Population
<b>Gender</b>						
Male	51.7	46.5	48.6	50.4	35.4	48.5
Female	48.4	53.5	51.4	49.6	64.6	51.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
<b>Age</b>						
Under 6 years	14.4	15.1	11.2	8.5	5.0	13.7
6-14 years	15.2	8.5	7.5	4.9	5.5	19.4
15-59 years	54.7	53.3	56.2	60.0	71.6	58.8
60 years and older	15.7	23.1	25.2	26.7	17.9	8.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
<b>Residence</b>						
Urban	6.4	15.1	34.0	35.3	18.6	22.8
Rural delta	44.8	56.1	48.5	44.2	64.8	52.6
Rural highlands	48.8	28.9	17.5	20.5	16.6	24.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: VNHS 2001-2002 [19]

Hospitals did not report any substantial differences in utilization by gender, with the exception of private hospitals where more female patients visited. Age structure varied among the different levels, with more patients of working age visiting private hospitals. Regional polyclinics reported relatively few visits by elderly patients, but high utilization by patients 14 years of age and younger (Table 14.9)

#### 14.5.2. Utilization of hospital services

Statistics from health facilities indicate that the average number of examinations per capita at hospitals was 1.77 in 2000, increasing to 1.92 by 2005. The hospital admission rate per 1000 inhabitants fluctuated between 67 and 80 from 1990 to 2000, but increased to 95 by 2005 [4].

As a measure of hospital productivity, we can examine the number of examinations per hospital bed per year. In 2000, this number was 541.6 examinations per patient bed, which was 1.6 times higher than in 1996. The total number of patients seeking outpatient care from 1994 to 2000 was 36% of total patient contacts at hospitals [209, 212]. The average number of examinations in health facilities in Vietnam is relatively high compared to some other countries. Utilization of health services declined during 1986 to 1990. This was a transitional period in economic development where many new policies and regulations influenced the health sector. In particular, the policy of partial collection of user fees affected access and utilization of health services, especially among people who were unable to pay for health services. Utilization of health services has increased since 1992 with support from policies and regulations on financing, consolidating grassroots health networks, improving the quality of care, gradually modernizing medical equipment in hospitals, and increasing personal incomes.

Analysis from VLSS 1993 and 1998 of the GSO [222] shows that annual utilization of public facilities averaged 0.54 visits per capita in 1993 and 1.42 visits per capita in 1998. By 2002, this number had increased to 2.8 visits per capita [19]. The number of curative care visits in public hospitals alone (including inpatient and outpatient care) in 1998 had increased 2-fold by 1993, and by 2002 it had increased an additional 17%, reaching 0.7 visits per capita per year.

Comparing across quintiles of living standards shows that utilization of health services increases along with increases in living standards. The average number of examination visits per capita per year at hospitals was 3 times higher in the highest living standard quintile than in the lowest living standard quintile in 1993, and 4 times higher in 1998. However, as this household-based survey did not distinguish inpatient and outpatient services it is not possible to analyze the differences in use of different services by living standards.

Analyses from VLSS 1993, 1998, and 2002 indicates that the share of all health contacts taking place at public hospitals was 9.4% in 1993, 5.8% in 1998, and 6.0% in 2002. In 2002, contact with a public hospital ranked fourth after pharmacy (self-medication), private facility, and the CHS/regional polyclinic. However, it is not possible to compare the level and professional nature of care between contact with a pharmacy and examination at a hospital. The number of contacts with pharmacies simply reflects patients purchasing drugs, with or without a prescription, but without an examination or diagnosis by a doctor.

### ***14.5.3. Utilization of paraclinical services***

Utilization of paraclinical services shows an upward trend. Indicators reveal that hematology is highest, averaging 6.6 tests per patient, followed by biochemical tests with nearly 4 tests per patient. Utilization of x-ray and ultrasound examinations is very high, with nearly 100% of cases receiving x-rays, and 50% of patients undergoing ultrasound. About 1% of all inpatients receive CT or MRI examinations. However, this indicator does not reflect the high variation in share of cases using these services because the high cost of providing CT and MRI services means that only large hospitals can afford this equipment.

## **14.6. Quality and Efficiency of Hospital Performance**

### ***14.6.1. Hospital classification system and quality standards***

Guidelines issued by the Ministry of Health (Circular no. 03/TT-BYT) classify hospitals according to three standards based on the hospital's functions, tasks, number of beds, and technical capacity. Standard I is the highest level, and Standard III is the lowest. Under this system, any hospital failing to meet the standards remains unclassified.

Standard I hospitals account for 2.4% of total hospitals, mainly hospitals under the direct control of the Ministry of Health. Of 324 provincial/municipal hospitals, there are 106 hospitals of Standard II (32.7%), and the remainder are Standard III hospitals (65.8%). Nearly all district-level hospitals are Standard III facilities. Private hospitals have not been classified.

In 2005, the Ministry of Health changed the classification system. According to the latest guidelines from the Ministry of Health, hospitals will be classified into 5 standards: Special, Standard I, Standard II, Standard III and Standard IV (Circular number 23/2005/TT-BYT). The differences between the former classification system and the new one include upgrading some Standard I hospitals (ones that are extremely large and have modern equipment and strong technical expertise) to Special facilities and categorizing previously unclassified hospitals as Standard IV facilities.

#### **14.6.2. Patient bed occupancy and average length of stay**

The average bed occupancy rate is extremely high and rising throughout the country, averaging 114.2% in 2005, with the highest occupancy rates in central hospitals (130%) and provincial hospitals (114%). The average length of stay is 7.0 to 7.5 days and stable in all hospitals, but showing a slight downward trend (Figure 14.10). Mortality rates in hospitals remain stable, which might reflect the outcomes and quality of emergency and hospital care.

**Table 14.10. Selected performance indicators of professional activities, 1998~2004**

	Unit: %				
<b>Performance indicator</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2003</b>	<b>2004</b>
Average length of stay	7.5	7.3	7.4	7.3	7.24
Bed occupancy rate (%)	102.8	94.7	96.4	103.1	105.2
Patient rotation rate, (patients per bed per year)	49.5	46.5	46.9	51.4	52.9
Death rate (‰)	5.9	5.7	5.4	6.0	5.1

Source: Report of Hospital Inventory, Department of Therapy, MOH, various years [223].

#### **14.7. Traditional Medicine and Hospitals Specialized in Traditional Medicine**

Vietnam has 53 hospitals that practice traditional medicine, including 2 hospitals under the control of the Ministry of Health (Central Acupuncture Hospital, Central Traditional Medicine Hospital); 2 sector hospitals for traditional medicine (Institute of Military Traditional Medicine, Traditional Medicine Hospital of the Ministry of Public Security) and 49 traditional medicine hospitals in other provinces and cities. Also, about 80% of modern hospitals have a department or unit of traditional medicine. Health services using traditional medicine are offered in 57.5% of regional polyclinics and 30% of commune health centers.

Increasingly more non-public traditional medicine facilities are being established, with over 10 000 facilities licensed and registered for practice.

Total healthcare visits for traditional medicine account for 30% of total patients visits annually. In 2004, reports from 28 provincial health departments recorded over 11 million patient visits to health facilities using traditional medicine, whereof 4.56 million were to public facilities and 6.43 million were to private facilities.

Most traditional medicine hospitals operate on a small scale (under 100 beds), have limited government-paid staff (<0.8 staff/patient bed), run-down physical infrastructure in disrepair, and an inappropriately limited space for its professional activities. A shortage of medical equipment can lead to limitations and difficulties in research and attempts to combine traditional medicine with modern medicine.

Research to modernize traditional medicine has not been given sufficient attention or funding. Hence, the full potential of traditional medicine in health care is not in play. Also, traditional medicine has an inadequate number of health workers, accounting for only 5% of total health personnel. Staff structure is also inappropriate, and most staff have never attended a continuing education course to update their knowledge. Rarely do highly qualified staff work in remote provinces, eg, Northwest and Central Highlands.

Quality inspection of pharmaceutical products/materials has not been done properly due to a lack of facilities and equipment. Hence, the quality of pharmaceutical materials and herbal drugs is a highly debated issue in traditional medicine in particular, and in the health sector in general.

#### **14.8. Private Hospital Curative Care**

Private hospitals (including semi-public and foreign owned hospitals) operate on a small scale and are concentrated in major cities, eg, Hanoi, HCMC, and Da Nang. In 1995, Vietnam had only one private hospital with 50 beds. By the end of 2000 there were 12 private hospitals totaling 749 patient beds, and by July 2005 there were 43 hospitals (32 private, 6 with 100% foreign ownership, and 5 semi-public) totaling 3245 beds. The bed capacity of these private hospitals varies widely, from 21 to 500 beds.

On average, the investment in physical infrastructure and medical equipment per hospital bed is 596.3 million VND, with the lowest at 13.42 million VND, and the highest at 6.9 billion VND. Many private hospitals have invested in expensive equipment, eg, for phacoemulsification, CT scanning, MRI, color Doppler ultrasonography, diagnostic endoscopy, laparoscopic surgery, and lithotripsy.

In total, non-public hospitals employ 2253 health staff and average 2.18 staff per patient bed. These staff are fully qualified for practice, especially retired, experienced health workers and some active and qualified workers from public hospitals.

In general, the private health sector has contributed considerably toward meeting people's needs for health care and reducing the work overload on higher-level health facilities. The private health sector also facilitates access to service, avoids long waiting times, saves time, and gives patients more options in choosing providers with warm, caring attitudes. Annually, private facilities provide over 50 000 surgeries and over 2 million patient visits for examination and treatment. Some hospitals offer high technology such as open heart surgery, angioplasty, phacoemulsification, excimer laser therapy, and are able to manage internal and surgical diseases, obstetrics/gynecology and family-planning-related diseases within the scope of services approved by the Ministry of Health.

Given the rapid pace of development in Vietnam, private health services (hospitals in particular) have impacted on public facilities by creating competition to attract patients through better quality of care and health worker attitude in serving patients. Nevertheless, the pace of development in the private sector is relatively slow, which means this sector is unable to compete fully against public hospitals. Also, the performance of private facilities needs to be thoroughly reviewed in terms of quality of care, price of services, overuse of services and testing, adequacy of physical infrastructure to meet healthcare needs and ensure the continuum of service, adequacy of physical space for all necessary activities, and ability to ensure sterilization of equipment and facilities.

The percentage of private hospitals and patient beds is much lower than in other countries of the region, eg, Thailand, Malaysia, the Philippines, and Indonesia (Table 14.11). Vietnam's private hospitals account for only 4.0% of total hospitals and about 2.2% of total patient beds, hence their scope and capacity are limited. Private hospitals in Thailand account for nearly 30% of all hospitals and for 22.5% of total patient beds, while the percentages are 67% and 50% in the Philippines, 42% and 32% in Indonesia, and 62.4% and 16.4% in Malaysia.

**Table 14.11. Number and proportion of public and private hospitals and patient beds in selected countries**

Unit: %

		Hospital	Percent (%)	Patient beds	Percent (%)
Thailand (1993)	Public	835	70.3	83 932	77.5
	Private	353	29.7	24 436	22.5
Philippines (1994)	Public	537	33	35 629	50
	Private	1095	67	36 236	50
Indonesia (1994)	Public	608	58	79 412	68
	Private	431	42	37 435	32
Malaysia (1994)	Public	118	37.6	33 246	83.6
	Private	184	62.4	6 492	16.4
Singapore (1998)	Public	12	48	9 277	81.5
	Private	13	52	2 112	8.5
India (1994)	Public	4757	43	435 215	68
	Private	6417	57	206 888	32
South Korea (1994)	Public	32	5	28 657	23.2
	Private	618	95	95 940	76.8
Vietnam(2004)	Public	992	96	123 926	97.8
	Private	36	4.0	2 776	2.2

Source: Annual Report 1994, MOH, Malaysia [224]; State of Health 1998, MOH, Singapore- Private Health Sector Growth in Asia [215]

## 14.9. Macro Policies Influencing Hospital Organization and Operations

Major policies are having an important impact on the operation of public hospitals. In a broader view, the health sector has systemized and rationalized its investment in developing a hospital network through the formulation of a master plan for a hospital network in 2002 and a comprehensive master plan for the development of the health sector by 2010. In terms of management, Decree 10 regulates financial mechanisms for revenue-raising institutions, and Decree 43 regulates financial autonomy and accountability for task fulfillment, organization, payroll, and finance in public institutions, which has had mainly positive effects on the operation of public hospitals. Some policies still strongly influence public facilities, eg, policy on collecting user fees and policy on private health practice. This Section discusses important influences of these policies on the performance of public hospitals.

### 14.9.1. Master plan for the hospital network

In the process of shifting from centralized management by the Ministry of Health to decentralized management at the provincial level – reassigning tasks with the aim to increase efficiency of hospital management and operation – it is crucial to develop a master plan to ensure uniform, rational development. In 2002, the Minister of Health approved the Master Plan for developing the hospital network in Vietnam during 2005 to 2010 [225].

In 2006, the Prime Minister issued Decision 153/2006/QD-TTG approving the Master plan for the Development of the Health System in Vietnam by 2010 and Vision to 2020. Among other issues, the Decision addressed the reorganization of the curative care and rehabilitation network. The main orientations for investment are:

- Develop the curative care network in line with population clusters without distinguishing administrative borders.

- Ensure the systematic and continuous nature of professional healthcare activities at each level of treatment, and develop general and specialized hospitals in a balanced and rational manner.
- Each new hospital to be built must comply with the master plan and the socioeconomic master plan of the locality. Conditions for medical waste disposal and infection control within the hospital must be assured.
- Aim to achieve 20.5 beds per 10 000 inhabitants by 2010, and to achieve 25 beds per 10 000 inhabitants by 2020.
- Consolidate and modernize traditional medicine hospitals currently in existence at the central level to meet hospital Standard I. Build traditional medicine hospitals in provinces that do not yet have one.

The comprehensive plan laid out the contents of developing the curative care and rehabilitation care network by technical level from lowest to highest, ensuring continuity of professional care. Each facility must ensure provision of curative care services for a residential cluster, ensuring that the facility meets the hospital standards according to Ministry of Health regulations.

**Level 1:** includes hospitals achieving Standard III, including district hospitals and regional polyclinics, some sectoral hospitals and private hospitals; provide basic curative care services; receive patients directly from the community or referred from the CHS.

**Level 2:** includes general and specialized hospitals at the provincial level, private hospitals, and some sectoral hospitals in urban areas meeting the quality of Standard II or higher; provide curative care services with specialized technology, satisfying nearly all needs for health care of the population in the locality.

**Level 3:** includes hospitals reaching Standard I or Special standard, the level that implements high tech specializations, undertakes scientific research, and concurrently uses the facility for training medical and pharmacy school/university students.

Concentrate investment in completing high-tech medical centers in Hanoi, HCMC, and Hue-Da Nang. Actively prepare necessary conditions for investing in a high-tech center in Can Tho after 2010.

Prioritize construction investments in regional (interprovincial) hospitals of 500 to 1000 beds, with adequate ability to meet the curative care needs of the population in the region with high quality professional care using modern high technology.

Consolidate and develop rehabilitation hospitals in provinces and in other sectors on the basis of ensuring the ability to balance revenues and expenses through efficient hospital operation.

Consider investing to develop and expand the network for transporting patients in all residential areas.

#### **14.9.2. Policy on partial collection of user fees**

The policy on cost recovery for health care (user fees and health insurance) has had a positive impact on the operation of hospitals. Revenue from user fees and insurance, although it varies between hospitals, has been an important supplementary source of funding for hospitals. Given these additional funds, health facilities have enhanced their responsiveness to the growing and diversified healthcare needs of the people.

The policy to collect partial user fees, however, has limitations and problems. First, hospital charges prevent poor people from accessing hospital-based health services. Second, health facilities are likely to overprovide health services. Collecting partial user fees, especially by direct payment or health insurance without a payment ceiling, may lead to unnecessary use of services and drug prescriptions (too many drugs per prescription, too much testing and overuse of high technology). This situation is more serious in hospitals with a hospital ward providing “elective” services. An issue of concern is how to manage the service price, quality, and efficiency because of investments in expensive equipment to attract patients. To recover investment costs, health facilities tend to rely heavily on testing and diagnostic imaging, which pushes the price upward and increases unnecessary costs for both the patients and health insurance.

#### **14.9.3 Policy on private healthcare practice**

The Ordinance on Private Pharmacy and Medical Practice (2003) has facilitated the participation of private hospitals and clinics in the hospital system, ensuring healthy competition, reducing the load on public hospitals, and motivating public hospitals to improve quality of care to attract more patients. At present, over 40 private hospitals are in operation, located mainly in large cities. Accession to WTO has created favorable conditions for foreign investors to invest in building new private hospitals, or undertaking joint investments with domestic hospitals, in providing high-tech services to satisfy the healthcare needs of foreigners and high-income Vietnamese.

However, this policy has had some unwanted impacts on public hospitals. It is perceived that some doctors cut short their working time in public hospitals to spend more time in their private clinics, or use hospital equipment for private purposes. With strategic marketing, private hospitals are able to attract wealthy patients, leaving public hospitals to care for patients in serious condition, the chronically ill, and the poor who are unable to pay for services. Given such a patient mix, there is no room for “cross-subsidization” between users of services in financing the hospital. Moreover, public hospitals experience a “brain drain” of experts to private hospitals, particularly to modern ones with huge capital that also attract patients away from public hospitals.

#### **14.9.4. Policy on autonomous hospitals**

Government Decree 10/ 2002/NĐ-CP (January 16, 2002) on financial management mechanisms enables financial autonomy for fee-collecting state institutions, including hospitals, so they can undertake the tasks assigned to them, use their permanent workforce and pay adequate salaries to their staff. The mechanism presented in this Decree is similar in some respects to that used by autonomous hospitals in some countries, where the restructuring and reform process for public hospitals aims to maximize productivity and efficiency and reduce budget spending [226]. The intent of the Decree is to augment the role and responsibility of the hospital directors, allowing them greater autonomy to delegate responsibility and render more timely management decisions in a constantly changing context.

The most positive effect of Decree 10 is that it allows dynamic decision making in management and budgetary flexibility to allocate expenditures based on the actual needs of each institution. Heads of institutions are authorized to organize, hire, and fire labor to enhance effectiveness and quality of work and limit negative outcomes. Some institutions are able to mobilize funding and borrow funds to renew equipment and physical infrastructure. Financial autonomy, including the government budget, allows these institutions to flexibly allocate their budgets to program activities. If the entire budget is not spent during the fiscal year, funds can be carried over to the next year. Hence, this approach encourages



economization and effective use of the government budget and other sources of revenue. Apart from securing basic salaries for workers, some institutions are able to raise additional revenue to increase staff salaries by 10% to 15%. Some hospitals shift all bonuses to staff salary, thus increasing staff income by nearly 100%.

Despite its positive effects, the implementation of Decree 10 should be further assessed. Actual conditions are not consistent with the policies. Many standards, economic and technical norms, regulations on the management mechanism do not yet exist, or are no longer appropriate with the mechanisms proposed in Decree 10, but they have not yet been revised or supplemented. Hence, government staff, labor, and technical issues are often managed as before, leading to limited and ineffective autonomy. The basic level of government budget allocations remains low, especially in mountainous areas and at the district level where it is difficult to collect hospital fees. Decree 10 does not allow hospitals to adjust the user fee level, but requires them to adhere to Decree 95 that does not fully cover all hospital costs. This restriction leads to problems for providers in balancing expenditures and revenues. Overhead costs, eg, telephone, fuel, electricity, and supplies have been economized, but staff costs have increased rapidly due to government adjustments in state salaries and fringe benefits/allowances. Hence, funds available to cover direct input costs such as for drugs or disposables has tended to decrease over time. Most health facilities have limited budgets for maintenance and repair of equipment and procurement of fixed assets, which affects the quality of performance. Although quality of care is perceived as having improved, overuse of testing services and diagnostic imaging as a means to raise revenues is prevalent in some hospitals. Management skills are limited and not commensurate with the new management mechanism, hence causing complications in implementation. Consequently, in 2006, the Government issued Decree 43 to replace Decree 10 to address the problems that have arisen. Chapter 15 on healthcare financing describes Decree 43 in more detail.

# PART D. FACTORS AFFECTING EFFICIENCY, EQUITY, AND DEVELOPMENT OF THE HEALTHCARE SECTOR

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The provision of healthcare services requires pulling together many pieces, each of which is important in determining the quality and efficiency of the health sector as a whole. This section of the report covers the many components that together make the healthcare system function. It begins by overviewing major health financing policies, including health insurance and the situation and trends in Vietnam. This is followed by analyzing the complex situation of healthcare personnel, medical research, management of pharmaceuticals, and medical equipment. The section concludes with an overview of the situation of health information, education, and communications (IEC), a key instrument for cost-effective interventions, especially as regards prevention.

## **Chapter 15**

### **HEALTH FINANCING**

Health financing policies have been, and continue to be, developed and implemented to meet the goals of equity, efficiency, and development, the same goals as for the health sector in general. The broad orientation of health financing was decided upon in the 1990s through the development of health insurance, the partial user fee policy, and the Government's resolution on "social mobilization" in the areas of education, health, and culture. These orientations have created a mixed public-private health financing system in Vietnam with two main sources of funds: public funding (including health insurance) and patient out-of-pocket spending on user fees. Nevertheless, partial user fees have created some problems and have led to inequalities. Hence, the government also focuses on financial assistance for certain social groups, especially the poor. Health financing in Vietnam underwent major changes in the 1990s as the State began to promote decentralization of public financing, which has major implications for the health sector.

Since the year 2000, the state has continued to build and adjust health financing policies based on the earlier orientation, but with greater concern for efficiency and development than in the past. The greatest changes in health financing between 2000 and 2005 are related to shifting from direct subsidies to providers toward subsidies to users of health services, for example with health care for the poor and for children under 6 years of age. Concurrently, in this new decade, the state has added a new orientation toward financial autonomy for fee-collecting, public service providers (including state health facilities) with the aim to make the sector more efficient. The social health insurance scheme continues to be expanded, and decentralization of financial management has been intensified. The state has formulated a master plan for the health sector to develop a modern, comprehensive medical system with major investment in the district and provincial levels and in specialized medical centers.

#### **15.1. Health Financing Policies**

This section describes the major changes in health financing policies in Vietnam in the early years of the 21<sup>st</sup> century.

### **15.1.1. Social mobilization**

Government Resolution No 05/2005/NQ-CP (18 April, 2005) on advancing social mobilization in education, health, culture, and sports built on the experience of implementing Government Decree No 73/1999/NĐ-CP (19 August, 1999) on the policy for encouraging social mobilization in education, health, culture, and sports and Government Resolution No 90/CP (21 August, 1997) on options and requirements for social mobilization of education, health, and cultural activities.

According to Resolution No 05/2005/NQ-CP, social mobilization aims at two major objectives: (1) to exploit the intellectual and material potential of the population, mobilize the entire society to be concerned about education, health, culture, and sports; (2) to create conditions for the entire society, especially government policy beneficiaries and the poor, to increasingly benefit from the achievements of education, health, culture, and sports.

### **15.1.2. Health insurance policy**

Decree 63, passed in 2005, issued the new health insurance policy that updated and revised the health insurance policy passed in 1998. Implementing circulars for compulsory and voluntary social health insurance were also issued to specify more clearly how the new regulations should be implemented.

The new health insurance policy and implementing documents expanded the groups covered by health insurance and helped to mobilize more financial resources, while simultaneously expanding the number of people sharing health risks. These new regulations expanded the scope of the risk pool. Decree 63 also began to allow alternative payment mechanisms that are more efficient, eg, capitation or case-based reimbursement to replace the current fee-for-service mechanism.

### **15.1.3. Subsidizing health services through users**

In the first 5 years of the 21<sup>st</sup> century, the state began to shift subsidies toward users to ensure greater equity and increase efficiency of health service subsidies. On October 15, 2002, the Prime Minister signed Decision 139/2002/QĐ-TTg on health care for the poor. This decision determined a concrete source of funding (primarily the state budget), ensuring the feasibility of implementing the policy on health care for the poor. This decision essentially replaced previous decisions and decrees on health care for the poor and for poor regions with a higher level of assistance (50 000 VND/person/year), expanded beneficiaries covered (all poor people), and extended the services coverage (including commune level).

By 2005, when the Law on Protection, Care, and Education of Children came into effect, the state began to issue regulations guaranteeing funds for implementing health care for children under 6 years of age. Government Decree No 36/2005/NĐ-CP (March 17, 2005) provided detailed instructions for implementing aspects of the Law on Protection, Care, and Education of Children. Decree 36, article 18 requires that children younger than 6 years receive free health care at all government health facilities. In contrast to previous policies, this new policy ensured funds for implementation. Children younger than 6 years were given free healthcare cards for use at state health facilities. All fees for implementing this policy are to be guaranteed by the state. The Ministry of Health and related government agencies should continue to monitor and adjust the policy as necessary.

The Ordinance of the Standing Committee of the National Assembly, No 23/2000/PL-UBTVQH10 (April 28, 2000) on the elderly requires that the elderly should receive primary health care at the place where they reside. The commune health center has the responsibility to monitor, manage, and directly care for the health of elderly persons and organize regular checkups appropriate to the conditions in each locality. Funds for this purpose are to be provided by local budgets. In 2002, the State directed localities to provide health insurance

cards to people aged 100 years and older. By 2003, the state had lowered the age, and localities were required to provide health insurance cards to people aged 90 years and older. The health insurance contribution is to come from local budgets.

#### **15.1.4. User fee policy**

The partial user fee policy has been in place since 1989. A new Decree was issued in 1994 on partial user fees, and Implementation Circular No 14/TTLB was issued in 1995. This circular provided concrete instructions for implementing the partial user fee policy, with a list of services and a range of prices for each. By 2006, this policy was still in effect. However, by 2006, Inter-ministerial Circular 03/2006/TTLT-BYT-BTC-BLDTB&XH issued a temporary price range for partial user fees on new services arising since 1995, but for which a partial user fee had not yet been specified.

By November 2006, Circular 13/2006/TTLT-BYT-BTC-BLDTBXH on revising and appending some points in Inter-ministerial Circular No 14/TTLB was issued. The most important addition to the policy was the regulation: "The amount of partial user fees collected, including user fees paid through health insurance reimbursements, is a state budget revenue, and should be retained in whole by the healthcare facility to use in paying healthcare costs."

#### **15.1.5. Decentralization of public finance**

Starting with the State Budget Law of 1996, Vietnam began to implement a strong decentralization policy regarding public finance, which is growing in scope. By 16 December 2002, the National Assembly passed the revised State Budget Law to overcome shortcomings in the previous law from 1996.

This new law assigns a high level of autonomy to provincial authorities in organizing the budget for districts and communes. In the health sector, the central level retains responsibility for spending on health services managed by the central level, research, and the development of national health programs. The province has responsibility to spend on provincial level services, the district spends on services they have been assigned responsibility for by the province, and the commune on services in their jurisdiction.

The mechanism for central budget subsidies to provinces to balance their budgets was designed to resolve imbalances in the budget, especially to increase the financial capacity of poor provinces. According to the State Budget Law, supplementary allocations to balance local budgets are without conditions and determined based on formulas using a fixed amount (not proportions) that are stable over a fixed period (from 3 to 5 years). The formula used to calculate the supplements is based on an estimate of total revenues of the province and their spending requirements based on budget allocation norms. The norms include recurrent spending and part of investment spending. They are adjusted for different regions depending on geographic factors and the level of social development and are regulated in Prime Ministerial Decisions (No 139/2003/QĐ-TTg and No 151/2006/QĐ-TTg). New norms for allocating investment budgets were issued in Prime Ministerial Decision No 210/2006/QĐ-TTg (September 12, 2006) on the issuance of rules and norms for allocating investment budget from the state budget for the 2007-2010 period. Currently between the province and lower levels, the provinces usually determine the norms for allocating their local budget and supplementing district and commune budgets. At this time the Ministry of Health is developing intraprovincial budget allocation norms to which provincial People's Committees can refer when drafting their annual budgets.

#### **15.1.6. Financial autonomy policy**

Decree 10/2002/NĐ-CP gives considerable managerial autonomy to fee-collecting government units in nearly all sectors. All fee-collecting government units able to cover part of

their recurrent spending are allocated a stable recurrent spending budget over a 3-year period, with annual increases determined by local authorities. Managers of these units are given broader authority to financially manage their unit, and any cost savings can be used for reinvestment and salary increases for staff, according to regulations. Units implementing Decree 10 also have broad authority to determine fees for “elective” services<sup>7</sup> and nonmedical services (eg, laundry, parking, canteen). These facilities are allowed to borrow from the bank or development support funds to expand their scope of activities and improve the quality of their services.

In 2006 the Government issued Decree 43/2006/NĐ-CP regulating the rights and responsibilities for autonomy in organizing the facility, the staffing, and the finances of state service facilities. Decree 43 expanded rights and responsibilities of state service units to overcome problems that arose with Decree 10. Some of the important changes in Decree 43 are related to responsibilities for covering all operational costs before using revenues from user fees to establish investment funds, options for increasing staff salaries, and new mechanisms for mobilizing investment funds.

## 15.2. Mobilizing Financial Resources for Health

Vietnam’s economy has experienced stable development, with per capita GDP doubling in the past 10 years. In 2005, per capita GDP was around 600 USD. GDP is growing approximately 8% per year, increasing the national budget and state investments in the health sector. Concurrently, development of the market economy and the open-door policy of the government have created conditions for substantial increases in nonbudget financial resources available for health services, including both state and private sectors. This has contributed to rapid increases in the total health spending of society and in per capita health spending.

### 15.2.1. Aggregate national health spending

Aggregate national health spending and aggregate state budget health spending have increased continuously along with economic development of the country (Table 15.1). The growth rate of health spending and state budget spending for health is higher than growth in GDP for the 1998-2003 period.

**Table 15.1. Aggregate national health spending and aggregate state budget health spending in current and constant (2003) prices, 1998-2003**

Unit: Billion VND

	1998	1999	2000	2001	2002	2003	Real annual growth rate
<b>Current prices</b>							
National health spending	17 849	19 510	23 289	26 868	27 508	32 017	
State budget health spending	4 672	5 138	5 199	6 265	5 841	7 201	
<b>Constant 2003 prices</b>							
National health spending	19 176	20 940	25 147	28 781	28 333	32 017	10.8%
State budget health spending	5 020	5 514	5 614	6 711	6 016	7 201	7.5%

Source: National Health Accounts 1998– 2003 [219]

<sup>7</sup> Elective services refer to services beneficial to the patient, but not essential for survival. In Vietnam, elective services are not covered by the health insurance scheme, tend to have higher prices, and may include both nonmedical services (eg, air-conditioned, private room with television, obtaining services at a higher-level facility without referral, shorter waiting times, drugs not on the major drug list covered by insurance) or certain medical services using equipment obtained by the facility through private funds for which full cost recovery applies.

An important indicator in health economics is per capita health spending. In 2002, Vietnam's per capita health spending was 23 USD, similar to the levels in Indonesia, the Philippines, and India, but less than the total for low- and middle-income countries in Asia and the Pacific region. Health spending in Vietnam is low in absolute terms, but it accounts for 5.2% of GDP, a level higher than many Asian countries [6].

State budget health spending is an important indicator for assessing a state's concern about health. State budgets that cover a high share of health spending create favorable conditions for achieving health equity. In 2002, state budget health spending in Vietnam was only 1.5% of GDP (Table 15.2). By 2005, according to figures in the Health Statistics Yearbook [14], this share had risen to 2.26% due to efforts by the health sector in demanding more resources from the state budget. The current level is high compared to many countries in Asia.

**Table 15.2. International comparison of selected health finance indicators, 2002**

Country	Per capita health spending (US\$)	Per capita health spending (PPP\$)	National health spending as share of GDP (%)	State budget health spending as share of GDP (%)
South Korea	577	863	5.0	2.6
Malaysia	149	344	3.8	2.0
Thailand	90	306	4.4	3.1
China	63	285	5.8	2.0
Cambodia	32	213	12.0	2.1
India	30	160	6.1	1.3
Sri Lanka	32	129	3.7	1.8
Vietnam	23	119	5.2	1.5
Philippines	28	117	2.9	1.1
Indonesia	26	103	3.2	1.2
PDR Laos	10	51	2.9	1.5
Low- and middle-income countries of Asia and the Pacific	63	271	5.2	1.9

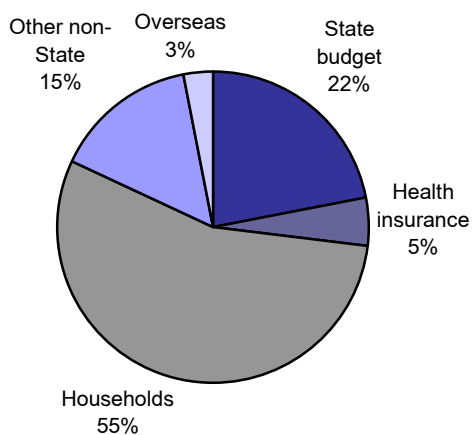
Source: World Development Indicators 2005 [6]

### **15.2.2. Structure of sources of health spending**

Analysis of the sources of capital for the health sector in 2003 is based on data from the National Health Accounts (Figure 15.1). The proportion of total national health spending that comes from household spending is quite high (58% in 2001, 55% in 2003). State budget financing of the health sector in Vietnam is modest, financing only a very basic level of health services for the population.

Funds for health from the state budget have increased rapidly in absolute terms, but still account for only a small share of the state budget (around 5.5% in 2005). The share of state budget health spending out of total health spending has been declining gradually (in 2003 it was about 22%) (Figure 15.2 and Table 15.3). The proportion of total health spending from health insurance reimbursements to health facilities is increasing, but remains below 5% of total health spending. Overseas sources account for less than 3% of the total, and the trend has neither increased nor decreased in recent years. Spending from other non-state sources is mainly for investments in constructing and equipping private facilities and recurrent spending by enterprises on preventive and public health.

**Figure 15.1. Structure of health financing sources, 2003**

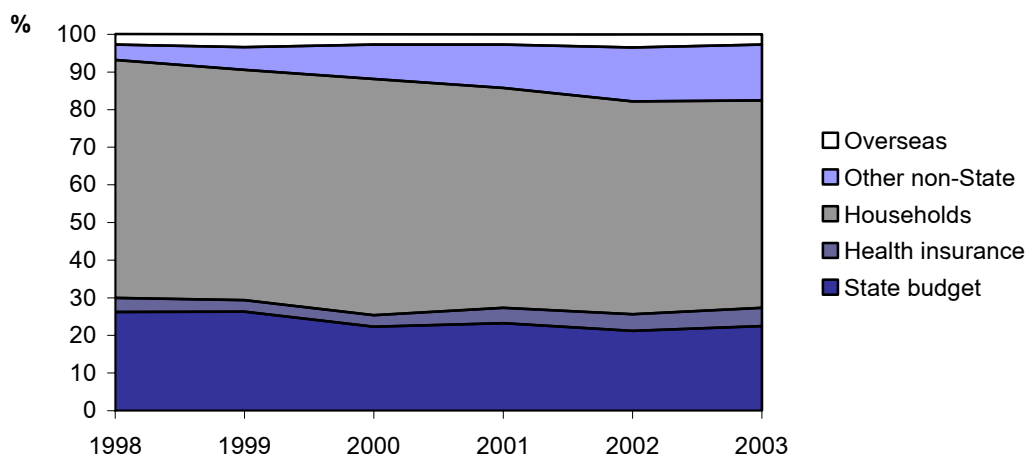


Note: \* Households includes payment of user fees, and drug and material purchases at public and private facilities.

\*\*Overseas includes ODA, foreign loans, 100% foreign investment, and joint ventures.

Source: National Health Accounts 2001–2003 [219]

**Figure 15.2. Trends in source of funds for the health sector, 1998–2003**



Source: National Health Accounts 1998–2003 [219]

**Table 15.3. Structure of sources of funds for the health sector, 1998-2003**

Unit: %

	1998	1999	2000	2001	2002	2003
State budget	26.2	26.3	22.3	23.3	21.2	22.5
Health insurance	3.8	3.1	3.1	4.0	4.4	4.8
Households	63.2	61.2	62.7	58.4	56.6	55.1
Other non-state	4.1	6.0	9.2	11.6	14.3	14.9
Overseas	2.8	3.4	2.7	2.7	3.4	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Health Accounts 1998–2003 [219]

### 15.2.3 State budget and decentralization of state finances

As we enter the new millennium, the national economy has been booming and conditions have been favorable for increased investment in health from the state budget. In 2005, the state health budget was 2.7 times higher in real terms than in 2000 (after adjusting prices with the medical price index). This increase is substantial compared to the previous 5 years (1995-2000) when it was only 1.2 times.

The process of decentralizing public finance has led to an increase in the proportion of the state health budget spent by the local level (Table 15.4). In the 1990s, the share of the state health budget spent by the central level was 34%, but by 2000 this number had fallen noticeably. Currently the central level still retains responsibility to allocate the budget for training, research, operating a few central level hospitals, and national target programs, while localities have autonomy over their local curative and preventive care budgets.

**Table 15.4. State health budget at central and local levels 1997-2002**

	1997	1998	1999	2000	2001	2002
<b>Billion VND</b>						
Central	1489	1930	2144	1327	2143	1997
Local	2839	3277	3768	5223	6332	6619
Total	4329	5207	5912	6550	8475	8616
<b>Structure (%)</b>						
Central	34.4	37.1	36.3	20.3	25.3	23.2
Local	65.6	62.9	63.7	79.7	74.7	76.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Public expenditure review 2005 [207]

### 15.2.4. Social mobilization of financing for health

During the process of social mobilization and increasing financial and management autonomy, health service units must increase the share of their revenues from non-budget sources. The partial user fee policy created the legal basis for state health facilities to mobilize additional financial resources through user fees for healthcare services. This policy helped to substantially increase resources for health facilities in the context of a tight state budget, yet it created financial barriers affecting accessibility to health services for the poor. For healthcare subsidies to become more pro-poor, the social mobilization policy proposed the solution of gradually converting state budget subsidies to providers (used by all people) into subsidies for users (especially the poor and children) through prepayment and third-party payment schemes.

Revenue from user fees at public healthcare facilities has increased from 29.2% of the health budget in 2001 to 33.2% in 2005 (Table 15.5). This source of revenues has increased partly because services provided to certain groups in the population who were previously exempted from user fees at public health facilities with little or no compensation to the facility, are now reimbursed from state budget funds through the Health Care Fund for the Poor (HCFP), social health insurance, or the policy of healthcare support to children under 6 years of age. At the same time, revisions in the health insurance policy, increased ceilings on health insurance reimbursements, and an expanded range of services in the benefit package for the insured have also led to increased revenues for healthcare facilities from health insurance reimbursements.



**Table 15.5. Amounts and shares of health financing sources of the public health system, 2001-2005**

Source	2001		2002		2003		2004		Plan for 2005	
	Billion VND	%	Billion VND	%	Billion VND	%	Billion VND	%	Billion VND	%
State budget	4 276	62.7	5 063	58.6	6 003	58.3	8 252	58.7	10 644	61.7
Loans and ODA	608	8.1	977	11.3	660	6.4	789	5.6	875	5.1
User fees	2 205	29.2	2 603	30.1	3 630	35.3	5 017	35.7	5 744	33.2
<b>Total</b>	<b>7 089</b>	<b>100</b>	<b>8 643</b>	<b>100</b>	<b>10 293</b>	<b>100</b>	<b>14 058</b>	<b>100</b>	<b>17 263</b>	<b>100</b>

Note: Figures for annual planned budget may be different from the final accounts in other figures and tables.

Source: Compilation of annual health spending budget allocations from the Ministry of Finance [227]

### **Preventive health and public health**

Preventive health services have also been affected by the social mobilization policy. Table 15.6 analyzes the structure of main sources of funds for preventive health services. In 1998, the state budget was the main source of finance for preventive health. By 2003, however, enterprises had begun to take on an important share of preventive and public health care to provide labor protection and primary care for their workers. International assistance continues to contribute positively to preventive care, especially providing financial resources for national health programs.

**Table 15.6. Sources of funds for preventive health, current prices, 1998 and 2003**

	1998	2003
Total (Billion VND)	2733	4795
Structure (%)		
State budget	70.9	45.6
Health insurance	0.0	0.0
Households	10.8	10.3
Other non-state	8.5	31.5
Overseas	9.8	12.6
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

Source: National Health Accounts 1998–2003 [219]

### **Spending on curative care**

According to National Health Accounts 2003, self-medication accounts for over 50% of total curative care spending, with 100% of funds coming from households [219]. Of the remaining curative care spending (namely inpatient and outpatient care), the state budget accounts for approximately 35%, health insurance for 16.7%, households for 28%, and various other sources including private facilities, and overseas sources for the remainder. Looking only at state curative care facility revenues, the state budget accounts for almost 50% of the total, with a slight downward trend from 51.2% in 1998 to 48.4% in 2003. Concurrently, health insurance revenues of health facilities increased slowly from 14.7% to 16.7% of the total, and from 20.6% to 23.3% at state facilities [219]. Although in 2003, user fees accounted for 1.7 times the total curative care revenues from health insurance, this is an important decline from a recent peak in 1999 when user fee revenues were 3.5 times higher than health insurance (Table 15.7).

**Table 15.7. Sources of finance for inpatient and outpatient curative care for all healthcare facilities and for state healthcare facilities, 1998-2003**

	All healthcare facilities			Only state healthcare facilities		
	State budget	User fees	Health insurance	State budget	User fees	Health insurance
1998	35.5	39.2	14.7	51.2	40.1	20.6
1999	35.8	41.6	11.9	55.9	41.6	18.5
2000	34.0	42.8	12.9	51.6	42.8	21.1
2001	36.8	35.6	11.8	54.3	35.6	17.5
2002	32.1	32.7	14.0	46.8	32.7	20.4
2003	34.6	28.3	16.7	48.4	28.3	23.3

Source: National Health Accounts 1998–2003 [219]

### Investments

Social mobilization has also strongly influenced the process of developing the health sector. Funds mobilized from society include investments in private health facilities and private investments in equipment used at public facilities through arrangements such as joint ventures or partnerships, bank loans, contributions of staff, etc. Table 15.8 presents the funding sources for selected expensive, high-tech medical equipment. The amount of equipment purchased through social mobilization accounts for the majority, and much of the equipment purchased through social mobilization funds is placed at public hospitals. Usually socially mobilized funds means medical equipment must yield profits and not be operated on a charity basis, leading to a high risk for overusing the equipment, ie, prescribing unnecessary procedures to recover capital invested.

