The Case for an Early Childhood Development Strategy

BY **CLYDE HERTZMAN**

RÉSUMÉ ► Les expériences prénatales et de la petite enfance ont un effet plus puissant et plus durable sur la santé, le bien-être et la compétence à long terme qu'on ne l'a cru. Les nouveaux indices à l'appui de cette thèse sont riches de conséquences pour les politiques adoptées au Canada. On résume ici les preuves de corrélation entre les expériences vécues pendant la petite enfance et la santé, le bien-être et la compétence tout au long de la vie. On montre également comment nos connaissances relatives aux déterminants du développement d'un enfant en santé peuvent se traduire en stratégies politiques génériques. Cette base de connaissances commence à avoir une incidence positive sur les politiques canadiennes.

ABSTRACT ► Prenatal and early childhood experiences have a more powerful and long-lasting effect on subsequent health, well-being and competence than had been previously thought. The new evidence supporting this claim is rich in implications for policy in Canada. The evidence on this connection between childrens' early experiences and lifelong health, well-being and competence is summarized, and it is shown how our knowledge regarding the determinants of healthy child development can be translated into generic policy strategies. This knowledge base is starting to affect policy in Canada in a number of positive ways.

Life expectancy varies by as much as five years among the world's 30 riches countries. These differences cannot be accounted for by differences in national income or by differences in expenditure on health care. Research on the determinants of health suggests the explanation is to be found in the social environment, including the impact that that social environment has on early childhood development.

Child development and population health

This research has revealed a consistent pattern: higher socio-economic standing is associated with better health. Researchers call this the "gradient effect," and it has been found in all wealthy societies, and regardless of whether income, education, occupation or a combination of these measures is used to define socio-economic status.

The gradient effect

There are four fundamental aspects of the gradient. First, the gradient cannot be explained away by reverse causation or differential mobility. In other words, it represents a "causal" relationship between the socio-economic and psycho-social (herein, the SEP environment) environment and health over the life course. Second, the gradient is influenced at various levels of social aggregation, from the level of the nation, in terms of country-wide income distribution,[1] through the level of civil society[2] to the most intimate level, in terms of the degree and quality of social support individuals receive. In order to understand what makes some wealthy societies healthier than others, and some population subgroups within society healthier than others, it is necessary to consider the character of the SEP environment at each of these levels of social aggregation.

Third, the gradient effect is evident for virtually all of the major diseases that affect health and well-being in our society. Fourth, as the major diseases have changed over time, the gradient effect has replicated itself on the new diseases as they have emerged.

ILLUSTRATIONS: GENEVIÈVE CÔTÉ

These latter two points deserve special emphasis. A century ago there was a gradient effect for the major causes of disease and death of the era, which were primarily infectious diseases such as tuberculosis. Over the next several decades mortality from infectious diseases waned and was replaced by chronic diseases, such as heart disease, as the principal causes of death. At first, the new diseases were thought to be diseases of the rich. After all, heart disease could only attack those who were privileged enough to live long enough to get it! But over time the socio-economic gradient replicated itself on the chronic diseases. In the case of heart disease this pattern emerged by the 1950s, as it did for most cancers, arthritic conditions and dementia, and by the late 20th century, it was also reflected in the trio of accidents, poisonings and violence. These patterns (accidents excepted) point to the existence of fundamental biological processes connecting SEP circumstances to human resilience and vulnerability to disease, and strongly suggest a role for early childhood development in the process.

Linking early childhood development to later health, well-being and competence

Gradients are expressed over the entire life course. They appear early in life in relation to infant mortality and low birth weight; then in terms of cognitive and behavioural development by school age. By early adulthood gradients emerge for mental health status, obesity and a series of limiting longstanding illnesses. In late adulthood gradients are found for dementia and chronic diseases. Thus, health, well-being and competence all show gradient patterns which, in turn, have common life course determinants.

Some specific biological or developmental factors at sensitive periods in (early) life have a lifelong impact, regardless of subsequent experiences. These are called "latent effects." There is consistent evidence that events in fetal and infant life can "program" the function of a number of organ systems, and influence adult physical health. For example, illnesses such as coronary heart disease and elevated blood pressure have been directly associated with events in early life.[3] An infant's weight at one year has been associated with risk of death from heart disease during adulthood. Infants who are born at term but are small for their gestational age may be at increased risk for adult-onset diabetes, high blood pressure and heart disease several decades later.[4]

Similarly, a key requisite for optimal child development is secure attachment to a trusted caregiver, with consistent caring, support and affection early in life. A child's, adolescent's and, ultimately, an adult's emotional health and habitual way of reacting to new situations have their basis in the early relationships between the infant/toddler and the people primarily responsible for his or her care. An infant develops the capability of emotional control before his or her first birthday and a sense of "attachment" to his or her caregivers within the first year. This attachment is the extent to which the infant develops trust that the caregiver will respond promptly and appropriately, thereby providing a sense of security. If the level of trust is high, the attachment is described as "secure." Infants and toddlers with a secure attachment use the emotional and physical security that it provides as a base from which to explore things and people in the environment. Successful attempts at exploration increase the child's self-confidence and encourage more exploration. Thus the child begins to learn about and master his or her environment and to gain in both competence and self-confidence.

Specific stimulation, such as talking and play, are critical for the development of language and cognitive skills. Effective parenting practices are some of the most important protective factors in promoting optimum early childhood development. Family (including socio-economic) stability, close and supportive relationships, and security are protective factors in the lives of children. The results from early childhood stimulation and support programs for disadvantaged children suggest that the payback in terms of adult outcomes can endure for a lifetime.

Other early life experiences set individuals onto life trajectories that, in turn, affect health, well-being and competence over time. These are called "pathway effects." Status differences at birth are associated, on average, with different levels of stability, security and stimulation in early childhood that, in turn, affect the child's readiness for schooling. Between birth and age six, children develop the essential language and cognitive skills required to learn reading and arithmetic. They also develop their ability to manage emotions and stress, and to cooperate with others. Lack of school readiness puts children at risk of academic, social and behavioural difficulties in school, leaving before high school graduation, becoming involved in criminal behaviour, becoming pregnant as a teenager, and becoming addicted to tobacco, alcohol and other drugs.[5]

Children who were not read to early, were not well-adjusted, and were growing slowly were five times more likely to report poor health by age 33 than were those who were read to, well-adjusted and growing quickly.

Behavioural problems and failure in school are associated with low levels of mental well-being in early adulthood. School failure also affects future success and well-being, since level of formal education predicts job market success. Also, psycho-social working conditions, that is, the balance of workplace demands with control, and the balance of effort and reward, are powerful determinants of health in adult life.[6] Psycho-social working conditions tend to be much more favourable for those who have had a successful school career. By the fifth decade of life, those who are

stuck in poor jobs are far more likely to develop high rates of disability and absenteeism, and to die prematurely, and from the full range of major causes of death, particularly those who are also socially isolated.[7]

A third process linking early life environment and adult health recognizes the importance of "cumulative effects" — the accumulation of advantage or disadvantage over time, based upon the duration and intensity of exposure to a variety of risk factors. For instance, the status of one's parents helps to