**Table 15.8. Sources of investment in expensive, high-tech medical equipment**

Unit: number of machines (systems)

Type of equipment	State budget	ODA	Socially mobilized funds	Total
CT scanner system	52	12	100	164
MRI system	10	2	18	30
Cardiovascular x-ray	9	0	2	11
Laser, excimer (ophthalmology)	2	0	7	9
Gamma knife	0	0	1	1
Medical accelerator	5	0	3	8
Lithotripter	3	0	11	14

Source: Official letter No 377/BYT-TB-CT on the situation of investment in medical equipment [228]

#### 15.2.5. Overseas development assistance

Around 3% of total health spending comes from overseas development assistance (ODA). However, in some areas such as preventive health (especially HIV/AIDS), ODA plays a more important role. In 2005, total capital commitments for HIV/AIDS were 110 million USD (over several years) [229], while on an annual basis in 2004 and 2005, the state budget reserved for HIV/AIDS control was only 80 billion VND (around 5 million USD) [15]. In the past, use of ODA funds depended largely on the objectives of the donors. However, with reforms in managing ODA, along with the agreement of most donors, the future trend is to concentrate ODA funds on the priorities set by the Government of Vietnam. The Master Plan for Development of the Health Sector in Vietnam by 2010 was developed with the objective to facilitate rationalization the process of ODA based on Vietnam's priorities.

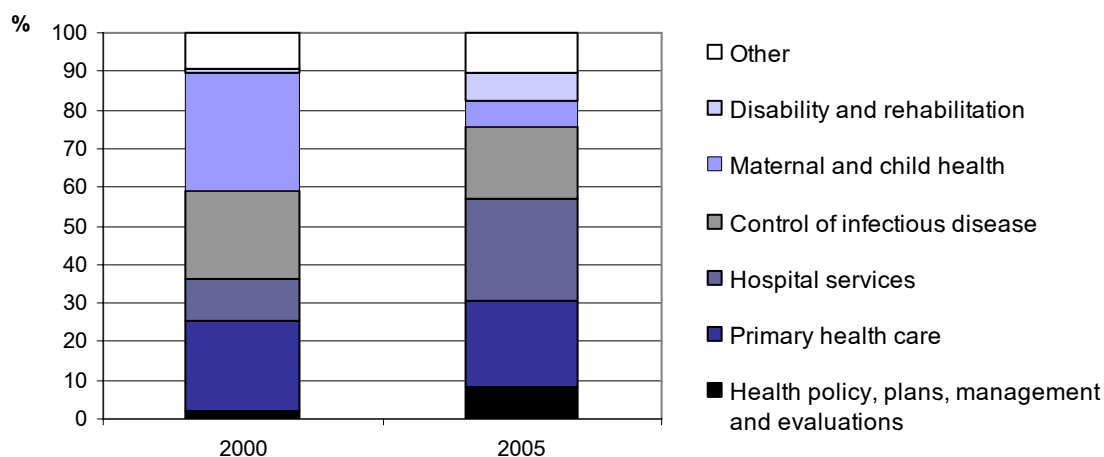
Total ODA commitments and disbursements continue to increase. Total commitments in 2005 (966 million USD) were about 10% higher than in 2000. Moreover, the disbursement rate

in 2005 indicates greater efficiency in the use of funds, with a rate of 51% in 2005 compared to only 20% in 2000.

In terms of total ODA commitments in 2005, the largest donors were the World Bank (161 million USD), Japan (141 million USD), and ADB (118 USD), accounting for 43% of total commitments. In 2005, there were a total of 59 international donors and 310 projects [229], an increase from 2001 when there were only 17 donors and 201 projects. In 2001 the World Bank and ADB were also the largest donors with total commitments of 256 million USD and 150 million USD respectively [230].

The objectives for use of ODA are changing. In 2000, the three main uses of ODA were for maternal and child health, primary health care, and prevention of infectious diseases. By 2005, however, maternal and child health had declined substantially while hospital services had become the most important use of ODA (Figure 15.3).

**Figure 15.3. Distribution of ODA capital, 2000 and 2005**



Source: Ministry of Health, (2006) Compendium of ongoing projects in the health sector at the end of 2000 and 2005 [229, 231]

### 15.3 Allocation of Resources

The allocation of funds in the entire health sector is implemented according to the State Budget Law. The state budget has different principles for allocation depending on the purposes for which funds are to be used.

The budget for national target programs is allocated to each locality according to need, which depends on the morbidity patterns across localities. Inter-ministerial Circular No 51/2002/TT-LT/BTC-BYT of the Ministry of Finance and Ministry of Health (June 3, 2002) provides instructions on the contents and spending norms for national target programs for the control of social disease, dangerous epidemics, and HIV/AIDS. This circular updates norms that were developed in 1999. According to this circular, each program has norms depending on characteristics of each program, eg, malaria control staff in regions where malaria is endemic are given additional payments in their salary when they participate and health staff involved in the expanded program of immunization are compensated for each child that is fully immunized.

Recurrent expenditures of the health sector at the central level and each locality are determined according to Decisions issued by the Prime Minister. These were first determined according to the Law on the National Budget (2002) and Decision 139/2003/QĐ-TTg (July 11, 2003). In 2006, the norms were updated for fiscal year 2007 (Table 15.9). The higher (more

remote) the region, the higher the norm and the greater the increase in norms over time. Draft budgets were developed using these norms for recurrent spending, including staff salaries and spending for health care of children under 6 years of age, but not including spending on health care for the poor. The population in each zone is multiplied by the spending norms to calculate the total budget allocation to each province. Localities with hospitals operating as regional hospitals obtained additional allocations.

**Table 15.9. Recurrent spending norms for local health facilities, 2004-2007**

Unit: VND/person

Zone	Spending norms for 2004	Spending norms for 2007	Ratio of norms for 2007 and 2004
Urban areas	32 180	58 680	1.8
Delta	35 400	79 280	2.2
Low mountains, remote areas*	44 780	101 100	2.3
High mountains, islands	58 050	140 700	2.4

Note: \* in 2007, low mountains and remote areas also include areas with ethnic minorities living in delta areas.

Source: Decision 139/2003/QD-TTg and Decision 151/2006/QD-TTg [232, 233]

Funds for providing health care to the poor are determined annually on the basis of the expected number of poor people and other beneficiaries of Decision 139/2002/QD-TTg (October 15, 2002).

Rules for allocating investment funds have been substantially reformed under Decision No 210 of the Prime Minister, which promulgates principles, standards, and norms for allocating investment funds of the state budget for the 2007-2010 period, issued on September 12, 2006. Basic principles for allocation of investment capital from the state budget include: funds to be allocated for socioeconomic infrastructure that cannot directly recover the costs; investment projects must serve socioeconomic development goals of the sector; the projects must be part of the approved master plan; projects must complete all relevant investment procedures according to regulations on management of investment and construction; efficiency of investments and deadlines for investment must be ensured; openness, transparency, and equity in the allocation of investment capital must be attained.

Criteria for allocating investment capital in balancing resources across sectors include criteria related to population, ethnic minorities, level of development, amount of local budget subsidized from the central budget, natural area of the province, number of districts and disadvantaged areas in the province, and several other criteria related to special characteristics of the provinces, eg, major cities (Hanoi, HCMC), central level cities, focal area provinces, and development centers of regions and subregions.

Despite efforts to rationalize the process of allocating state funds to the health sector, allocations based on specific goals or geographic areas still depend largely on local socioeconomic conditions. Unequal distribution, concentrating on large urban areas, industrial zones, and key economic zones, leads to low efficiency in use of capital at a macro-level. Achieving goals of healthcare equity for the population will require continued efforts to improve the allocation process during the upcoming period.

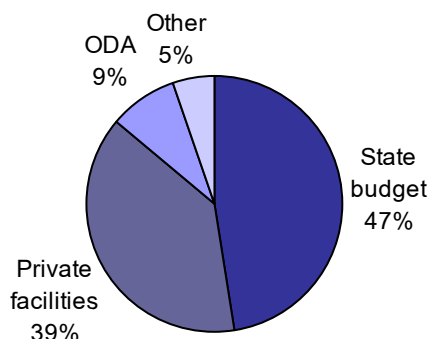
### **15.3.1. Spending on investment and recurrent expenditures**

#### **Development investments**

In 2003, investment spending accounted for 13.7% of total health spending in Vietnam, whereof the state budget contributed 47% and ODA grants and loans accounted for 9%. Private health facilities also invested large sums of capital, accounting for 39% of the total. The levels and sources of funding for investments vary over time. For example, in 2001, investment capital came primarily from the state budget (60.7%) and the private sector

accounted for only 26.7%. Currently, the structure of investment capital clearly reflects the strong development of the private health sector, which is increasingly serving the healthcare needs of the population.

**Figure 15.4. Structure of sources of funds for investment, 2003**



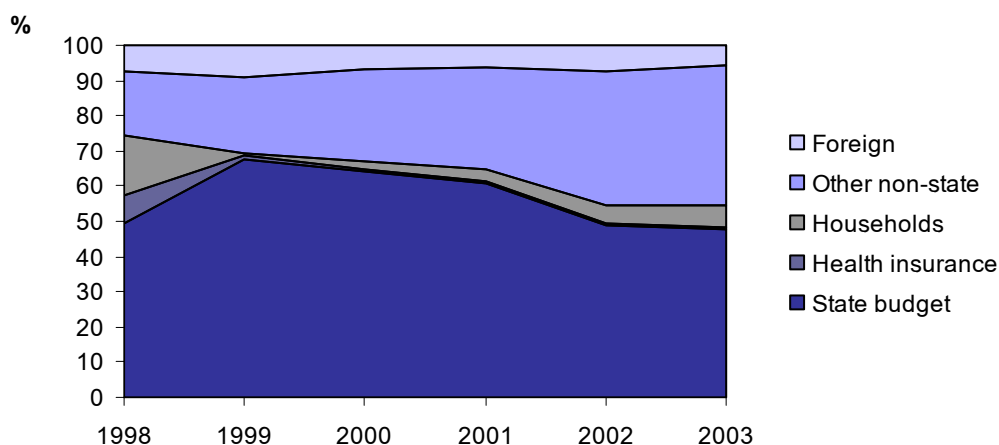
Source: National Health Accounts 1998-2003 [219]

**Table 15.10. Spending on investments by source, current prices 1998-2003**

	1998	1999	2000	2001	2002	2003
Investment spending (billion VND)	2625	2934	2557	4187	3834	4409
<b>Structure (%)</b>						
State budget	49.5	67.8	64.2	60.8	49.0	47.5
Health insurance	7.8	0.7	0.7	0.7	0.2	0.6
Households	17.1	1.1	2.2	3.0	5.3	6.2
Other non-state	18.4	21.4	26.1	29.5	38.2	40.3
Foreign	7.2	9.0	6.7	6.0	7.3	5.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: National Health Accounts 1998-2003 [219]

**Figure 15.5. Trends in investment spending, 1998-2003**



Source: See Table 15.10

**Table 15.11. State and ODA spending on investments, 2001-2005**

	2001	2002	2003	2004	2005 (planned)	Total for 5 years
Investment spending (billion VND)	1124	1384	1275	2365	3360	9508
Share of total State budget spending on health (%)	21.1	22.9	19.1	26.2	29.2	24.63

Note: Planned budget figure each year may differ from actual spending as presented in other tables of this chapter.

Source: Synthesis report on planned spending of the health sector from the Ministry of Finance, Ministry of Planning and Investment [227]

Investment spending shows a strongly increasing trend in total state budget and ODA. The amount of planned investment in 2005 was 3 times higher than the level in 2001. From the total state budget spent on health, the share spent on development investments increased from 21.1% in 2001 to 29.2% in 2005. From that investment capital, 80% comes from the state budget, and the remainder comes from ODA grants and loans. The growing trend in the share of investment spending from total state health spending represents an important step forward in the structure of state budget spending. In the pre-2000 period, the share of investment spending averaged less than 20%, including both purchase of equipment and construction, and the absolute amount of capital was still very low. Investing in the development of the health sector will help improve the quality of health services. However, investing in equipment also means that costs of maintenance and repair will increase, burdening recurrent expenditures.

### **Regular expenditures**

According to the National Health Accounts, recurrent spending accounted for 86% of aggregate health spending. The main funding source in 2003 was the household (63%), while the state budget accounted for only 18.5% and health insurance for 5.4%. Drugs accounted for 58% of total recurrent expenditures, and labor for 7%. However, analysis by source of funds shows that 50.8% of total recurrent spending from the state budget went to labor costs, while 73.8% of household recurrent spending went for drugs (Table 15.12, Table 15.13).

**Table 15.12. Recurrent spending by source of spending (current prices), 1998-2003**

	1998	1999	2000	2001	2002	2003
Recurrent spending (billion VND)	15 224	16 576	20 732	22 681	23 674	27 608
Structure (%)						
State budget	22.2	19.0	17.2	16.4	16.7	18.5
Health insurance	5.8	6.4	6.7	6.4	6.9	8.1
Household	67.9	68.3	70.2	68.6	64.9	62.9
Other non-state	2.2	3.9	3.7	6.5	8.6	8.2
Foreign	2.0	2.4	2.2	2.1	2.8	2.3
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: National Health Accounts 1998–2003 [219]

**Table 15.13. Recurrent spending from the state budget, 2001-2005**

	2001	2002	2003	2004	2005 (planned)	5 year total
Recurrent spending (billion VND)	4211	4656	5388	6676	8159	29 090
Proportion of total state health budget (%)	78.9	77.1	80.9	73.8	70.8	75.4

Note: Planned budget each year may differ from the actual final accounts of state spending in other tables.

Source: Synthesis of Ministry of Health reports on planned health spending, Ministry of Planning and Investment [227]

### 15.3.2. Geographic allocation of budget

As described above, the state budget is allocated to each locality based on norms, with some adjustments. The norm in disadvantaged areas is higher than in urban and delta regions. The budget for implementing target programs is allocated according to need, with poorer regions usually at greater risk for social diseases than richer areas. State investment spending is allocated according to the master plan.

The localities can also supplement the healthcare budgets from local budget revenues, which leads to differentials in public health spending because richer provinces have a larger budget and can allocate a higher share of their budgets to health than poorer provinces. Differentials in household health spending have increased substantially in the past few years because of differentials in the rate of economic growth between provinces and between urban and rural areas. The central budget has the role of adjusting between localities having budget shortfalls and those with budget surpluses, and according to a public expenditure review in 2005 this adjustment system is still quite passive and has not yet become a useful tool for reallocating resources to poorer regions [207].

Data in Table 15.14 indicates that per capita health spending from all sources, and in particular from public sources is still inequitably allocated across regions. More concretely, the poorer regions, eg, Northwest and Central Highlands, receive less than the better off regions of the Red River Delta and Mekong Delta.

**Table 15.14. Health spending per capita from public sources (state budget, ODA and social health insurance) by region, 2003**

	State budget, ODA and social health insurance (1000 VND)	Ratio to national average	Total health spending from all sources (1000 VND)	Ratio to national average
National average	108		396	
<b>Regional averages</b>				
Red River Delta	127	117.6	443	111.9
Northeast	137	126.9	322	81.3
Northwest	75	69.4	218	55.1
North Central Coast	77	71.3	280	70.7
South Central Coast	90	83.3	356	89.9
Central Highlands	71	65.7	290	73.2
Southeast	138	127.8	575	145.2
Mekong Delta	78	72.2	358	90.4

Source: National Health Accounts 1998-2003 [219]

The budget allocation mechanism for recurrent spending and for national target programs should, in principle, lead to increased spending in poor regions. However, because other budget lines receive allocations according to different mechanisms, eg, investment spending or adjustments for provinces with large regional or central level hospitals, the result is a regional allocation that does not yet ensure equity. Regions with the highest allocation are concentrated in developed regions such as the Red River Delta and Southeast. Poorer provinces must receive subsidies from the central budget and can only spend according to the minimum spending norms presented in the Ministry of Finance guidelines. However, better off provinces can spend much more because they have budget surpluses. Regions with a high level of investment, and hence greater ability to provide more services, can attract more resources from health insurance or patient user fees. This enables them to further increase average spending, contributing to greater regional disparities.

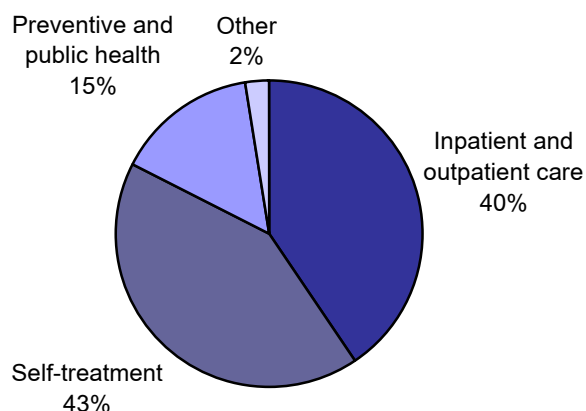
A sharp difference is found among regions, provinces, and districts. According to the report on health financing sources from the Planning and Finance Department of the Ministry of Health, the disparities in the annual average budget allocation per bed at the provincial level are wide. The hospital with the largest allocation receives 24 million VND per bed compared to the lowest that receives 14 to 15 million VND per bed. A similar situation exists at the district level where the hospital with the highest allocation receives 21 million VND and the lowest receives only 10 million VND per bed per year [234].

The state has strengthened investments in grassroots health care. In only 3 years, the gap decreased from 2.5 times between the highest and lowest regions in 2001 to 1.9 times in 2002 and to 1.94 times in 2003 [219]. From 2004, the situation continues to improve through major government investment projects in grassroots health care. The Health Care Fund for the Poor has also had a positive impact on increasing equity as regards health insurance across regions since the share of the population insured has increased in poor regions.

### 15.3.3. State budget spending by type of activity

In 2003, spending on preventive care and public health accounted for 15% of aggregate health spending of society. Inpatient and outpatient care accounted for 40% and self-treatment for 43% of the total. Other spending items accounted for only 2% of total health spending of society.

**Figure 15.6. Structure of aggregate health spending of society by type of health activity, 2003**



Source: National Health Accounts 1998-2003 [219]

In the structure of state health spending, curative care accounts for 60%, preventive care accounts for 25% to 28% as national target programs have been strengthened, and spending on other health activities (eg, family planning, maternal and child health) account for 12% to 25%. The percentages differ depending on government administrative level. From the central budget, curative care accounts for 40% and prevention accounts for 56% to 57% (the central budget covers all spending on the national target program for the prevention of social disease, dangerous epidemics, and HIV/AIDS). From the local budget, 70% is spent on curative care, with prevention accounting for only about 15%, and the remainder goes to other local health activities, eg, payments for the national committee for population, family, and children, counterpart funds for ODA projects, and commune level services.

In comparison with the 1991-2000 period, the share spent on curative care has declined by 5%, while the share spent on preventive care has increased at least 10% in the structure of total state health spending. The share of the budget spent at the central level has also



declined 5% compared to the total state budget. The health sector has implemented the state health financing policy of increasing public spending on preventive care and grassroots level care (Table 15.15).

**Table 15.15. Structure of health activities from state budget spending for the period 2001-2003**

Unit: %

	2001			2002			2003		
	Overall	Central	Local	Overall	Central	Local	Overall	Central	Local
Curative	60.2	42.1	68.5	62.8	42.1	70.4	57.8	40.9	63.8
Preventive	28.1	57.3	14.9	25.9	56.3	14.7	26.5	57.3	15.6
Other	11.7	0.6	16.6	11.3	1.6	14.9	15.7	1.8	20.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Synthesis of Ministry of Finance reports on planned health spending, Ministry of Planning and Investment [227]

### ***Spending on health personnel***

An increasing trend can be seen for personnel (salary, allowances, bonuses) as a share of total health spending, from 10% to 15% in 1991-1992, to 20% to 25% in 1996-2000, to 30% to 35% in recent years. The main reason is that the state has increased minimum wages (from 120 000 VND to 450 000 VND per month) and adjusted the allowances for health workers; at the same time the amount spent on bonuses has also increased substantially as user fee and health insurance revenues have continued to increase.

### ***Spending on drugs and materials***

Spending on drugs, blood, and other materials at public health facilities has declined slightly as a share of total spending, mainly due to increasing shares of other items. Nevertheless, the situation of patients purchasing drugs and materials outside of health facilities while being treated at public facilities is still widespread even though the Ministry of Health has instructed health facilities to ensure adequate drugs and materials to serve their inpatient care needs. At the grassroots level, commune health stations, according to regulations, are supposed to be guaranteed at least 10 million VND in the recurrent spending budget per year, however in practice many localities do not ensure this minimum level.

### ***Spending on maintenance and repair of facilities***

Because the health budgets are not guaranteed to be adequate, most localities reserve a substantial share of their budgets for treatment and salaries, limiting the amount of resources to ensure other essential costs, eg, preventive health, preventing epidemics, purchasing equipment, repairing assets, or basic construction.

## **15.4. Health Care for the Poor, Children, and the Elderly**

In the past 5 years, the government has been developing policies aimed to ensure the right to health care for the poor, children under 6 years of age, and the elderly. The nature of these policies follows the social mobilization policy of shifting state subsidies from healthcare providers to the users of health services. This section describes the policies and their preliminary results.

### ***15.4.1 Health care for the poor***

Health care for the poor has been a focus of health financing policy in recent years. The State has issued many policies aimed at guaranteeing equity in health care for the poor and

people living in disadvantaged regions. The latest policy, Decision 139 by the Prime Minister (October 15, 2002), which established the healthcare fund for the poor (HCFP), has created a stable source of financing to implement health services for the poor. These policies and solutions to provide health care to the poor can be divided into 3 main types [194].

First are policies and solutions that focus mainly on resolving priority health problems of the poor and poor regions, especially communicable disease, parasitic disease, and malnutrition, and strengthening investment in preventive health care and prevention of epidemics.

Second are policies and solutions aimed at strengthening the availability and quality of services at public health facilities (especially at the grassroots level) to improve accessibility of the poor to health facilities. Policies on salary, allowances, and social insurance for health workers (especially at the commune level) and policies intending to guarantee a minimum budget for recurrent spending at commune health stations, investments in commune health stations, upgrading district hospitals, advocating for a doctor in every commune, and strengthening the grassroots health network by establishing benchmarks are serving the population's increasing needs for health care. The grassroots health network provides about 80% of health services, especially to the poor and people in remote and disadvantaged areas [194].

Third are the policies and solutions and basic methods to assist the poor and poor regions in covering the costs for health care. Decision 139/2002/QĐ-TTg was an important leap forward in ensuring health care for the poor and overcoming deficiencies in older policies. Policies to assist the poor prior to Decision 139 contributed to helping the poor gain access to health services. However, the effects were limited because of inadequate funding allocated for implementing these policies. According to results of the VHLSS 2002, only around 29% of poor households had obtained health insurance or free healthcare cards for the poor according to Circular No 5 in 1999. The number with cards was equivalent to 1.5 million people, out of 4.5 million people considered eligible due to poverty [194].

Decision 139 determined a concrete source of financing (mainly from the state budget), guaranteeing the ability to implement the policy on health care for the poor. This decision basically replaced all previous decisions and decrees on health care for the poor and for poor regions. Also, it increased the level of assistance, expanded the number of eligible beneficiaries, and assisted in providing health services to the poor at the commune level, the level closest to the people [194].

As Decision 139 was issued, the number of poor people eligible for healthcare assistance had increased substantially. In 2003, about 17% of the national population, ie, 13.5 million people, were eligible [235], of which 3.7 million were provided free health insurance cards and the remainder were assisted through direct reimbursement to facilities for the care they were provided. By 2005, with the increase in the poverty threshold the number had increased to 14.3 million people, of which 4.4 million had been issued health insurance cards. Total spending for the HCFP increased steadily from 224.9 billion VND in 2003 to 664.3 billion VND in 2005, with average spending per beneficiary in 2005 at about 43 2000 VND (Table 15.16).

**Table 15.16. Selected basic indicators on implementing Decision 139, 2003-2005**

	2003	2004	2005
Number of beneficiaries (million people)	13.5	13.1	14.3
Number with health insurance (million cards)	3.7	3.9	4.4
Spending on inpatient care (billion VND)	..	216.3	465.4
Spending on outpatient care (billion VND)	..	185.8	277.3
Spending from fund (billion VND)	224.9	402.1	618.4
Average spending per beneficiary (thousand VND)	16.7	30.7	43.2

Note: Spending from the fund includes purchase of health insurance card, direct reimbursement to facilities, purchase of beneficiaries outside of the 3 main target groups of Decision 139, and administrative costs. Spending on inpatient and outpatient care may be higher than total spent from the Health Care Fund for the Poor (HCFP) as funds could be taken from the health insurance fund to reimburse facilities used by the poor.

Source: Planning and Finance Department of the Ministry of Health, Reports on implementing Decision 139 from the provinces, 2003, 2004, and 2005 [235]

Beneficiaries eligible for Decision 139 are concentrated in the poor regions. About 68% of the population of the Northwest and 62% of the Central Highlands are eligible for Decision 139 benefits. According to reports from the provinces on implementing Decision 139, the 2005 budget for the Health Care Fund for the Poor was much higher per capita in poor regions (Northwest and Central Highlands) than in richer regions, reflecting the fact that poor regions have a higher share of their population eligible for Decision 139. However, when examining the amount of the Health Care Fund for the Poor per eligible beneficiary, the amount in poor areas is lower than in better off areas (Table 15.17).

**Table 15.17. Selected indicators on allocating funds for health care of the poor, 2005**

	Population (1000 people)	Proportion of population eligible for Decision 139 (%)	Total budget of healthcare fund for the poor 2005 (billion VND)	Funds per capita (VND)	Funds per eligible beneficiary (VND)
Red River Delta	18 040	4.1	48	2 643	64 760
Northeast	9 358	24.6	163	17 465	71 134
Northwest	2 566	67.9	63	24 705	36 369
North Central Coast	10 620	19.2	107	10 061	52 280
South Central Coast	7 050	13.3	75	10 658	80 024
Central Highlands	4 759	62.3	122	25 603	41 127
Southeast	13 460	8.9	58	4 281	48 031
Mekong Delta	17 268	14.0	138	7 975	56 912
<b>Total</b>	<b>83 120</b>	<b>17.3</b>	<b>774</b>	<b>9 308</b>	<b>53 946</b>

Source: Reports from the provinces on implementing Decision 139 in 2005 [235]

Currently there is no comprehensive study on the impact of Decision 139 on the poor households. Nevertheless, a small study in Hai Duong and Bac Giang [189] indicated that implementing the Healthcare Fund for the Poor has increased access to, and the proportion of poor people utilizing, health services. The Health Policy Unit of the Planning and Finance Department of the Ministry of Health is implementing an impact evaluation of Decision 139 covering the whole country and based on data from the 2002 and 2004 VHLSS, which can easily be updated when the 2006 survey results are disseminated.

Although the policy has shown some positive results, Decision 139 still requires adjustments to resolve problems arising during implementation.

Disagreements have surfaced about who should be the eligible beneficiaries, and there are plans to drop the better off households in Program 135 communes and among ethnic minorities, but to include the near poor ethnic minorities in provinces besides those already stipulated in Decisions 168 and 186 according to Decision 139. In addition to assistance for health care of the poor, there is a need to assist the near poor (only 10.6% of whom have health insurance coverage) who also face economic difficulties in accessing health services [236]. The solution of voluntary health insurance for this group has not yet succeeded, even in cases where the state has provided substantial subsidies to the health insurance contributions.

A low proportion of the poor use their cards when seeking care. The most common reason given is that people do not yet understand the benefits and how to use their cards. Other studies have shown that indirect costs are an important barrier to access. Decision 63/2005/ND-CP (2005) stipulates that when people covered by health insurance for the poor are referred, they should receive assistance with transportation costs. However, some provinces have found reimbursement difficult because people do not always have the receipts required by the policy.

Other problems concern the implementation of partial assistance for payment of user fees for people (without healthcare cards) who suddenly face high medical charges. Since Decision 139 gives no concrete guidelines on how to implement this, many provinces are reluctant to implement assistance for this beneficiary group, while others lack the resources to mobilize sufficient funds. In fact, many poor people or people facing financial hardship have not been issued a healthcare card for the poor although they need assistance when ill, eg, people who have migrated and do not have permanent registration, or people working in seasonal jobs in other regions.

The amount contributed per card is low compared to what is needed to pay for health care. In 2005, the amount contributed per card was only 50 000 VND per person per year while the actual amount reimbursed to health facilities per card was 81 000 VND. In 2006, the amount contributed per card was increased to 60 000 VND, but clearly this level is inadequate. Also, if this situation is prolonged it could affect the viability of the health insurance fund.

Other difficulties that can be noted include slow implementation of the policy in many localities, eg, slow distribution of the cards, onerous procedures and paperwork related to managing use of the cards, leading to hassles for the people. Sectors in each locality still do not collaborate closely, and some local staff do not follow the spirit of the policy and do not fulfill their responsibilities. This leads to delays in issuing cards. At the grassroots level, workers are not trained in the financial procedures so reconciliation of accounts is slow. In addition, the ability to access health services is limited due to lack of some services and weaknesses in both medical and financial knowledge of providers. Public-private pharmaceutical systems are weak, and some areas lack essential drugs. Commune health stations in some localities are not open according to required hours, and some staff exhibit poor attitudes, which also hinder access to care.

Supervision has focused primarily on checking the total amount charged per patient and checking on the appropriate paperwork for reimbursement rather than checking on the many implementation steps from selection of beneficiaries to ensuring appropriate provision of services. This approach is likely to have a negative impact. Initiating social insurance payment for transportation costs should make referrals easier and more appropriate. However, the management and supervision of the health insurance agency needs to improve, especially at the commune level [237].

#### **15.4.2. Exemptions in healthcare costs for children under 6 years of age**

Children younger than 6 years are a priority of the health sector because health care for children is considered an investment in the socioeconomic development of the country. In allocating the budget for preventive health, the state prioritizes programs that primarily benefit children, eg, the expanded program on immunization (EPI), iodine deficiency disorders, vitamin A, control of diarrheal disease, and control of acute respiratory infection. In addition,

the partial user fee policy established in 1989 exempts children under 6 years of age from paying user fees. This exemption is intended to facilitate access to health care for children. However, as with the initial assistance for health care for the poor, implementation of this policy was hindered by lack of a guaranteed source of funding.

In 2005, when the Law on Protection, Care, and Education of Children came into effect, the state began to issue regulations requiring a guaranteed source of funds for health care for children under 6 years of age. According to these regulations, the state will issue a healthcare card to children, allowing them to receive free health care at government health facilities. The government directly reimburses the costs to the facility. State health facilities are responsible for providing health care for children younger than 6 years. In contrast to previous regulations, this new policy guaranteed funds for implementation, including the case when the total cost of providing services exceeded the initial budget allocation. For disadvantaged provinces, the central budget provides assistance according to stipulations in the State Budget Law to ensure sufficient funds for health care of children under 6 years of age.

In 2005, the government allocated 782 billion VND to implement free health care for children. Nevertheless, implementation based on the direct reimbursement arrangement has generated problems similar to those found with providing free health care to the poor. In addition, other problems have arisen, eg, regulations on payment for care of people bypassing the appropriate level of care, or not going to their local health facility. Health facilities are not allowed to use these funds to pay additional salary to staff as is possible with user fees and health insurance revenues. Hence, it is difficult to attract doctors to work in pediatrics [238]. The Ministry of Health and Ministry of Finance have requested the Government to allow them to use the funds to purchase health insurance for children younger than 6 years to facilitate implementation of this policy.

#### **15.4.3. Free health insurance for the elderly**

Ordinance No 23/2000/PL-UBTVQH10 of the Standing Committee of the National Assembly, session 10 (April 28, 2000), on the elderly stipulates that primary healthcare services should be provided to the elderly where they reside. Commune health stations are responsible to monitor, manage, and directly provide health services and organize regular checkups for the elderly appropriate to the conditions in the locality. Local budgets are to fund these services. In 2002, the state stipulated that health insurance cards should be provided to the elderly aged 100 and older. However, in 2003, the state lowered the age limit to 90 years and older. Funds for purchasing health insurance are to come from the local budgets.

Among the elderly, some are already covered by policies providing assistance to state political beneficiaries, pensioners, or the poor paid through the state budget or social insurance. Some elderly have purchased voluntary health insurance through arrangements with the Association of the Elderly. Overall, only 25% of all people aged 55 years and older and 27% of people aged 90 years and older have some kind of insurance (Table 15.18). This leaves a large share of elderly people without any health insurance coverage. In absolute numbers, an estimated 128 000 elderly people aged 90 and older did not have health insurance in 2004.

**Table 15.18. Proportion of elderly with health insurance, 2004**

Unit: %

Age group	Compulsory health insurance (pensioners)	Health insurance for political beneficiaries	Health insurance for the poor	Voluntary health insurance	Any health insurance	No health insurance	Total
55-64 years	7.3	13.6	4.2	3.0	28.1	71.9	100.0
65-89 years	2.1	12.6	6.6	2.0	23.2	76.8	100.0
90 and older	1.3	14.3	7.6	4.0	27.3	72.7	100.0
Overall aged 55 years and older	4.4	13.1	5.5	2.5	25.4	74.6	100.0

Source: VHLSS 2004 [92]

Recently, the Ministry of Health has begun policy research on healthcare assistance for the elderly [238]. In addition to providing funding for direct provision of health care for the elderly, it is also important to invest in training, research, and equipment for health facilities appropriate to the need for geriatric health care and to invest more actively in preventive health care related to diseases commonly affecting the elderly.

### 15.5. Encouraging Financial Autonomy

The Government issued Decision 10/2002/ND-CP (January 16, 2002) on the financial mechanism to be applied to fee collecting units of the government. After Inter-ministerial Circular No 13 of the Ministry of Health, Ministry of Finance, and Ministry of Home Affairs was issued in 2004, the health sector began serious implementation of policies encouraging greater financial autonomy of health facilities. By the end of 2005, more than 600 healthcare units had been authorized to implement Decree 10.

**Table 15.19. Progress in authorizing financial autonomy for local health facilities, 2002-2005**

Unit: %

	Cumulative number of facilities			
	2002	2003	2004	2005
Overall	14.7	24.6	43.0	46.2
Provincial general hospital	26.1	39.1	63.0	66.3
Specialized hospital	18.6	25.6	43.2	44.7
Regional general hospital	3.7	13.0	33.4	39.0
District hospital	16.5	25.6	41.2	45.0
Preventive care facility	7.9	18.7	41.2	44.1

Source: Synthesis report on implementation of Decree 10, Planning and Finance Department of the Ministry of Health, 2006 [239]

Progress in authorizing implementation of financial autonomy varies and depends on the type of facility. Provincial general hospitals were among the first facilities implementing this policy, while regional general hospitals report the slowest progress (Table 15.19). Implementation also varies substantially across regions (Table 15.20). The Red River Delta has implemented the policy the most rapidly, with 69% of facilities authorized for financial autonomy by 2005 compared to the poorer regions, eg, the Central Highlands with only 11% and the South Central Coast with only 27.3% of all units authorized.

**Table 15.20. Proportion of local healthcare units authorized to implement Decree 10 by the end of 2005**

Unit: %

	Provincial	District	Overall
Overall	49.6	45.0	46.6
Red River Delta	57.7	76.4	68.6
Northeast	50.7	49.5	50.0
Northwest	33.3	36.7	35.3
North Central Coast	66.7	54.9	58.3
South Central Coast	42.3	21.0	27.3
Central Highlands	16.7	8.3	10.6
Southeast	48.1	55.7	52.7
Mekong Delta	47.9	25.7	32.5

Source: Synthesis report on implementation of Decree 10, Planning and Finance Department of the Ministry of Health, 2006 [239]

In contrast to the previous financial management mechanism, Decree 10 reflects many important changes. First, fee-collecting units can actively allocate resources for implementing the tasks assigned to them. However, norms on labor costs according to state salary scales must continue to be applied. Second, Decree 10 encourages units to increase revenues, save resources, and reduce staffing to facilitate increasing incomes of their staff while ensuring completion of the tasks assigned to them. Concurrently, the units must fulfill state budget obligations and base their decisions on actual financial outcomes each year. The head of each unit can decide on performance-based salary and wages based on the quality and effectiveness of the work. The basic principle is that people with greater achievements, greater contributions to increasing revenues or savings, and greater efficiency in their work should receive higher incomes. Nevertheless, when the state adjusts regulations on salary, increases minimum wage, or changes norms, perquisites, standards of state budget spending, fee-collecting units must cover the additional costs resulting from these policy changes.

Third, Decree 10 also facilitates the expansion and upgrading of the quality of fee-collecting units, and reorganizing the delivery of services. According to Decree 10, fee-collecting units have the right to borrow from banks or development funds. To recover the capital, depreciation reserves should be kept from fixed assets used for providing services. The amount of depreciation on fixed assets and money acquired through liquidating assets acquired through state budget funds may be kept by the unit to invest in strengthening physical facilities and modernizing equipment.

Implementing Decree 10 has helped health facilities take the initiative in administering, managing, and using their budgets. This has encouraged health facilities to expand the provision of “elective” health services, develop and more widely utilize high technology to improve the quality of curative care services, while increasing the revenues of hospitals. Health facilities implementing Decree 10 have found many ways to save resources and use them more efficiently. Nearly all savings are a result of reorganizing the bureaucracy and reducing administrative costs. On the basis of resources saved and increased revenues, healthcare units have been able to increase incomes of their staff while still completing the work they have been assigned.

For example, Saint Paul Hospital in Hanoi, with 460 hospital beds began to implement Decree 10 in October 2002. The state budget allocation to the hospital remained constant since 2001, but its total resources increased by 27 billion VND (86% increase) in 2 years. Approximately 15% of this increase was from normal user fee revenues and payments from health insurance. The remainder was due to a 350% increase in revenues from “special services”, ie, “elective” curative care services with much higher quality of care. To improve its quality and image, the hospital invested in a hospital waste disposal system, hired security staff, upgraded its old physical facilities, built an additional ward with new rooms, and gave staff additional training. Resources to pay for these investment activities were mobilized from multiple sources, eg, borrowing from hospital staff, hospital revenues, ODA, and the state budget. Another example is the Thong Nhat hospital in Dong Nai province, which implemented Decree 10 according to the model of expanding and improving the quality of health services. The hospital expanded ambulance services, hired a security team to guard the facility, and mobilized capital from staff to invest in a CT scanner to enhance diagnosis and treatment, especially for intracranial injuries.

Results of implementing Decree 10 have generated some problems. Decree 10 laid out many new incentives for facility administrators in an external environment that has hardly changed. With its strong focus on the gap between revenues and expenditures in health facilities, Decree 10 created strong motivation for facility administrators to operate like private hospitals, not like state health facilities.

Many shortcomings remain as regards the implementation of Decree 10 in health facilities. Facilities have been given greater autonomy only in financial matters, not with regard to staffing, and organization. Hence, they have been unable to fully capitalize on the greater managerial freedom intended by the policy. The starting point for stable state budget contributions to facilities is quite low, especially for district hospitals and in mountainous areas. In addition, budget allocations have not considered the growing tasks assigned to these facilities subsequent to the policy change. The user fee policy has not yet been supplemented or adjusted. Hospitals must cover their full costs if the state adjusts salaries or other spending norms, which is not feasible in many cases. In trying to mobilize resources, facilities have not been given concrete regulations on assets to be used for collateral or how to pay interest on loans. In addition, the state treasury measures for controlling costs remain inappropriate for this new autonomy. Leadership in implementing this policy has not been decisive, and administrators in many facilities have inadequate management skills to deal with the new requirements. Another issue of great concern in implementing Decree 10 is the inappropriate overutilization of expensive drugs and high-tech services which are not really necessary for diagnosis and treatment, but serve only to increase hospital revenues.

In 2006, the Government issued Decree 43/2006/ND-CP on the right to autonomy and responsibility for implementing the tasks assigned and organizing work, personnel, and finances for public, fee-collecting facilities. By August 2006, the Ministry of Finance had issued Circular 71/2006/TT-BTC guiding implementation of Decree 43. Decree 43 expands the rights and responsibilities of public fee-collecting service units, overcoming some shortcomings of Decree 10. The most noteworthy change relates to improving staff incomes. According to Decree 43, units are allowed to pay extra to staff only after the unit has paid all other costs, taxes, and other contributions according to regulations, if revenues exceed expenditures, and after placing 25% of the profits into the development fund. According to Decree 10, units were allowed to take funds to improve incomes directly from user fee revenues prior to paying other expenses. However, the new policy allows units to increase incomes of staff up to 3 times the total salary fund according to government salary scales of that year, compared to only 2 times basic salaries as stipulated in Decree 10.

Another important change relates to the way additional investment funds can be mobilized. According to Decree 43, units are allowed to use their assets to establish joint ventures or other partnerships, or to contribute to joint ventures with organizations or individuals in Vietnam, or from overseas to invest in building or purchasing equipment to provide services appropriate to the functions and tasks of each unit according to current government regulations.

## **15.6. Conclusion**

After 2005, with the high economic growth of 8% to 8.5% per year, investment flowing into the health sector may increase by more than 10% per year. state budget spending on health care will be equal to or higher than the general economic growth, especially investments concentrated in construction, according to Party and Government pronouncements. Investments from outside of the state budget will increase strongly, mainly for curative care.

After this period, strong growth in the economy will depend on both objective and subjective factors. If conditions are favorable and the economy continues to grow, the national budget will continue to see a high growth rate of revenues. Then, the health budget will be able to allocate large, concentrated sums of funding for priority tasks, eg, investments in construction, purchase of equipment, payment of health workers at the grassroots level including village health workers, and increased spending on national target programs.

The main contents of building health financing policy in the next 5 to 10 years will focus on studying how to improve financial mechanisms on user fees, health insurance, and social mobilization of health activities to supplement resources from the state budget, and expand



the private healthcare services network to share the burden with the public healthcare system. Moreover, the health sector will need to complete the mechanism for drafting budgets in close combination with building long-term strategies, short-term plans, and reducing waste while progressively increasing equity in the use of resources invested in the health sector.

### **15.3.2. Overall orientation**

Renovate and revise health financing policies oriented toward strongly increasing the share of public financial resources (including the state budget and health insurance), and gradually reduce direct payments from patients.

Prioritize investing to upgrade health facilities, with priority on strengthening and reforming the grassroots healthcare network, preventive health, and provincial and district general hospitals. The state guarantees funds for people with meritorious service to the nation, the poor, children under 6 years of age, and other social policy beneficiaries.

Develop and effectively implement policies to reach universal health insurance coverage by 2010. Diversify forms of health insurance, paying close attention to community based health insurance, mobilize financial resources from the state budget, ODA, charity funds, community funds, and poverty reduction funds to assist people in poverty, living in rural, mountainous, and remote areas to participate in appropriate health insurance mechanisms.

Develop and implement appropriate user fee policies on the basis of full cost accounting of direct costs for serving the patient. The state has an assistance policy to help people with low incomes, or those in difficult circumstances [240].

### **15.3.3. Basic solutions**

A range of basic solutions have been proposed to use financial resources more efficiently in providing health care to the population and according to the principle of equity in access to health services:

- Gradually increase state investment in developing the public healthcare system, strive by the year 2010 for the state budget (tax based and ODA) to guarantee 60% of public health spending needs, with the remaining 40% to come from user fees and health insurance. Recurrent spending should reach 10% to 12% of the annual state budget by 2010. Increase levels of spending on investments and scientific research in the health sector.
- Invest in upgrading the grassroots healthcare network to meet national standards according to Directive 06 CT-TW of the Central Executive Committee of the Vietnamese Communist Party.
- Revise the financial management mechanisms, moving toward decentralization, strengthening initiative taking, financial autonomy of units, and, above all, making administrators of health facilities accountable for the activities of their unit.
- Research how to improve budget allocation mechanisms directed at linking allocations to performance in providing services to the population and creating appropriate revenue sources to increase the operating budgets of health facilities.
- Complete policies on user fees and health insurance oriented toward gradually increasing the share of health insurance in the structure of revenues, supplementing state budget revenues for curative care. The user fee mechanism must encourage patients to use grassroots health care services. Voluntary health insurance coverage must expand on the basis of health insurance for families.

- Create an appropriate plan for implementing financial autonomy in public hospitals. In the near future, only apply the policy at central and provincial hospitals and other health facilities with stable and substantial revenues.
- Manage finances through the health sector in each province. Collaborate with relevant authorities to promptly organize and complete the model for financial management of the health sector at the provincial level with short-term and long-term solutions. Contribute to focused management of health financing resources, linking healthcare logistics with high-level direction and administration of healthcare activities across the entire healthcare sector at both the central and local levels.
- Study the budget adjustment mechanism in units directly under the Ministry of Health and units run by other sectors in local areas. Priority should be given to allocating resource to units with little or no revenues to reduce differentials in financial resources for health activities between units and regions.
- Study the social mobilization policy for healthcare activities, especially mobilization of financial resources to supplement current resources available for the health sector, including public healthcare system, semi-public, and private sectors.
- Encourage the development of private healthcare facilities, hospitals with 100% foreign investment to expand the healthcare service network and share the burden of the state healthcare network.
- Complete the mechanism for drafting healthcare budgets in close collaboration with developing the long-term strategies, short-term plans, attempting to minimize waste and fraud, and progressively increase equity in utilization of investment resources of the health sector.
- Establish a system of investment and financial indicators to monitor and evaluate changes and occurrence of problems during implementation of health policies at the central and regional levels.

## Chapter 16

### HEALTH INSURANCE

The vision of “development of universal social health insurance coverage, with the aim to gradually achieve healthcare equity, in which the healthy subsidize the sick, the rich subsidize the poor, the working age people subsidize children and the elderly, and equity is achieved in compensation to health workers” was reaffirmed in the latest Party document on the care, protection, and promotion of the people’s health (Resolution 46-NQ/TW of the Politburo). Social health insurance is continuing to expand coverage, while at the same time having to face difficulties with the sustainability of the health insurance fund. Quality of care of health services for people participating in health insurance also needs to be ensured to attract more people to participate in social health insurance and retain those who are already contributing.

By 2006, after more than 14 years of implementation, social health insurance has achieved coverage of 36% of the population and revenue from health insurance has become one of the most important funding sources for health care in Vietnam. Since the first health insurance regulations were issued in 1992, many decrees and implementing circulars have been issued aiming to revise and adjust the health insurance policy, showing the great effort of the government in development of health insurance, while also indicating the many difficulties and challenges in the process of operating a health insurance policy in Vietnam’s socioeconomic context and in the context of a developing health system.

#### 16.1. Development of Health Insurance Policies from 2000 to 2006

The first health insurance regulations were issued in 1992 with Decree 299/HĐBT and updated by Decree 58/1998/NĐ-CP. The 2000-2006 period witnessed changes affecting various aspects of health insurance, including Decree 63/2005/NĐ-CP in 2005, promulgating new health insurance regulations. The Ministry of Health together with other related agencies is currently developing the Health Insurance Law and the National Assembly is discussing the draft law. The following sections focus on major changes in social health insurance policies from 2000 to 2006.

##### 16.1.1. Health insurance coverage

From 2000 to 2006, several population groups have been covered under the social health insurance program, based on regulations beyond the health insurance regulations, eg, Decision 139/2002/QĐ-TTg (established the Health Care Fund for the Poor) and the Ordinance on Health Care for the elderly. New groups subject to the compulsory scheme are defined in the new health insurance regulation issued with Decree 63/2005/NĐ-CP, and include the following:

- Salaried workers of non state-owned enterprises with less than 10 employees
- Salaried workers of cooperatives established and run under the Law on Cooperatives
- Health staff of commune health stations
- Salaried workers in kindergarten and preschool education centers
- Salaried workers in private and semi-public enterprises of the sectors such as culture, health, education, science, sports, and other service branches
- Salaried workers in other forms of organizations having employees

- Veterans and their dependants who suffer from toxic chemicals used in the VN-US war and who are currently registered as beneficiaries of social welfare from government budget
- Retired civil servants who previously served at the commune level and currently receive a pension from the government budget
- Dependants of army and public security workforces
- The elderly aged 90 years and older
- The poor
- Foreign students studying in Vietnam with scholarships from the Vietnamese government.

Some key policy changes regarding enrollment in the compulsory scheme include:

- Implementing health care for the poor through government purchase of social health insurance for the poor, replacing direct reimbursement schemes of the past.
- Implementing compulsory health insurance enrollment for all wage workers in cooperatives and enterprises established under current law, including small household enterprises, with no minimum threshold for number of employees in the enterprise.

The target groups have high potential in terms of both participation and financial contribution, with considerable impact on equitable access and use of insured health services.

#### **16.1.2. Voluntary health insurance scheme**

In 2003, after 5 years of preparation, the Ministry of Health and Ministry of Finance issued an Inter-ministerial Circular guiding implementation of the voluntary social health insurance scheme (Inter-ministerial Circular 77/2003/TTLT-BYT-BTC) under Decree 58/1998/ND-CP. This supported the development of the voluntary scheme in 2003 and 2004. In 2005, Decree 63 issued social insurance regulations allowing use of the compulsory health insurance fund to cover medical costs of participants in the voluntary scheme if the voluntary scheme fund went into deficit. Policies continued to encourage expansion of groups able to participate in voluntary social health insurance, but did not specify solutions to ensure sustainability of the voluntary scheme.

Instructions on implementing the voluntary scheme included two important points related to participants and sustainability of the fund. Circular 22 (2005) specified that at least 10% of all households in the community and at least 10% of all students in schools and colleges/universities must participate. In the voluntary scheme for members of associations and mass organizations, the minimum participation rate must be 30% of members of the association. Minimum participation of dependents of workers with compulsory health insurance or dependents of members of associations and mass organizations with voluntary insurance is 100% of family members, with no minimum set at the larger scale (ie, commune/ward, town, association).

#### **16.1.3. Contribution amounts**

Requirements for the contribution rate for the compulsory insured has not changed compared to the social health insurance regulations issued under Decree 58/1998/ND-CP. The absolute value of the contribution automatically increases with the minimum wage. However, the contribution per participant in the voluntary scheme, or among the poor, is set as a fixed amount. Hence, it is necessary to stipulate the increase in these fixed contributions when costs of health care increase.

The fund contribution is set at 50 000 VND per beneficiary for health insurance for the poor (Decision 139/2002/QĐ-TTg) and for the elderly aged 90 and older (Circular 24/2003/TT-BLĐTBXH). Circular 22/2005/TTLT-BYT-BTC, guiding voluntary health insurance, increased the contribution, with the minimum set at 30 000 VND and the highest contribution capped at 160 000 VND depending on the type of health insurance members and whether they live in urban or rural areas.

#### **16.1.4. Benefit package**

Health insurance regulations presented in Decree 63 and Circulars 21 and 22 introduced major changes with respect to the benefit package:

- The 20% copayment was eliminated for all membership categories
- The maximum possible reimbursement for medical costs is capped at 20 million VND. And patients must pay the amount exceeding this cap for expensive, high-tech services. Co-insurance payment are required for insurance holders for the amount between 7 and 20 million VND, (except certain priority groups)
- The poor and certain other groups who participate in social health insurance are reimbursed for needed medical transportation
- Insured patients are covered for treatment costs related to traffic accidents.

Besides the changes in the benefit package above, the major drug list has been updated and appended, adding many new drugs to the coverage package in 2001, 2002, and 2005, thus adding to the benefit package of the insured. In 2005, the Minister of Health issued Decision 36/2005/QĐ-BYT on the list of expensive, high-tech services to be covered by insurance, adding 177 services to the total number of services reimbursed by the health insurance fund.

#### **16.1.5. Reimbursement mechanism**

The reimbursement mechanism including cost-control measures can strongly impact on the sustainability of the health insurance fund and on the medical services health facilities choose to provide.

Since 2000, the reimbursement mechanism for compulsory and voluntary insurance has been primarily fee-for-service with a cap. Decree 63 explicitly allowed for capitation and diagnostic related groups (DRGs) as alternative reimbursement mechanisms. Implementing Circular No 21 (2005) provided detailed guidance on capped fee-for-service and capitation mechanisms for payment between the health insurance fund and health facilities. Currently, the Ministry of Health is researching a case-based payment mechanism to further expand the choices. Decree 63 also facilitated flexibility in use of health insurance funds by no longer specifying the share of the fund to be used for inpatient and outpatient care.

#### **16.1.6. Implementation**

At the outset, social health insurance was under the management of the Ministry of Health, but since 2003 it has been merged with Vietnam Social Insurance. Hence, the health insurance fund shares a centralized and uniform management mechanism with the pension fund. The decentralized mechanism was replaced by centralized management in compliance with Government Decree No 100 (2002), which defines the functions, responsibilities, and organizational structure of the Vietnam Social Insurance Agency. Vietnam Social Insurance is responsible for implementing all social insurance policies including health insurance and management of the health insurance fund.

In 2005, the Prime Minister issued Decision 196, which established a Department of Health Insurance in the Ministry of Health. This Decision was accompanied by Decision 27, which specifies the functions, responsibilities, and organization of the new department. The main function of the Department of Health Insurance is to assist the Minister of Health in state management of health insurance. Specific responsibilities include:

Development and revision of statutes and regulations in the area of health insurance; development of strategies, master plans, plans for the development of health insurance; establishment of technical standards and lists of drugs and services to be reimbursed from the health insurance fund; participate in developing methods to control costs of health care and methods to ensure quality of care for the insured; guide, direct, and organize the implementation of regulations on health insurance; take the lead in checking, inspecting, monitoring, and assessing activities in the area of health insurance; organize the implementation of scientific studies and international cooperation in the area of health insurance.

The Department of Health Insurance currently plays a key role in drafting the first health insurance law, which is expected to be submitted to the National Assembly by the end of 2007.

### **16.1.7. Commercial health insurance**

In 2000, the National Assembly promulgated the Law on Insurance Business. The law allows selling of commercial health and accident insurance for profit. In commercial health insurance, the basis for insurance reimbursement is the cost of diagnosis, treatment, and rehabilitation of the insured resulting from illness or accidents.

As stipulated in the law, insurance enterprises are allowed to sell health and accident insurance as a rider on life insurance. This law has created favorable conditions for commercial health insurance to develop.

## **16.2. Toward Universal Coverage**

Over the past 5 years, health insurance coverage has continued to expand (Table 16.1). By the end of June 2006, it was estimated that 30.5 million people (37%) were enrolled in social health insurance. Several new policies have been promulgated, opening the possibility for many different groups, most notably for the poor, to participate in social health insurance. By mid 2006, out of the total number of insured, 37% participated in health insurance for the poor, 31% in compulsory health insurance, and 32% in the voluntary health insurance scheme.

**Table 16.1. Membership in social health insurance by category, 2000 to 6/2006**

Unit: 1000 people

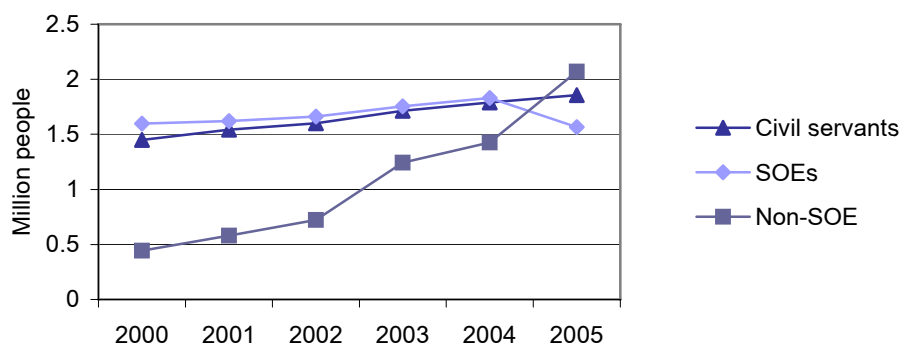
Year	Number of enrollees			Total	Share of total population (%)
	Compulsory	Voluntary	Poor		
2000	6 469	3 089	841	10 399	13.4
2001	6 979	3 089	1 488	11 556	15.8
2002	6 977	4 393	1 655	13 025	16.5
2003	8 124	4 847	3 253	16 224	20.0
2004	8 142	6 245	3 889	18 276	22.2
2005	9 154	9 133	4 726	23 014	27.7
6/2006	9 600	9 700	11 200	30 500	~37.0

Source: Tran Van Tien, 2006 [241].

### **16.2.1. Compulsory health insurance for salaried workers**

Since 2000, the number of compulsory insured members has increased in line with the growth of the national economy and the number of enterprise workers. The large increase in the participation in compulsory health insurance among non-state enterprises in recent years may be a result of policies promoting the equitization (ie, privatization) of state owned enterprises, in which workers in state-owned enterprises have shifted to compulsory insurance in the non-state enterprise sector (Figure 16.1).

**Figure 16.1. Membership in compulsory health insurance for salaried workers, 2000-2005**



Source: Tran Van Tien (VSS) [241]

The health insurance system currently collects health insurance contributions from only about half of wage workers. In 2005, Vietnam had an estimated 11 million wage workers, of which only 5.8 million participated in compulsory health insurance.

The potential for expansion of health insurance coverage for salaried workers is high, but this expansion depends on the extent that private enterprises, especially those in the informal sector, can be forced to comply with the health insurance regulations. Measures to impose compulsory enrollment have not been sufficiently strong. In HCMC, only 70% of enterprises actually purchase health insurance for their workers, the remaining 30% that do not purchase insurance are mostly small- and medium-sized enterprises. The Social Insurance Agency in HCMC is facing many difficulties in mobilizing people to purchase compulsory health insurance for people in private enterprises due to the lack of cooperation of smaller enterprises and a lack of necessary sanctions to force these enterprises to purchase health insurance for their employees. In-depth interviews revealed reasons for low compliance with health insurance among non-state enterprises, eg, lack of appropriate legal measures for management, lack of the ability to monitor enterprises after they have been issued operating licenses, unstable nature of private enterprises, and enterprises underreporting the number of workers or reducing the wage amount written in contracts to avoid paying social insurance contributions.

Recommendations have been made to mandate health insurance for the self-employed, especially those living in rural areas, rather than simply asking them to enroll in the voluntary scheme. However, this approach may face considerable challenges. First, is the lack of a feasible scheme for collecting contributions from self-employed households and individuals. Second, to implement compulsory health insurance for this group, it will be necessary for the government budget to subsidize the contributions so the total amount contributed per worker is adequate to pay for the health insurance package of services. Even with a subsidy of 50% of the minimum voluntary insurance contribution amount, it would create a heavy burden, exceeding the capacity of the state budget. The expansion of compulsory health insurance in rural areas would require strong support of tax policies for farmers and would only be possible to implement on the basis of a much tighter legal basis than currently exists (ie, a Law rather than the current Decree).

### **16.2.2. Voluntary insurance for people other than wage workers**

Compulsory health insurance scheme members also include many people who are not wage workers and whose contribution is subsidized by the government budget (Table 16.2). The poor constitute a dominant share compared to other groups. Children under 6 years of age will likely be enrolled in the compulsory scheme in the coming years.

**Table 16.2. Health insurance members who are not wage workers, 2005**

<b>Membership categories</b>	<b>Number of members</b>
People's Council representatives	128 253
Dependants of army officers	229 445
Pensioners and people on disability	1 688 690
Retired civil servants at commune level	7 174
Veterans	10 850
People with meritorious service to the country	1 067 211
Social assistance beneficiaries	23 336
Elderly	41 606
Agent Orange victims	105 031
Foreign students	44 409
Other	4 612
<b>Total</b>	<b>3 350 617</b>

Source: Tran Van Tien (VSS) [241]

Decision 139/2002/QĐ-TTg of the Prime Minister on the Health Care Fund for the Poor guarantees funding in the amount of 50 000 VND per beneficiary per year and requires that localities must mobilize additional funds. From 2003 to 2005, the provinces could choose to implement the scheme through social health insurance, or through a mechanism of direct reimbursement to providers from the Health Care Fund for the Poor. With Decree 63, the poor were added to the group eligible for compulsory insurance, and starting in 2006, the provinces implementing direct reimbursement were required to switch to health insurance.

In 2005, the Government promulgated a new poverty line, which applies for the 2006-2010 period. Because the new poverty line is double the previous one<sup>8</sup> it is estimated that the poor in Vietnam total approximately 20 million. By June, 2006, about 11.2 million of the poor had received insurance cards. Nevertheless, given Vietnam's rapid economic growth, the number of poor is expected to decline gradually if there are no further adjustments in the poverty line. However, they will remain one of the largest health insured groups over the next 5 years. A solution must be found to ensure that they continue to benefit from health insurance in the transition of escaping from poverty.

Beside the poor, the compulsory scheme contains an additional 3.4 million nonsalaried members, of which the 1.7 million pensioners form the largest group. Under current policy, the premium contribution for these groups is allocated from the pension fund. The size of this group will continue to grow due to increased participation and the aging of the population. The second largest group is the group of people who have performed meritorious service to the nation, accounting for 1.1 million subsidized members. Those members are typically older, with an average age of 61 years. Among other membership categories, some groups enjoy high enrollment rates as central or provincial governments subsidize their contribution, while others have lower enrollment rates as the contribution comes from the underfunded commune budget. For example, among the elderly aged 90 years and older, 42 000 have health insurance out of the estimated 91 000 people in that group.

Starting from 2005, the government budget began to use a direct reimbursement scheme to subsidize health care for children under 6 years of age. Since many problems appeared after more than a year of implementation, the Ministry of Health is studying a solution to convert

<sup>8</sup> The old poverty line (2001-2004) was 80 000 VND for those living in mountainous areas, 100 000 VND in rural areas and 150 000 VND for urban citizens. The new poverty line (starting in 2005) is VND 200 000 in rural and VND 260 000 in urban areas.



the direct reimbursement scheme to social health insurance. If the scheme is converted, an additional 7 million children would be added to the compulsory health insurance scheme<sup>9</sup>.

### 16.2.3. Voluntary health insurance

With considerable efforts by the Vietnam Social Insurance Agency for the development of the voluntary scheme, the total number of voluntary scheme members has approached the number of non-poor members among the compulsory scheme.

Members in the voluntary scheme have been primarily students, accounting for 83.2% of the total voluntary scheme members. Around 30% of students had health insurance in 2005. Hanoi represents the locality with most successful implementation of student health insurance, with coverage of 96% of schools located throughout the city. The school health insurance program has some advantages because, although the program is voluntary, in reality the schools and universities announce the health insurance fees, and parents usually purchase the health insurance for their children, considering it “mandatory voluntary”.

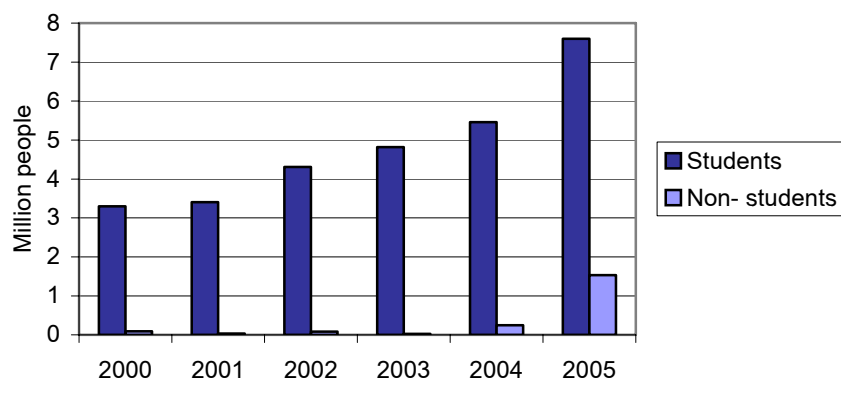
**Table 16.3. Composition of voluntary scheme members, 2005**

	Thousand members	Structure (%)
School and university students	7598.9	83.2
Mass organizations and associations	790.1	8.7
Households	447.0	4.9
Dependents of wage workers	297.1	3.3
<b>Total</b>	<b>9133.1</b>	<b>100.0</b>

Source: Tran Van Tien (VSS) [241]

Coverage of voluntary health insurance membership for groups other than students (all ages) began to increase starting in 2004 after promulgation of the first Implementation Circular for the voluntary scheme. Nevertheless, the number of participants remains small (Figure 16.2). By the end of the fourth quarter of 2005, only 1.5 million people in Vietnam had purchased health insurance according to the scheme designed for households, dependents of the insured, and health insurance for members of associations and mass organizations [241]. Based on international experience, expanding coverage to the remaining population with a voluntary social health insurance scheme is the greatest challenge facing the target of universal health insurance coverage.

**Figure 16.2. Evolution of voluntary health insurance scheme membership over time, 2000-2005**



<sup>9</sup> Annually about 1.5 million children are born and survive through the first year of age. Hence, based on births from 2000 to 2005, this totals about 9 million children. Among these children, about 22% are children living in poor households who should be provided healthcare cards for the poor, leaving 7 million children who receive free healthcare cards from the National Committee for Population, Family, and Children according to Decree 36/2005/ND-CP.

One promising approach for the rapid expansion of coverage is to take the family as the unit to be insured, ie, to convert the health insurance scheme for dependents of insured salaried workers and make their coverage compulsory. Under this option, the dependents (father, mother, spouse, child under 18 years of age) of the salaried worker participating in the compulsory scheme would benefit from health insurance. This could lead to a 2- to 3-fold increase in compulsory scheme coverage.

Another important target group is self-employed workers. People of working age account for roughly 50% of the total population. Salaried workers constitute only about one fourth of the total population (41 million) in working ages. Around 30 million are self-employed, mostly living in rural areas and involved in agricultural production. With economic development and formalization of employment, increasingly more workers will earn wages, gradually expanding coverage under the compulsory health insurance scheme. Currently, people in those groups are eligible only for the voluntary scheme, and enrollment rates are low.

All voluntary health insurance schemes implemented in the past few years in different regions have proved unsustainable. Reasons for the unsustainability of voluntary health insurance schemes include:

- People cannot afford the insurance contribution, and the government does not share any of the cost of the health insurance contribution
- People could afford it, but do not want to join health insurance schemes because the benefit package is not attractive enough (eg, patients still have to pay for uninsured services/drugs, the perceived quality of care is low, care providers have a poor attitude)
- Imbalance in the health insurance fund (low levels of contributions, adverse selection, and poor management capacity)
- Lack of knowledge and awareness among the population about the benefits of health insurance
- Low capacity of the agency managing the health insurance fund to advocate for, inform about, and implement various health insurance programs.

Current policies on voluntary health insurance cannot yet overcome the above constraints. The ability to expand coverage of voluntary health insurance on a wide scale in rural and urban areas is low. International experience also provides little convincing evidence of the sustainability of similar voluntary health insurance schemes.

#### **16.2.4. International experience regarding universal coverage**

Universal coverage means all, or nearly all, citizens are covered by health insurance<sup>10</sup>. From the perspective of equity in healthcare, coverage is not universal when even small population segments remain uninsured.

Universal health insurance coverage has only been obtained on the basis of compulsory enrollment, or in other words “social health insurance” (no country has achieved universal health insurance coverage on the basis of voluntary health insurance). Experience also indicates that the determinants for success of compulsory health insurance rest in the nature of the labor market structure [242].

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<sup>10</sup> It is necessary to distinguish between universal health insurance coverage and “universal health care”. Universal coverage of health care means that everyone’s right to health care is ensured regardless of their financial ability. There are 2 models that can secure the objective of “universal healthcare coverage”, ie, social insurance (Bismarck) and tax-based budget for health (Beveridge).

Labor market structure, with a large formal sector in relation to the informal sector is more favorable as it becomes possible to estimate the total contribution (as a share of wages or salary) and health insurance contributions can be easily collected (contributions can be withheld directly from payroll by the employer).

On the other hand, when the labor market consists primarily of self-employed workers, it is difficult to determine the total contribution (the self-employed usually have unstable incomes, especially those in agriculture), and the collection of contributions is even more challenging (possibly even infeasible, if an efficient, regular tax collection system for the self-employed has not been developed).

Labor markets in developed countries also have self-employed workers although they normally account for only a small proportion of the labor force. Self-employed agricultural workers tend to be the last to join health insurance programs (eg, in Korea and Japan).

### 16.3. Health Insurance Fund Solvency

According to Vietnam Social Insurance Administration, the insurance fund of 2005 had a deficit of 139 billion VND [243]. In 2006, health insurance for the poor had a deficit of 177.9 billion VND, and the voluntary insurance fund a deficit of 162 billion VND. Hence, the compulsory health insurance scheme surplus of 200.9 billion VND had to compensate for the losses of the two other health insurance funds according to the principles of social health insurance. The projected deficit for 2006 was 1.0 to 1.5 trillion VND [244].

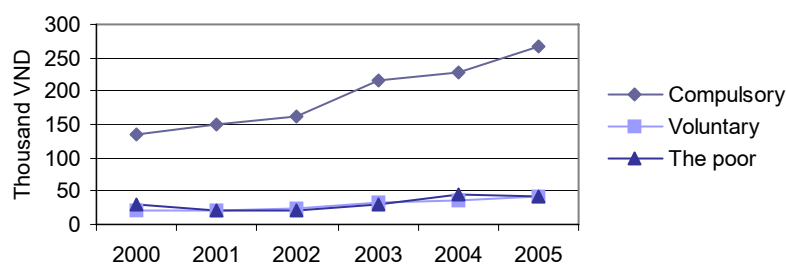
Health insurance regulations, newly issued under Decree 63, with some adjustments to benefits and methods of payment for healthcare costs, had a strong influence on the potential for balancing the health insurance fund. While old factors that induced rising healthcare costs already existed, new factors have emerged, posing a heavier burden on the health insurance fund. This section focuses on 3 issues in balancing the health insurance fund: (1) the low contribution rate, (2) the increased payment from health insurance to health service providers, and (3) the problem of adverse selection in the health insurance system as universal coverage has not yet been achieved.

#### 16.3.1. Low insurance contributions due to structure of participation

The contribution rate of the compulsory scheme is 3% of salary including various allowances, eg, for holding managerial position, for remote regions, for expensive cost-of-living areas, for seniority according to government regulations. For those who are not wage workers, the insurance contribution is either equivalent to 3% of minimum wage or 3% of stipend. It is noteworthy that the insurance contribution of the poor and people aged 90 years and over is only 50 000 VND per person per year.

The contribution of compulsory insurance holders increases annually due to a rise in minimum wage or seniority. The contribution of voluntary insurance remains unchanged to encourage people to participate, and since most members are children at relatively low risk of disease (Figure 16.3).

Figure 16.3. Trend in average premium by different schemes, 2000-2005



A fixed price scale is used for voluntary health insurance since most participants do not have income or it is difficult to determine their income. From January 1, 2006, the lowest contribution rate for voluntary insurance was 30 000 VND and the highest was 160 000 VND (Table 16.4).

**Table 16.4. Price scale for voluntary health insurance scheme contributions, 2005**

Unit: VND/person/year

Target	Residence	
	Urban	Rural
Household members	100 000 - 160 000	70 000 - 120 000
Dependents of wage workers and members of associations, mass organizations	100 000 - 160 000	70 000 - 120 000
Association, union members	100 000 - 160 000	70 000 - 120 000
School and university students	40 000 - 70 000	30 000 - 50 000

Notes: Urban area includes wards of cities, provincial and district towns; rural area includes the rest.

Table 16.5 presents the average contributions per person per year from 2000 to 2005. The overall average premium increases from 93 375 VND in 2000 to 131 853 VND in 2005. According to the principle of social health insurance, the social health insurance contribution is based on the ability to pay – not based on the risk of getting disease, or to balance the fund within each insured group, but rather to share risks so the healthy subsidize the sick and the rich subsidize the poor.

**Table 16.5. Average insurance contribution across different groups of insured, 2000-2005**

Unit: VND

	2000	2001	2002	2003	2004	2005
Compulsory	135 570	150 451	162 964	217 214	227 589	267 202
Voluntary	22 014	22 081	22 985	33 935	35 319	42 500
The poor	30 916	20 161	21 752	30 741	43 907	42 366
<b>Weighted average</b>	<b>93 375</b>	<b>99 360</b>	<b>97 810</b>	<b>125 070</b>	<b>122 803</b>	<b>131 853</b>

Notes: Compulsory group does not include the poor. Weighted average is the average obtained by multiplying the average insurance contribution by the number of insured in different groups and dividing by the total number of insured people.

Source: Tran Van Tien [241]

A problem arises when the proportion of the insured with low contributions, or those with high risks, account for a large share of the total insured. Most notable in recent years, there is an obvious jump in the number of insured people with low contribution, namely the poor. From a small proportion of 8% in 2000, this group now (mid 2006) accounts for 37% of all insured people. Assuming that all 20 million poor people will be provided with health insurance cards, then the poor would account for 51% of the total insured. The non-poor compulsory insured making higher contributions, accounted for 62% of the insured in 2000, but by 2006, this group only accounted for 31%. When all of the poor are covered by health insurance this share will fall further, to less than one quarter of all the insured.

To reach the target of universal coverage of health insurance, we must find ways to cover children under 6 years of age, students who have not signed up for health insurance, labor in the informal sector and self-employed and non-agricultural employees. The contribution rates for these groups cannot be high. Contributions from students range from only 30 000 VND to 70 000 VND per year. For children under 6 years of age, the current contribution is 75 000

VND per year, and other groups of voluntary insurance pay from 70 000 VND to 160 000 VND per person per year. For wage workers not currently participating in compulsory insurance, 3% of salary would (according to the Vietnam Living Standard Survey, 2004) amount to an average of 204 000 VND per person. Based on this, if we recalculate the average premium to reach universal coverage by adding this group, we arrive with the results presented in Table 16.6.

**Table 16.6. Average premium when adding those who have not signed up for health insurance**

	Premium rate (VND in 2005)	Potential insured
Currently insured	131 853	30.5 million
The poor	50 000	8.8 million
Children under 6 years of age	75 000	7 million
School pupils, university students	44 000	8.1 million
Wage workers	204 000	4.1 million
Self-employed	104 000	24.6 million
<b>Total</b>	<b>105 147</b>	<b>83.1 million</b>

Notes: Potential insured among children under 6 years of age, university students and school children, wage workers, and self-employed, does not include those covered by the Health Care Fund for the Poor. The contribution amount for wage workers is calculated from the VHLSS 2004 for the non-poor uninsured workers receiving wages. The contribution amount for university students and school children and the self-employed is obtained by taking the value in the middle of the range of contributions from Circular 22 and weighting by 75% for rural and 25% urban residents.

In the process of salary reform in administrative and local enterprises/agencies, the minimum monthly wage was raised from 350 000 VND to 450 000 VND (October 2006). The number of retired people is also increasing. These changes will contribute to increasing the average contribution levels, but the gap in contribution levels between those contributing the most and those contributing the least is increasing, which leads to the risk of losing support for the social health insurance policy.

### **16.3.2. Increased payment for health service providers**

Payment for health services through compulsory and voluntary health insurance has increased sharply. Part of the increase is due to increases in the number of people covered. However, the pace of increase for coverage is much slower than for total health insurance reimbursements for health care (Table 16.7). On average, the number of people joining the compulsory health insurance scheme (including the poor) between 2003 and 2005 increased by 10% per year while the amount of health care expenditures reimbursed from the health insurance fund increased by 56%. For voluntary insurance, the number of people enrolling has risen 37% per year while expenditures increased by 140%.

**Table 16.7. Increase in healthcare expenditure through health insurance, 2003-2005**

	Compulsory insurance		Voluntary insurance	
	Expenditure (billion VND)	Number of members (thousand people)	Expenditure (billion VND)	Number of members (thousand people)
2003	1083	11 377	96	4847
2004	1930	12 031	202	6245
2005	2648	13 880	555	9133
Average increase per year	56%	10%	140%	37%

Source: Tran Van Tien [241]

No evidence has been found of the existence of moral hazard<sup>11</sup> in Vietnam [245]. The higher utilization of health services among the insured can be explained by the fact that the insured have higher living standards, higher educational levels, and greater geographic access to health services. Hence, the composition of insurance membership could have a large impact on the amount and type of health services used.

Statistics from Table 16.8 indicate that average outpatient visits of compulsory insurance card holders (excluding the poor) increased from 2.04 visits in 2000 to 2.60 visits in 2004. The frequency of average outpatient visits of the poor has doubled compared to 5 years ago, although their utilization rate is still half of the level of those with compulsory insurance.

**Table 16.8. Average outpatient visits per year per card holder by type of insurance, 2000-2004**

Insured people	2000	2001	2002	2003	2004
Compulsory insurance	2.04	2.21	2.28	2.28	2.60
Insurance for the poor	0.55	0.64	0.74	0.75	1.03

Notes: In the past, school children insurance (voluntary) did not cover outpatient care

Source: Statistics Yearbook, Health Insurance 1993-2002 [246], Statistical Publishing House, Hanoi, 2002 (data for 2000-2002) and Internal Report from Vietnam Social Insurance (data for 2003-2004) [241].

From 2000 to 2004, there was no change in the average number of inpatients with insurance in all three groups of compulsory, voluntary insurance and insurance for the poor.

**Table 16.9. Average annual inpatient visits per 100 health insurance card holders by type of insurance, 2000-2004**

Insured people	2000	2001	2002	2003	2004
Compulsory insurance	16	18	17	16	17
Insurance for the poor	5	6	5	5	6
Voluntary insurance	4	6	6	5	5

Source: Statistics Yearbook, Health Insurance 1993-2002 [246], Statistical Publishing House, Hanoi, 2002 (data for 2000-2002) and Internal Report from Vietnam Social Insurance (data for 2003-2004) [241].

Comparing the frequency of hospitalization for inpatient care between card holders of compulsory, voluntary insurance and insurance for the poor shows that while, on average, there are 16 to 18 patient visits per 100 compulsory insured people, there are only 6 patient visits per 100 poor patients and 5 patient visits per 100 insured school children.

In theory, the poor are at higher risk for disease, but their service utilization rate is low. Intuitive explanations for the low utilization rate among the poor may include:

- The poor lack understanding about benefits of health insurance
- The poor find it difficult to access health services due to barriers including financial constraints that go beyond their capacity to pay (food, transport, opportunity cost while seeking care, and other informal expenses in hospitals).

Even in major cities, the frequency of service utilization of the poor is much lower than other compulsory groups (Table 16.10). In 2004, Hanoi had 4.4 inpatient visits for every 100 poor people. By contrast, there were 10.5 inpatient visits for every 100 compulsory insured people in Hanoi. Among school children and students in Hanoi, there were only 0.4 inpatient visits per 100 students per year, and average length of stay was shorter. Their inpatient

<sup>11</sup> Moral hazard is when insurance leads people to utilize more health services, or service providers provide more services for those with health insurance.

treatment costs were also low. Hence, concerns about increased payments to health facilities due to a greater burden by groups considered to be high risk, eg, the poor and students, have not yet manifested themselves [247].

Some risk groups use many health services. A survey study in Hanoi in 2004 showed that for every 100 retired people, there were 20.5 hospitalizations for inpatient care with a longer average length of stay and higher costs compared to other compulsory insurance groups [247]. At present, this group accounts for 7.3% of all insured people. For voluntary, non-student health insurance, due to adverse selection, this group does present higher risk. For example, according to statistics from Vietnam Social Insurance, between the first quarter of 2005 and first quarter of 2006, healthcare visits of voluntary insurance holders increased 36 times, and healthcare costs paid for health facilities rose 15 times. At present, this group accounts for only 6.6% of the total insured population. It is hoped that more low-risk groups will increasingly enroll in health insurance so that it will genuinely become social health insurance where people with low risks subsidize those with higher risks.

**Table 16.10. Average patient visits per 100 health insurance card holders by type of insurance in Hanoi, 2004**

Insured people	Number of inpatients		Inpatient visits/100 card holders	Average length of stay (days)	Average treatment cost (VND)
	n	(%)			
Compulsory insured	92 389	96.6	10.5	11.3	894 664
Retired, on disability	50 426	52.7	20.5	13.2	1 058 695
State enterprise employees	20 293	21.2	6.8	9.2	623 277
Civil servants	11 141	11.7	7.7	9.1	891 904
Private enterprise employees	3 829	4.0	6.5	10.7	739 756
Joint-venture employees	2 637	2.8	5.6	7.4	602 561
Other	4 063	4.3	4.8	6.0	520 931
The poor	1 317	1.4	4.4	9.9	820 492
Voluntary (university students and school pupils)	1 902	2.0	0.4	6.9	439 034

Source: Duc DT 2005 [247]

An important reason for the sharp increase in healthcare costs is the change in regulations on health insurance. First, benefits were increased for insurance members. The list of major drugs was appended with several new drugs covered by health insurance. A new list of high-tech services also expanded the benefits for the insured. Increased services and drugs paid through health insurance, while the payment method still follows a fee-for-service mechanism, does not encourage providers to limit their delivery of unnecessary services. Fee-for-service payment for inpatient care has a strong impact on large hospitals. At the same time, Decree 63 abolished the policy of 20% copayment discontinued caps on payments and accepted payment for traffic accidents. As a result, the frequency of utilizing high-tech treatment methods in large hospitals continues to rise.

Second, the management mechanism of the insurance fund for health care has changed. Before Vietnam Health Insurance was merged with Vietnam Social Insurance, the healthcare fund was held and managed by each province, and provincial health insurance agency held responsibility to balance the fund. The merger ended decentralized management of the fund. Instead, all revenue from health insurance is concentrated at the central level, and Vietnam Social Insurance reallocates the budget for each province according to their plan, using the previous year's expenditure as the base of reference. Provincial social

insurance offices are no longer responsible for balancing revenues and expenditures of the local health insurance fund. As a consequence, the gap between average contributions and benefits has widened (Table 16.11).

**Table 16.11. Average contribution and benefits, 2000-2005**

	2000	2001	2002	2003	2004	2005
Average contribution	93 375	99 360	97 810	125 070	122 803	131 853
Average reimbursement paid to health facilities	63 415	91 987	..	103 630	177 209	230 764

Notes: Compulsory group does not include the poor. Weighted average is the average obtained by multiplying the average insurance contribution by the number of insured in different groups and dividing by the total number of insured people.

Source: Contribution and health insurance payment in 2003-2005 from Vietnam Social Insurance [241]. Amount reimbursed to health facilities from health insurance in 2000 and 2001 from Health Statistics Yearbook, 2005 [14].

### 16.3.3. Adverse Selection

Adverse selection is a phenomenon in which the only people who buy health insurance are those who estimate that the healthcare costs they will incur for themselves or their family will be greater than the amount they must contribute to purchase health insurance, while the remaining people do not participate, or participate at a low level. Adverse selection, especially in voluntary health insurance schemes, poses a burden for health insurance funds because high-risk groups using health services are not balanced by participation of low-risk groups. Only universal coverage of health insurance will put an end to adverse selection.

Regulations in Circular 22/2005/TTLT-BYT-BTC indicate that people can purchase health insurance when at least 10% of households in a community or 30% of members in an association or mass organization join. Such minimum requirements for participation are too low and create the risk of adverse selection for voluntary health insurance members. Some local authorities agree to certify that the minimum number of members has been achieved even when the number who sign up is much lower than the minimum number required. For example, by September 2005, the entire Hoai Nhon district (Binh Dinh province) had only 91 voluntary insurance purchasers, and in An Nhon district (Binh Dinh) only 12 people had signed up to purchase insurance. A survey on the household-based voluntary health insurance scheme in a commune of Yen Bai province [248] indicates that only 399 people purchased household health insurance out of nearly 4600 commune residents. Among households enrolled in health insurance, only 38.6% of their members purchased household health insurance.

In HCMC, reports from city and district social insurance offices show that it is difficult to control sales of voluntary health insurance on demand as regulated in Circular 22. The municipal People's Committee has directed the sale of voluntary health insurance for 100% of disadvantaged people who are not classified as poor, including people with serious diseases and high treatment costs. Local mass organizations list voluntary health insurance enrollees in districts, and commune authorities certify the list. Most voluntary insurance purchasers are people already suffering from diseases. In some cases, they have been hospitalized before buying health insurance cards. Policy implementing agencies are not sufficiently competent to limit this adverse selection phenomenon. More seriously, in some localities the commune announces on loudspeakers; "Anyone who wants to purchase a voluntary health insurance card, please come to the commune People's Committee"

Adverse selection also occurs in compulsory health insurance. People working in the informal sector are less likely to contribute to the compulsory social health insurance scheme than those in the formal sector because the current enforcement mechanism for signing them up for compulsory health insurance is weak and participation is low. Ultimately, only informal sector workers with serious diseases involving high treatment costs and working in small-



sized enterprises (beyond the control of Vietnam Social Insurance) sign up for health insurance. The possibility that small enterprises “hire” sick people so they can obtain compulsory insurance cannot be ignored.

## **16.4. Ensuring Quality of Service**

One of the goals of social health insurance is to protect the rights of insured people. Quality of health insurance, *per se*, is reflected in the convenience and ease of use of the insurance card. More importantly, when the health insurance agency purchases services on behalf of patients, they must ensure that the purchased service reaches minimum standards.

### **16.4.1. Increased benefits of health insurance**

Since the introduction of insurance regulations in Decree 63, nominal benefits for insured people have increased considerably regarding both outpatient and inpatient services. The list of health services and drugs covered by health insurance was expanded in 2005 and 2006. Except for some services listed in Section 16.1 of this Chapter, the benefit package for insurance enrollees is relatively comprehensive. New regulations regarding payment methods abolished the 20% copayment of healthcare costs and discontinued the cap for outpatient services, expanding the possibility to reimburse facilities when the health insurance fund advanced to a given facility was insufficient to cover the cost of services provided.

Nevertheless, the insured complain about troublesome procedures in health care, poor attitudes of health workers, and limited benefits of health insurance in some health facilities. Recent studies assessing barriers faced by insurance enrollees in accessing health care through insurance found:

- Long waiting times due to work overloads in health facilities
- Troublesome procedures (eg, multiple payments per visit, queue to deposit and receive reimbursement of deposit money even when insured, requirement to return home to obtain a letter of referral from lower-level facilities even when the patient has been requested by the doctor to return for follow-up care at the higher level, requesting social insurance to certify duration of insurance enrollment to obtain benefits from health insurance)
- Discrimination between people paying directly out-of-pocket and those paying through health insurance (people paying directly enjoy a shorter waiting time and better quality of care)
- Indirect payments and opportunity costs are not covered by health insurance (transportation, food for patients and relatives, and under-the-table fees; many relatives need to leave work or hire caregivers in hospitals). In many cases, the above costs are much greater than costs paid by health insurance, which reduces the advantage of having health insurance
- Attitudes and manner of social insurance staff still lag behind in the transition from an administrative focus to a client-centered focus.

The above barriers continue to have an unfavorable impact on the process of expanding health insurance, especially voluntary health insurance. Notably, the adverse impact of “under-the-table” fees cancels out the advantages of the prepaid mechanism. Insured people prepay with the hope of not having to pay when receiving health care. However, when they seek care, they worry that they will not get good quality service if they do not pay under-the-table.

Moreover, for a limited number of patients who need expensive, high-tech services, insured patients still have to make copayments. As regulated by Circular 21, any cases that involve expensive high-tech services will be reimbursed, but only partially, and after a ceiling is reached the patient must pay in full. This means that when patients are in greatest need of health insurance coverage to cover their severe illnesses, health insurance does not cover the charges, while small fees that could be paid out-of-pocket are covered by health insurance.

#### **16.4.2. Barriers of health insurance from the view of service providers**

According to the health insurance regulations under Decree 63, health insurance reimbursements are paid to health service providers on a fee-for-service basis, which is most profitable for service providers. At the same time, payment ceilings for outpatient services have been removed, and if providers overspend their insurance fund they can request payment from the reserve fund of health insurance. However, the healthcare providers, in general, are still reluctant to provide services for insured patients. This impacts negatively on the quality of services provided for insured patients.

The main reason for this problem is that the reimbursement level is set according to a user fee scale issued over 10 years ago (1995), which has not been updated to cover increases in service prices. In 2006, a Ministry of Health and Ministry of Finance joint circular supplemented the price scale for services that were not yet included on the list of services issued in 1995, but did not revise prices in the 1995 list. Clearly, when the fee is lower than the cost of providing the service, healthcare providers will hesitate to provide those services, or try to charge the difference to patients.

Health service providers also face difficulties in recovering healthcare costs for insured patients. New regulations in payment for healthcare costs through insurance (Circular 21/2005/TTLT-BYT-BTC) have not yet resolved shortcomings in cost recovery. A payment ceiling of 90% of the health insurance fund (that is 85.5% of total insurance revenue) of insured people registered at a health facility is applied to payments for healthcare costs incurred at that facility and costs of referral services at higher level facilities. In principle, if healthcare costs exceed the amount of the fund, Circular 21 authorizes the health insurance reserve fund to pay. In case the reserve fund is depleted, other available funds from Social Insurance Funds can be used to pay the cost.

However, payment procedures between the health insurance fund and health facilities are complicated if the total fees to be reimbursed exceed the amount available in the fund. In some cases, facilities are uncertain whether or not they will be reimbursed in full. This situation leads to the health facility having to set limits on benefits for insured patients and refrain from transferring patients to other health facilities. The director of a central hospital, after Circular 21 became effective, ordered his staff not to prescribe tests and drugs for outpatients if the cost exceeded 100 000 VND per prescription. If they prescribed over 100 000 VND, the excess would be deducted from their salary.

Another challenge in implementing payment through health insurance according to the new regulations is the management capacity of the health service provider system and social insurance system. Determining the costs of providing services and making timely payments for healthcare costs incurred by patients outside of the facility where they are registered has been put under a global budget mechanism (including both fee-for-service and capitation mechanisms). This organizational method requires a timely and effective monitoring and supervision system and good collaboration between the social insurance and service provider systems. Yet, the management information system of the two systems still falls short of the requirements.

#### **16.4.3. Ability to satisfy needs of insured patients**

One of the most formidable barriers in implementing health insurance policies in the past few years is the limited responsiveness of the service provider system to healthcare needs of insured patients. These limitations result in dissatisfaction and reduced trust among the insured. This section presents the limitations of the service provider system.

First, although primary health care has provided good preventive care, especially immunization, it fails to meet the growing needs resulting from changing disease patterns and the rising burden of noncommunicable diseases, accidents, and injuries. Moreover, primary care facilities are currently unable to satisfy people's needs for convenient access to quality services. In rural areas, the commune health center is closest to where the people live and work, but most commune health workers have little time and lack technical expertise, equipment, and drugs needed to examine and care for insured patients. This becomes more obvious in managing and monitoring noncommunicable diseases at the communal level. Most insurance enrollees need to visit higher-level facilities to obtain quality health services.

Second, reform in the healthcare system still lags behind the growing healthcare needs of the people, especially at lower levels. Meanwhile, in many high-level hospitals, especially in Hanoi and HCMC, insured patients can use any health services as no financial ceilings are imposed on hospital directors and doctors. The mechanism of payment through health insurance has encouraged lower-level facilities to try to retain their patients because treatment costs incurred at higher levels are taken out of the health insurance fund of the lower level. Obviously, this practice might affect quality of care for seriously ill patients who wish to seek care at a higher level. To avoid this practice, patients with sufficient economic means can bypass the lower level and go directly to facilities at a higher level, which leads to patient overload in higher-level facilities (provincial and especially central hospitals) and high out-of-pocket costs for health insured patients whose fees are not entirely reimbursed at the facility where they sought treatment.

Unless solutions are found to the above mentioned problems, expanding insurance enrollment will worsen the paradox that rich people receive greater subsidies from health insurance since it is easier for them to access high-level care. Furthermore, it will be difficult for the healthcare system to develop since it must provide more services at prices below actual costs.

With the introduction of new insurance regulations in 2005, the current fee-for-service payment method was retained, but additional payment methods were permitted (eg, capitation and case-based payment). When designing the capitation mechanism, policy makers worry that the quality of care may decline as hospital will benefit more if they provide less service. Hence, policy makers have instructed that all revenue paid to the hospital from capitation payments must be used for the care of insured patients. This condition does not benefit health workers or the health facility, and does not encourage hospitals to apply this payment method, which in principle could be very efficient if mechanisms were in place to ensure minimum quality standards.

## **16.5. Conclusion**

In the process of developing universal health insurance, the main goal is to expand the coverage of health insurance. Measures such as government subsidies to pay premiums for the poor, or to expand benefits for insured patients, have been applied. However, in the development process, expansion of the benefit package should be balanced with other aspects including expanding coverage of the population, ensuring solvency of the fund, increasing efficiency and quality of services, and establishing an information system to monitor and assess the performance of health insurance to enable timely adjustments.

Although expansion of insurance coverage is important in the near future, more attention should be given to other necessary mechanisms to develop Vietnam Social Health Insurance in a more sustainable and effective manner.

## Chapter 17

### HUMAN RESOURCES - TRAINING OF HEALTH STAFF

#### 17.1. Assessing Human Resource Development

##### 17.1.1. Special characteristics of health sector workers

The task of healthcare staff is to protect and care for the health of the population. Health is the most precious resource of the population and society as a whole. With the considerable responsibility of caring for the people's health, workers in the healthcare sector are required to have a high degree of accountability, good professional knowledge, and be able to work under pressure.

Clients served by health staff are people suffering from illness who tend to be distressed and are often in pain. Health staff often bear a heavy psychological burden associated with the heartbreaking losses that patients and families must deal with.

Health staff are asked to work under dangerous and contagious conditions (at times facing very dangerous diseases, eg, cholera, bubonic plague, HIV/AIDS, SARS) and are frequently in contact with excreta, noxious chemicals, and radioactive materials. In this type of environment, health staff can easily contract disease.

In addition to 8 official working hours, health staff are often on call at night and work after hours, on holidays, and weekends to ensure that facilities are staffed around-the-clock to give emergency care, prevent epidemic diseases, and provide health care for patients at any time. When epidemics occur, regardless of day or night or holiday, health staff are dispatched to the epidemic disease sites. They often need to travel in remote and mountainous areas to fulfill their responsibilities.

The general training period of health staff is longer than that in other sectors. The training period for a general medical doctor is 6 years, a pharmacist is 5 years, and a specialized medical doctor is 9 years, whereas training period for a university degree in many sectors is 4 to 5 years.

Hospitals are often overcrowded with patients, especially at the central level, but health staff are not being paid appropriate compensatory allowances for the heavier workload.

##### 17.1.2. Human resources development in the health sector

In the past 10 years, human resources for health care have developed continuously in terms of both quantity and quality (Table 17.1)

**Table 17.1. Quantity and quality of health staff, 1993-2005**

Year	Population (1000 persons)	Total number of health staff	Doctors per 10 000 inhabitants	Nurses per 10 000 inhabitants
1993	70 982	205 045	4.2	6.2
2002	79 727	234 350	5.6	5.8
2005	83 120	259 583	6.0	6.3

Source: Health Statistics Yearbook [4]

Within the national health network, about 3000 new health workers are added to the state health workforce each year. The proportion of doctors per 10 000 inhabitants has increased substantially.

With priority assigned to the health sector in terms of training, the quota of training medical doctors and pharmacists has increased annually. Training programs and quotas for medical secondary school training are coordinated by the Ministry of Health. The Ministry has assigned responsibility to provinces to assess needs and actively resolve their own shortages of human resources.

The participation of health facilities belonging to the armed forces, police, and other sectors in providing medical services to the population who pay for services under the partial user fee policy has helped to diversify the forms of health services provided. This has also partially helped to overcome shortages of equipment and medical staff in remote and disadvantaged areas, especially at the district and commune levels.

Improvements have been observed in the capacity for increasing human resources through training in medicine and pharmacy in the past 10 years. Nevertheless, the average annual increase of 3000 health workers in the public health system is insufficient to meet actual needs. The ratio of health staff per 10 000 inhabitants in Vietnam is low compared to countries in the area. Health staff quality at the local level has not greatly improved.

Influenced by the market economy, the lack of modern equipment, and the lack of training opportunities, many well qualified health staff hesitate to work at the grassroots level. Consequently, patients seek health services at a higher level, leading to an overload on these facilities.

Information reporting systems to monitor the quality of health staff are not uniform. Vertical management of professional issues, but administrative management by territory, is a major obstacle in managing information on human resources in health care throughout Vietnam. Also, information technology has been introduced slowly due to limited budgets for equipment, software, and user training. Statistical reporting to the Ministry of Health by health agencies in the provinces is incomplete, and is non-existent in other sectors, eg, armed services and private health sector. This makes it difficult to develop a human resource plan and strategy. Management of human resources after training is not controlled, and those in disadvantaged areas who benefit from affirmative action to enroll in medical schools often do not return to those disadvantaged areas (this can be observed even more clearly in the pharmaceutical sector).

The public health system operates mainly under the state budget with cost norms per patient bed that are regulated and quite low. Salaries and allowances account for a high share of the budget for many health facilities (80% to 90% in some facilities). Hence, despite the inappropriate staff mix and the lack of health workers, the facility is unable to recruit more staff because more personnel have not been authorized.

## **17.2. Human Resources in the Health Sector**

### ***17.2.1. Types of human resources in the health sector***

In the past, health staff mainly consisted of medical doctors, pharmacists, and secondary and elementary nurses. Today, human resources in the health sector are more diversified and specialized. In addition to the professions mentioned above, training exists for bachelor of public health, university trained nurse, medical technician with university degree or lower, and other careers. The diverse development of these specialties facilitates specialization of health staff.

Technical secondary school degrees and occupations include general assistant doctor, traditional medicine assistant doctor, assistant pharmacist, secondary nurse, secondary midwife, and secondary medical technician of x-ray imaging, dentistry, malaria, preventive

health, and laboratory testing. At present, nearly all provinces have technical schools providing secondary and lower level training including technical secondary schools and junior colleges. They provide 2 years of training according to regulations of the Law on Education. Current policy in the health sector is to reduce the number of assistant doctors trained, and only allow them to be trained in 12 mountainous provinces.

Below technical secondary education are vocational training degrees, including elementary-level nursing, elementary-level midwife, elementary-level pharmacist, pharmaceutical technical workers and medical equipment technicians. Personnel with vocational degrees are trained from 6 months to 1 year depending on the type of job. Elementary-level nurses and midwives usually work at commune health stations in remote and disadvantaged areas or as village health workers. Elementary pharmacists help pharmacists in selling drugs or work together with pharmaceutical industry technicians in pharmaceutical enterprises. Medical equipment technicians are trained to repair medical equipment in hospitals and health facilities with advanced medical equipment.

Junior college-level degrees include nursing, midwife, and medical technician in various specialties. College training programs take 3 years for students who have graduated from upper secondary school.

University degrees include general medical doctor, specialized medical doctor, dental doctor, traditional doctor, pharmacist, and university-level nurse and midwife.

Formal education takes 6 years for a general medical doctor and 9 years for a specialized medical doctor, 5 years for a pharmacist, and 4 years for other professions. The health sector still has a type of doctor training that takes 4 years, where assistant doctors with a certain number of working years have the opportunity to study 4 years to become a doctor. These doctors often work at the grassroots level.

After graduating from university, health graduates in various specialties have the possibility to study for postgraduate degrees in advanced specialties. Postgraduate training is divided into two systems. The academic system includes education leading to the PhD and Master degrees. Also, the health sector has postgraduate training for hospital practice, including first- and second-level specialists. Resident training is a special type of postgraduate training that has existed since the period of French colonialism. Resident doctors are experts in both theory and practice.

### **17.2.2. Distribution of health worker types**

The workforce in the health sector, including medical, pharmaceutical, and managerial staff, has developed quickly and strongly, especially in recent years. Besides the rapid increase in quantity, quality has also made substantial advances. New diagnostic skills for early disease detection have been applied quickly at many levels, with numerous new techniques for examination, diagnosis, and treatment of disease. There has been an increase in the number of health staff with postgraduate degrees, due mainly to the training in country.

Currently, Vietnam has 0.99 health workers per bed for the country in general (including contract workers). The number of medical doctors per bed on average for the country is about 2 per 10 beds, while the number of nurses is about 3 per 10 beds. The number of doctors per 10 000 population is 12 and the number of nurses is 6.3 (not including private sector). Nearly all health workers with postuniversity education, including professors and PhDs work in the hospital sector. A survey in year 2000 reported that out of 24 000 doctors and pharmacists 7404 had a postuniversity education, out of which 188 were professors and PhDs. Health workers with a high level of specialization usually work in the more economically developed areas, major cities, and areas with large medical centers. According to the World Health Report 2006, the number of doctors per 10 000 inhabitants in Vietnam is about average for the region (5.3), higher than in Thailand (3.7) and Indonesia (1.3), but lower than in Singapore (14.0), Malaysia (7.0), and the Philippines (5.8) [249].

According to data from the Ministry of Health, of all health workers at the provincial level in Vietnam, 81.8% work in curative care, 13% in preventive medicine, and 4% in management (Table 17.2).

**Table 17.2. Distribution of provincial level government health staff by region and across curative care, preventive care, and administration, 2005**

	Total staff	Curative care		Preventive medicine		Administration	
		n	%	n	%	n	%
<b>Whole country</b>	<b>79 759</b>	<b>65 254</b>	<b>81.8</b>	<b>10 261</b>	<b>12.9</b>	<b>3 361</b>	<b>4.2</b>
Red River Delta	15 450	13 033	84.4	1 619	10.5	591	3.8
Northeast	9 070	6 753	74.5	1 633	18.0	451	5.0
Northwest	2 354	1 486	63.1	660	28.0	150	6.4
North Central Coast	6 675	4 990	74.8	1 241	18.6	887	13.3
South Central Coast	7 629	6 203	81.3	1 029	13.5	281	3.7
Central Highlands	3 802	2 871	75.5	686	18.0	142	3.7
Southeast	20 818	18 637	89.5	1 471	7.1	368	1.8
Mekong Delta	13 961	11 281	80.8	1 922	13.8	491	3.5

Source: Department of Organization and Personnel [250]

Out of the 8 regions, the Southeast is the region with the highest share of workers in management and the lowest share in preventive health (1.8% and 7.1% respectively), and the highest share of health workers in curative care (89.5%). In the Northwest the share of medical staff in curative care is the lowest (63.1%), and the share in preventive care is the highest (28%). In the North Central Coast, the share of workers in administration at the provincial level is the highest.

Data from all 64 provinces indicate that the number of preventive health workers is only about one sixth of the number of curative care workers, which is inefficient and inappropriate if the goal is to focus on preventive medicine. However, efficient macro coordination is difficult in remote regions and mountainous areas. In these areas, preventive health workers account for a high share relative to the country as a whole. The remaining problem concerns efficiency in preventive health care delivery. Is the quality consistent with the quantity?

Health staff are distributed according to levels, from the central level to provincial, district, and communal levels. In 2004, health staff working at the commune level accounted for 24% of total health staff in the localities. These are staff who are directly involved in delivering primary care services. At the district level, health staff accounted for 31% and the corresponding figure at the provincial level is 45% (Table 17.3).

**Table 17.3. Number of health staff by level and year, 2000-2005**

Years	Central	Province	District	Commune
2000	26 761	70 840	60 002	44 655
2001	27 372	70 022	58 795	45 656
2002	28 803	71 983	60 022	46 634
2003	29 561	74 762	61 809	47 668
2004	29 170	76 777	62 183	49 358
2005	31 668	79 759	65 764	49 589

Source: Health Statistics Yearbook [4]

### ***Distribution of health staff by region***

Health staff are distributed rather evenly among regions, although the proportion of health staff per inhabitant in the mountainous areas is slightly lower than that in the delta

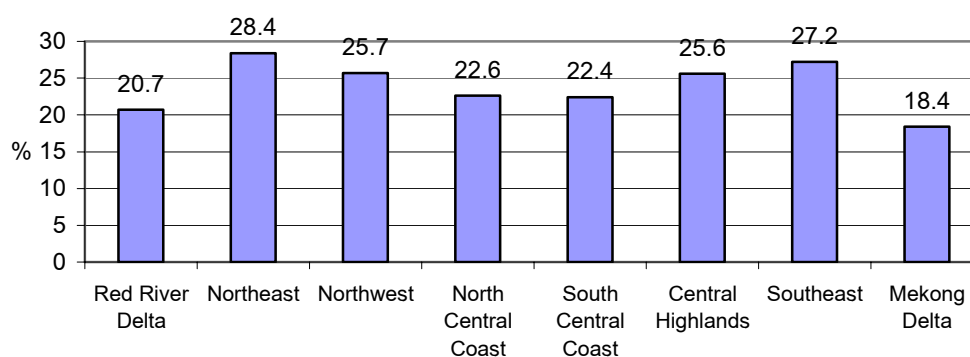
areas (Table 17.4, Table 17.5). However, the Mekong Delta is the region with the lowest proportion of health staff. In the mountainous areas and Mekong Delta, with difficult transportation and sparse population, there is a greater need for more health staff than in other areas. Hence, the health sector needs appropriate policies to attract health staff to these areas.

**Table 17.4. Number of health workers by region and level of care, 2005**

	Total	Province	District	Commune
<b>Whole country</b>	<b>214 283</b>	<b>79 759</b>	<b>65 764</b>	<b>49 589</b>
Red River Delta	39 415	15 450	13 869	10 096
Northeast	29 966	9 070	8 474	9 422
Northwest	8 379	2 354	3 178	2 847
North Central Coast	24 239	6 675	9 392	8 172
South Central Coast	16 242	6 892	5 618	3 732
Central Highlands	10 870	3 802	4 087	2 981
Southeast	35 628	21 555	9 172	4 901
Mekong Delta	33 373	13 961	11 974	7 438

Source: Health Statistics Yearbook 2005 [14]

**Figure 17.1. Proportion of health staff per 10 000 inhabitants by region, 2005**



Source: Health Statistics Yearbook 2005 [4]

### 17.2.3. Quality of human resources

#### ***Distribution of university and postgraduate degrees***

Over many years of building and development, human resource training facilities have provided a strong and qualified number of health staff for curative and preventive care facilities. In past years a small proportion of health staff had university-level training, but now over one fourth of total health staff working at all levels of facilities in Vietnam have university degrees, and many have postgraduate degrees. In the past, the commune health stations were staffed only by assistant doctors, nurses, and secondary and elementary midwives, but now more than 60% of communes have doctors. Previously, most nurses, midwives, and technicians had a secondary degree, but now they have university degrees, and some have postgraduate degrees. In the curative system, a high percentage of staff have a postgraduate degree of some type (eg, first- and second-degree specialist, resident doctor, MA, and PhD), and account for 45% of all staff having a university or higher degree (7404 persons). Approximately 200 people working in hospitals are professors, assistant professors, or PhDs. In the preventive health system, a lower percentage of staff have postgraduate degrees, accounting for 20% of the total number of staff having a university or higher degree.



### ***Retraining and continuing education***

In addition to initial training, the health sector is addressing retraining and continuing education to ensure that health staff are updated with new knowledge and do not lose their existing knowledge. Each health facility has an annual plan for retraining and continuing education of staff. All health staff, after graduating and working in the public health system, have the opportunity to participate in retraining and professional refresher courses. Besides professional retraining courses and updated training for clinical and paraclinical specialties (organized at hospitals of different levels and medical and pharmaceutical schools), the health sector offers long-term and short-term courses in management, foreign languages, and computing. These long-term and short-term courses are organized either in health facilities according to a government plan, or by vertical, national and international programs/projects according to the professional requirements of each program/project. Besides domestic training courses, many health staff have received appointments for study and training abroad to promote new technology transfer and acquire knowledge that can be applied in Vietnam.

### ***Training budget***

Currently, training budgets for public schools are mainly subsidized. The government subsidizes 3.5 million VND per secondary student and 6.5 million VND per university student annually. Given the needs that medical and pharmaceutical schools have for practical training in hospitals and communities, the current level of government funding is insufficient to cover the practical costs for students. The training budget for university and postgraduate degrees is also low since the general norms of the university at large also apply to medical students. However, the specific characteristics of specialty training are not considered. Training for first- and second-degree specialists was mentioned in the Law on Training and was officially recognized in the national training system. However, the cost norms for one trainee is only equivalent to one university student, but specialists need more clinical practice time with many advanced techniques, which requires greater funding. This constitutes a major challenge for training facilities in the health sector since there is an urgent need to improve the quality of training for health staff.

In addition to the government budget, some training facilities are funded by international, governmental and nongovernmental organizations. These financial resources have provided effective support for training and education in the health sector, eg, reform of training programs, development of the training curriculum, preparation of training instruments, application of active training methods, and investments in new equipment.

### ***Supervising examinations***

As with schools in other sectors, healthcare training facilities must comply with regulations of the Ministry of Education and Training as regards student enrollment and examinations. In addition, the Ministry of Health promulgates annual guidelines for affirmative action to recruit students for training in special 4-year programs to train doctors and pharmacists to serve in remote areas where there are severe shortages of trained medical staff.

The Ministry of Health also established the Inspection Board of Enrollment. The Minister of Health is the Director of the Board, and experts from the Department of Education and Training and the Inspectorate of the Ministry of Health are members. They provide supervision to the training facilities belonging to the Ministry of Health and support the facilities in national and final examinations. For many years, training facilities under the Ministry of Health have implemented enrolment examinations, without any serious problems arising.

### ***Teaching materials and methods***

For the past decade, all training facilities in the health sector have the common problem of lacking books for students. In teaching theory, the teachers/lecturers simply read the lesson for the students to write down.

Many teaching materials have been developed with large investments by government and the active support of international organizations in the past 10 years. Many textbooks from foreign countries have been translated and disseminated to training facilities. The number of professional and reference books in school libraries has increased considerably. Electronic library systems are developing at some of the large facilities. At some schools, the curriculum and lessons are placed on the Internet for access by students so they no longer need to go to the school to request information.

School curricula are being revised, but in different ways. For many years, Can Tho Medical and Pharmaceutical University has been applying a curriculum consisting of different blocks, and was the first facility to have a skills lab where students can practice diagnostic and treatment skills on models and simulators before practicing in a hospital. Recently, the other medical universities have built skills labs to support teaching. In the current economic situation, the opportunities for students to practice on patients are few, so the development of skills labs is necessary.

Teaching methods have also changed substantially. Active teaching methods have been gradually replacing the previous traditional method where a teacher reads and the student writes down the information. Before, classes centered on the teachers, but all schools have changed and classes now center on the students. Hence, teaching methods are changing to improve the activeness and self-education of trainees. However, the application of new teaching and study methods remains limited in most training facilities, and further investment and development are needed.

### ***Training facilities and number of graduates***

Training facilities for human resources in the Vietnam health sector currently use many different organization models and management modalities. In terms of management, among 16 universities and colleges, 1 facility is under the Ministry of Defense, 3 facilities are under regional universities managed by the Ministry of Education and Training, 3 facilities are managed by the Provincial People's Committee, and the remaining 9 facilities are managed by the Ministry of Health. In terms of organization, the schools have different organizational structures; there are 2-level schools (eg, Hanoi Pharmaceutical University, Hai Phong Medical University, and Thai Binh Medical University) and 3-level schools (eg, HCMC Medical and Pharmaceutical University, Hanoi Medical University), there are schools under the Ministry of Health, and there are schools that are members of regional schools (eg, Medical School under Thai Nguyen University and Medical School under Hue University). The size of schools varies widely depending on specialty and capacity of each school.

**Table 17.5. Distribution of medical and pharmaceutical universities/colleges by region**

<b>Geographical regions</b>	<b>Training facility</b>
Red River Delta	Hanoi Medical University Hanoi Pharmaceutical University Hanoi School of Public Health Hai Phong Medical University Thai Binh Medical University Vietnam National Dental University Traditional Medicine and Pharmacy Academy Nam Dinh Nursing University Hai Duong Medical and Technical College No.1
Northeast and Northwest	Medical College – Thai Nguyen University Quang Ninh Junior College of Medicine Phu Tho Junior College of Medicine
North Central Coast	Thanh Hoa Junior College of Medicine Nghe An Junior College of Medicine Medical College - Hue University
South Central Coast	Da Nang Junior college of medical technology II Khanh Hoa Junior College of Medicine
Central Highlands	Medical College - Tay Nguyen University
Southeast	HCMC University of Medicine and Pharmacy HCMC Medical Staff Training Ceter
Mekong Delta	Can Tho University of Medicine and Pharmacy

In terms of distribution, many medical and pharmaceutical universities/colleges are concentrated in the Red River Delta, around Hanoi. Some areas have no medical and pharmaceutical university, eg, South Central Coast and Northwest. However, many medical secondary schools are striving to improve the quality of training and are investing to upgrade infrastructure to become medical junior colleges in the near future.

Apart from schools, research institutes also participate in training human resources in the health sector. These institutes train postgraduates according to relevant specialties, eg, the National Institute of Hygiene and Epidemiology, the National Institute of Nutrition, the Pharmaceutical Institute, the HCMC Pasteur Institute. Some central institutes and hospitals also participate in training technical staff and secondary nurses.

**Table 17.6. Distribution of the medical and pharmaceutical universities and colleges by specialty**

Schools	Training specialty						
	GM	TM	OS	Pharmacy	MT	Nursing	PH
Medical College - Thai Nguyen	X			X		X	
Hanoi Medical University	X	X			X	X	X
Hanoi Pharmaceutical University				X			
Hanoi School of Public Health							X
Hai Phong Medical University	X					X	
Thai Binh Medical University	X	X					
Vietnam National Dental University			X				
Medical College - Hue University	X		X	X	X	X	
Medical College - Tay Nguyen University	X					X	
HCMC University of Medicine and Pharmacy	X		X	X	X	X	X
HCMC Medical staff training center	X						
Can Tho University of Medicine and Pharmacy	X		X	X		X	
Nam Dinh Nursing University						X	
Traditional Medicine and Pharmacy Academy		X					
Hai Duong Medical and Technical College of Medicine No.1					X	X	
Thanh Hoa Junior College of Medicine						X	
Nghe An Junior College of Medicine						X	
Quang Ninh Junior College of Medicine						X	
Khanh Hoa Junior College of Medicine						X	
Phu Tho Junior College of Medicine						X	

Notes: GM – General medicine, TM - Traditional Medicine, OS: Odonto-stomatology, MT – Medical technology, PH – Public health

All medical and pharmaceutical universities and colleges are public schools managed by the government and offer training in different specialties at the university, college, and technical school levels. In the near future, however, private schools will also participate in training human resources for the health sector. Apart from training university-degree human resources, the medical and pharmaceutical schools/departments/universities offer training courses for postgraduate degrees in the health sector, eg, first- and second-degree specialists, and post-graduate degrees granted by the national education system, eg, Master and PhD in advanced specialties. The training colleges have the task of training human resources at the college-degree level and below, mainly nursing and medical technician colleges.

The system of medical technical and vocational secondary schools includes 5 schools directly under the Ministry of Health and 53 under provinces. Most provinces in Vietnam have one human resource training facility that serves as a technical and vocational secondary school (elementary pharmacist, elementary medical technician). The newly separated provinces and some provinces with a medical and pharmaceutical university in the area are actively preparing to establish medical technical secondary schools on the foundation of existing training centers. The government manages nearly all technical and vocational secondary schools.

**Box 17.1. Medical technical high schools and training centers directly under the**

**Ministry of Health**

- Hai Duong Pharmaceutical Secondary School
- National Medical Technicians School # 2
- 4 health secondary classes at the central hospitals and institutes (Bach Mai Hospital, Central Malariology, Parasitology, Entomology Institute, Quy Nhon Malariology, Parasitology, Entomology Institute, Nha Trang Pasteur Institute)
- Nursing Department, Medical Technology Department – HCMC Medical and Pharmaceutical University
- Health secondary classes under the Vietnam National Dental University, Hanoi Pharmaceutical University, Nam Dinh Nursing University,
- Traditional Medicine Secondary School (Tue Tinh)

**Directly under the Provincial People’s Committee**

- 53 health secondary schools
- 5 training centers, health staff schools
- Health secondary classes under health colleges

**Vocational training facilities**

- Medical Equipment Technical School (under the Ministry of Health)
- Vocational training system at the medical and pharmaceutical secondary schools and colleges

The vocational school system currently has only the Medical Equipment Technical School under the Ministry of Health. This school specializes in training technicians for medical equipment. However, nearly all health secondary schools and colleges participate in training human resources for the health sector, eg, pharmaceutical technical worker and elementary pharmacists. Given the number of training facilities described above, the universities, colleges, and secondary schools annually provide a large number of trained people at all levels to the health sector. Over 3000 postgraduate trainees and 6200 university students graduate annually (Table 17.7). In the secondary system, around 18 000 nurses, midwives, technicians, assistant pharmacists graduate annually from technical secondary schools. If all of these graduates work in the healthcare sector, the ratio of health staff per inhabitant will continue to increase rapidly.

**Table 17.7. Average number of medical students graduating each year by qualification**

Training degree	Number graduated
<b>Postgraduate</b>	3 200
PhD	140
Masters	600
First-degree specialists	340
Second-degree specialists	2 000
Resident doctors	120
<b>University</b>	6 200
Medical doctors	3 000
Pharmacists	1 300
Bachelor of Nursing	1 400
Bachelor of Medical Technology	250
Bachelor of Public Health	250

Training degree	Number graduated
<b>Junior College of Medicine</b>	500
Nurses/Midwives	250
Medical technicians	250
<b>Technical high school</b>	18 000
Secondary nurses	12 000
Secondary midwives	3 000
Secondary medical technicians	700
Assistant doctors	300
Assistant pharmacists	2 000
<b>Vocational</b>	14 500
Elementary pharmacists	5 150
Medical equipment technical workers	300
Pharmaceutical technical worker	50
Elementary nurse/midwife	9 000

Source: Truong Viet Dung [250]

### ***Improvement of training management***

- Apply information technology to training management.
- Strengthen the supervision of training activity in the schools.

### ***Improvement of training and supplementary education for teachers and training managers***

- Direct and monitor schools to develop long-term and short-term plans for training and supplementary education for teachers.
- For schools with training units for teachers, direct and monitor the plan for consolidating development, and make plans for training in own school and other schools.
- Criteria for training teachers based on professional requirements, the Law of Education and teacher standards.
- Pay special attention to units charged with training new specialties in Vietnam (medical technician, nurse, and midwife).

### ***Continuous renovation of teaching methods***

- The Department of Training and Science coordinates with schools to organize training courses on active teaching methods for all teachers, and proposes schools to help teachers apply active teaching methods.
- The application of active teaching methods should be considered as one of the criteria in reviewing the merits of model teachers and in recruiting new teachers and main lecturers.

### ***Quality improvement of student evaluation work***

- Establish the examination board of Ministry of Health, presided over by the Department of Training and Science. This board will direct and plan the following:
- Monitor schools to compile their own curricula and instruments for testing and evaluation. Strive to develop (by 2010) a question bank to evaluate students in specialized fields, which is basically consistent and uniform within the system of medical and pharmaceutical universities and colleges
- Develop a system of student evaluation in schools, focus in the short term on developing the outcome evaluation system
- Monitor final examinations annually.

### ***Assessment of training quality in the schools***

- Develop the criteria for quality assessment and quality assurance of training in medical and pharmaceutical universities and colleges. In the short term, develop the criteria for quality assessment and quality assurance of general medical doctors (in science research studies from 2001-2004), and then maintain and continue to develop (depth and breadth) science research according to specialty, based on the number of people being trained
- Assess, as a first step, the quality of training for general medical doctors in 9 training units (science research 2001-2004).
- Continue to direct and develop the plan for monitoring schools, maintain annual self-assessment; periodically (2 years) organize cross-assessments between schools so that

the schools can study others and exchange experience, find causes of problems and feasible solutions to improve the quality of training in schools.

- Maintain and improve the contents of the biennial conference on training in college, university and postgraduate education.

### ***Investment in facilities and teaching equipment***

- Propose and coordinate with relevant departments to enhance effective and practical investments in facilities, teaching instruments, and equipment for schools; monitor schools in the use of training budgets; strive (by 2010) to equip each school with a model laboratory/paraclinical room for each main specialist discipline.

### ***Development of practical training units outside of school***

- Encourage schools to develop the semi-public university hospital model.
- Propose mechanisms and policies on building school-institute models; short-term pilot projects in some schools with advantageous conditions (schools in the process of building and upgrading, etc).

### ***Development of talent training plan***

- Develop talent training projects; send excellent, newly graduated students and well-qualified staff working in public health facilities to study abroad for postgraduate degrees, funded by the government budget.
- Mobilize international organizations to provide scholarships for students and young staff to study at prestigious schools in the area and in developed countries.

### ***Emulation, commendation, and reward***

- The above activities should use the criteria system of emulation, commendation, and reward, and should be used as conditions and a basis for discussing the merits of model teachers.

#### ***17.2.4. Remuneration policies for health staff***

Salary policy provides important motivation to foster labor productivity and efficiency and to enhance the quality of personnel. The government has promulgated many documents on remuneration policies for staff in general and staff of the health sector in particular. The policies have been generally applied and implemented.

According to the results of a study by the Planning and Science Department in (2004, 2005), the system of regulations and policies for staff in the health sector has been frequently revised and supplemented, yet life for staff in the health sector remains difficult. Study results show that the system of regulations and policies is still incomplete, many regulations have not been specifically stipulated. Although the document are clear and easy to implement, the regulations and policies often do not accurately reflect reality. Hence, the majority opinion is that the system of regulations and policies should be corrected.

A lack of regulations and guidelines is not the only problem. Many places have guidelines, but these are not fully implemented. Such shortcomings indicate that the life of workers in the health sector is not ensured and inequities exist across regions and facilities. Since regulations have been inappropriate or have not been fully implemented it has made life difficult for workers in the health sector.

Jobs in the health sector require strong technical and scientific skills, but also sensitivity to social issues. Working hours are long and pressure is high. At all health facilities – from the commune health station to the district, provincial, and central hospitals – health staff take turns being on duty, 24 hours per day every day of the year. The work is constantly related to life and death of patients. Moreover, they work in the presence of new diseases that put their own lives at risk.

Although the job makes special demands, the regulations on salary and some policies for the health sector in Vietnam are inappropriate. The salary is not a sufficient source of income to ensure a livelihood. Doctors have always been honored and respected, but the life of a doctor is still very difficult and strenuous. To deal with this problem, the Party and Government promulgated policies on preferential allowances to help doctors achieve a more stable life and remuneration that better reflects their work situation.

Circular 17/LDTBXH-TT, Circular 19/LDTBXH-TT (June 2, 1993), Circular 23/LDTBXH-TT (July 7, 1993) of Ministry of Labor – Invalids – Social Affairs, Decision 155/TTg, and Decision 276/2005/QD-TTg presented preferential regulations as regards allowances for:

- Toxic and dangerous work
- Frequent travel to meet local health needs
- Positions of higher responsibility
- Epidemic control
- Surgery/procedures
- Overtime
- Special allowance for workers in direct contact with patients

Although regulations on preferential allowances for staff in the health sector have been addressed by the Party and the Government, not all are viewed as appropriate, many have not been implemented widely.

### **17.3. Specific Characteristics for Satisfying Human Resources in the Health Sector**

Regarding the workforce, the health sector operates partly in the new market economy and partly like in the subsidized period (ie, where the number of staff are allocated according to the size of the health facility, not based on service delivery level or labor productivity, and not completely based on the needs of the community). More highly qualified staff are concentrated mainly in the urban and advantaged areas and often in large facilities, eg, specialized and general hospitals and clinics. Many health facilities in these areas are private. The preventive medicine system is less attractive to professional staff. Increasing numbers of pharmacists and secondary pharmacists graduate, but they do not want to enter the public health system. They tend to work mainly in the private pharmaceutical system. This has resulted in a shortage of pharmacists in the public sector despite the larger number of graduates. Few choose to work in disadvantaged, mountainous, and remote areas. Not only pharmacists, but also other health staff do not want to work there in the long term due to poor working and living conditions, and the continued lack of appropriate preferential regulations and policies.

The number of health staff per inhabitant in Vietnam currently exceeds that in many countries in the region, eg, Thailand, Indonesia, even though these countries have a higher level of income than Vietnam. This only takes into account the number of staff working in the



public health system. As mentioned above, the number varies among regions, with the number of health staff per inhabitant in the mountainous and highland provinces lower than that in the delta area. Yet, theoretically, these regions require a greater number of health staff due to poor transportation conditions and sparse population. Even within a locality, the distribution of health staff is still based on the size of health facilities, even if this is irrational and does not meet the healthcare needs of the people.

The private health system has been developing gradually and meets part of the needs of health care. However, not many well-qualified health staff work fulltime in these facilities. People working in the private health sector are mainly medical doctors and nurses from the public health sector working off-hours, retired health staff, or those unable to be recruited by public facilities. Many private health facilities rely heavily on referrals from health staff working in public hospitals who work after hours at these private facilities.

#### **17.4. Challenges to Develop Human Resources in the Health Sector**

Despite growing strength in terms of quantity and quality, the human resource development system in the health sector still faces many difficulties and challenges.

- Quality of health personnel training is limited, some newly graduated doctors, nurses, and pharmacists do not have sufficient skills to provide basic health services. The professional skills of graduated students may be lower than those hired in the past since they have less chance to practice on patients. Slowly changing curricula and the lack of resources for training facilities are not only problems in secondary schools, but also in universities.
- The distribution of health training facilities for university and postgraduate degrees differs among areas. Health personnel with university and postgraduate degrees are lacking, especially in mountainous provinces and the Mekong Delta.
- The ratios of health personnel are not in balance, eg, the ratio of nurses to doctors and pharmacists to doctors is low while the annual rate of graduates is quite balanced (the ratio of nurses to doctors graduated annually is 1/4.6; the ratio of doctors to pharmacists graduated annually is 3.5/1). A fairly common situation is that trainees from provinces and mountainous areas do not want to return to rural, mountainous, and remote areas to work after graduating. Hence, this contributes to a shortage of health staff in these places, but a surplus in other places. In some health specialties (eg, preventive health, tuberculosis, leprosy, AIDS patient care, laboratory testing, and forensic medicine) it is difficult to recruit students due to the lack of appropriate regulations, attractive conditions, and professional incentives. This indicates that staff policies, recruitment processes, and distribution of graduates in public health facilities are still inadequate.
- Staff with new types of professional degrees, eg, university degree medical technician and university degree nursing are in short supply. The identification, supplementary education, and training of talented staff in the health sector does not receive sufficient attention, hence many specialized areas have no staff to take the lead or well-qualified staff preparing for new technical transfer and update. Vietnam is likely to lag behind in medicine and pharmacy compared to other countries, even those in the ASEAN region.
- Training and transfer of knowledge about modern technology and methods is still spontaneous. PhD and Master theses have no clear orientation toward being used in formulating sector and specialty development strategies and policies.

- There are no plans for informal specialty training, retraining, and continuing education, and these are disregarded compared to training leading to a degree
- There is no strategy or solution for training and retraining in the private medical and pharmaceutical system, although this system is developing very quickly and contributes substantially to healthcare delivery.
- Some trainees receive very brief education, eg, secondary nursing and assistant doctors are trained in 2 years. This makes it difficult to ensure the required quality standards.

### **17.5 Causes Behind the Drawbacks**

- Capacity of health training facilities does not meet the training needs of society. The slow revision of curricula influences the quality of training, leading to low practical skills among new graduates.
- Funds budgeted for training fall below the level needed. In public schools, the training budget is funded mainly by the government. However, the budget norm is much lower than the actual outlays needed. Tuition fees established by government regulations are low and insignificant compared to the investment in teaching.
- Teaching and studying methods are beginning to change in some schools, however nearly all schools use traditional methods, mainly focused on teaching theory. Students have little or no opportunity for paraclinical practice before practicing in hospitals. Teaching of practice methods is still based on the traditional approach.
- Teaching facilities in schools have not been adequately funded or updated to prepare students before practicing in hospitals and pharmaceutical enterprises.
- Laboratories in some technically equipped schools are being slowly renovated and are used below capacity. There is no coordination to share modern equipment or instruments among training units (especially in the first 2 years).
- Schools have no master plan for teacher and leadership development.
- Hospital teaching facilities: few schools have a university hospital for students to gain practical experience. At the provincial and central levels, students have little chance to participate in health care for patients due to economic reasons, while sending trainees to practice at the grassroots level is discounted. Coordination between schools and hospitals is difficult due to the economic mechanism, even though guideline documents exist.
- Scientific research is not closely integrated with training in schools.
- The reason for a shortage of health staff in mountainous and remote areas is not due solely to the training process, but also to shortcomings in the mechanisms of attracting, appointing, and using staff.
- Medicine is a special profession, but still lacks appropriate mechanisms for recruitment, training, utilization of staff and compensation as called for in Resolution 46 of the Politburo.

### **17.6. Orientation for Human Resource Development**

In the new period of personnel training, the health sector needs to be more fully aware of the spirit of Resolution 46 by the Politburo and the action plan for implementing Resolution 46 by the Government. The directive states: “Medicine is a particular profession which needs

special recruitment, training, employment, and treatment. Each and every health official and worker must always uphold medical ethics and improve his/her professional capacity to deserve the trust and praise of society, thus living up to the teaching of President Ho Chi Minh, ie, “*A good physician must also be a tender mother*”.

Regarding the main tasks and solutions, the third part addresses the development of human resources:

Strengthen the health staff not only in quantity, but also in quality and organizational structure. Rearrange the healthcare network, expand and upgrade training institutions, meet the needs for health workers and officials in accordance with the plan for health sector development; build health staff training centers of the same level with advanced countries in the region. Step up the training of health staff using affirmative action for the mountainous and Mekong Delta regions; attach importance to the training of health managers, particularly hospital managers. Attach importance to the training, use and treatment of talented health professionals. Expand the overseas training of highly knowledgeable health professionals using funds from the state budget; encourage self-supported overseas study in needed specialties.

Initiate and implement rational policies on treatment of health workers and officials; implement the policy giving a doctor the same treatment as a teacher. Social and health insurance schemes shall cover those working at the communal health stations. The rotation of health staff shall be carried out; doctors are encouraged to work in mountainous, remote and difficult areas.

The Action plan to implement Resolution 46 of the Government proposed the following projects:

- Plan for training system in the health sector (including 2 high-tech centers, upgrade secondary schools to college).
- Project for training gifted people and high technology medicine for health care facilities at the central and provincial levels.
- Affirmative action projects to train members of ethnic minorities to become doctors to serve their communities in the Mekong Delta, Central coast, and northern mountain areas.
- Project to develop policies on attracting health staff to work in remote areas
- Project to develop staffing norms in health facilities.
- Project on regulation of salary allowances for health workers and officials.

Based on that the above, the objective of the health sector is to build and develop the human resources necessary to meet health program objectives (diagnosis, treatment, prevention, medicine supply and use, management) to serve people based on the development strategy of the Party and the Government. To strive to achieve, by 2015, the ratio of 7 doctors and 1.5 pharmacists per 10 000 inhabitants (both public and private sectors)

To achieve the healthcare system’s aim of equity for the whole population it is important to ensure equity in terms of health personnel across regions, especially mountainous, remote, and disadvantaged areas where it is difficult to attract health staff. The health sector has been implementing temporary solutions, eg, affirmative action in selection and shorter courses, at the grassroots level. Apart from these solutions, the government and localities need to have rational policies on treatment to attract highly knowledgeable health professionals to the health sector.

In addition to guaranteeing the quantity, improving the quality of health personnel is a key objective. To achieve this objective, the health sector must invest in schools, eg, paraclinical laboratories, good quality classes, training lecturers/teachers, renewing curricula, applying active study and teaching methods, and building and expanding laboratories.

Annually, the health sector prepares plans for retraining and continuing education to supplement knowledge on specialties and enhance professional competence and management. The health sector also plans to send highly knowledgeable health professionals for study abroad to acquire new knowledge and skills in diagnosing and treating diseases. Retraining and continuing education apply not only to health staff in the public sector, but also to practitioners in the private health sector. Compulsory mechanisms regarding self-study and participation in retraining and continuing education courses for health staff will be developed incrementally.

Currently, nearly every training institution is public. In the future, the private education system will be expanded and developed.

The types of training continue to diversify to meet the needs of health personnel in every field.

Some approaches include:

- Arrange and expand training institutions according to the people's needs for diagnosis, treatment, prevention, and medicine in public health facilities, and human resource needs for the private health sector by geographic regions and social economics.
- Form modern, regional medical and pharmaceutical universities in Hanoi and HCMC and train well-qualified and highly knowledgeable health professionals.
- Form a group of universities/colleges for each of 8 socioeconomic regions. More economically developed regions may have more universities.
- Each province has one training institution at the level of college, secondary school, or vocational school. In the coming period, secondary institutions will be upgraded completely to become colleges, providing training for junior college-level degrees and lower.
- Teaching facilities: maintain the present teaching hospitals/institutions, and build more teaching hospitals affiliated with medical schools. For pharmaceutical training institutions, teaching facilities meeting minimum standards will be strengthened in areas of manufacturing, research, pharmacy, and hospitals.

Described above are some main features of the current human resource and health personnel development system in Vietnam, and the direction for the future. As health personnel continue to develop, this further promotes quality of care. The contingent of health personnel in Vietnam has been growing quickly, from a small number to around 2 million health staff, including 188 professors, assistant professors, and PhDs and over 7400 postgraduate doctors and pharmacists. They work in all regions of the country, from mountainous to delta and island areas, from large-scale hospitals at the central level to district hospitals and commune health stations. They not only diagnose and treat diseases, but also work with disease prevention and primary health care, with the aim to ensure equity and efficiency in health care for the people.

However, postgraduate training encounters many difficulties because the specialized training budget is not much larger than the training budget for university students generally. Moreover, in the current market economy environment, it is difficult for postgraduate students to practice directly on patients.

Hence, development of human resources in the health sector faces many challenges, as follows:

- Uneven distribution of human resources.
- Unequal and irrational distribution.
- Lack of highly technical health personnel.
- Poor quality of training, although some progress is being made.
- Lack of continuous training regulation and conditions.
- The blurred division between public and private health personnel.

Causes behind the above-mentioned challenges are many, including:

- Training capacity does not meet the need.
- Limited training budget.
- Lack of practice in training methods.
- Training institutions are not upgraded sufficiently.
- The plan of training and use of human resources is not harmonious.
- Loose coordination between hospital and training institution.
- Scientific research at training facilities has not received the attention it requires.
- Inadequate policies.

The future development of human resources in health care requires re-planning of training institutions based on the population's need for healthcare, disease prevention, and pharmaceuticals. In this plan, it is necessary to form a group of universities/colleges for each region (Hanoi, HCMC), upgrade provincial health secondary schools to become colleges, and give attention to practical laboratories, especially in teaching hospitals.

## **Chapter 18**

### **SCIENCE AND TECHNOLOGY**

Science and technology are the driving forces and the sustainable basis for development of medical science in Vietnam, helping to resolve real and urgent medical problems and improve the quality and efficiency of health services.

In recent years, medical researchers in Vietnam have undertaken many valuable scientific studies that have not only contributed to improving the people's health care, but have also achieved international recognition for medical sciences in Vietnam.

The sixth session of the Executive Committee of the 9<sup>th</sup> Communist Party Congress continued to affirm the catalyzing role of science and technology in the process of industrialization and modernization of Vietnam. This session laid out the perspectives and orientations for strategic development of science and technology for the year 2020, the responsibility and goals for the year 2010, and solutions to increase the pace of development in science and technology.

This chapter presents activities and scientific results for the 2001-2005 period, and certain problems, challenges, and priorities for development of the health sector in the coming period.

#### **18.1. Some Achievements**

##### **18.1.1. Preventive medicine**

Science and technology have contributed actively to limiting, reducing, and gradually eradicating dangerous diseases in Vietnam during the last decade of the 20<sup>th</sup> century, especially stopping dangerous and deadly epidemics like SARS, and gradually reducing avian influenza A(H5N1). No major epidemics have occurred for many years, even during or after natural disasters.

Results from science and technology have been put into practice to prevent disease and reduce mortality from diseases like malaria, diarrhea, and acute respiratory infections in children.

Regarding the expanded program on immunization (EPI), Vietnam has been active in researching vaccine production technologies meeting international quality standards (eg, vaccines against polio, tetanus, hepatitis B, and Japanese encephalitis), clearly contributing to reductions in outbreaks that previously had seriously threatened the health of Vietnamese children.

By the year 2000, according to international standards, Vietnam had eradicated childhood polio and neonatal tetanus. Researchers in Vietnam have developed diagnostic biomedical products for testing Japanese encephalitis, dengue fever, hepatitis B, and other diseases, satisfying many needs for diagnostic methods.

##### **18.1.2. Curative care**

In curative care, Vietnam also has kept pace with recent developments, eg, laparoscopic surgery and some types of organ transplants. Vietnam has received important recognition for achievements in the areas of organ transplantation, development of medicines (*Artemisinin*), and social medicine.

Regarding economic efficiency, the cost for access to medical technology is much lower in Vietnam than in other countries. For example, in Vietnam, a double angioplasty for heart

valves costs only 7 million VND and stent placement costs 35 million VND, whereas these procedures cost much more in other countries – from about 5000 to 15 000 USD for angioplasty and 7000 to 20 000 USD for stent placement. Nevertheless, even at such low costs, only high-income Vietnamese people are able to access these services. The problem is how much the government is willing to subsidize the development and application of these technologies. Some people say that the state should only pay for the research phase, and collect full cost when the methods are applied.

### **18.1.3. Organ transplants**

Following the success of kidney transplantation technology in Vietnam, transplantation services are now offered in several hospitals throughout the country. The Military Medical Academy of the Ministry of Defense, and the Central Pediatrics Hospital, have researched and refined a procedure for experimental liver transplants, researched the biological changes of liver disease in donor and recipient animals during the process of transplantation, and provided important prognoses. Thus far, 2 liver transplants have been successfully carried out, supporting the capacity for liver transplants in Vietnam, developing standards for healthy people to donate liver and post-transplant care, developing procedures for operating equipment, systems for maintaining sanitary laboratories for liver transplants, and ensuring transplants of other organs.

In terms of society, transplant research has enabled Vietnam to successfully acquire and utilize advanced technology, has created trust among patients, and has given Vietnam's health system a reputation of providing life-giving care that extends the life expectancy of patients.

### **18.1.4. Research and production of pharmaceuticals**

Vietnam's health sector has focused on applying science and technology to developing pharmaceutical materials that draw on Vietnamese sources of medicinal plants. *Artemisia annua* has been successfully and efficiently cultivated for extraction of *artemesinin*, the *Cinchona* plant has been reestablished (for quinine production), and alkaloid from the *vinca rosae* extracted to produce the cancer-treating drug Vinblastin. *Zingiberaceae* and *Fibraurea tinctoria* have been regenerated to develop raw material sources to produce *Berberin* (diarrhea treatment) in Vietnam. Seeds are selected for *papaya* cultivation on a large scale for production of *papain* to use in the food industry and for export. Many drug production lines have obtained GMP standards.

The study on extraction of *artemesinin* from *Artemisia annua* has been awarded the Ho Chi Minh prize. Continuing work on related studies, have resulted in fine-tuning the production of injectable *Artesunat* for treating malaria. The production of injectable *artesanat* solution meeting technical standards of the Vietnamese pharmacopoeia has extended the life of the product 3 times, provided sufficient quantities of the drug to the National Malaria Control Program, eliminated the need for imports, and enabled exporting, with a production cost of only about half compared to imports from China.

Preliminary results are available from the study to design a model for sustainable development of medicinal plant resources and preservation of valuable and rare medicinal plants by means of modern techniques. Research has been conducted on the preservation of genetic material among selected medicinal plants, and on the preservation and development of two genera of ginseng that are particularly valuable and rare and were at risk of extinction.

The use of modern procedures in research and production of drugs from natural resources and drugs inherited from traditional remedies have affirmed the orientation, have proved efficient, and are widely accepted by the population.

Technical breakthroughs applied in the pharmaceutical industry have contributed considerably to the implementation of the essential drug policy, achieving strong success in primary health care in Vietnam.

### **18.1.5. Social science and medicine**

While many valuable scientific and technological studies in preventive and curative medicine have been implemented, other studies in social science and medicine and baseline surveys of health, disease, and the bioenvironment have been undertaken on a national scale. These include VNHS 2001-2002, Survey on Dental Health, Surveys on Reproductive Health, and the Malnutrition Monitoring Program, aimed at improving the quality of health services and management of the health sector. Results from such studies play an important role in designing health strategy and health policy to improve health services for the population.

During the past 5 years, scientists in the health system have received many eminent awards. In 2005, the health system received the Ho Chi Minh award and 5 State awards. Also, many groups and individuals have been awarded "Scientific and Technological Creativity" awards.

### **18.2. Shortcomings and Challenges**

In addition to the major achievements, scientific research in the health system also has to cope with shortcomings and challenges, for example:

The healthcare needs of the population are increasing rapidly, in parallel with economic growth. In general, when the economy doubles, the need for health services grows 4- to 6-fold. Hence, given the present rate of technical progress, the gap between demand and supply in the health system is gradually increasing. In fact, we have not reached a development rate matching the potential scientific and technological level of the health system. Technical advancements such as organ transplantation and molecular biology are common in modern nations in the region, but are only nascent in Vietnam. One of the reasons is that previously, we have focused on the objective of equity, particularly in primary health care, despite the fact that high technology also contributes to services in preventive health, eg, vaccines, for poor people.

Funding of medical research is constrained in Vietnam, with only about 2 million USD annually for scientific studies in medicine and pharmaceuticals. The private sector is not yet strong enough to invest in research or high technology transfer to develop high-tech health care and produce pharmaceuticals as in the more developed nations in ASEAN.

Since financial resources for medical research in Vietnam are limited, basic and applied research take place only on a small scale, addressing scattered topics – sometimes only sufficient to allow scientists to practice their research skills more than bringing real benefits to patients. Studies on transfer of technology are few, as are long-term research projects leading to practical applications. Only a small share of results from peer-reviewed scientific studies are actually used in practice. Studies related to producing pharmaceutical and biomedical products are scarce in comparison to the potential manpower available and abundant natural resources.

Interdisciplinary cooperation in basic and applied research is rare. Although medical and pharmaceutical research institutions cooperate with the Vietnam Institute of Science, funding and mechanisms for joint action are insufficient, especially given the lack of a clear orientation. Many national-level studies lack a systematic approach or linkages to real needs for providing health care to the population.

Policies to assist and promote research have not been strong enough to attract intellectual power inside or outside of the health system. Frequently, scientists do not consider scientific research as a way to earn a living. Hence, many studies are slow to be implemented, and few studies reach “breakthrough” status.



The information age presents many opportunities to access scientific advancements. We can use the "short-cut" strategy toward diagnosis, treatment, vaccine production, and environment management. But up to now information technology has been applied restrictively.

A relatively important factor in developing and applying new technologies in diagnosis and treatment is social mobilization, which is difficult to apply because of the inability for the majority of the population in Vietnam to pay, ie, the "clients" of health services are very poor. In practice, we see that in large cities where the economy is more developed, high-technology services yield revenues that health services can use to reinvest in new, modern technologies.

The potential of using bilateral or multilateral international relationships in technology transfer and research has not been exploited, so donors have focused attention on assistance for primary health care, including services that Vietnam can provide on its own.

Under the market economy, basic research has been an unattractive area for scientists. Although the cohort of scientists trained in Eastern European countries is aging, the new generation is not being trained fast enough to replace them. This creates the risk for a shortage of scientists in basic medical and pharmaceutical sciences, undercutting the foundation of these sciences.

Management of science and technology in the health system has many shortcomings. Although funding is such a decisive factor for research activities, the Ministry of Health only administers part of funds supplied by the Ministry of Science and Technology. Studies funded through direct contracts with the Ministry of Sciences and Technology occasionally deviate from the strategic focus of the health system. The monitoring of study progress is ineffective because coordination in the health system is not strong enough.

At the provincial level, the People's Committee supplies funds to the health service (by way of the Provincial Department of Sciences and Technology). For pharmaceutical production and healthcare facilities, revenues come from the state budget or self-supporting funds. In general, funds are insufficient and spread thin, and research competence at the local level is insufficient because workers are rarely retrained.

Given these realities, if the strategy and orientation from the Ministry of Health are lacking, the utilization of funds (already limited) will be scattered thinly, resulting in incomplete research that cannot lead to strong products.

### **18.3. Course of Development 2006-2010, and Orientation Toward 2020**

#### ***Objectives***

Scientific research in the health system will focus on the following basic objectives in the near future:

- To build modern medical and pharmaceutical sciences in Vietnam, reaching the level of other nations in the region and an international level in some priority fields.
- To modernize technology in diagnosis, treatment, prevention, and production of vaccine and biomedical products and medical equipment.
- To build a reliable scientific basis for the design of policy and orientation of the health system in the protection and management of people's health.

#### ***Development orientation***

Scientific and technological activities will focus on 3 principal orientations:

- Priority is given to the development of bioengineering in basic medical investigation to serve as the basis for technology transfer in examination, diagnosis, treatment, prevention, and production of vaccine and biomedical products.
- Intensification of modern applied research in diagnosing and treating disease and producing medicines.
- Enhancement of research competence in preventive health and administration of the public health system.

All three orientations will serve as a basis for projects, including those aimed at resolving the questions with practical outputs to manage people's health.

Concurrently, in studying the prevention and control of infectious diseases, the focus should be on practical, feasible, and efficient measures to prevent and control noncommunicable diseases that have emerged during the industrialization process, eg, cancer, cardiovascular, respiratory, neurological, psychiatric, allergic, and bone and joint disorders.

The health system must gradually control, prevent, and eventually eradicate social diseases and dangerous epidemics, eg, SARS, avian influenza, food poisoning, bacterial infection, and parasite infestation. We need to strengthen surveillance and application of measures to reduce the impact of HIV/AIDS. Strengthening applied research on new technologies for the diagnosis, treatment, and prevention of disease and in the production of effective vaccine and medicines needs to be undertaken.

A high priority is to conduct prospective studies on high-tech developments (eg, bioengineering, genetic technology, information technology, material technology, and automation technology), giving attention to technology that is suitable to Vietnam. The aim should be to develop modern Vietnamese medical science, with a harmonious combination of traditional and modern medicine for diagnosis, treatment, and prevention.

The pharmaceutical sector must conduct prospective studies on the development of raw material for pharmaceutical production, exploitation, and preservation of medicinal plants, intensification of research on bioequivalence and bioavailability, enhancement of the quality and possibility of competition of Vietnamese pharmaceuticals in domestic and regional markets.

Development of scientific and technological potential in the health system should be intensified through enhancing the physical facilities of universities and leading institutes, in parallel with the development of manpower and formation of a contingent of highly qualified researchers to build new scientific centers approaching those at regional and international levels.

Development of research on strategy and health policy, social science and medicine, and health economics are needed to propose policy, mechanisms, and models of health care from national to local levels, including public and private health services, health care during disasters, military medicine and combinations of military and civilian medical services, and to propose measures to better administer health insurance and health financing.

### ***Measures for implementation***

- Initially, current scientific and technological activities and demand for scientific and technological applications should be thoroughly evaluated to serve as the basis for improvement and orientation of a development strategy for science and technology from the present to 2010, with a vision to 2020.

- Before the end of 2010, development of the contingent of scientists, especially young scientists, is required. A mechanism for encouraging and attracting manpower and talent should be elaborated, focusing on basic fields.
- Upgrading institutions of scientific research, concentrating into 3 major orientations as mentioned above.
- Cooperation between disciplines, domains, branches, and ministries.
- Collaboration between users of technology and researchers in pharmaceutical production, diagnosis, and prevention of diseases with the aim to intensify and promote high technology transfer in practice and overcome the dilemma of limited funds through financial autonomy of facilities and greater concentration of state budget on priority areas.
- Encourage the private sector to invest in new technology development and participate in research and technology transfer.
- Consolidation of the legal system and technical regulations.
- To assist and enhance the competence in scientific and technological management at all levels, from national to provincial.

#### **18.4. Recommendations**

Performance within sciences and technology in Vietnam lags somewhat behind other nations in the region. The state should intensify its investment in modern technology from around the world to take an important step toward technological development and to acquire new, efficient products for improving health care for the population within the constraints of limited funds.

An incentive policy should be promulgated to attract young scientists and promote their research talents.

For efficient prevention and control of noncommunicable diseases, immediate action should be taken to develop epidemiologic investigations on a national scale for noncommunicable diseases, addressing their incidence, prevalence, and mortality according to age, sex, region, and fluctuations in these diseases in hospitals and communities. The second priority is to provide funding for medical schools and provincial hospitals to conduct analytical epidemiological investigations, eg, analysis of symptoms and homogenous cohort investigations to detect causes, risks, and protection factors for noncommunicable diseases. The third priority is to determine the cause and risk of noncommunicable diseases and to develop pilot projects to control these causes and risks to prevent the occurrence of, or mortality from, these diseases. The fourth step is to develop, on a wide scale, intervention projects to effectively control noncommunicable diseases. Achievements in investigations on the causes and risks of noncommunicable diseases should be disseminated widely to all Vietnamese to prevent and control these diseases in the family and community.

Favorable conditions should be created to enhance joint research among institutions in different branches and around the country and to combine research with production to enhance the efficiency of investment funds in research. Mechanisms should be established for scientists to develop research projects that combine research with production, and inversely, for producers to use scientific achievements. This is a measure to enhance the income of those involved in scientific research.

International cooperation should be pursued in research and training to update new knowledge and to obtain new funding for scientific development. It is important to formulate new policies permitting scientists to pursue achievements of the modern world and develop projects for training specialists and transfer of high technology.

Uniform procedures should be established for collaboration among different ministries to ensure unified management of programs and projects according to the Law, and to exploit internal efforts while demonstrating the particular strengths of each sector.

Suitable administration should be developed for different types of research and different economic sources, including the private sector, to acquire resources for research.

Major research institutions should be upgraded to serve health care and promote the production of vaccines, biomedical agents, and pharmaceuticals.

## Chapter 19

### PHARMACEUTICAL SUPPLY AND MANAGEMENT

In 2000, total expenditures for drug purchases in Vietnam were modest, about 9 USD per capita. However, the amount spent on drugs as a proportion of health expenditures is high, accounting for 41% (Table 19.1). By 2003, the average expenditure per capita for drugs was 12 USD, accounting for 51% of total health expenditures [219]. During the transition from a centrally managed to a market economy, the pharmaceutical market has mushroomed, posing many challenges for pharmaceutical regulators in Vietnam in terms of rational and safe use of drugs, ensuring drug quality, and stabilizing drug prices.

**Table 19.1. Average expenditure for drugs per capita and drug expenditure as a proportion of total health expenditure in some low- and middle-income countries in Asia, 2000**

Country	Average expenditure for drugs per capita (USD)	Proportion of drug expenditure out of total health expenditure (%)
Lao PDR	2	20.4
India	3	14.5
Nepal	4	29.9
Bangladesh	5	37.9
Indonesia	5	26.7
Pakistan	5	27.1
Vietnam	9	41.0
Cambodia	11	36.7
Malaysia	15	11.2
Philippines	15	43.5
China	20	45.1
Thailand	21	29.3
Myanmar	26	16.0
Cuba	45	25.9
South Korea	92	15.9

Source: WHO The World Medicines Situation, 2004 [251]

In the past 5 years, the Drug Administration of Vietnam (DAV) and Department of Therapy of the Ministry of Health have been implementing the national drug policy. The DAV has concentrated on developing statutory documents related to quality assurance and registration of drugs, implementing good manufacturing practice, storage, drug quality assurance, and administrative reform in import and export of pharmaceutical products. In addition, due to a dramatic rise in drug prices in 2003, the DAV and Department of Therapy have taken on the additional responsibility of stabilizing drug prices. The Department of Therapy, with its tasks of ensuring rational and safe use of drugs, has made substantial contributions to developing and directing the implementation of regulations for rational and safe use of drugs in hospitals.

This chapter summarizes achievements in drug regulation and addresses challenges in the near future. The core contents of this chapter include:

- Develop and complete legal framework for the pharmaceutical sector
- Ensure sufficient supply of drugs
- Ensure drug quality
- Rational and safe use of drugs
- Control of drug prices
- Situation of traditional medicine

## **19.1. Develop and Complete the Legal Framework in the Pharmaceutical Sector**

### **19.1.1. Legal documents**

The National Drug Policy was issued under Government Resolution 37/CP in 1996 to ensure regular and sufficient supply of quality drugs for the population and rational and safe use of drugs. Specific objectives include:

- Ensure sufficient supply of quality drugs at reasonable prices. Assure equity in provision of drugs for patients. Give priority to essential drugs with due attention to traditional herbal medicine.
- Take advantage of resources to develop the pharmaceutical production industry to meet people's growing needs for therapeutic drugs.
- Develop and complete a network of drug supply for the community, giving more attention to disadvantaged, remote, and isolated areas.
- Ensure quality of drugs in production, storage, and circulation.
- Improve efficiency of state regulation in the pharmaceutical sector by consolidating the legal regulatory system.
- Reorganize the pharmaceutical sector to keep abreast of new regulatory mechanisms.
- Develop human resources for the pharmaceutical sector to ensure appropriate staff structure, sufficient personnel, improved qualifications, and occupational ethics of staff.
- Promote scientific research in pharmaceuticals, apply technical advances and advanced technology in production, and supply and management of pharmaceutical products.
- Promote intersectoral and international collaboration in pharmaceutical production.

The Prime Minister also approved the strategy for development of the pharmaceutical sector up to 2010 in Decision 108/2002/QĐ-TTg. The overall objective of the strategy is to develop the pharmaceutical sector to become a leading economic-technology sector oriented toward industrialization and modernization, actively integrate into the region and the world to ensure regular and sufficient supply of quality drugs, and ensure safe and rational use of drugs to serve the people's health care. Specific objectives include:

- Invest in modern technology, equipment renovation, and management so the pharmaceutical industry will be able to meet the raw material needs for drug production. By the end of 2010, all pharmaceutical production, trading and research, and drug quality assurance facilities will achieve Good Practice standards.
- Establish industrial facilities to produce antibiotics and pharmaco-chemicals, raw materials for production, especially pharmaceutical materials.

- Provide regular and sufficient quality drugs, to avoid shortages of essential drugs, drugs for national target programs (antimalarials, tuberculosis drugs, goiter control drugs, etc). Pay more attention to drug supply for people in disadvantaged areas.
- Ensure rational, safe, and effective use of drugs.
- Ensure domestic production of pharmaceuticals to satisfy at least 60% of society's needs for prophylactic and curative drugs; drug expenditure of 12 to 15 USD per capita per year; 1.5 university-level pharmacists per 10 000 inhabitants.

The National Assembly approved the Law on Pharmacy on June 14, 2005, establishing a legal framework for implementing given targets in the national policy on drugs. The Law contains stipulations on:

- Pharmaceutical business
- Registration and distribution of drugs
- Traditional herbal medicines and drugs from pharmaceutical materials
- Prescriptions and use of drugs
- Drug information and advertisement of drugs
- Provision of drugs in health facilities
- Drug trials in clinical settings
- Management of addictive drugs, mental health medications, radioactive materials
- Standards for quality of drugs and drug quality assurance.

### **19.1.2. Regulatory organization for the pharmaceutical sector**

In parallel with the formulation of regulatory and legal documents in the pharmaceutical sector, the regulatory organization has also been consolidated and fortified from the central to local levels. The various authorities in drug administration are presented in Box 19.1.

#### **Box 19.1. Official drug administration agencies in Vietnam**

**Drug Administration of Vietnam (DAV)** at the central level and the **Drug administration division of the Provincial Health Bureaus** are responsible for managing drugs, vaccines, biomedical products, and cosmetics related to human health throughout the country.

**Department of Therapy of the Ministry of Health** is responsible for guiding and monitoring rational and safe use of drugs.

**Pharmaceutical Inspectorate** is established at the central and local levels, and holds responsibility to inspect compliance with pharmaceutical regulations.

**Central institutes and local centers of drug quality assurance** are responsible for checking quality of drugs, vaccines, biomedical products, and drugs to provide product visas.

**Institute of Pharmaceutical Materials** is responsible for conducting research and developing pharmaceutical materials for local drug production.

**Drug and therapy committees** in hospitals are an important forum to discuss issues of rational, safe, and effective use of drugs.

**Pharmaceutical universities** – are responsible for training and research in pharmacology. They are also responsible for publishing the *Clinical Pharmaceutical Journal* in which information on pharmaceutical products, education on rational and safe use of drugs, and the situation of drug resistance is disseminated to help doctors and pharmacists choose appropriate antibiotics for treatment.

**Vietnam Pharmaceutical Association-** compiles *Pharmacology Newsletter* to disseminate information widely in the sector

**Vietnam Pharmaceutical Materials Association-** Disseminates information for the sector

**Vietnam Pharmaceutical Corporation** including member companies has been restructured to improve production capacity and competitiveness in production and trading of drugs

### **19.1.3. Regulations and guidelines**

Many references and regulations on pharmaceuticals have been formulated and issued in recent years. In 1971, the first ever Vietnamese Pharmacopoeia was compiled, which

regulates national criteria for quality of drug and methods for drug quality assurance. The Vietnamese Pharmacopoeia has been updated regularly since 1971, and the latest version was printed in 2006. In 2002, the Vietnamese National Drug Formulary, an official document of guidelines for rational and safe use of drugs issued by the Ministry of Health was published for the first time. The document provides important and accurate reference information on drugs for doctors before deciding on prescriptions and indications.

*The Major Drug List*, a list of therapeutic drugs appropriate to the disease patterns in Vietnam was developed by the Department of Therapy and disseminated by the Ministry of Health. The list has been revised and updated four times, with the 4<sup>th</sup> edition published in 2005. Hospitals use the list as a basis for choosing drugs to include in drug lists for different hospital departments and units. Also, the list is used as a reference for insurance reimbursement of health services. Criteria for inclusion of drugs on the major drug list are:

- Appropriate in relation to public health objectives
- Efficacious for treatment
- Safe
- Cost effective
- Meets healthcare needs
- Ensured quality of drugs.

*The Essential Drug List* is the list of drugs that meet healthcare needs of the general population. This list is developed by the DAV, approved by the Minister of Health, and supported by guidelines and recommendations of the WHO. The list has been updated 5 times, with Edition V published in July 2005. Both the essential and major drug lists are categorized by technical level of facility and include both modern and traditional medicines. Essential drugs are drugs that must be available in each specific health facility, even in facilities without doctors. The essential drug list covers drugs used in the national target health programs, eg, leprosy and TB treatment.

Of concern is the lack of a routine mechanism for the Drug Administration of Vietnam and Department of Therapy to eliminate inappropriate drugs or add new drugs to the list. Therefore, even though some drugs are found to be ineffective according to international pharmaceutical references, they remain on the list.

To implement the regulations for drug prescription, DAV has also developed a list of drugs requiring prescriptions. However, this list has not been disseminated widely, and DAV currently has insufficient personnel to inspect the implementation of prescription regulations. Addictive drugs, mental health drugs, and radioactive materials have their own strict regulations for use. More recently, a list has been developed on stockpiled drugs kept on hand to stabilize drug prices.

Other regulations related to pharmaceutical management have also been developed and completed, eg, regulations on drug inspections, drug prescriptions, joint medical consultations, and assessing medical records and prescriptions.

#### **19.1.4. Limitations and shortcomings**

State pharmaceutical regulations have been strengthened in recent years. However, much remains to be done. Due to unsynchronized shifts in state administration and the business system during the transitional period from a centrally managed to a market economy, the limited administrative capacity and regulations failed to control the increasingly diversified and complicated drug market. This is reflected in the following issues:



- There is no comprehensive administrative system, by the end of 2005, there were still 6 provinces with no drug administrator, 12 provinces lacked pharmaceutical inspectorates, and 5 provinces had no center for drug and cosmetic quality assurance.
- There is severe shortage of management personnel, and a lack of experience with the market mechanism at both the central and local levels; many provinces have only 1 or 2 pharmacists working in drug administration.
- There is a shortage of drug inspectors. Hence, drug inspections, checks, and penalties for noncompliance with regulations (including regulations on hospitals, prescriptions, prescription drug sales, and private practice) are not thoroughly and properly implemented.
- Despite efforts to develop statutes and regulations in drug administration, the legal and regulatory system remains incomplete, lagging behind changes in the market; many activities lack clear and plausible guidelines; legal regulations and sanctions are insufficient.
- The application of information technology in management is limited; close collaboration is lacking between regulatory agencies and ministries in issuance of legal documents and drug market management.

## **19.2. Ensure Regular and Sufficient Provision of Drugs for Health Care of the Population**

Ensuring adequate drugs of good quality at reasonable prices is the first objective of the national drug policy. The solution is to ensure sufficient supply of domestically produced and imported drugs. Distribution of drugs to users also requires management measures, eg, pharmaceutical policies for hospitals, essential drugs at commune health stations, and development of private pharmacies operating in the market mechanism under government regulation.

Table 19.2 shows the trends in real value of domestically produced, imported, and exported drug products over several years in VND in 2005 (adjusted by the consumer price index for medical and pharmaceutical products). The growth rate in the value of domestic drugs was 15% per year before the strategy for development of the pharmaceutical sector was issued, and it rose to 17.3% from 2003 to 2005. Importation of pharmaceutical products increased by 17.7% from 1995 to 2002, but from 2003 to 2005 the real values of imported pharmaceuticals declined by 0.6% per year. The value of exports of domestically produced drugs accounts for only 5% of total domestic drugs produced, but increased by 12.7% per year from 2003 to 2005. An indicator for assessing availability of drugs for preventive and curative care is the average value of drugs consumed per capita. Spending on drugs per capita in 2005 was 156 000 VND. The real value of drugs consumed per capita has increased, but only slightly from 2002 to 2005 due to the decreased value of imported drugs consumed.

**Table 19.2. Value of domestically produced and imported drugs and average value of drugs per capita, 1995-2005**

Year	Value of domestically produced drugs (Million VND in 2005 prices)	Value of imported drugs (Million VND in 2005 prices)	Value of exported drugs (Million VND in 2005 prices)	Proportion of domestically produced drugs out of total domestic consumption of drugs (%)	Average value of drugs per capita (thousand VND in 2005 prices)
1995	1 703 781	3 077 081	..	35.6	66.4
1996	2 031 561	4 456 400	..	31.3	88.7
1997	2 277 465	5 852 694	231 790	28.8	106.3
1998	2 216 507	6 359 514	..	25.8	113.7
1999	2 474 254	5 182 430	189 237	33.1	97.5
2000	3 161 620	7 776 269	..	28.9	140.9
2001	3 834 817	8 548 271	278 883	31.7	153.8
2002	4 546 455	9 614 752	250 040	32.7	174.5
2003	4 537 733	7 973 958	221 171	36.9	151.9
2004	5 222 399	6 655 934	272 298	45.0	141.5
2005	6 243 480	6 994 331	280 730	48.2	155.8
<b>Annual growth rate</b>					
1995-2002	15.1%	17.7%			14.8%
2003-2005	17.3%	-6.3%	12.7%		1.3%

Notes: Value of drugs is lower than social expenditure used to buy drugs because of intermediate costs during transportation from producer or exporter to ultimate user.

Source: Review report of 10 years of implementation of Central Resolution 4<sup>th</sup> on production and sales of drugs (1993-2003) dated 15/3/2004 of DAV[252]. Statistics on imports are converted from USD to VND based on the exchange rate taken from Vietnam Development Report of the World Bank and the GSO Statistical Yearbook [79, 253]. The value is calculated by inflating prices using the medical price index of the GSO (consisting primarily of prices of pharmaceutical products). Noted that this data do not cover the value of drugs obtained directly through ODA.

### **19.2.1. Production and trade in pharmaceuticals**

According to Resolution 46-NQ/TW on the protection, care, and improvement of the people's health under the new system, one of the ways to fulfill and complete the healthcare system is to: *Develop the pharmaceutical sector into a leading economic-technological sector. Strongly develop the pharmaceutical industry, enhance production capacity of the local pharmaceutical industry,... Strengthen the network of circulation, distribution, and supply of drugs to stabilize the market of preventive and curative drugs.*

The real value of domestically produced drugs has been rising as presented in Table 19.2 above. At the same time, the real value of imported drugs is declining. The proportion of domestic production versus total consumption is 48%, and has been increasing since 2000. However, when Vietnam joins WTO, differential taxes used to protect domestic products will be adjusted downward, and local drug production will have to compete on the basis of low price and international quality standards. Presently, drug production relies mainly on imported pharmaceutical materials as production of local pharmaceutical materials has failed to develop.

The number of pharmaceutical production enterprises including central, private, and limited liability, joint-stock, and licensed foreign-owned enterprises has grown substantially during the 1999-2005 period (Table 19.3).

**Table 19.3. Number of pharmaceutical enterprises and the number attaining GMP standards, 1999-2005**

	Year							6/2006 reached GMP
	1999	2000	2001	2002	2003	2004	2005	
Pharmaceutical production								
Central enterprises	19	19	19	19	19	19	19	11
Local enterprises	126	126	126	120	120	120	120	31
Foreign-owned enterprises	24	24	24	28	28	35	35	18
<b>Total</b>	<b>169</b>	<b>169</b>	<b>169</b>	<b>167</b>	<b>167</b>	<b>174</b>	<b>174</b>	<b>60</b>
Pharmaceutical trade								
Private, liability limited company, joint-stock	245	290	359	409	589	761	969	
Licensed foreign-owned companies	..	212	210	223	240	249	282	
<b>Total</b>	<b>245</b>	<b>290</b>	<b>569</b>	<b>622</b>	<b>839</b>	<b>1010</b>	<b>1251</b>	

Source: Health Statistical Yearbook, 2003 [254] and statistics from DAV

Revenue from pharmaceutical production also increased from 440.8 billion VND in 1995 to 3968.6 billion VND in 2003 [254]. The total contribution to the government budget of VND 37.5 billion VND in 1995 rose to 698.5 billion VND in 2004 [255].

By the end of 2005, there were 12 061 types [256] of domestically produced and imported drugs in Vietnam, and 1000 different types of active ingredients [257] had unexpired product visas. Such a diversity of types of drugs is adequate to ensure the supply of drugs to the local market. Local production facilities can provide about 400 of nearly 1000 active ingredients demanded in the market [252]. On average, about 1500 types of domestically produced drugs are given product visas each year, and the pace of providing product visas is increasing, contributing to stabilizing the supply and price of drugs [258].

However, pharmaceutical production in Vietnam also has limitations [259]. Production capacity is limited since there is no long-term production strategy with priority targets. Hence, competitiveness is low. Vietnam's pharmaceutical enterprises often have small-scale production with simple technology and low quality. Ninety percent of materials for local production are imported. At the same time, local products have a high degree of overlap, ie, many common drugs with the same active ingredients are produced, with low ability to compete. Investments have not been made in high-tech production of specialized or essential drugs.

### **19.2.2. Distribution of drugs**

Results from VNHS 2002 indicate that Vietnamese households spend 4814 billion VND per year on drugs for self-medication [3]. Total local production plus imported drugs minus exported drugs in 2002 was 10 063 billion VND (Table 19.2 above), drugs purchased over the counter account for nearly 50% of total drug production per year. At present, Vietnam has no mechanism to control the drug distribution system through pharmacies.

Prior to 1989, pharmaceutical companies and pharmacy departments of hospitals and clinics distributed drugs in public health facilities. After 1989, the distribution of drugs in public health facilities depended very much on the market. Pharmaceutical companies work directly with health facilities, and the market has negatively influenced drug distribution in some facilities.

To strengthen the supply of drug distribution for hospitals, the government issued a major drug list to be used in health facilities, and instructed these facilities to make their own major drug lists. By the end of 2005, 97% of drug and therapy committees had developed a list of major drugs used in the hospitals.

Given the sharp increase in drug prices in 2003, the Ministry of Health issued Directive 05/2004/CT-BYT (April 16, 2004) adjusting the supply and use of drugs in hospitals. In 2005, Circular 20/2005/TTLT-BYT-BTC was issued to give instructions for a competitive bidding process in procuring drugs for public health facilities. By the end of 2005, 76% of hospitals procured drugs according to these regulations. However, the principles of competitive bidding for drugs at hospitals are not specific enough and are difficult to apply. Reference prices for competitive bidding have not been updated or made public. Some winners of the bidding fail to provide sufficient drugs, which means that patients need to buy drugs outside of the hospitals. Due to a shortage of funds, some hospitals only bid to buy an adequate supply for 1 to 3 months. Hence, they are often unable to secure a sufficient supply of drugs for treatment.

In the 1990s, a shortage of drugs in commune health stations (CHS) had a significant influence on the performance of these facilities. The solution was to issue a list of essential drugs and provide a revolving fund for these facilities to buy drugs to serve the basic healthcare needs of local people. The model of essential drugs using revolving funds has become a regular CHS activity. In 2003, 84% of CHS had a drug dispensary [260]. In remote and isolated areas, CHS drug dispensaries are the main source of pharmaceuticals for local people. However, regular inspection and checking of drugs has not been ensured. Many commune health stations do not have an appropriately trained pharmacist to manage their drugs.

The initiation of a pharmaceutical stockpile system in 2005 provided another solution to stabilize drug prices and ensure sufficient supply of drugs in hospitals. Decision 110/2005/QĐ-TTg (May 16, 2005) approved a plan for stockpiling drugs. The Ministry of Health issued the list of stockpiled drugs and regulations on management of pharmaceutical stockpiles on August 30, 2005. The Ministry of Finance issued a Circular (December 8, 2005) to provide instructions on the financial mechanism for pharmaceutical stockpiles. The Ministry of Health is developing and drafting regulations and decisions to submit to the Minister of Health for approval to create a legal basis for implementing, managing, inspecting, and checking the national pharmaceutical stockpile. The objective of the national pharmaceutical stockpile plan is to ensure sufficient drug availability with good quality and reasonable prices. The plan should ensure the supply of pharmaceuticals for people's healthcare needs, eg, drugs used at health facilities including major drugs used at hospitals and specialized drugs to balance supply and demand for essential drugs, contributing to the stabilization of drug prices in the market.

Private and public pharmacies are important suppliers of drugs. By the end of 2005, Vietnam had nearly 40 000 pharmacies and other pharmaceutical trading enterprises under different forms throughout the country, averaging one pharmacy per 2000 inhabitants. The number of pharmacies in rural areas increased appreciably, even reaching remote and isolated areas, although the distribution network is still concentrated in more populous areas, townships, and major cities. Such a large network of drug distributors gives people access to drugs, but it also poses challenges regarding the management of drugs, eg, storage conditions and safe and rational use of drugs. The government still faces difficulties in terms of both human resources and the physical infrastructure to apply good practice. Sale of expired drugs is still prevalent, and many drug sellers neglect to instruct their customers on how to use the drugs.

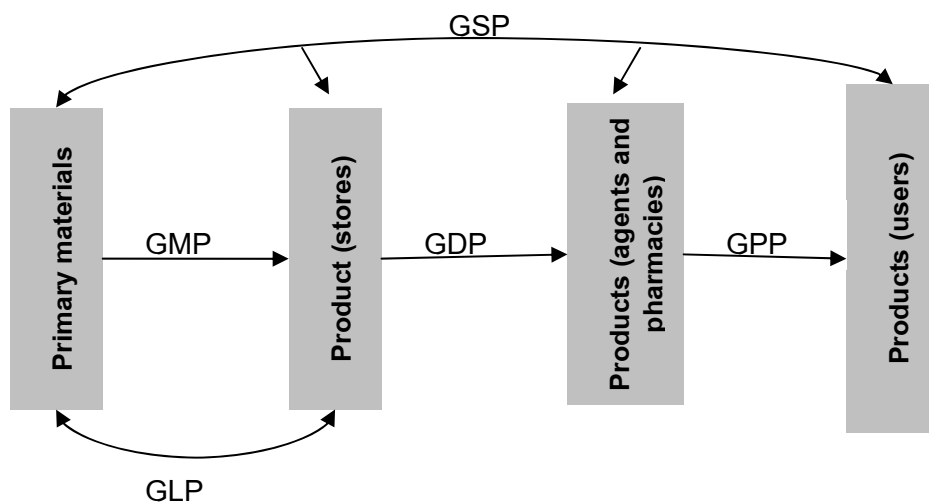
### 19.3 Quality Assurance for Pharmaceuticals

Control of drug quality according to good practice criteria is based on standards and guidelines for drug production, quality control, storage, and distribution (Figure 19.1). Pharmaceutical products are a special product because they affect human health. Therefore, it is insufficient to rely only on checking a sample of products to ensure quality. Good practice standards involve a comprehensive approach by controlling quality of the production environment and laboratory. WHO has issued GMP standards that are widely applied in over 100 countries, especially developing countries.

The strategy for securing quality of drug products through a comprehensive approach includes synchronous coordination between 5 standards for “good practice”.

- GMP**      Manufacturing
- GLP**      Laboratory
- GSP**      Storage
- GDP**      Distribution
- GPP**      Pharmacy

Figure 19.1. Strategy for securing comprehensive quality



Source: Vietnam Drug Administration [261]

Since 1996, the Ministry of Health decided that all pharmaceutical production facilities must apply the GMP-ASEAN. In 2004, the Health Minister ordered all facilities to follow the higher standard of GMP-WHO. The deadline for implementation has been delayed from the end of 2005 to the end of 2007, when all pharmaceutical production facilities of Vietnam are required to reach GMP-WHO. Pharmaceutical materials production facilities must reach GMP-WHO by 2010. According to the DAV, by June, 2006 the country had 60 facilities reaching GMP-WHO or GMP-ASEAN from a total of 174 drug production facilities, but they account for over 86% of the total value of domestically produced drugs.

In 2001 the Ministry of Health issued a Decision to apply the principles of good storage practice (GSP-Vietnam), with a deadline of December 31, 2006 when all drug trading facilities working in import and export of drug products must have a storage system complying with GSP-Vietnam. Facilities that do not comply are not allowed to continue importing and exporting pharmaceuticals. By the end of 2010, all trading, stockpile, and storage facilities, pharmaceutical departments of hospitals, research institutes, and health centers must follow the principle of GSP-Vietnam. Any enterprise that stores drugs must reach the GSP-Vietnam and must be approved by the Ministry of Health for operation. By the end of 2005, 39 facilities had attained GSP-Vietnam. The Ministry of Health stipulates that laboratory facilities and drug production facilities must reach the principle of GLP by 2010. By the end of 2005, 41 facilities had achieved these standards. At present, the DAV is beginning to consider implementation of good practice standards in drug distribution (GDP).

In recent years, quality assurance institutes and centers for drugs and cosmetics have been built, renovated, or upgraded to test and verify all domestically produced drugs and most imported drugs. These centers have also expanded the number of indicators they can test, ensuring appropriate testing of essential drugs, inspecting quality of drugs according to regulations, and testing to screen out and prevent distribution of fake and low-quality drugs in the market. The proportion of fake drugs has declined from 7% in early 1990s to 0.03% in 2003 [252].

Despite major investments, the physical infrastructure and equipment of these facilities, and their capacity, still fail to meet the requirements of the new situation. Even central laboratory facilities, fail to verify quality of all drug products in the market. In the context of the “open market”, the types of drugs are increasingly diversified with most drugs having multiple active ingredients. Hence, the control of drug quality is becoming even more difficult. Most provinces have a center for drug and cosmetic quality assurance, but the number of facilities that reach GLP remains limited. In the present context, achieving the deadline to apply good laboratory practice in all facilities by 2010 seems unachievable without increased state investment.

Inspection and control have also been strengthened through consolidation and restructuring of the pharmaceutical inspectorate. This has contributed to tighter regulation of the private sector in pharmaceuticals and medicine and ensures quality of drugs circulating in the market. However, there is still a shortage of fulltime pharmaceutical inspectors and loose intersectoral collaboration in controlling the drug market, leaving gaps in the control of drug quality.

#### **19.4. Rational and Safe Use of Drugs**

Rational, safe, and effective use of drugs is one of two basic objectives of Vietnam’s national drug policy, as reaffirmed in Directive 05/2004/CT-BYT on reorganization of drug supply in hospitals. Given a market economy, the sources and types of drugs have become increasingly diversified and plentiful. Due to the profit incentive, doctors, pharmacies, and health facilities tend to sell more drugs than needed, leading to irrational use of drugs. Purchase of drugs for self-treatment is also a critical issue related to rational and safe use of drugs, as people’s knowledge of use of drugs is poor.

##### **19.4.1. Use of drugs in health care**

Pharmaceuticals are an important part of treatment, and also pose a heavy financial burden for patients. The irrational and unsafe prescription of drugs not only affects the treatment process, but also poses a financial burden on patients and the health insurance fund. According to a study in 2005 on the cost of treating some groups of diseases in 28 provincial

general hospitals [192], the component of "drugs, solutions, and disposable materials" accounted for 31.4% of total service costs for children with pneumonia, but for 68.2% in the group of patients with head injury, whereof materials accounted for less than 10%.

Table 19.4 presents the proportion of drug spending from total healthcare costs among outpatients paying entirely out-of-pocket. Study results also show that drugs account for 56% of the total healthcare cost in central hospitals, 72% in private clinics, and 75% in private traditional medicine clinics.

**Table 19.4. Expenses for drugs in health care, 2002**

Unit: 1000 VND

Type of facility	Out-of-pocket payment		
	Drug spending (1)	General health care spending(2)	Proportion (%) (3)=(1)/(2)
General	28.6	41.8	68.4
Commune health station	15.5	20.3	76.4
District hospital	34.5	55.8	61.8
Provincial hospital	79.4	129.7	61.2
Regional/central hospital	137.9	245.1	56.3
Private	23.7	32.9	72.0
Private traditional practitioner	35.0	46.8	74.8
Others	50.6	87.8	57.6

Source: VNHS 2001-2002 [19]

A study on implementation of the national drug policy [259] reviewed the use of drugs at public health facilities. In the CHS surveyed, 75.5% of people were prescribed antibiotics, and 22.4% were prescribed injectable drugs. Only 58.3% of drugs prescribed were on the list of essential drugs at the CHS. In some commune health stations, doctors merely prescribe drugs (including antibiotics) for 1 or 2 days at the request of patients. Many commune health stations have no information on drugs other than those on the list of essential drugs, and only have treatment protocols for common diseases, eg, diarrhea, and acute respiratory infection, and some announcements of drugs whose visas have been withdrawn and are prohibited from being dispensed.

The purchase of drugs for self-treatment is the most common healthcare seeking practice in both the rich and poor groups. Data from the VNHS 2001-2002 reveal that up to 72.6% of patient visits are related to drug purchases for self-treatment. Of the total household expenditure for health care, drug purchases account for 30%. The main reason given for self-treatment is that the illness was minor. Other reasons include economic hardship, that the patient believes the disease to be incurable, and that the patient purchases drugs using an old prescription (Table 19.5). In purchasing drugs for self-treatment, about 1% of buyers reported buying injectable drugs that should be purchased according to prescription [3]. Other studies on drug purchases for self-medication found abuse of antibiotics and steroids [188, 262].

**Table 19.5. Reasons for drug purchase for self-treatment, 2002**

Unit: %

Reasons for self-treatment	Urban	Rural	General
Difficult access to health facility	0.2	1.7	1.4
Incurable disease	8.8	7.2	7.5
Economic difficulties	3.9	7.5	6.8
Have no time	5.7	4.7	4.9
Minor illness	66.7	65.1	65.4
Use old prescription	10.9	10.6	10.7
Other	3.7	3.2	3.3
Total	100.0	100.0	100.0

Source: VNHS 2001-2002 [19]

In the community, drug purchase for self-medication is the most common practice when people fall sick. Survey results reveal that about 40% of drugs are purchased without a prescription. Most drug sellers are assistant pharmacists, and only about 50% of drug sales involved instructing buyers on how to use the drugs. Hence, the risk for irrational and unsafe use of drugs is high.

#### **19.4.2. Guidelines for rational and safe use of drugs**

Instructing health workers on how to use drugs rationally and to avoid negative consequences and adverse effects of drugs used incorrectly is necessary and urgent. This issue is of particularly great concern since the prevalence of drug purchases for self-treatment is very high. In addition, inspection mechanisms and sanctions against unsafe and irrational use of drug should be put in place.

In recent years, the Ministry of Health has developed and issued many relevant documents on drug use, eg, treatment guidelines, guidelines for rational use of drug at the grassroots level, and a handbook of guidelines for hospital drug and therapy committees. In addition, the Ministry of Health has held conferences and training courses to disseminate information on rational use of drugs for health workers, pharmacists, nurses, and commune health staff. Health education and communication on rational and safe use of drug in the community is also being promoted. The Vietnam Television program “Health for the People” is one of the IEC tools used to provide information on rational and safe use of drugs.

#### **19.4.3. Drug information**

It is important to use drug information to advise doctors on how to choose and use drugs rationally. One important tool is the National Drug Formulary, printed in 2000. Nevertheless, due to a failure to distinguish between commercial and objective scientific information, many doctors prescribe drugs irrationally, such as drugs that have no real effect. Access to information about drugs is also limited due to language barriers or lack of access to the Internet. Many district hospitals have no university trained pharmacists in charge of information about drugs.

Some health facilities have no university trained pharmacists, so secondary pharmacists must take responsibility for clinical pharmacy and drug information. Rarely are these staff fully trained and informed. Hence, clinical pharmacy fails to bring into full play its role and effective support for doctors (especially in district facilities). The drug information units in hospitals require more funding and, except for some large hospitals, have not been effective.



#### **19.4.4. Drug and therapy committees**

The Ministry of Health issued hospital regulations in 1997, requiring that all hospitals have a drug and therapy committee. The committee plays an advisory role for the hospital director as regards drugs and treatment in the hospital, and aims to ensure rational and safe use of drugs for patients by implementing national drug policies. By 1997, 97% of hospitals had the drug and therapy committee in place. The task of the committees is to develop a major drug list for the hospitals; check on compliance with regulations on diagnosis, establishing medical records, prescribing treatments, regulations on use of drugs and on pharmaceutical department performance; monitor adverse drug reactions (ADR) and draw experience from errors in the use of drugs and drug information; monitor the use of new drugs in hospitals, develop a close relationship among pharmacists, doctors, and nurses in the hospitals where the pharmacist acts as an advisor, the doctor prescribes treatment, and the nurse implements the doctors orders. In hospitals with active drug and therapy committees, drug use has improved substantially [263, 264]. Prescription of drugs off the major drug list has been eliminated, the average number of drugs per patients has declined, and abuse of antibiotics and vitamins has also diminished. Many hospitals have applied information technology in the management and distribution of drugs in the pharmaceutical department, making an important contribution to ensuring more effective use of drugs.

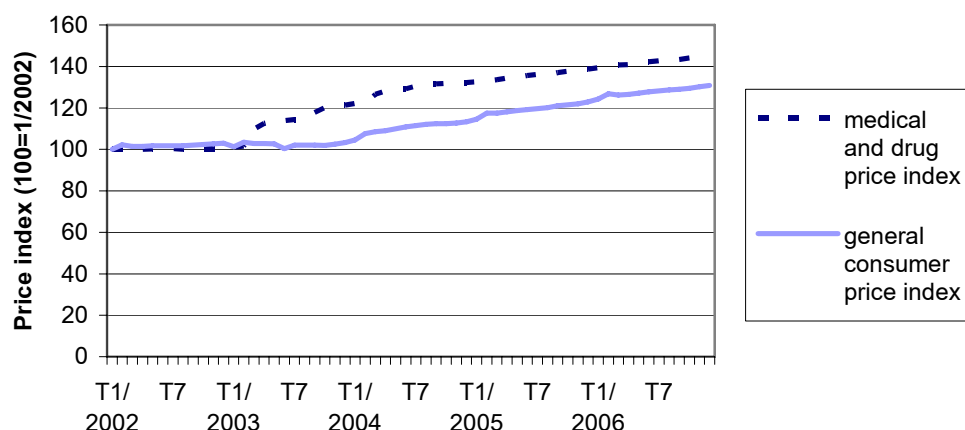
However, some health facilities especially district-level facilities have not been trained in methods for reviewing medical records, or if they have received training, the review of medical records is not implemented properly and regularly. It is common for doctors to prescribe taking all drugs 2 times per day without considering the uptake and absorption rates of different drugs.

Although rational and safe use of drugs has improved recently, this issue has not received sufficient attention. Drug and therapy committees have been established and operationalized in hospitals, but they fail to bring into full play effectiveness in promoting rational and safe use of drugs. Among 23 hospitals in the study on assessment of drug policies [259], 4 hospitals do not keep statistical records of disease patterns, 3 hospitals merely make statistical records of disease patterns for research projects, 3 hospitals do not review patient records and many other hospitals only do this in a superficial way once every few months.

#### **19.5. Control of Drug Price Escalation**

In 2003, a sharp increase in drug prices attracted the attention of the general public. According to the medical price index of the GSO, in 2003 drug prices rose by 20% and have continued to rise till the present (Figure 19.2).

**Figure 19.2. Medical and Drug Price Index, 01/ 2002 to 02/2006**



Source: GSO, Statistical Yearbook, 2002, 2003, 2004, 2005[79], Monthly Statistical data of the GSO [265].

### **19.5.1. Strategy for stabilizing drug price of the DAV**

To stabilize drug prices, the DAV has collaborated with other government agencies to set forth appropriate measures. One of the provisions in the Law on Pharmacy regulates control of drug prices.

Policies on management of drug price are based on the following viewpoints:

- In the market mechanism, production, and trading in pharmaceutical products have always been affected by economic principles, especially the law of supply and demand. Hence, it must be clarified that the role of the state is only to regulate prices using policy instruments appropriate with the market, without imposing subjective opinions of regulators.
- Management of drug prices in particular, and stabilization of the drug market in general must identify the focal point of the market and not attempt to micromanage as that would be ineffective.
- The Ministry of Health respects the rights of enterprises and ensures conditions for enterprises to achieve their economic goals (profit), while enterprises must show their goodwill so that government agencies can also fulfill their objectives: medical objectives (safe, rational, and effective use of drugs) and social objectives (drug prices must be compatible with average income per capita of the people).

Stabilization of drug prices is being pursued according to the following principles:

- Conform to economic principles of the market mechanism, especially the law of demand and supply.
- Stabilization of drug prices must be based on the foundation of the current legal system.
- Scope of management: concentrate on control of drug prices in the 2 lists of drugs, ie, the list of essential drugs and the list of major therapeutic drugs used in health facilities.
- Roadmap for implementation: implement step-by-step, first in public facilities and then, drawing from that experience, in private health facilities.

- Control drug prices through price ranges (floor-ceiling price, and appropriate multiplier).

Given the 3 viewpoints and 5 principles above, the DAV and relevant line ministries have implemented urgent measures and prepared medium- and long-term measures. These include:

- Publish (on the Vietnam DAV website) the import prices (CIF), tentative wholesale and retail prices in Vietnam of registered and imported drugs as a reference price for users.
- Collaborate with international organizations to survey origin prices of drugs in other countries, combined with CIF as reported by enterprises to control the price difference.
- Collaborate with the Ministry of Finance to review and revise tax policy on some drugs to encourage local production and reduce drug prices
- Allow parallel imports of drugs with high prices in the Vietnamese market
- Inspect and check on compliance with Directive 05/2004/CT-BYT (April 16, 2004) of the Minister of Health on adjustments to drug procurement in health facilities.
- Collaborate with line ministries to complete and issue legal documents to create a legal foundation for drug price control, including instructions for Government Decree 120/2004/NĐ-CP on the management of preventive and therapeutic drug prices, instructions on competitive bidding for drug procurement at health facilities, and develop a price frame for some drugs on the essential drug list and major drugs used in health facilities as a reference price in the bidding process.

Medium-term solutions include:

- Expand scope of adjustment of Circular 06/2004/TT-BYT (May 28, 2004 on instructions for production of drugs.
- Revise regulations to register and speed up the issuance of product visas for domestic and imported drugs.
- Undertake administrative reform in procedures to issue licenses in working toward greater transparency
- Through mass media, enhance people's awareness of drug use to encourage people to use domestic drugs.

In line with urgent and medium-term solutions, DAV also develops and implements long-term measures with a view toward stabilizing drug prices, including:

- The project on "advancing funds for public hospitals to purchase drugs" aims to provide sufficient drugs, promoting rational, safe, and effective use of drugs, ensuring quality of drugs with lower and more stable prices in the long run, making contributions to reducing healthcare costs for patients, hospitals, and health insurance.
- The "pharmaceutical stockpile" project aims to ensure meeting the need for essential drugs and some special drugs in public hospitals, balancing demand and supply of drugs, and taking active roles in ensuring supplies of drugs to regulate and stabilize drug prices.
- The project to "strengthen state management in drugs, 2005-2015" aims to consolidate and propose a national model of drug supply, orient development toward investing in the Vietnamese pharmaceutical industry, and consolidate and refine state management institutions from central to local levels.

### **19.5.2. Reform of supply, management, and use of drugs in hospitals**

On April 16, 2004, the Minister of Health issued Directive 05/2004/CT-BYT on adjustment of procurement, management, and use of drugs in hospitals, making no small contribution to stabilizing drug prices. Many measures aimed at stabilizing drug prices in hospitals were introduced, eg, requiring that hospitals ensure sufficient supply of drugs for inpatients, organizing competitive bidding of drugs for procurement, assuring that drug prices for hospitals are lower than retail prices in the local market, strictly forbidding individuals from selling drugs in hospitals, and prohibiting pharmaceutical trading agencies from direct promotion and collaboration with health workers to sell drugs in any hospital department.

A report from the Department of Therapy showed that by the end of 2004, 36.2% of hospitals bid for procurement of drugs, and by the end of 2005 this figure rose to 76%. The circular instructing about the procurement of drugs in public facilities was issued on July 27, 2005 further strengthening Directive 05, and contributing to reducing drug prices in hospitals.

Use of drugs in hospitals during 2004 and 2005 was relatively stable. In 2005, at the central level, drugs accounted for 30.2% of the total health expenditure per patient bed. At the provincial level, this proportion was 28.6% and at the district level it was 28.1%. Domestic drugs account for 47.1% of the total expenditure on drugs. Increased use of domestic drugs also actively contributes to stabilizing drug prices.

### **19.5.3. Some issues of concern in stabilizing drug prices**

By 2005, drug prices were stabilized, increasing slightly at a rate lower than the general consumer price index. To maintain stable prices, DAV must continue to inspect, check, and continue enforcing existing regulations. For the immediate future, DAV must issue clear and concrete guidelines on implementing competitive bidding for drug procurement in hospitals. Information on drugs in the DAV website is often insufficient and out-of-date. On the other hand, given the current regulations on competitive bidding, or contracts to provide drugs, many hospitals simply focus on the price of each drug unit, not on total healthcare costs for the illness or treatment episode. This can lead to a situation where hospitals purchase drugs at low prices, but patients still pay high costs for drugs during treatment. Clinical departments of some hospitals do not provide drugs properly due to a lack of human resources in these departments. The hospital pharmacy model has not yet become coherent, and hospital pharmacies are not yet self-accounting units, with dedicated staff to operate them and pay taxes as stipulated by the government.

## **19.6. Traditional Herbal Medicine**

### **19.6.1. Legal basis**

Traditional medicines, including herbal medicines, play an important role in Vietnamese health care. The Law on Protection of People's Health in 1989 stipulates: "Develop Vietnamese medicine which inherits and promotes traditional medicine and herbal medicines; combining modern pharmacy and medicine with traditional pharmacy and medicine,..." (Article 2). On August 30, 1999, the Prime Minister issued a Directive on promoting traditional pharmacy and medicine (25/1999/CT-TTG), which clearly states the following priorities:

- Promote the inheritance and dissemination of traditional healthcare methods
- Strengthen capacity for scientific research
- Modernize traditional medicine, combine modern medicine and traditional medicine
- Develop traditional pharmaceutical materials, products

- Strengthen management of traditional medicine practice
- Promote inheritance and training of staff in traditional medicine.

To that end, the National Policy on Traditional Medicine by 2010 was approved by the Prime Minister in Decision 222/2003/QĐ-TTg (November 3, 2003). The plan for implementing this National Policy was also approved by Decision 765/2005/QĐ-BYT (March 22, 2005) by the Minister of Health.

Resolution 46 of the Politburo on health care in the new context also reaffirms the importance of traditional medicine and pharmacy, emphasizing: "Promote research, inheritance, preservation, and development of traditional medicine and pharmacy, making it a scientific specialty. Establish an Institute of Traditional Medicine, consolidate and develop traditional medicine subjects in medical universities, colleges, and secondary medical schools. Upgrade traditional medicine hospitals and traditional medicine departments of general hospitals. Promote, encourage, and instruct people about cultivation and use of herbs as medicine."

### **19.6.2. Modernize traditional medicine**

Decisions on whether to use traditional medicine or modern medicine in treatment must be based on three criteria: (i) safety, (ii) efficacy, and (iii) reasonable price.

For modern medicine, this requires strict procedures for laboratory testing and clinical trials before wide-scale use. For traditional medicine, with a long history and generally accepted as efficacious and safe for the patient, herbal medicines are allowed for wide-scale use without more scientific testing. However, in the course of development, many new medicinal herbs have been identified, but they have not passed any laboratory or clinical tests for safety and efficacy. According to the Law on Protection of People's Health "new medicinal herbs and methods must be verified by the Ministry of Health or Provincial Health Bureau together with the Association of Traditional Medicine before they are utilized in providing healthcare services to the people".

According to a report from the Department of Traditional Medicine on implementation of Resolution IV, session VII of the Standing Party Committee, "Research, inheritance, and application of traditional medicine is still slow and ineffective. Many good treatment methods and precious herbs used by ethnic minorities have not been collected and are at risk of dying out. Research methods are not convincing, with a lack of special methods appropriate for traditional medicine, and failure to link needs with research results leads to a waste of money and time. The modernization of traditional medicine is slow and at risk of lagging far behind."

An issue of concern in traditional medicine is the lack of a clear mechanism to test new traditional herbal medicines to modernize the development of traditional pharmacy. Presently, Vietnam has over 300 traditional pharmacy production facilities. Regulations on standards for quality of traditional medicine and pharmacy have not been completed. Hence, quality management of goods is a problem. Standards for quality of traditional medicine and pharmacy are lax. Hence, it is difficult to inspect and evaluate production processes. There is no standard system of GMP for traditional medicine and pharmacy. The Vietnamese Pharmacopoeia III merely refers to some standards such as humidity, contamination levels, etc. Therefore, they must apply basic standards, making it difficult to verify the quality of pharmaceutical products for which Ministry of Health has not yet issued basic standards.

### **19.6.3. Development of traditional medicine**

Vietnam's population structure is moving toward an older population, accompanied by development of chronic diseases in older people. One advantage of traditional pharmacy,

compared to modern medicine, is its efficacy in treating prolonged chronic diseases with few side effects and low cost. Hence, it is crucial to develop traditional medicine.

Development of traditional medicine is incorporated into the national benchmark for commune health for 2001 to 2010, which specifies:

- Commune health centers must have herbal gardens in sample pots with at least 40 types of herbs as regulated by the Ministry of Health
- The proportion of patients treated by traditional medicine or combined traditional and modern medicine in commune health stations must be 20% or higher.
- Commune health stations with 4 or more staff members must have 1 staff person in charge of traditional medicine. If the commune health station has fewer than 4 staff members, the staff should have some training in traditional medicine.

However, preliminary results show that most commune health stations have no staff with knowledge of traditional medicine, making it difficult to apply this benchmark. VNHS results also reveal that only 2% of patients use traditional medicine in outpatient health care at the commune health station, and only 5.5% of commune health stations have staff in charge of traditional medicine.

Many traditional drugs have been included in the list of essential drugs and list of major drugs used in hospitals. These lists were updated in 2005, permitting these drugs to be used widely and reimbursed by health insurance.

At present, the legal framework has facilitated favorable conditions for practicing traditional medicine. The Law on Protection of People's Health includes several articles on the practice of traditional medicine. The Ordinance on Private Health Practice regulates more specific conditions for practice of traditional medicine, allowing individuals who have no formal training, but a family tradition in traditional medicine to practice. However, there remain inadequacies in the number and qualifications of health workers trained in traditional medicine and regulations on traditional medicine. Regulations on practicing traditional medicine are still problematic, failing to secure quality of care and avoid abuse of inefficacious herbs, or even dangerous drugs.

## **19.7. Conclusion**

Although the national drug policy has been implemented over 2 periods, the Ministry of Health has not yet issued uniform instructions to organize and establish a steering committee, or taken steps to implement the policy in different localities. Hence, local authorities do not recognize their responsibilities in this area and tend to "contract out" these responsibilities to the medical sector. The national policy on drugs only sketches out a master plan, not a concrete action plan for different periods and years with specific objectives and measures. Hence, local authorities are unclear how to implement it.

In the near future, it will be necessary to implement the Law on Pharmacy and the project, "strengthening state management of pharmaceuticals". The system of statutes and regulations in the pharmaceutical sector needs to be refined, eg, regulations on management of traditional medicine and regulations on good manufacturing practice. Some documents such as regulations for competitive bidding should be issued soon for localities to implement. A synchronous, effective policy on management of drug prices is lacking. Most statutes and regulations are not accompanied by measures for implementation and lack detailed instructions for implementation.

There is no uniform state management apparatus for the pharmaceutical sector at the local level. Some provinces and cities have not established drug administration offices. A survey of 8 provinces found that Dak Lak had only 1 staff person in charge of pharmacy in the general planning division. Drug administration offices often had 3 or 4 government-paid staff. Hence, it is difficult to fully implement pharmaceutical work in general, and the national drug policy in particular. There is also a shortage of staff in charge of drug inspections.

Human resources are in short supply, especially in mountainous areas, as regards both technical and managerial work in pharmacies. Vietnam has only 1.2 pharmacists per 100 000 inhabitants throughout the country. At the local level, many commune health stations do not have university trained pharmacists or even assistant pharmacists. Meanwhile, training of human resources in pharmacy faces difficulties, including staff mobilization, and inappropriate use of staff, and there is no policy to attract pharmacists to work in public facilities.

Implementation of the national drug policy requires enormous resources. Nevertheless, the annual budget allocation for the pharmaceutical area is limited. On the other hand, regulations concerning tasks and responsibilities of departments, sectors, and agencies have not been clearly defined. Hence, many localities, especially disadvantaged ones, face problems with implementation.

## **Chapter 20**

### **MEDICAL EQUIPMENT**

Substantial investment in medical equipment over the past 10 years has brought about remarkable achievements in curative care and preventive medicine, particularly in drug testing, food safety testing, and disease surveillance. However, an in-depth review is needed regarding cost effectiveness and effective use of human resources. Medical equipment investment includes not only the initial capital for purchasing equipment and training users, but also costs for operation, repair, and maintenance. Given the current low income per capita and limited individual medical expenditures, it is necessary to invest in and use medical equipment appropriately, assuring timely access for the population and avoiding wasteful investments that might burden society. Aiming in part to clarify issues concerning medical equipment in Vietnam, this chapter provides a broader look at the policy and the investment, supply, maintenance, and use of medical equipment in Vietnam.

#### **20.1. Current Policy on Medical Equipment**

##### **20.1.1. National policy on medical equipment**

The National Policy of Medical Equipment in the 2002-2010 period was approved by the Prime Minister on October 4, 2002 under Decision No 130/2002/QĐ-TTg. Its goals include: “assure equipment of good quality to enhance public health, proper use and utilization of equipment by training technical experts, and increase national revenue from the manufacture and export of medical equipment”.

Specific goals include:

- By 2005, adequately provide and achieve effective utilization of basic medical equipment for preventive medicine and curative care facilities according to the regulations of the Ministry of Health.
- Continue to invest in medical equipment and promote the efficiency of 3 specialized medical centers located in Hanoi, HCMC, and Hue. Plan to gradually build other centers in other areas based on economic and social regions, particularly in remote areas and ethnic minority areas.
- Expand the manufacture of basic medical equipment, meeting 40% of domestic needs in 2005 and 60% in 2010. Promote high-tech equipment manufacturing, apply modern production lines for medical equipment, medicines, and vaccines.

Apart from the goals, this above-mentioned Decision also proposes solutions and the funding needed to reach those goals. In the first phase from 2002 to 2005, the goals are:

- Assure basic medical equipment from the grassroots to central levels according to the regulations of the Ministry of Health.
- Assure that production of domestic medical equipment meets around 40% of basic needs and guarantees safety and accuracy.

In the second phase from 2006 to 2010, the goals are:

- Provide medical facilities at different levels with medical equipment of good quality and adequate quantity based on the essential medical equipment list approved by the



Ministry of Health. Supply the central and provincial general hospitals with advanced equipment for diagnosis and treatment. (The list of medical equipment is promulgated under Decision No 437/QĐ-BYT passed by the Health Minister on February 20, 2002.)

- Develop, strengthen, and increase efficiency of specialized health centers
- Build and develop the medical equipment industry with proper attention and focus on domestic market and exports.
- Strengthen training systems for medical equipment technicians to take advantage of high-tech medical equipment.
- Improve the health organizational hierarchy and enhance the managerial capacity and efficiency of the state in the field of medical equipment, facilitating a favorable environment to maximize chances of international cooperation, gradually reaching the standard of ASEAN and the world.

### **20.1.2. List of essential medical equipment**

Forming the list of fundamental medical equipment is the first step in the first goal of the medical equipment policy. Decision No 437/QĐ-BYT, approved by the Minister of Health on February 20, 2002, issued the list of medical equipment for general hospitals at the provincial and district levels, regional polyclinics, and medical stations in villages or mountain villages. This list is applied for all new construction or renovation plans supported by state or local funds, ODA, or other sources.

Most equipment on the list of essential medical equipment for departments of diagnostic imaging, laboratory testing, intensive care, surgery, etc must be of the appropriate type and quantity to meet the defined tasks listed in the hospital regulations. Supplementary equipment excluded from the list must be studied rigorously based on functions, tasks, number of beds, and professional level of each hospital to make appropriate investment decisions. Hospitals with specialized departments for nuclear medicine, tropical diseases, and diseases of bone and joints, digestive tract, and urinary tract should consult specialized, central, and foreign hospitals, or the Ministry of Health.

Prior to any medical equipment investment plan, each province must prepare carefully in terms of infrastructure, professional capacity and knowledge relating to the operation, utilization, and maintenance of the equipment, thus gradually harmonizing the infrastructure with the equipment. This is crucial to meet the people's healthcare needs and to assure efficiency of investment strategies.

The list of essential medical equipment is based on the following criteria:

- Basic medical equipment for primary health care at the grassroots level must meet goals of the National Policy on Medical Equipment, 2002-2010.
- Equipment that is widely used and has the potential to be domestically manufactured and produced, is licensed by the Ministry of Health to ensure competitiveness in terms of quality and price with imported equipment of the same categories.
- Equipment characterized by uncomplicated design and structure/components should be studied for manufacturing purposes to meet domestic demand and decrease dependency on imports
- Equipment that has been studied, built, and tested in clinical experiments at major hospitals and is widely accepted by customers will be transferred to a manufacturer that has adequate capacity and ISO quality management certification for production until 2010.

- Attention should be given to the study and selection of high-technology medical equipment for diagnosis and treatment.

A medical equipment database for district hospitals was compiled in 2006. Information on the technical specifications of medical equipment for other health levels is being compiled.

### **20.1.3. Master plan for Vietnam's healthcare system**

Concerning preventive medicine, regulations for medical equipment investment are clearly stated in the master plan for Vietnam's healthcare system for 2010 and vision for 2020, formulated on the basis of the Decision No 153/2006/QĐ-TTg (2006).

According to the master plan, the central and regional preventive medicine network will receive funds from the state budget for essential medical equipment for biological safety laboratories, and food safety testing centers.

Relating to provincial preventive medicine, state funding requires that the provincial preventive medicine centers have at least one biological safety laboratory at level 1 or 2. Along with preventive medical centers, international quarantine and food safety centers should also be promoted. Occupational health and environment centers, reproductive health centers, and healthcare information centers at the provincial level should be consolidated. Malaria prevention and control centers should be enhanced, and the HIV/AIDS prevention and control centers should be well-equipped.

Concerning the district level, preventive medicine centers should be fully equipped with fundamental medical equipment to carry out disease surveillance, prevent HIV/AIDS, ensure food safety, promulgate healthcare information, reproduction healthcare, and build "culture and health villages".

The master plan also mentions the medical equipment needed to improve research centers, the manufacture of vaccines and biological products of GMP standard, and modernization of centers for vaccine and biomedical product verification that meet international standards and operate reliably.

## **20.2. Supply of Medical Equipment**

To satisfy the increasing demand for medical equipment of good quality, domestic production is endorsed in the National Policy on Medical Equipment. Since domestic manufacturers have not met the demand, however, Vietnam must import medical equipment. Due to the national economic development process and the equalization of state-owned companies, medical equipment companies vary by quantity and type. Furthermore, the need for quality control of medical equipment requires new regulations and standards. Hence, this part focuses on the current situation of medical equipment supply and new regulations concerning this matter.

### **20.2.1. New product circulation regulations**

The Ministry of Health is responsible for domestic regulation of medical equipment. To fulfill this task, the Health Minister issued Circular No 07/2002/TT-BYT in 2002 regulating the registration of medical equipment. Under this circular, medical equipment produced in Vietnam must be assigned a registration number by the Ministry of Health before it is distributed. Regarding imported equipment, the inspection and registration process is implemented under Decision No 46/2001/QĐ-TTg issued by the Prime Minister (April 4, 2001). The registration file must be presented in one complete bound set and including the following papers arranged in this order: the medical equipment circulation registration form, the business registration license, the standard of product quality document ensuring the

equipment meets standards, results of trials from at least 3 Vietnamese medical facilities (the Ministry of Health decides on the facilities depending on the type of equipment), the physical chemistry test results and safety level quarantine issued by related offices (for equipment requiring testing and verification), technical data and instruction manual, the trademark complying with the Regulation on domestic circulation and import-export products accompanied by the Decision No 178/1999 QĐ-TTg by the Prime Minister on August 30, 1999, and Circular No 34/1999/TT-BTM guiding implementation, issued by the Ministry of Trade on December 15, 1999.

### **20.2.2. New regulations concerning the import-export of medical equipment**

Circular No 06/2002/TT-BYT by the Ministry of Health regulating the import-export of medical equipment under specialized control during 2002 to 2005 briefly presents the regulations on medical equipment import and export, including mandated and label cases. It also clarifies certain authorized cases of importing and exporting medical equipment as follows:

- Vietnamese enterprises that commercially produce and are qualified to manufacture and trade in medical equipment and have been issued the customs code for import-export enterprises by the General Department of Customs are entitled to export and import medical equipment.
- Foreign-invested enterprises producing, trading in, and involved in import-export of medical equipment are entitled to export and import medical equipment.
- Pharmaceutical enterprises involved in import-export are entitled to import medical equipment and chemical substances used for drug production and testing.

Under Circular No 08/2006/TT-BYT (June 13, 2006), entrepreneurs needing new medical equipment on the 54-item list must have a license issued by the Ministry of Health (including common medical equipment like black-and-white ultrasound scanner, from medical materials like medical glasses to high-technology equipment like PET-CT systems or gamma knife) and must meet the following requirements: legal business registration in accordance with Vietnam's Enterprise or Cooperative Law and the Investment Law, and qualified medical equipment technicians and infrastructure.

### **20.2.3. Domestic medical equipment production**

On 21 January 2005, the project "Research for Medical Equipment Manufacture and Production" was ratified by the Prime Minister in Decision No 18/2005/QĐ-TTg, aiming at comprehensive development of medical equipment. The medical equipment industry is regarded as an important area in need of investments in human resources with policies according it a certain level of priority. Hence, the development of medical equipment manufacturing requires the cooperation of different ministries and branches with a common goal of socialization and diversification, toward a higher aim of export in the coming years.

This project intends to rally nationwide potential to establish and develop the medical technology industry, with the aim of manufacturing and supplying essential medical equipment and certain kinds of high-technological equipment to the various levels of health services by 2010. Moreover, it should reach the goals stated in the National Policy on Medical Equipment, 2002-2010. The project also includes principles in selecting medical equipment research, manufacturing, and production, eg, continue to enhance quality and improve and perfect the design of domestically produced medical equipment, thus moving toward the export goal.

The Ministry of Health is the official body that guides and facilitates the orientation toward medical equipment manufacturing, aiming at the goal of localizing medical equipment and gradually reducing the import of devices where Vietnam has the advantage. The Vietnam

General Medical Equipment Corporation and its 6 subsidiary companies have shown remarkable achievements. Vietnam's medical equipment industry has grown from mainly importing to meeting 30% to 40% of demand domestically, and now exports to other markets, eg, Europe, Taiwan, Hong Kong, and the Russian Federation.

Currently, 46 medical equipment enterprises with nearly 300 products have been licensed. Among those, 21 enterprises produce materials such as single-use syringes, surgical gloves, cotton, medical bandages, and compresses. Eleven enterprises produce hospital equipment including maternity beds and hospital beds. Seven enterprises produce electronic medical equipment including ultrasound machines, laser equipment for surgery, high-frequency electrical surgical knife, and lithotripters. The remainder produce other materials and products. Of the 46 enterprises mentioned above, 11 enterprises are foreign or joint companies, 21 are private or privatized, state-owned enterprises, and the remaining 11 are state-owned enterprises.

#### **20.2.4. Medical equipment trade**

In May 2003, Vietnam had 751 medical equipment enterprises nationwide. Among those, 489 were limited companies, 145 were medical equipment wholesale and retail shops, 82 were joint-stock companies, and 35 were state companies according to the Report on Medical Equipment, and project "Review after 10 years of Implementing party Resolution IV, Central Executive Committee Term VII on 'Urgent issues of the people's health care cause' attached to Official Document No 101/TB-CT in preparation for Resolution No 46). Enterprises in the medical equipment industry are growing in number and vary from joint-stock, to limited, to state-owned companies. This is a good sign, showing benefits from the efforts and cooperation of ministries and offices in facilitating the development of the medical equipment industry, with the aim to enhance our healthcare sector.

#### **20.2.5. Import of medical equipment**

In the early 1990s, the infrastructure of healthcare facilities in Vietnam was not in good condition. Domestic production capacity of medical equipment failed to meet the growing need, so foreign products were imported in massive quantities. Due to improper control, most of these imported products were obsolete and of low quality. Before 2000, over 90% of medical equipment used in the healthcare system had been imported from a variety of markets.

To achieve the goals of the *Doi Moi* process, the Vietnamese government made certain changes to harmonize the management of medical equipment business, imports, and exports from the central to provincial levels. Medical equipment inspections, checks, and control systems were established. Based on the regulations from the Government and the Ministry of Health, the state created favorable conditions for economic entities to participate in the medical equipment industry and in export and import activities.

### **20.3. Medical Equipment Investment in Healthcare Facilities**

Government policy on investing in medical equipment aims not only at strengthening basic equipment at all levels, but also at establishing healthcare centers specialized in preventive medicine and medical diagnosis and treatment. Equipment policies applied to the communal, district, and provincial levels aim at standardizing national medical quality by investing in categories of essential equipment. The state invests in specialized equipment at selected regional healthcare facilities for treatment of rare diseases and to carry out research or provide professional training and mentoring at lower-level facilities in the region. As regards preventive medicine, the state makes large-scale investments in districts and provinces to help them control epidemics, manage food safety, and protect health workers while continuing to provide certain preventive medicine institutes and centers with specialized equipment.

The capital for medical equipment in state-run healthcare facilities is mobilized from various sources including the state budget, international aid, and the private sector, aimed at the process of socialization and implementation of Decree No 10. Each source of funding has different incentives affecting the selection of equipment, utilization capacity, and maintenance. The government has developed procedures to manage medical facility construction, including regulations on investments in medical equipment, to strictly control and increase efficiency in state funding.

### **20.3.1. Investment in medical equipment at the basic level**

The list of essential medical equipment at the commune level is suitable for common services, eg, prenatal checkups, normal delivery, and first aid. From 1999 to present, financial assistance from international groups (eg, the National Health Support Project sponsored by the World Bank, the Population and Family Health Project by the World Bank and ADB, the Rural Health Project by ADB and a program on the development of the healthcare system by the EC), have enabled investments in fundamental medical equipment for over 4000 commune health stations in 55 provinces. Some projects focus on the purchase of basic medical equipment for healthcare facilities in small and mountainous villages. In general, most projects aim at healthcare facilities in the countryside, especially in poor areas.

Although medical devices procured for commune health stations are mainly basic, inexpensive items, the large number of facilities means that the total sum required and provided by investment funds is high. Some problems related to investments in equipment at the grassroots level have yet to find sustainable solutions. Currently, no source of funds for recurrent spending ensures maintenance of equipment or replacement of damaged equipment. From 2000 to 2005, 365 new communes/wards were established, which require funding for facilities and equipment. These requirements are not inconsequential. Apart from medical equipment, every facility requires qualified staff to ensure proper use of the equipment. If all commune health stations were provided with the full set of essential medical equipment and devices, their human resources would be adequate to use this equipment effectively.

To enhance the capacity of commune health stations to meet people's increasing healthcare needs and serve the changing disease patterns, basic-level health facilities must receive investments in medical equipment to provide services in some basic specializations for, eg, dental, ear, nose, and throat (ENT), and optometry.

### **20.3.2. Medical equipment investment in preventive health**

The preventive health system aims to prevent traditional infectious diseases. Due to changes in living conditions, lifestyle, urbanization, and access to healthcare, the scope of diseases in Vietnam has changed. Hence, preventive health services must also change. Some provinces need to enhance healthcare services, such as food safety or occupational health protection. Others continue to control epidemics, while the nation as a whole has to face new diseases like SARS and avian influenza. As a result, it is crucial to invest in laboratory systems that correspond to the pattern of diseases.

The Master plan for Development of the Health Sector has proposed areas in preventive medicine that need upgrading. In 2005, the Asian Development Bank (ADB) signed an agreement to grant loans to the project aimed to assist the preventive medicine system. This project will equip 4 Pasteur Institutes and certain hospitals in 46 provinces to raise their capacity in fighting infectious diseases and facing new challenges. Over half of the projected capital will be used for the purchase of testing and laboratory equipment. The Mekong Delta Regional Health Support Project funded by the World Bank also has a component investing in medical equipment for preventive health in the region.

### **20.3.3. Medical equipment investment at district hospitals**

The basic goal of the program on upgrading medical equipment is to assure that hospitals from the central to local levels are provided with equipment that meets the standard set by the Ministry of Health. The first priority includes important departments in the hospital: diagnostic imaging (eg, x-ray, ultrasound, endoscopy), intensive care, laboratory testing, and operating rooms.

Since 1998, the health sector began focusing on providing and upgrading medical equipment at the district and commune levels, with priority on mountainous and remote provinces, through assistance from ODA loans. The National Health Support Project and Population and Family Healthcare Project invested in 350 provincial hospitals with a loan from the World Bank and Asian Development Bank (ADB). The ADB-funded Rural Health Project invested at 74 district hospitals, 13 provincial hospitals, and 99 regional polyclinics. Much of the capital is used to buy new medical equipment. According to the report “Review of 10 Years Implementing Resolution No 4 of the Central Committee, Urgent Issues of the People’s Healthcare to 2003”, more than 90% of the district health centers have been provided with basic medical equipment, eg, 100mA x-ray, black and white ultrasound, microbiology testing equipment, hematology machine, and ambulance. However, when comparing the actual situation with the list of essential equipment, only just over 50% of provincial hospitals reach the highest level of 70% to 80% of the required equipment.

Aiming to improve this situation, in 2005, the Prime Minister issued Decision No 225/2005/QĐ-TTg (September 15, 2005) approving a project to upgrade district hospitals and regional general hospitals from 2005 to 2008. This project provides equipment at the district level and training to assure the proper use of that equipment, thus enhancing access to medical services for the population. More specifically, this project will help standardize the diagnosis and treatment capacity of these hospitals by purchasing medical equipment on the list issued by the Ministry of Health, appropriate to the size of each hospital. The state budget prioritizes certain districts or regional general hospitals, eg, polyclinic consulting rooms in poor areas, hospitals in newly-separated districts, those with seriously downgraded equipment, those in mountainous or remote areas, and even projected regional general hospitals.

### **20.3.4. Medical equipment investment at provincial and central general hospitals**

Nearly all provincial general hospitals were built and equipped many years ago, but have not been maintained due to insufficient funding. According to a recent survey and review of reports from provinces by the Ministry of Health, equipment in provincial hospitals is inadequate and obsolete. Many hospitals have not even obtained 50% of the essential medical equipment (200 items required). For instance, although an endoscope is basic technology required at the provincial level, 40% of hospitals do not have one. Those having this technology report that the system is either incomplete or out of order. Equipment in operating and recovery rooms is in poor condition. Oxygen equipment in operating rooms does not meet the required technical standards. Furthermore, 35% of the current equipment was in use before 1985. Of that equipment, 40% has been used from 1986 until now. As a result, only about 25% to 30% serves its function [266].

To improve the situation, the Ministry of Health has mobilized capital from numerous international organizations and other bilateral assistance. Medical equipment investment projects from Japan, Germany, South Korea (in Quang Nam province), and the World Bank consider the hospitals’ overall demand and capacity, and provide suitable investment advice

Those projects deal with 22 provincial general hospitals and 2 central hospitals. Other countries, eg, Spain and Italy, also provide assistance, but only for a few specialized departments or specific items of equipment, not a comprehensive package.

### **20.3.5. Medical equipment investment for specialized medical centers**

Along with the rapid development of technology, medicine has also enjoyed remarkable advancement. Medical achievements coexist with the increasing demand for healthcare services. To set a background for the development of Vietnam's health sector and enhance the quality of healthcare, the Party Resolution<sup>IV</sup>, Central Executive Committee Term VII, underscored the establishment and development of specialized medical facilities.

The goal stated in the program is: To develop several medical facilities in Hanoi, HCMC, and the central region of the country into 3 specialized medical centers with high-level professional knowledge and modern equipment. They will be gradually enhanced to keep pace with countries in the region and certain nations around the world and will make a strong contribution to our healthcare cause.

Specific objectives include: Renew and supplement equipment to raise the quality of diagnosis, emergency and intensive care, and treatment; build a new and/or improve existing infrastructure to provide appropriate equipment and better care of the patients; continue to train hospital staff with specialized and management knowledge and develop technical research to lay the ground for overall development and international cooperation.

The program to establish specialized centers in Hanoi was approved by the Prime Minister with Decision No 88/TTg (February 13, 1995) in HCMC and in Decision No 139/TTg (March 7, 1997). On 6 September 1997 a comprehensive plan for socio-economic development of Thua Thien – Hue province, including a plan of a specialized medical facility in the Central Region, was passed by the Prime Minister in Decision No 739/TTg.

### **20.3.6. Investment in certain types of high-tech medical equipment**

State investments and ODA projects have enabled certain district healthcare facilities to be equipped with basic items, eg, x-ray equipment, diagnostic ultrasound, biochemical testing equipment, and ambulances, and those at the provincial level with CT scanners, color ultrasound, and video x-ray with monitors. Central hospitals, particularly specialized medical centers, are equipped with devices for diagnostic laboratory, emergency and high-tech treatment departments to better serve patients.

Along with nonrefundable aid from international organizations, bilateral donors, Non-government Organizations (NGOs), and preferential loans of the World Bank and other ODA projects, medical equipment in medical diagnostic and treatment rooms, and research in the medical field has improved considerably, gradually meeting the demand of the people. Statistics from November 2005 showed the following modern, high-tech equipment in Vietnam:

- Computed tomography (CT) scanners: 164 nationwide systems. Among these, 52 were purchased using the state budget (central and regional levels), 12 from ODA, and 100 from other private sources
- Magnetic resonance imaging (MRI) scanners: 30 systems nationwide. Among these, 10 were purchased using the state budget (central and regional levels), 2 from ODA (Ministry of National Defense), 18 from private sources (mainly used with electromagnet 0.06 – 0.35 Tesla). The ratio is 0.4 scanners per 1 million persons, equivalent to that of Mexico and Poland.

- Cardiac imaging: 11 cardiac imaging systems nationwide, 9 purchased using the state budget.
- Excimer laser (ophthalmology): 9 excimer lasers nationwide, 2 purchased using the state budget.
- Cyclotron radiation: 9 units nationwide, 2 purchased using the state budget, 3 purchased with private funds.
- Extracorporeal shock wave lithotripsy (ESWL): 14 systems nationwide, 3 purchased using the state budget, 11 purchased with private funds.

Regarding specialized health centers, 5 hospitals have suitable equipment to offer high-tech treatment of heart disease (heart valve replacement, balloon angioplasty, coronary stent, bypass surgery), 2 hospitals have the capacity to perform kidney transplants, 1 has the capacity to perform bone marrow transplants, 1 can perform artificial insemination, 11 offer ELISA tests.

To use medical equipment efficiently, a facility's investments must be appropriate to patients' needs and the capacity to utilize the equipment. Comparing the ratio of population per unit of equipment for CT and MRI in Vietnam with other countries, Vietnam is lower than Indonesia, but higher than Malaysia or Singapore (the two with higher GDP per capita and greater aging in the population) (Table 20.1). In Canada, the ratios are 183 000 inhabitants per MRI and 89 000 inhabitants per CT scanner.

**Table 20.1. International investment in high-tech medical equipment in comparison with Vietnam, 2000**

Unit: thousand people per machine

	Singapore	Malaysia	Vietnam	Indonesia
MRI	310	1 100	2 771	15 400
CT scanner	148	356	507	1 520

Source: Sahota A [267]

### **20.3.7 Options for medical equipment investment**

Decisive factors for efficient investment include: the appropriate technical and technological configuration suitable for each level, and the capacity of the operating staff. Current medical equipment consulting services are of poor quality, and only 5 institutions (confirmed by the Ministry of Health) are capable of technical consultation for medical equipment:

- Medical Equipment and Construction Institute
- Center for Medical Equipment Services, Technical and Medical Equipment Institute.
- Electro-biomedical Center, Hanoi Polyclinic University.
- Physical and Biomedical Sub-institute, Ministry of Defense.
- Consulting Services Center for Medical Equipment, under the Vietnam Association for Medical Equipment.

Even in these institutions, service quality is inadequate, and the consulting services in some are far below the accepted level. In these cases, the Medical Technical Consultation Committee of the Ministry of Health needs to provide necessary guidelines and suggested changes.

Hence, consulting activities for medical equipment must be strengthened in the coming years.



On the other hand, it is crucial to avoid purchasing unnecessary, expensive equipment and placement of equipment at inappropriate levels of care where it cannot be fully exploited, and will lead to waste and loss of capital

## 20.4. Maintenance and Repair of Medical Equipment

### 20.4.1. Technicians for maintenance and repair of medical equipment

At present, Vietnam has a shortage of technicians to maintain medical equipment, affecting health activities at all levels. Most technicians graduated from non-medical colleges or universities (eg, Hanoi Polytechnic University, National University, and Transportation University) and then started to work for hospitals. They mainly acquire knowledge and skill about medical equipment on the job.

A study of 37 provinces and 41 Ministry of Health affiliates (including 24 hospitals, 9 research institutes and 8 colleges) in 2004 identified a serious shortage of technicians specialized in medical equipment (Table 20.2).

**Table 20.2. Number of technicians for medical equipment, 2004**

Category	Total number of facilities	Number of technicians in medical equipment	In which		
			Engineer	Secondary-level technician	Other
Central institutions	41	248	71	126	51
Provincial general and specialized hospitals	171	506	127	268	111
District health centers	357	349	0	254	95
Total	569	1157	198	648	

Data source: Chuc et al. [268].

The table showed that:

- Regarding all workers specializing in medical equipment, on average, each institution under the Ministry of Health (including hospitals, research institutes, medical universities and colleges) has 4.7 engineers and 3 technicians.
- Each provincial general and specialized hospital has only 0.7 engineers and 1.6 technicians.
- Each district health center has only 0.7 technicians.

As of 2006, only a single technical school trains technicians in medical equipment (a 3-year program); and one university (Hanoi Polytechnic University) has recently established a department of medical electronic technology to train engineers to work with medical equipment. To meet with increasing needs of the health sector, it is important to invest in training biomedical equipment technicians for the entire health sector in general and for hospitals and other treatment facilities in particular.

### 20.4.2. Maintenance costs for medical equipment

Three units under the Ministry of Health provide maintenance services for medical equipment:

- Medical equipment maintenance company (now the Medical equipment joint stock company-Northern region).
- Center for maintenance of medical equipment, MEDICO (Central region)

- Center for medical equipment maintenance, VIMEC (Southern region).

The maintenance of most medical equipment depends primarily on suppliers and manufacturers. A careful analysis of this problem indicates: if Vietnam only focuses on buying new machines, it will continue to be dependent on foreign suppliers and face 2 major concerns:

- Materials and spare parts.
- Repairs and maintenance of medical equipment after the warranty period (not including preventive maintenance to ensure reliable operation and extend the life of equipment).

A concern is the high number of foreign equipment vendors in Vietnam, especially distribution agents of producers without a strong reputation and with only a small market share (less than 5% of world market) and with no (or very poor quality) post-sale services. It is difficult to manage the maintenance and repair of medical equipment that is supplied by a wide range of manufacturers.

Another issue is that when health facilities purchase new medical equipment, the costs for maintenance and repair are not fully considered. Maintenance costs for medical equipment, especially high-tech equipment, are substantial (Table 20.3).

**Table 20.3. Maintenance costs for medical equipment per year**

Equipment	Maintenance cost per year
X-ray machine with monitor	15 – 20 000 USD
CT scanner	40 – 70 000 USD
MRI (superconducting)	100 000 USD
Medical accelerator	100 000 USD

Source: Medical equipment and construction department, MOH Vietnam

Maintenance costs for other basic equipment, eg, biochemistry testing devices, hematology devices, and ventilators, vary from 10 million to 60 million VND per year (excluding operational costs).

### **20.4.3. Quality control of medical equipment**

At present, only the Institute for Medical Equipment and Construction has staff (10 people) working on quality control. However, it has out-dated equipment for testing whether equipment meets standards, poor infrastructure, and inadequately trained staff. Yet, the quality control of medical equipment requires the accuracy and stability of tools for assessing compliance with standards.

To meet the increasing need for quality control of medical equipment, the Ministry of Health should plan to expand the medical equipment quality control network. Also, there is an urgent need to upgrade the Institute for Medical Equipment and Construction in Hanoi and establish other quality controls centers in the Central region and in HCMC.

## **20.5. Utilization of Medical Equipment**

Modern medical equipment, which applies advanced scientific and technological knowledge, has helped in rapid, accurate, safe, and effective diagnosis with few complications for patients. In health care, the important task of preventing illness, and diagnosing and curing disease is aided by the presence of science and technology in medical equipment. Apart from the important role mentioned above, technology also helps the practitioner achieve

greater confidence in diagnosis and treatment and gives patients optimism and hope in the prognosis of the illness being treated.

Current problems, however, are that equipment is not available at the right level of care, and capacity is not fully used, especially regarding expensive equipment. The misuse of high technology in diagnosis and treatment causes some problems when people who require certain technology do not, or are unable to, receive those services, while people who do not actually need high-technology services incur unnecessary expenses for health care.

### **20.5.1. Medical equipment in relation to hospital fees**

Currently, the state sets user fees for various procedures that require medical equipment, based on a user fee schedule developed in 1995. In 2006, the user fee schedule was updated by adding on a list of high-technology services that began to be offered after 1995. The fee schedule was developed with the intent to collect partial user fees, based on the cost of disposables used in the procedures. Other costs including maintenance, labor, and depreciation were not taken into account. The Social Insurance Agency and user-fee paying patients pay for hospital services in accordance with this fee schedule. This regulation, if left unchanged, makes it difficult for hospitals because they do not receive reimbursement to cover the costs of electricity, maintenance, and labor to operate equipment.

According to economic principles, services for which the fees charged exceed the cost of providing the service will be provided more than those for which the fees collected are lower than the costs. Because the recently developed user fees charged for newer, high-technology services are at a much higher level than the user fees developed in 1995, they create the incentive to overprovide these services and disincentives to provide more basic services. The Ministry of Health is working with the Ministry of Finance to adjust user fees for basic services in the near future to be more in line with the costs of providing those services.

### **20.5.2. Effective use of medical equipment**

Given the large investment in medical equipment during the past few years, the question is whether the equipment is used effectively. Two indicators can be used to answer this question: the number of times the equipment is used per inhabitant (number of procedures per 1000 population), and the utilization rate of the machine (number of times machine is used per day).

Comparing the utilization rates of medical equipment in Vietnam versus other selected countries shows that the utilization of MRI is quite low while x-ray and ultrasound utilization are quite high (Table 20.4). This reflects, to some extent, the inability of patients to afford expensive high-tech services, while the need for diagnostic imaging using basic technologies (x-ray, ultrasound) is high.

**Table 20.4. Estimated utilization rate of high-tech medical equipment in selected countries**

Unit: number of exams per thousand habitants

Country	MRI	CT scanner	X-ray	Ultrasound
Canada	25.5	87.3	..	..
US	83.2	172.5	..	3.5*
Great Britain (public sector)	19.9	43.0	..	..
Australia (2004-05)	2.0	21.0	0.7	2.8
Vietnam (public sector 2005)	..	2.6	122.2	80.7

Source: US [269, 270], Canada [271], Great Britain [272], Australia [273], Vietnam [14]

However, capacity of using medical equipment is low (Table 20.5). The utilization rate of CT scanners at public hospitals is just half of that in Canada and 70% of the level in the United States.

**Table 20.5. Utilization of medical equipment in selected countries**

Unit: average number of exams per machine

	MRI	CT scanner	X-ray	Ultrasound
Canada	4666	7745	..	..
US	3412	5298	..	..
Vietnam (public sector)	..	3779	7721	4832

Source: US [269], Canada [271], Vietnam [14]

Even within the country, the utilization of high-technology medical equipment varies among different levels of the medical system. The number of CT scans, x-rays, and microbiology tests per day increased every year from 2000 to 2005. However, the number of times such equipment is used at district hospitals is much lower than that at provincial and central hospitals.

**Table 20.6. Percentage of general hospitals having CT scanner, x-ray machine, and biomedical testing machine, 2005-2006**

	2000	2005
% of hospitals having CT		
Central level	50.0	83.3
Provincial level	18.6	47.5
District level	1.13	0.62
Utilization rate per day		
Central level	13.4	27.9
Provincial level	2.3	7.8
District level	2.7	4.7
% of hospitals having x-ray machine		
Central level	100.0	100.0
Provincial level	97.9	99.0
District level	84.7	91.6
Utilization rate per day		
Central level	180.4	266.8
Provincial level	70.4	113.0
District level	7.2	13.9
% hospitals having microbiological testing machine		
Central level	100.0	100.0
Provincial level	91.8	92.9
District level	80.2	87.9
Utilization rate per day		
Central level	179.8	322.0
Provincial level	76.4	102.1
District level	8.1	9.7

Source: Hospital Inventory 2000 and 2005 [209, 212]

To meet the cost of operating medical equipment, health facilities must increase their utilization rates. The health sector needs to develop a mechanism to prevent doctors from misusing high-technology equipment and make full use of existing equipment.

## **20.6. Conclusion**

Progress has been made on several projects that invest in medical equipment to increase the quality of curative care. To increase financial accessibility of patients to high technology medical services, in 2006, the government expanded the number of services Vietnam Social Health Insurance was allowed to reimburse, including the addition of many expensive, high technology services. The domestic production capacity for medical equipment and materials continues to improve, and is approaching the ability to satisfy 60% of domestic needs at a substantially lower price than for imported equipment and materials.

Currently, the most important problem concerns human resources in the field of medical equipment. The technical workforce in charge of maintenance and repairs of medical equipment is short of staff and the level of expertise is low. Medical equipment manufacturers are still unable to meet the need for spare parts. The current state budget allocated for maintenance and repairs is low compared to need. In the next few years, maintenance and repair costs will increase rapidly with the implementation of projects to construct and equip highly specialized hospitals as well as provincial and district hospitals.

Medical costs are increasing. Although drugs comprise the greatest share of total costs, other costs related to medical equipment such as operational costs, depreciation, and labor are on the rise. According to a recent study on hospital fees at the provincial and district level, the costs to operate equipment at imaging and testing departments account for 16% to 18% of total costs and about 22% of the hospital fee that patients and health insurance agencies pay to public hospitals.

The utilization rate of medical equipment is not high, due in part to the inability of people to pay, and in part because capacity exceeds demand. Other factors include inappropriate investments, inefficient organization and use of equipment, and unrepaired medical equipment due to a shortage in funds and technicians. In the next 5 years, the health sector must find solutions to resolve these problems. A project to develop health technology assessment (HTA) processes is needed to form a basis for policies aimed at minimizing inefficient and unsafe use of technology. The HTA process should also aim to reprioritize investments and use technology that has a high level of cost effectiveness. Provider payment mechanisms are being reformed and are expected to have a major influence on choices made by doctors in using medical technology for diagnosis and treatment. In the long term this should encourage medical facilities to invest more rationally and collaborate in using medical equipment with other facilities to maximize the utilization of the capacity of medical equipment.

## Chapter 21

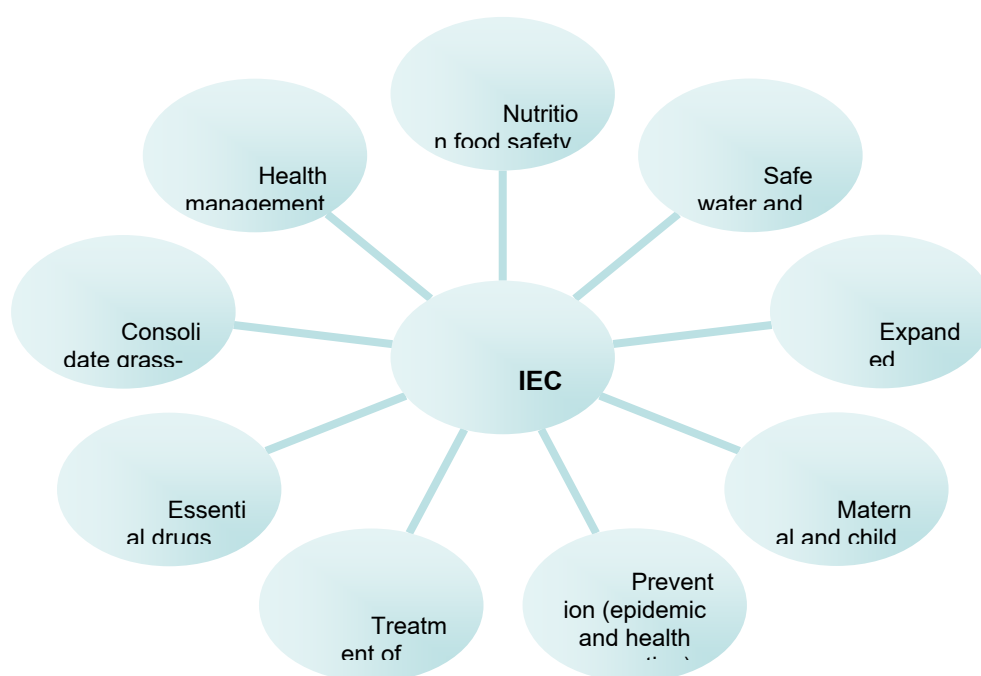
### ISSUES OF HEALTH EDUCATION AND COMMUNICATION

#### 21.1. Role of Health Education and Communication in People's Health Care and Protection

Information, education, and communication (IEC) is placed at the top of 8 tasks for primary health care from the Alma Ata Declaration of 1978 and 10 tasks for primary health care in Vietnam. The objective of the Declaration clearly states the first content of primary health care as: *"Education concerning prevailing health problems, and the methods of preventing and controlling them"*.

Information, education, and communication are preventive measures that are cost effective and highly sustainable, and are also important solutions in implementing macro health policies. IEC plays an active role in promoting social mobilization for healthcare activities and creating profound changes in the awareness of and responsibility for the entire political system related to people's health care, protection, and improvement. It also provides information, knowledge, and skills for people so that each individual, family, and community can become actively involved in activities that protect, care for, and improve community health. These aspects have been clearly recognized by the Party and Government. In Resolution 46-NQ/TW of the Politburo on people's health care, protection, and improvement in the new situation, one of 7 major tasks and measures is to "Improve effectiveness of information, education, and communication". In the Government's action program for implementing Resolution 46, the first task referred to is to improve health education and communication activities.

Figure 21.1. Necessity of IEC in many areas of people's health care and protection



IEC activity is one of the essential measures that aims to improve people's awareness and change their behaviors in disease prevention, treatment, and health promotion. IEC activities also play a crucial role in public health programs (Figure 21.1) and are regarded as indirect intervention measures that contribute to improving effectiveness of health services through behavioral change communication on health-related problems. Recently, IEC has focused on HIV/AIDS prevention and control programs, malnutrition control programs, ensuring hygiene and food safety, prevention of an avian influenza pandemic in humans, and strategies for population control and family planning. Evidence shows that if IEC activities are effective, they contribute greatly to successful implementation of national health programs, avoiding waste of resources as a consequence of inadequate information and knowledge of health-related problems and health risk behaviors posed by the community.

The Government's action program for health IEC by 2010 has set forth major objectives to improve awareness and practices among Communist Party members and government authorities at all levels, political-social organizations, communities, and individuals about people's health care, protection, and improvement – contributing to successful implementation of the National Strategy for People's Health Care and Protection from 2001 to 2010. Toward this end, health IEC systems of the health sector, line ministries, and the mass media should consolidate and strengthen collaboration in securing basic conditions such as financing, a physical facility, and equipment for health IEC activities.

## **21.2. Demand for IEC**

In recent years, IEC in many sectors has actively contributed to the general success of people's healthcare activities. For example, Vietnam's family planning program has been very successful in controlling fertility rates, mainly through behavioral change communication, changing people's awareness of difficulties for the family and country resulting from a high fertility rate, combined with education about birth control. The average number of children per woman of reproductive age has declined from 7 in 1964-1969 to 2.1 children in 2004. However, IEC activities like other sectors, should take appropriate approaches and forms to adapt to the new situation. This bears significant importance as IEC plays an increasingly important role due to people's growing needs for health information and knowledge about disease and health-related issues. Also, harmful effects from changes in disease patterns, with a rise in noncommunicable diseases, injuries, accidents, and health risks could be minimized by behavioral change communications.

### **Box 21.1. Role of IEC in preventing and controlling HIV/AIDS**

The national strategy for HIV/AIDS prevention and control in Vietnam by 2010 and vision for 2020 was approved by Decision 36/2004/QĐ-TTĐ of the Prime Minister (March 17, 2004) and emphasizes the role of IEC activities:

"Promote information, education, and communication activities to change risk behaviors; increase quantity, quality, appropriateness, and effectiveness of information, education, and communication activities. Establish a contingent of educators linked with collaborators in villages/hamlets and staff from local communal organizations and unions. Assign specific tasks and responsibilities in implementing health education and communication for behavior change in each Ministry, sector, and locality. Incorporate contents of prevention of HIV/AIDS infection and reproductive health education into the training curriculum of universities, colleges, secondary schools, and vocational training centers and schools.

Strengthen education on intervention programs to mitigate harmful effects and create favorable conditions for realizing intervention measures. Implementation of intervention programs to mitigate harmful effects should be synchronous, including clean syringe program and condom program. Study international experience to develop and apply intervention models of clean syringe programs, condom programs, and other intervention programs in Vietnam".

IEC holds an especially important role in preventive medicine as causes of diseases are often simply risky behavior of people in the community, and behavioral change induced by IEC will lessen the risk of contracting disease. For example, tobacco smoking is a risk factor for respiratory and cardiovascular diseases. Communication on the harmful effects of smoking and smoking cessation methods is a leading measure in the national policy to prevent and control tobacco smoking. In the strategy for HIV/AIDS prevention and control, IEC proves to be the major measure to increase awareness and practices of people about HIV/AIDS prevention and control through communication about changing risk behaviors related to drug addiction and unsafe sex (Box 21.1 and Table 21.1). Yet, the facts show that some important messages have not reached people, especially high-risk groups. Furthermore, the road from awareness to behavior change is long, and requires time and appropriate action. Hence, promotion and improvement of IEC activities is critically important.

**Table 21.1. Change in awareness of HIV/AIDS 1997~2005**

	1997	2002	2005
Proportion of women aged 15-19 who have heard about HIV/AIDS	78.6	90.6	90.7
Proportion of women aged 20-24 who have heard about HIV/AIDS	89.4	94.7	93.1
Proportion of women who have heard about HIV/AIDS	90.8	95.3	92.5
Proportion of women who know how to prevent HIV/AIDS by using condom	31.6	50.1	82.5
Proportion of women who know to prevent HIV/AIDS by avoiding illicit drug injection	26.8	53.9	*
Proportion of women who know healthy looking people can be infected with AIDS	69.0	77.8	67.2

Notes: In 1997 and 2002, the sample includes ever married women aged 15-49 years. In 2005, the sample includes women aged 15-49 years including those never married. \*Information is not reported in 2005.

Source: 1997- Demographic and Health Survey 1997 [274]; 2002- Demographic and Health Survey 2002 [275]; 2005- Sampling survey of population indicators and AIDS 2005 [276].

IEC is important not only in disease prevention, but in curative care and management of diseases as well. At present, education and communication of rational and safe use of drugs and management of chronic diseases is the focus of health IEC. Purchase of drugs for self-treatment without prescription of doctors or habitual drug use without instructions and supervision of health workers is common, and the rate of drug interactions and drug resistance is growing as a consequence of the lack of information and poor knowledge concerning self-medication. According to VNHS 2001-2002, 73% of sick people purchase drugs for self-treatment. A study by Larsson (2003) [188] shows that when deciding on antibiotics to treat acute respiratory infection in children, 67% of patients consult drug vendors, 11% of them make the decision themselves, and only 22% of people buy drugs with a prescription. Only 87% of respondents reported that they pay attention to information on daily dosage, 52% people look at instructions on use of drugs, and only 8% of people pay attention to the contraindications of drugs.

Apart from direct influences on prevention and treatment, IEC also plays an indirect role in supporting individuals and households to reduce the burden of healthcare costs, avoiding unnecessary waste in healthcare expenditure through education, and mobilizing people to buy health insurance. However, recent survey results reveal that a lack of knowledge about health insurance is a major barrier to expanding the coverage of health insurance. Results from VNHS 2001-2002 show that the reason why people do not have health insurance is that they do not know what it is (57.3%). The second reason is that they do not know where to buy it (25.2%). Among those with health insurance, a large share do not use the health insurance card for inpatient treatment. Also, VNHS 2001-2002 shows that 37.5% of poor people with a health insurance card do not use the card for inpatient treatment. According to a study by Axelson et al, (2005) [189], the reason that the poor do not use their health insurance



card is that they do not know how to use it (over 60% of health insurance card holders do not use the card in seeking health care). To address this situation, one of the key measures is to strengthen IEC for people to better understand the rights and benefits of using health insurance.

### **21.3. Components Involved in Health Education and Communication**

#### **21.3.1. IEC system of the health sector**

The IEC system is organized vertically from the central to the provincial and local levels. The IEC network is headquartered in the Central Center for IEC. By the end of 2004, across Vietnam 63 of 64 provinces had a center for Health Education and Communication in place. At the district level, health education and communication activities are under the District Health Centers, at the communal level, IEC activities mainly rely on commune health station (CHS) staff, village health workers, and collaborators of national health programs.

#### **21.3.2. Some IEC organizations outside the health sector**

Involvement of some unions and organizations outside the health sector also plays an important role in health IEC. The Vietnam Women's Union has an effective network of collaborators in villages/hamlets and constitutes an important resource together with village health workers to implement health IEC activities. The Vietnam Red Cross Society is involved in primary health care and disseminates information/knowledge of hygiene for disease prevention and sanitation, basic knowledge about health care for its members and the community, aimed to enhance awareness of health care and protection for themselves and society at large. It also encourages planting of medicinal herbs, establishes first aid and emergency stations, and promotes humanitarian blood donation, hygienic lifestyles, and a clean environment. The National Committee for Population, Family, and Children also manages a network of population collaborators at the grassroots level, having close coordination with the health network in health education and communication.

In addition, international agencies, local, and international nongovernmental organizations play a crucial role in disseminating techniques and contributing financial support for health care in general and health education and communication in particular.

#### **21.3.3. Commercial advertisement**

Commercial advertisement may influence choices of consumers and affect people's health. Therefore, the Government has promulgated strict regulations to prohibit advertising of harmful products such as tobacco or liquor via the mass media. Advertisement of milk and milk products for children under 1 year of age is also forbidden as these advertisements may induce mothers to reduce breastfeeding (mother's milk is best as recommended by UNICEF). Advertisement of drugs leading to self-medication or patients requesting doctors to prescribe drugs at patient request rather than based on their clinical judgement is also a cause of irrational and unsafe use of drugs, leading to high medical costs.

### **21.4. Conditions for Implementing IEC Activities in the Health Sector**

#### **21.4.1. Human resources**

The staffing structure for IEC activities at the provincial level is regulated in Decision 911/1999/BYT (March 31, 1999) by the Minister of Health on functions, tasks, and organization of the Provincial Center for Health Education and Communication (includes a Directorate and 1 to 2 Deputy Directors and 3 major functional divisions, ie, planning-finance, organization-administration, health education-audiovisual techniques). At present, 24% of the provincial IEC centers are functioning with all 3 divisions, and the rest have only 2 divisions operational.

Annual reports on the IEC system indicate that 32% of the provincial IEC centers have less than 10 staff and 68% have 10 or more staff.

IEC activities at the district, commune, and village levels are poor due to a shortage of full-time staff in charge of IEC activities at the district level. At present, district IEC is only a part time task. Although technical skills of health educators at the commune and village level have improved, there is no appropriate incentive mechanism to encourage them to implement IEC.

Nearly all provinces have shaped a network of IEC at the communal level, mainly village health workers (about 130 755 collaborators [277]), with coverage of 93.7% among villages/hamlets having working village health workers. At present, however, there are no measures to encourage, supervise, and assess the effectiveness of IEC activities by village health workers.

#### **21.4.2. Training**

Current training to build the capacity of the IEC network focuses mainly on commune and village health workers. Reports from the Ministry of Health's Center for Health Education and Communication show that about 67.6% of the total 70 015 trainees in IEC in 2004 are commune and village health workers. Among the staff of provincial/municipal IEC centers, 63% have been trained in communication skills, 45% have been trained in preparing communication materials, and a few are trained in planning IEC activities.

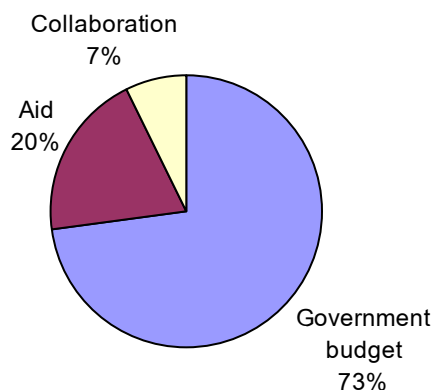
Medical schools educate students and health workers in the psychology of doctor-patient interactions. This training is important and equips students and health workers with necessary communication skills to work with patients and their relatives.

In the past, most IEC materials were designed and published at the central level, then disseminated to lower levels. As a consequence, the capacity for development and testing of communication materials at the provincial level appears to be limited. In interviews with provincial IEC staff about the possibility of developing communication materials in their own IEC center, 32.5% reported that their organization could develop such material, 72.1% of respondents said that they are competent to participate in developing communication materials, but only 45.4% reported having been trained in developing communication materials [278].

#### **21.4.3. Financing for IEC activities**

Reports from 53 provinces indicate that the total budget for IEC activities in 2004 was 30 billion VND. Many provincial IEC centers have actively mobilized funding sources, or taken advantage of ODA sources to strengthen their IEC work and improve compensation and working conditions for their employees. However, Figure 21.2 shows that operating costs allocated from the government budget still dominate (72.9%).

**Figure 21.2. Sources of funding for operation of IEC centers, 2004**



Source: Center for Health Communication and Education 2004 [277]

Provincial budgets for IEC activities are limited, with most of the funding used for staff salaries and recurrent costs, eg, administrative, operating, and logistics costs. Program costs are small, pending appropriate mechanisms and policies to help the IEC system develop its own plans according to the proposed budget. Although plans are developed and submitted, budget allocations are based on norms relating to the number of staff at the center.

#### **21.4.4. Physical conditions**

A 2004 report from the Ministry of Health’s Center for Health Education and Communication indicates that about 60% of the IEC centers have their own facility, but in old buildings where the design and location are not suitable for IEC activities. This is why so many IEC centers are unable to develop counseling for individuals; only 22 IEC centers are able to implement this activity.

Statistics regarding operational activities of IEC centers in 2004 show that 32 IEC centers had the necessary equipment for IEC activities, including: vehicles (cars), teaching aids (desktops, laptops, projectors and/or overhead), audio-visual devices (cameras, video cameras, recorders, loudspeakers, TV). These are advantages for IEC activities to be effective and recognized by local authorities and the media (Table 21.2)

**Table 21.2. Number of devices in use in provincial/municipal IEC centers, 2004**

Type of equipment	Number of provincial IEC centers with equipment
Car	38
Motorbike	14
Overhead	41
Projector	20
Computer (desktop)	50
Laptop	12
Scanner	7
Camera (including digital camera)	50
Video camera (including digital video)	52
Sound amplifier, loudspeakers, TV	43

Source: Center for Health Communication and Education 2004 [277]

## 21.5. IEC Activities

### 21.5.1. Scientific research

Scientific research activities implemented by the IEC system are limited and consist mainly of descriptive studies of knowledge, attitudes, practice (KAP) and people's needs for IEC in healthcare. A few studies address the influence of IEC on knowledge and behavioral change. Only a limited number of IEC centers are able to conduct scientific research. In 2004, 31 IEC centers undertook 47 scientific studies that surveyed community knowledge, attitudes, and practice (KAP) about HIV/AIDS prevention and control, tobacco control, tuberculosis control, and nutrition. These studies contributed to effective interventions in health communications that the provinces have applied.

Beside studies undertaken by the IEC system, others studies on the current situation of healthcare activities have also been conducted, providing valuable information for IEC activities. However, this information has not been exploited and shared among agencies within and outside the health sector. Besides, methods and forms of information dissemination for different groups of people, eg, researchers, managers, technicians, and social activists and the community are limited.

### 21.5.2. Development and dissemination of IEC materials

Most centers for IEC at the central level, provinces, national health programs, projects, and health institutions and organizations mainly develop and print communication materials for the community level. Due to limited resources and techniques, especially in provincial IEC centers, cognitive testing of materials before mass printing is rarely done. Only centers with sufficient resources are able to conduct cognitive testing. Communication materials are in short supply, which explains why community communication collaborators rarely use materials for communication.

According to reports from provincial centers for IEC, the most common types of materials are: leaflets, posters, and banners and slogans that are posted in public places and distributed to educators at the local level. Materials are also distributed to target groups. Leaflets and brochures account for 93% of all materials produced (Table 21.3).

**Table 21.3. Types of communication materials produced, 2004**

Unit: %

Type of material	Proportion
Leaflets and brochures	93.0
News items, medical information	2.3
Books of all types	2.1
Posters, banners, panels	1.6
Video, cassette tapes	0.4
Flip-charts	0.6

Source: Center for Health Communication and Education, 2004 [277]

Few studies and reports have assessed the quality of IEC materials, so data for analysis is limited. The types of communication materials are diverse, but contents overlap and tend to be the same for all target groups rather than specific for each target group, cultural setting, ethnic characteristic, and region. Hence, a mechanism is needed to facilitate sharing of experience and sources of materials and techniques with the aim to diversify and take advantage of resources to develop and disseminate communication materials.

### 21.5.3. Direct communication to community and household

Direct household and community-based communication is one of the most important activities of the IEC network. IEC activities at the commune and village levels include the establishment of a network of collaborators among whom commune and village health workers are key players; provide training and knowledge, materials, skills, and means of communication. These collaborators should receive special allowances.

At the commune level, IEC activities are conducted through the CHS, contingents of village health workers, and collaborators (eg, educators, women's unions, youth union, Red Cross society, farmer's association, and veteran's association). These collaborators have been trained or instructed on technical issues, communication skills, and counseling and are provided with supportive communication materials, supervision, and management of target groups in the community.

Most IEC materials for direct communications are designed and distributed by the health sector. Other sources provide limited communication materials to the communes (Table 21.4).

**Table 21.4. Source of communication materials provided mainly through the health system**

Health sector	Women's union	Population collaborators	Youth unions
97.4%	7.7%	7.4%	2.8%

Source: Center for Health Communication and Education, Ministry of Health and Rural Health Project [278]

Many national health programs are implemented at the commune level. IEC is a component and sometimes a major component of most interventions (Table 21.5).

**Table 21.5. National Health Programs implemented in communes**

Programs	
Expanded Program on Immunization	Dengue fever control
Acute Respiratory Infection control	School health, dental health
Diarrhea control	Mental disease control
Malnutrition control	Trachoma control
Vitamin A deficiency control	Hygiene and food safety
Tuberculosis control	HIV/AIDS control
Reproductive health and family planning	Sanitation
Malaria control	Accident and injury control
Leprosy control	Tobacco control
Surveillance of communicable diseases	Adolescent health
Goiter control	Drug addiction control

Source: Planning Department, Ministry of Health [279]

Some national target programs, eg, the expanded program on immunization, HIV/AIDS prevention and control, and population and family planning have pooled enormous resources to implement communication activities. One factor that secures program sustainability is the positive influence that IEC activities have on changing health-related behavior of individuals in the community. However, as many other programs are facing financial and human resource problems it is difficult to maintain IEC activities.

The most common form of information dissemination at the communal level is through pictures and posters (98.18%). A survey on the contents of IEC at the CHS in 10 provinces [280] shows that major reasons for home visits by CHS staff is to educate about sanitation and disease prevention (35%), communication for family planning (22%) and communication on maternal and child health care (19.7%).

**Table 21.6. Sources of information on maternal and child health care in the community received by mothers, 2001**

Major source of information	%
CHS staff	61.7
Television	43.2
Village health workers	33.4
Women's union member, nutrition & population collaborator	28.1
Radio	18.3
Relatives, friends, neighbors	16.9
Press (newspaper, magazine, brochure)	16.9
Local loudspeakers	14.0

Source: IEC Center of MOH- UNICEF, KAP Survey on basic health care practices at home in 2001 [281]

Table 21.6 presents the importance of commune staff and village health workers in IEC activities for maternal and child health care. Results from the basic home-based care survey indicate that CHS staff make critical contributions to IEC activities in this area. When asked about the source of information that households most prefer, the answer is health workers (42.4%), which is similar to the percentage of people wanting to obtain information through television (43.8%) (Table 21.7). Up to 80.5% of respondents reported that they had been visited by health workers within the past year, and those who are visited monthly account for 48.2%. Counseling accounts for 57.8% of home visits, and about 88% of respondents reported having been informed and counseled about health care in the CHS [281].

**Table 21.7. Source of information people like most to access, 2004**

Sources of information people prefer most	%
Television	43.8
CHS staff	42.4
Commune loudspeakers	4.5
Central radio	4.1
Others	2.7
Women union members	2.5

Source: IEC Center of MOH – Rural Health Project, Current Situation of IEC activities in 13 project provinces, 2004

#### **21.5.4. Health education and communication in hospital system**

The role of IEC in the hospital system is important for hospital staff, patients, and relatives. The contact and exchange of information between health staff, patients, and their relatives constitutes an essential function in health facilities. However, in the context of overloaded hospitals, doctors spend little time exchanging information and educating patients about disease prevention and treatment as a means to enhance the effectiveness of treatment. IEC units should inform the community about the health system, guiding them to access primary health care services in a convenient manner. Establishment of IEC units in the curative system has not yet received much attention.

## 21.6. Health Education and Communication via Mass Media

Apart from the network of educators and health workers, people obtain health messages through mass media, eg, television, radio, and the press. Results from a survey on the current situation of IEC activities in 13 provinces of a rural health project in 2004 show that the most common means of communication for a family are television (64.9%) and radio (47.1%) – 34.5% of households have both. Regarding communication in communes: 91.5% of communes have loudspeaker systems, and 37.4% have newspapers/books.

Television is the most interesting and active means of communication for IEC activities. Vietnam Television airs many health and scientific programs, eg, reports on health activities and health forums. The recent *Health For All Program* conveys news of health, scientific films, information on diseases, including questions and answers on health, and news from domestic and international health programs on everything from public health to high technology.

In addition, television in 64 provinces has collaborated with the health sector to report healthcare news, contributing to convey messages about health and disease prevention. The advantage of local television is that it can broadcast health programs on a regular basis, especially in localities with large minority groups, and local television can report in the local language.

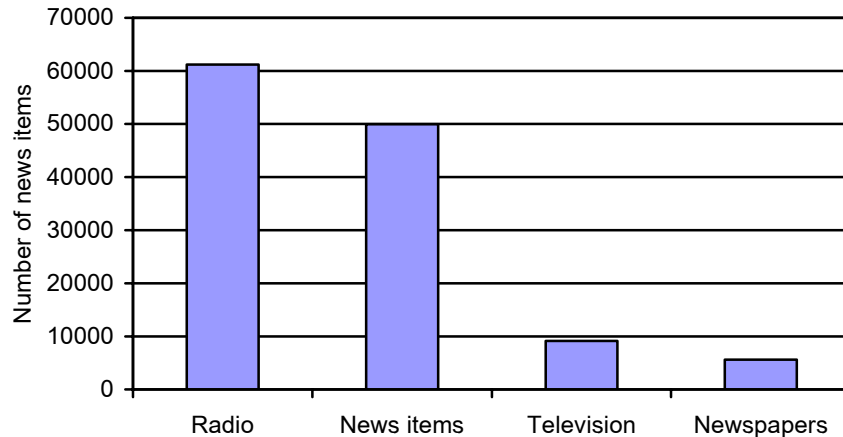
Radio is an effective means of communication, quickly transmitting important information to remote, isolated areas. *Voice of Vietnam* also provides information on health and disease prevention to various channels for news program, socioeconomic programs, counseling and questions and answer programs, advertisements, and health bulletins. *Voice of Vietnam* also provides regional and provincial/municipal radio stations with news and health bulletins from the central *Voice of Vietnam*. Moreover, local radio also produces special programs for the area, which are a convenient way to regularly air healthcare messages and public health programs.

The press conveys written information and images to the public (newspapers, magazine). These are sources of information that promote good practices in health care for those who can read. Those who cannot read can receive the information from others who can. However, newspapers mainly serve urban populations and relatively developed rural areas, and distribution is limited in remote and isolated areas. Using the press and Internet to disseminate information is advantageous in health education and communication in areas with developed infrastructure.

Advertising, especially television advertising, has a major influence on people's behavior. Health education and communication agencies have worked closely with media agencies to post health messages via the mass media, eg, television, radio, newspapers, magazines, and banners. Ad campaigns are a useful and convenient information channel for disseminating key messages, eg, regarding the expanded program on immunization, HIV/AIDS prevention and control, family planning, malnutrition prevention, tuberculosis control, and prevention of human-to-human transmission of avian influenza in various forms.

Figure 21.3 presents statistics from provincial/municipal IEC centers on news items on health education and communication in the mass media in 2004. The data show a common trend in using more television than newspapers in conveying health messages. In the context of people's rising living standards and households' increased use of television, health education through television and radio should be strengthened and promoted.

**Figure 21.3. Number of news items in newspapers and radio, 2004**



Source: IEC Center of MOH, Report 2004

## **21.7. Conclusion**

IEC work is perceived to continue to play a key role in the protection, prevention, and improvement of people's health. IEC may be a very cost-effective intervention, providing it is of good quality and carried out based on scientific methods. IEC plays an important role in influencing harmful and beneficial health behaviors among the population and providing informative messages to help people make rational health-seeking choices. Few studies have assessed the impact of different IEC programs to find the most useful method and affirm advantages of IEC interventions. Moreover, funding for IEC activities and training of staff is limited, making it difficult to use more effective information channels due to their high cost. Because of budgetary constraints, many units within and outside of the Ministry of Health hold the opinion that they can implement effective IEC on their own, so they do not hire experts or professional marketing companies to do this work, often leading to low effectiveness in disseminating health messages.

In the future, IEC should be more fully recognized by managers, professionals, social organizations, and the community, and should be supported by financial and human resources so that implementation of public health programs in particular and people's healthcare programs in general will be more effective.



# PART E. CONCLUSION

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## Chapter 22

### CONCLUSIONS

#### **1. Clear improvements in many aspects of the people's health**

In a broad sense, the health status of Vietnamese people improved noticeably and comprehensively during the 2000-2005 period. Many diseases have been effectively controlled and prevalence has decreased. Vietnam has met or exceeded the 5-year targets for nearly all aggregate health indicators. The health system has been consolidated and has expanded toward achieving the parallel goals of equity, efficiency, and development, meeting the growing healthcare needs of the population in terms of both quality and quantity.

Achievements in the protection, care, and promotion of the people's health are closely linked to the rapid socioeconomic development Vietnam has experienced recently and the timely issuance of sound healthcare policies and strategies, the participation of various government agencies, state administrative levels, and the general population in health care and protection, and the influence of effective international assistance.

Achievements attained and experiences gained in organizing and implementing health care for the people serve as the basis for maintaining and further developing Vietnam's health system in the coming years.

#### **2. Health indicators have reached and exceeded national targets and have the potential to attain the Millennium Development Goals**

By the time this report is published, the world will be three fourths through the first decade of the new millennium with its hopes for peace, stability, and development. Using baseline indicators from 1990, the United Nations proposed the Millennium Development Goals (MDGs) with specific indicators to be achieved by 2015. Nearly half of the MDGs are directly, or indirectly, related to health.

Based on the pace of progress in Vietnam toward meeting basic health goals for 2001-2005, it is feasible that Vietnam will attain the 2015 MDGs. Nevertheless, for a few of the indicators described below, stronger and more effective methods will be required to reach the goals by 2015.

Vietnam's mortality rate in children under 5 years of age was 55.4 per thousand (‰) in 1990. By 2005 this rate had decreased by half to 27.5‰, but progress must be accelerated to achieve the MDG of 18.4‰ by 2015.

The maternal mortality rate (MMR) in Vietnam was 130 per 100 000 live births in 1990. By 2005 this rate had decreased to 80 per 100 000 live births. However, the MDG target of 32.5 maternal deaths per 100 000 live births by the year 2015 is a formidable challenge and will require considerable effort to achieve.

It should be feasible to achieve many of the other MDGs, including those on child malnutrition, tuberculosis, and malaria. However, despite the progress achieved in HIV/AIDS, much more work will be required to reach the target for 2015.

In general, nearly all basic national health targets for 2001-2005, eg, life expectancy, infant mortality rate, under-5 mortality rate, child malnutrition, and micronutrient deficiencies have been met, or surpassed. With continued strong development in Vietnam expected over the next few years, in both economic and social spheres, including medical care, there is great potential for the health status of the population to improve rapidly. However, to achieve the MDGs by 2015 progress must be accelerated and health targets and indicators set in the national health strategy must be adjusted appropriately.

### **3. Substantial disparities in health between regions and population groups**

Compared to countries having a similar level of socioeconomic development, Vietnam's health status is considered to be relatively good despite the low level of per capita GDP. However, disparities in health status between regions and people in different living standard quintiles remain a major problem.

In 2001, malnutrition in children under 5 years of age was 4 times higher among the poorest quintile than among the richest quintile (about 40% among the poor compared to 10% among the rich), the mortality rate in children under 5 years of age was 2 times higher among the poor than among the rich, and little change has been observed over time for the poor. In 2004, the infant mortality rate in the Northwest, Northeast, and Central Highlands was nearly 3 times higher than in the Southeast; the rate in rural areas was 2 times higher than in urban areas; and the rate was 3 times higher among the H'mong and Gia Rai ethnic groups than among the Kinh majority.

Average life expectancy at birth also varies across regions and ethnic groups, with the Kinh and Hoa having a life expectancy much higher than among ethnic minority groups, and the population in the Red River Delta and the Southeast having higher life expectancy than other regions (with gaps up to 4 years).

From 2001 to 2005, the State issued many policies prioritizing improvements in the health of poor regions and among ethnic minorities, eg, the Hunger Eradication and Poverty Reduction Program (including health care), health programs investing particularly in remote and ethnic minority regions, and healthcare assistance for the poor and ethnic minorities. These programs have shown promising initial results. However, health and healthcare disparities between regions and demographic groups persist.

### **4. Demographic and epidemiological transitions**

The age structure of the population from now to 2015 will be changing toward an older population, and Vietnam is expected to reach the status of having an aging population by 2015, according to the WHO definition. An aging population and new morbidity and mortality patterns will create new demands on the healthcare services and investments required to meet the healthcare needs of the population.

Morbidity and mortality patterns are changing rapidly as the epidemiological transition is clearly underway. Diseases typical for poor countries, eg, malnutrition, communicable disease, and parasites are declining rapidly, and several diseases have been eradicated or eliminated. In contrast, the prevalence of and mortality from noncommunicable diseases are increasing, eg, cardiovascular disease, diabetes, cancer, accidents and injury, poisoning, mental illness, kidney disease, bone and joint diseases, asthma, eye disorders, and dental disease. This presents a major challenge for Vietnam's health system, which had been structured primarily to deal with the morbidity and mortality patterns of a poor country (high prevalence and mortality from communicable disease).

## **5. Economic development facilitates investment in health care and improvements in the health of the population, while creating new challenges for health care of the people**

Vietnam's economic development in recent years has played a crucial role in improving the health status of the population. Annual growth in GDP is relatively high at 7.5% per year on average, reaching a GDP level of 640 USD per capita in 2005 (higher than the average for low-income countries, ie, 530 USD) and is expected to reach 1100 USD per capita by 2010. More important, however, are the achievements in poverty reduction resulting from implementation of policies to assist the poor, create jobs, and reduce unemployment.

However, a wide gap in average income exists between urban and rural people, and the gaps in income between population groups have been growing in the past few years. The ratio of per capita income between the richest quintile and the poorest quintile increased from 12 times in 1990 to 14.4 times in 2004. Increasing income disparities have focused the attention of health policymakers toward the need to address health financing issues such as the user fee mechanism, including the fee levels and the reductions and exemptions in healthcare fees for the poor and near poor.

Labor and employment are strong determinants of health. Due to pressure from the market mechanism, the number of workers participating in the labor force, intensity and time spent working have increased greatly compared to the past. The consequences of work-related stress, occupational disease, and labor accidents require effective policies and measures to protect the health of workers in the new situation.

Rural-urban migration, interregional migration, urbanization of rural areas, and unemployment in both urban and rural areas are among the basic determinants behind the rapid increases in drug addiction, violence, HIV/AIDS, prostitution, and sexually transmitted diseases (STDs).

## **6. Resolving the simultaneous problems of malnutrition and obesity, ensuring food safety**

In the past few years, nutritional status of the Vietnamese people has improved noticeably due to higher living standards and increased caloric intake. The share of carbohydrates in the diet has declined rapidly from 13.5 kg of rice per capita per month in 1999 to 11.9 kg in 2004 overall and to only 9 kg per capita in urban areas. The diet is more balanced with significant increases in consumption of meat, oil, lard, eggs, vegetables, and fruits. Vitamin A and micronutrient deficiencies such as iron or iodine, which lead to xerophthalmia, anemia, goiter, and learning disabilities have declined due to effectiveness of programs that control these diseases. However, implementation of these programs needs to be maintained to avoid recurrence of these diseases. To address issues of child malnutrition, basic interventions being used are to improve knowledge and skills in child raising, hygiene, and disease prevention (especially parasites) with a focus on child malnutrition among the poor and poor regions. In addition, steps need to be taken to control obesity in high-income regions and urban areas.

Over the past decade, food hygiene and safety have become important public health problems. Inappropriate use of pesticides and livestock and poultry feed supplements containing antibiotics or other harmful substances remain major threats to food safety. Unhygienic food sold by street vendors is the cause of many cases of food poisoning. Implementation of the Ordinance on Hygiene and Food Safety has yielded promising initial results in controlling food hygiene and safety, although formidable problems remain as regards comprehensive organization and administration, including the need for much closer collaboration between relevant government agencies to ensure comprehensive management in this area.

Success in controlling dangerous pathogenic diseases, eg, SARS and avian influenza A (H5N1), in the recent past are useful experiences for Vietnam on stewardship, intersectoral collaboration, and raising awareness of the population, all of which will be useful in promoting food hygiene and safety.

## **7. Safe water and sanitation not yet assured, while environmental problems from industrialization are emerging**

Efforts to assure safe water and sanitation have achieved considerable success in the past 5 years. According to the Ministry of Agriculture and Rural Development, 62% of people living in rural areas have access to safe water (the target for 2005 was 60%). VNHS 2001-2002 reported that 81% of Vietnam's people had access to clean water. By 2005, about 40 million rural people had access to safe water, an increase of 23 million compared to 1998. In urban areas, only 54% of citizens use tap water from a piped network, while the remainder use drilled water, or dug well water. Knowledge about the actual share of the population using clean water depends on currently unmeasured factors, eg, contamination in treatment of water, transport through pipes, or storage and utilization by the end user.

Hence, the supply of safe water in both urban and rural areas remains a major challenge for community health. Provision of clean water needs to be further promoted in the coming years, especially in areas where water is seriously polluted by chemicals.

Programs to promote the treatment of human waste by installing hygienic toilets in households began about 50 years ago, aiming to control microbiological pollution and prevent communicable and parasitic diseases. By 2005, about 6.4 million rural households had hygienic toilets that complied with Ministry of Health standards, an increase of 3.7 million households as compared to 1999, now accounting for around half of all rural households. Beyond ensuring the installation of sanitary types of toilets, there are also challenges regarding the maintenance and use of toilets to ensure they remain sanitary. Household waste is primarily disposed of through collection and disposal via garbage dumps, burying, or burning. More advanced methods of waste disposal are not yet used.

Domestic solid waste disposal is another environmental hygiene problem of concern to health authorities. The most widespread disposal methods in rural areas are by discharge into rivers and streams and by burying or burning. In urban areas garbage tends to be collected and dumped, buried, or burned with little use of more advanced technologies.

Treatment of medical waste has been improved by installing modern incinerators and treating hospital sewage, but these methods are mainly implemented only in provincial or central general hospitals. Treatment of medical waste should be further strengthened in coming years.

Industrial waste has been a serious source of pollution as most of this sewage is discharged untreated to rivers or canals. Traditional craft villages are expanding rapidly, leading to serious water and air pollution due to a lack of treatment or pollution control measures in small-scale establishments. Traffic is also becoming an increasing source of severe air pollution.

The most important issues to focus on in the coming years are: (1) improvement in access to safe water and hygiene, proper treatment of household, medical, and industrial waste; (2) prompt treatment of major sources of pollution through changing technology, development of waste treatment plants, and treatment of polluted environments; and (3) establishment of institutions necessary for a regular environmental protection system, especially at the grassroots level.

## **8. Prevention of accidents and injuries is a pressing issue, while disaster mitigation requires further strengthening**

Ensuring safety and preventing injuries and death in daily activities, at work, and especially in traffic represent an immediate challenge to society in present-day Vietnam. Despite relatively comprehensive implementation of the Accident and Injury Prevention Program, the death and injury rates from accidents continue to rise. Among traffic accidents, most involve road traffic related to motorcycles and cars. One of the main causes of traffic accidents is driving under the influence of alcohol, accounting for 24.5% of all accidents in some areas. Accidents on waterways and railways, work-related accidents, drowning, poisoning, electrocution, and falls among the elderly are relatively common. In agriculture, pesticide poisoning is also common.

Natural disasters are another important cause of injury and mortality each year, with frequent typhoons and floods in the Central and Southern regions over the past few years. Accidents from flash floods, landslides, and tornados occur frequently in mountainous areas, especially in the Northwest and Northeast regions. The health sector plays a crucial role in disaster prevention, mitigation, and recovery, especially in immediate emergency relief and prevention of epidemics after typhoons and floods. Because of the close collaboration among different agencies and levels of government, human and property losses from disasters have declined significantly compared to the 1990s.

## **9. Rapid changes in lifestyle lead to increasing threats to health**

Between 1998 and 2002, smoking prevalence in men aged 15 years and older declined, but nevertheless remains at a high level. Awareness has improved among the Vietnamese regarding the harmful effects of tobacco smoking. Since 2000, Vietnam has had a national tobacco control policy with strong measures to promote education and communication, increase taxes on tobacco, prohibit advertising of tobacco, and limit access to tobacco among adolescents and youth.

Harmful use of alcohol and its consequences are an urgent, but neglected, health and social issue in Vietnam. Serious harm from alcohol consumption in Vietnam is related to accidents and injury, domestic and community violence, mental illness and behavioral disorders, and liver and cardiovascular diseases. However, trends in alcohol consumption are upward, especially in urban areas, due in part to improved living standards. The rapidly growing production and trade in alcoholic beverages in Vietnam, especially home-brewed alcohol, and the lax control of imports and supply of alcohol have also contributed to rising alcohol consumption and harmful use. Ineffective implementation of national policies and regulations on advertisement, consumption, and use of alcohol also contribute toward worsening the situation of alcohol abuse in Vietnam.

Hence, it is strongly recommended that a national alcohol harm control policy be developed and effectively implemented to prevent the abuse of alcohol and mitigate its negative effects.

Drug use is closely linked to health problems such as mental health, HIV/AIDS, STDs, and domestic and social violence. The number of drug users in Vietnam has been increasing dramatically, especially among the youth. Use of opium-derived drugs is shifting away from older people (mainly residing in mountainous areas) to young people in the lowlands. Drug users are shifting from using opium to using heroin. Also, amphetamine use has mushroomed recently. Intravenous drug use, shared needles, and unsafe sex, combined with limited knowledge about preventing HIV transmission are deadly combinations.

The Drug Control Strategy has been issued with strict measures and participation of various agencies, especially in public security. Involvement of the health sector consists of organizing drug withdrawal treatment in rehabilitation centers, education and social work in centers and in mental health facilities, and preventing transmission of HIV/AIDS and STDs between drug addicts and sex workers and their injecting or sexual partners through education and communication about using disposable needles and condoms.

Unsafe sexual practices are also on the increase. The age of puberty among youth is earlier, while the age at marriage is later than among older cohorts. Exposure to freer sexual norms in various media is also leading to increased premarital and extra-marital sex.

Unprotected sex leads to a high risk of HIV/AIDS, STDs, or pregnancy. To prevent the risk of contracting STDs and HIV/AIDS, education and communication about safe sex should be widely undertaken with more effective measures, and special attention should be paid to these high risk groups.

## **10. The grassroots health network is being consolidated to strengthen primary health care**

Vietnam has a mixed public-private healthcare system that includes 4 levels of care: central, provincial, district, and commune. Consolidating and developing the public and private grassroots health network to strengthen primary care is an important strategy for achieving the objectives of equity and efficiency in health care and protecting the people. Directive 6 of the Central Communist Party Committee on strengthening and consolidating the grassroots health network, Resolution 46 of the Politburo and the Government's action plan to implement Resolution 46 (ie, protection, care, and promotion of people's health) in today's context form the ideological basis for the Ministry of Health to set forth specific policies and measures to strengthen commune and village healthcare networks, eg, development of "national benchmarks for commune health stations, 2001-2010", and plans to invest in the grassroots healthcare network, especially in disadvantaged and mountainous areas of the Central Highlands, mountainous northern provinces, mountainous areas of the Central region and remote and isolated areas of the Mekong Delta. In addition, the Ordinance on Private Practice in Health Care, amended in 2003 by the Standing Committee of the National Assembly, has created favorable conditions for the private sector to develop and better engage in providing health care for people in the community.

By 2005, 98% of the communes (10 679 communes) had commune health stations with an average of 4 beds each. Human resources at the commune level have been strengthened, and on average each commune health station has 4.6 health workers. Apart from people on the official government payroll, about 5% of all commune health workers work under contract. In total, 6333 full-time medical doctors staff the commune health stations. In lowland areas, 80% of communes have a full- or part-time doctor, but that figure drops to 60% in mountainous areas. Although the number of doctors is increasing each year in remote and isolated areas, the rate of increase is slow. Regarding skill levels, the share of commune health workers with university, junior college, and technical high school training is increasing, while the share with only elementary level training is declining, which indicates clear improvements in technical capacity. Midwives and obstetric/pediatric assistant doctors play an important role in delivering reproductive health services, and 93.5% of commune health stations have at least 1 of these 2 key staff members (most with technical high school or junior college level training). At present, 87.4% of villages have village health workers (VHW) however sustainability is questionable because compensation is not guaranteed.

The incentive policy for commune health workers has been improved, bringing their benefit levels up to levels similar to other government staff, including social insurance, pensions, and compensatory allowances for working in dangerous conditions. However, implementing these policies is difficult because the financing of these benefits must come from

the inadequate commune budget. Regarding the recurrent budget of the commune health station, 80% of communes receive some funds from the commune budget and 72% collect user fees. The recent policy of using part of the health insurance fund or the Health Care Fund for the Poor to pay for services at the commune level has led to positive changes in operating budgets of commune health stations. In addition, poor communes also receive support from various funds in national poverty reduction programs.

Data from 2002 on medical equipment showed that 97% of commune health stations were fully equipped with basic instruments, 86% had instruments sufficient for child health care, and 24.7% had instruments sufficient for reproductive health care. Only 10.6 % of commune health stations had specialized treatment equipment for traditional medicine and 51% had sterilization equipment. The data indicate a need for greater investment in traditional medicine and infection control at the commune level in the coming years.

The main tasks undertaken by commune health stations include disease prevention, health promotion, and implementation of public health programs, eg, the expanded program on immunization, tuberculosis control, leprosy control, malaria control, mental health (schizophrenia and epilepsy), goiter control, malnutrition control, Vitamin A deficiency, reproductive health, and family planning. As a result of increasing private provision of curative care (both traditional and modern medicine) fewer patients seek curative care at commune health stations in lowland and urban areas, but the number remains high in mountainous and remote areas. Most private practitioners in rural communes practice alone, with inadequate physical facilities and only rudimentary quality of care. If the quality of care at commune health stations could be improved, including sufficient drug supplies, the number of patients would likely increase. The private health sector is poorly involved in community-based disease prevention, and the two sectors are not in close collaboration as stipulated by government regulations.

## **11. Developing the hospital network**

Although the current health system in Vietnam is structured around the four administrative levels (ie, central, provincial, district, commune), a new regional approach to provide health care is taking shape with national, specialized medical centers being developed in Hanoi, Hue, and HCMC. According to the plan, Vietnam is also developing regional health centers in the Northwest, Northeast, Central Highlands, South Central Coast, Mekong Delta, etc to facilitate public access to high quality health services and to reduce overcrowding of central-level health facilities.

The public hospital system is being developed according to the master plan, using the principle of a systematic hierarchy of treatment from lower to higher levels and the rational development of a hospital structure for general and specialized hospitals. The number of public hospitals has increased from 783 (in 2000) to 910 hospitals (in 2005), while the number of leprosy treatment centers and rehabilitation hospitals is declining. The total number of patient beds has risen from 12 000 (in 2000) to 13 000 (in 2005). On average, there are 16 patient beds per 10 000 people with an average of 2 doctors and 3 nurses per patient bed. Staff with postgraduate qualifications are concentrated in major cities and national centers. Medical equipment and the physical infrastructure of district, provincial, and central hospitals have been upgraded substantially compared to the 1990s.

Bed occupancy rates are very high, averaging 114.2% in 2005. The average bed occupancy rate is 130.3% at the central level and 113.9% at the provincial level. The average length of stay is 7.0 to 7.5 days and showing a trend toward shorter lengths of stay, which could reflect improved quality of care.

Certain problems need to be addressed regarding user fees, eg, overuse of diagnostic services and drugs, quality of care for insured patients, and the desired extent of cost recovery. The policy on autonomous hospitals is being implemented in a wide range of hospitals, and the revised policy is expected to help overcome the problems that have affected implementation over the past few years.

Overcrowding of higher-level facilities, especially central and provincial hospitals, was due to inappropriate bypassing of lower level health facilities. Recent improvements in quality of care at the commune and district levels and insurance coverage at the commune level are expected to reduce this problem. Private hospitals with good equipment and staff, particularly in major cities, are attracting a growing number of patients who can afford these services, thereby reducing the burden on the public health system.

## **12. Consolidating and developing the preventive medicine system with sufficient capacity to prevent epidemics, noncommunicable diseases, and emerging diseases**

Preventive medicine has undergone important organizational changes in recent years. The Administration of Food Hygiene and Safety and the Vietnam Administration of HIV/AIDS Control have been separated from the Vietnam Administration of Preventive Medicine. New centers for HIV/AIDS control are being established at the provincial level, complementing the centers for preventive medicine, centers for malaria control, and centers for control of social disease. At the district level, centers for preventive medicine were recently separated from district health centers. At the commune level, the commune health stations continue to play the important role of integrating preventive and curative care activities in the community.

In addition to their regular health information, education, and communication (IEC) activities in disease prevention and epidemic surveillance, the preventive medicine system has undertaken many different health programs. According to the VNHS, on average, there are 12 to 15 regular health programs implemented in the community. The effectiveness of programs addressing various health issues (eg, control of HIV/AIDS, avian influenza, malaria, dengue fever, accidents and injuries, the expanded program on immunization, tobacco control, prevention and screening for cancer, cardiovascular diseases, and nutrition and diabetes) has contributed greatly to improving health indicators in Vietnam for the present and future.

The policy of social mobilization and diversification of health service ownership under the close stewardship of the Party and local governments, and the involvement of various sectors and the general population in healthcare activities, have created a greater pool of resources for effective healthcare services for the population.

## **13. Exploit the role and potential of the private health sector**

In the past 5 years, the private health sector has expanded rapidly, including medical practice, pharmacy, traditional medicine, and production of medical equipment. Most noteworthy is the rapid increase in the number of private hospitals in urban areas. In 2000, there were only 12 private hospitals, but by 2005 there were 43 private hospitals. Among private hospitals, 29 are general hospitals and 14 are specialized hospitals. Inpatient bed capacity ranges from 21 to 500 beds. Staff in private hospitals are primarily full-time (95%), with most directors and department heads recruited from retired staff of public hospitals and having extensive experience. Activities of the private health sector are primarily under the supervision of the Ministry of Health and the provincial health departments, with monitoring and support provided by the district and commune health network.



Private practice consists primarily of individual practices in the community. The private health sector provides about 60% of outpatient care, 4% of inpatient care, and 11% of preventive care as measured by the number of outpatient/preventive care visits or inpatient stays (VNHS 2001-2002).

With the accession to WTO and national socioeconomic development, people's living standards have improved, leading to growing demand for health care. The private health sector is projected to grow rapidly and is becoming an integral part of the national healthcare system, making significant contributions to the protection and care of the people's health.

#### **14. Human resources continue to be strengthened, but shortages exist in certain specializations and for support staff**

For any health system, human resources are the most important input determining the quality and effectiveness of the system as a whole. Human resources in the health sector include not only medical specialists, but also many nonmedical specialists, eg, managers, economists, finance specialists, and information technology specialists.

The health workforce in Vietnam has increased sharply, reaching 31 health workers per 10 000 inhabitants. A comparison with other countries in the region in 2000-2003 indicates that Vietnam has 5.3 doctors per 10 000 inhabitants, much higher than other Southeast Asian countries, eg, Thailand and Indonesia. Vietnam has 12 doctors and assistant doctors per 10 000 inhabitants and 6.3 nurses per 10 000 inhabitants (includes only the public health sector). The quality of the medical workforce has also improved remarkably, allowing the use of advanced technology in treating and preventing diseases and finding domestic solutions for emerging health problems in the country. The management of the health system has also been modified to better suit the market mechanism, ensuring equity, efficiency, and comprehensive development of the system as a whole. Nevertheless, problems exist with medical human resources: (a) low level of qualifications among graduates from training institutions, failing to meet the actual needs of health care; (b) uneven distribution of university-trained staff across regions, with a high concentration in major cities (both public and private sector); (c) inefficient staff structure (eg, only 1 nurse per doctor, 1 nurse per 2 assistant doctors); (d) little continuing medical education among the private medical workforce.

Reasons for these problems include the inappropriateness of current policies on investment, training, distribution, and utilization of the medical workforce. To achieve the objectives of equity and efficiency in health care, it is recommended to revise plans for staff structure, improve the quality of training health staff, and develop more appropriate policies on the distribution and use of medical staff.

#### **15. Medical technology has made some notable achievements, but a strategy and action plan are needed to orient research the toward development of the health sector**

In Vietnam, little basic scientific medical research has been carried out in recent years. Like other developing countries, Vietnam mainly develops medical technology and carries out applied research on how to utilize innovations involving medical equipment, pharmaceuticals, inpatient and outpatient procedures, methods used in prevention, diagnosis, treatment, and rehabilitation, and systems for organizing and supporting the delivery of health services.

In preventive medicine, Vietnam has developed technology for producing vaccines for the expanded program on immunization, including 6 childhood diseases with the recent addition of hepatitis B and Japanese encephalitis B; applying technology to prevent HIV/AIDS, avian

influenza A(H5N1), and SARS, and also noncommunicable diseases, eg, diabetes, heart disease, cancer, mental illness, obesity, accidents, and injuries, or measures to prevent risk factors such as tobacco smoking, alcohol consumption, and food poisoning.

In curative care, Vietnam produces biomedical products such as test kits for diagnosing Japanese encephalitis B, hepatitis B, and dengue fever. The health system is expanding its use of advanced medical technologies, eg, computed tomography, endoscopy, lithotripsy, kidney transplantation, liver transplantation, hip replacement, plastic microsurgery, resuscitation, cataract surgery, laser technology, accelerators in cancer treatment, in vitro fertilization, open heart surgery, heart valve replacement, angioplasty, and stent placement.

Some of the advanced technologies mentioned above are used in only a few hospitals in Vietnam pending comprehensive assessment of the effectiveness, benefits, cost benefit, safety, and social impact of these technologies.

Development of technology in the area of pharmaceuticals has focused mainly on applying good manufacturing practices (GMP). However, Vietnam's ability to assess the quality of new drugs, or drugs with multiple active ingredients, remains limited. Pharmaceutical material technology has focused on extracting material from medicinal plants, eg, artemisinin extracted from yellow flower *artemisia annua*, or vinblastin from *vinca rosae*.

Apart from essential equipment, some of which is produced domestically, most medical equipment and instruments are imported. Central- and provincial-level health facilities are provided with a full range of equipment to serve needs for diagnosis, treatment, research, and training. District-level facilities are equipped only with basic x-ray, ultrasound, and laboratory systems. Commune health stations are provided with a set of medical instruments needed to fulfill their tasks. Local production of medical equipment is limited and of low quality due to inadequate investment in this area.

Two areas primarily characterize the development of technology in traditional medicine: (1) treatment of disease with medicinal herbs or animal products and acupuncture; and (2) gradual modernization of the technology for processing traditional drugs through extracting and distilling the medicinal compounds, producing tablets (rather than the patient having to cook the medicinal herbs to drink the broth) and modern packaging. Most important in traditional medicine is the preservation of the genetic materials for traditional medicines through research on valuable medicinal herbs, learning how to successfully cultivate wild medicinal plants, and combining traditional and modern medicine. However, these issues have not been fully reviewed or assessed.

Several weaknesses affect the technological development of medicine in Vietnam. Limited investment in research leads to primarily small-scale and unintegrated studies. Too few research studies have investigated the core areas that could prove applicable in Vietnam's context. Few research results are ever actually applied, and close collaboration is lacking between researchers in medicine and pharmacology and researchers in other related scientific fields. More importantly, a comprehensive strategy is needed to develop medical science and technology, involving international cooperation to promote greater technology transfer and improve the efficiency and quality of care.

## **16. Health financing has been reformed, but requires further investments and more rational utilization of resources to ensure equity and efficiency**

Currently, under the policy of "social mobilization", Vietnam's health sector is financially supported from many sources including the government budget, health insurance, out-of-pocket spending from patients, and international development assistance. Total health spending has been increasing rapidly with spending in one year from 10% to 16% higher than

in the previous year. In 2003, total social spending on health accounted for 5.1% of GDP, and average annual healthcare spending per capita was 27 USD, on par with Indonesia and the Philippines. Of this amount, 29% was from the government budget. In 2005, spending on health accounted for 8.66% of the national budget spending, meeting about 50% of minimum needs for recurrent expenditures. This proportion is higher than in previous years, but remains low compared to other countries in the region and is below the WHO recommended level.

By 2005, social health insurance (including compulsory and voluntary insurance and health insurance for the poor) had grown in importance, with about 18 million people enrolled (22% of the population). In 2005, out of all health financing sources, health insurance accounted for 22.2% (up from 17.7% in 2001), user fees accounted for 31.2% (up from 27.1% in 2001), and the government budget and international aid accounted for 46.6% (down from 55.2% in 2001). Note that international aid accounted for only a very small overall share (about 2%). However, financing of the state health system relies mainly on subsidies from the government budget and health insurance. To ensure equity and efficiency in health care, it is recommended to increase investments in health from public funding and further develop health insurance.

Most healthcare funds (93% to 98%) are used in the direct provision of care. Of these funds, most are used for curative care (84% to 86%) with the remaining 14% to 16% for preventive care. Spending on scientific research and training accounts for less than 2%. Although preventive medicine is a priority area for investment, higher spending on curative care can be expected since the costs for curative care are greater than the costs for preventive care. The fact that the current preventive program goals have almost universally been met would suggest that funding for these programs is adequate, although other aspects of preventive medicine remain underdeveloped.

Investing in primary health care is an appropriate priority area to improve the ability of the healthcare system to meet the goals of equity and efficiency. In the past few years, more attention has been focused on strengthening and consolidating the commune and district health network. In terms of financing in 2002, according to the VNHS, 71% of revenues of the commune health stations were from the government budget, 8% from the commune budget, and the remainder from other sources. In disadvantaged, remote, and isolated areas, healthcare financing for commune health stations came mainly from the government budget (over 80%). However, investment in primary health care still lags behind the actual needs.

Apart from direct subsidies to service providers, the government budget also directly supports users of health services through programs such as the Health Care Fund for the Poor and government provision of funds for health care of children under 6 years of age when seeking care at public health facilities.

The current distribution of the government budget for recurrent spending in different localities depends on the population and an adjustment coefficient, which gives greater priority to disadvantaged regions. However, the adjustment may not be sufficient to reduce disparities in the quality of care across regions.

User fee schedules are being adjusted to be consistent with actual costs. The private sector is being encouraged to develop and contribute to relieving some of the financial and service burden carried by public facilities. A major focus in the next few years will be on strengthening international cooperation and more effectively using foreign aid in the health sector.

## **17. Drug administration mechanisms have been developed, but there is a need to ensure safe and rational use of drugs and development of traditional pharmacy**

The Government has set forth many policies to encourage the production of, and trade in, drugs and the management of drug quality. Of particular importance is the promulgation of the Pharmaceutical Law in 2005 which created a legal basis for implementing the objectives of the National Drug Policy.

The basic objective of the pharmaceutical sector is to ensure an adequate supply of quality drugs to meet demand at a reasonable price. The demand for drugs has risen over time. In 2000, it was estimated that annual per capita spending on drugs was 9 USD accounting for 41% of total health spending in society. By 2003, this figure had risen to 12 USD, accounting for 51% of total health spending. In 2005, domestically-produced drugs accounted for 48% of total drugs used in the country, while imported drugs accounted for 52%. Upon accession to WTO, protective tariffs for domestically produced drugs will be reduced, and Vietnam's pharmaceutical sector will have to compete based on low prices and international quality standards. However, Vietnam's pharmaceutical sector remains highly dependent on imported materials as Vietnam has not yet been able to develop local pharmaceutical materials.

The number of pharmaceutical enterprises increased considerably during the 1999 to 2005 period. In terms of production, most enterprises have foreign investment. In the pharmaceutical trade sector, the number of domestic and international private enterprises is growing rapidly. Drug shortages no longer exist, and adequate supplies of essential drugs are available even in remote and isolated areas. Stabilizing drug prices has been a priority ever since drug prices soared in 2003. Drugs are supplied mainly through the market mechanism via pharmacists and health facilities, eg, commune health stations. Many commune health stations, however, still lack staff with even basic pharmaceutical training.

Institutions for managing drug quality are being established. By 2005, only 60 out of Vietnam's 174 drug production facilities had reached GMP standards of ASEAN or WHO. By the end of 2007, all drug production facilities are required to be in compliance with the GMP/WHO standards, and pharmaceutical materials production facilities are required to comply with these standards by 2010. Since 2001, the pharmaceutical sector has also been working toward "good storage practice" (GSP-Vietnam). By the end of 2005, 39 facilities had achieved this standard, and by 2010 all facilities are expected to comply with the GSP-Vietnam standard.

In 2005, all drug verification and production facilities were required to achieve "good laboratory practices" (GLP). At present, 41 facilities comply with this standard. The Drug Administration of Vietnam will soon issue the conditions for "good distribution practice" (GDP).

Under the market mechanism, the profit motive has led health facilities and practitioners to overprescribe drugs for their patients. One of the basic objectives of the national policy on drugs is to ensure rational, effective, and safe use of drugs. However, at present, self-medication remains extremely common. Only 58.3% of drugs prescribed by commune health centers are on the essential drug list, and misuse of antibiotics and steroids is widespread despite guidelines at the grassroots level for safe and rational drug use. Many important tasks remain to be resolved in the coming years.

In traditional pharmacy, the most common treatments involve medicinal herbs or medicines derived from animal parts which have been affirmed as safe and effective through a long history of use without need for scientific testing. However, the process of modernizing

traditional medicine has been slow, and traditional medicine is at risk of lagging behind. Vietnam has over 300 traditional pharmacy production facilities. Regulations on standards for quality of traditional medicine and pharmacy have not been issued, and quality management of traditional pharmaceutical products is still problematic. There is no standard system of GMP for traditional medicine and pharmacy. Hence, production facilities must apply their own facility-based criteria for assessment, making it difficult to verify drug quality in those facilities that do not provide facility-based criteria.

## **18. Medical equipment has received significant investments, but the mechanism to ensure rational investment and funding for maintenance and repairs remains inadequate**

The National Policy on Medical Equipment was issued in 2002, aiming to secure sufficient equipment to improve quality of care, to assure effective use of equipment, and to reduce importation of equipment by promoting domestic production.

Medical equipment planning is based on the technical standards for each level of care in the health system and on the strategy for building high-technology medical centers.

Medical equipment is produced on a small-scale in Vietnam, with only 46 enterprises able to produce medical supplies and materials such as needles, bandages, cotton, delivery tables, examination tables, patient beds, and electronic devices (eg, ultrasound, laser surgery, high-frequency electrical surgical knife, and lithotripter).

The number of enterprises trading in medical equipment and materials has been rising over time. In 2003, Vietnam had 751 business establishments of various types, eg, joint-stock, private companies, and state-owned enterprises.

Prior to year 2000, imports accounted for over 90% of investments in medical equipment. The situation has changed with reliance on imports now primarily for advanced medical equipment.

There is considerable demand from the central to local levels to replace or supplement medical equipment. However, due to budget constraints, most government investment in medical equipment is in diagnostic and emergency departments (65.6%). Investment at central-level facilities accounts for 31% of government investment in medical equipment, leaving only limited funds for investment at lower levels, which must then mobilize their own funds to make such investments.

Sources of funding to invest in medical equipment include: (1) government spending on equipment accounting for nearly one third of the total development investment budget (in 2003) and about 10% of total government expenditure for the health sector. Every year, the expenditure for equipment ranges from 70 to 110 billion VND; (2) international aid for purchasing equipment has come mainly from the World Bank and ADB loans; and (3) contributions directly from the population in the form of funds invested in public facilities, eg, joint-ventures or profit sharing arrangements to purchase expensive high technology equipment.

At present, Vietnam has just begun to establish mechanisms to undertake health technology assessments addressing efficiency, cost effectiveness, safety, and social ethics to improve the effectiveness and quality of health care for the population. Preliminary results of health technology assessment indicate substantial waste and ineffective use of medical equipment can be found at the central and provincial levels.

Given the rapid expansion of modern medical equipment investments in Vietnam, inspection and standardization of equipment should be strengthened to ensure efficacy, effectiveness of use, and safety for patients and service providers.

## **19. International assistance has contributed substantially to achievements of the health sector in recent years**

Effective international assistance and cooperation have contributed substantially to achievements of the health sector in recent years as illustrated by the following:

- Funding for healthcare activities, including implementation of national health target programs, especially EPI, HIV/AIDS control, tuberculosis control, leprosy control, goiter control, avian influenza A(H5N1) control, and SARS control; the development of high-tech medical centers in Hanoi, HCMC, and Hue; the strengthening of provincial health facilities; and health programs in poor and disadvantaged areas, eg, Central Highlands, northern mountainous provinces, and Mekong Delta.
- Technical assistance and technology transfer in a wide range of areas from health sector management and policy making to high technology in disease prevention and treatment, drugs, equipment for vaccine production, technology for prevention and control of HIV/AIDS and emerging diseases, and technology to treat noncommunicable diseases (eg, involving heart, kidney, liver, eyes).
- Training of the medical workforce, including extensive training of human resources throughout Vietnam's medical system to increase professional competence in dealing with the evolving disease patterns in Vietnam.

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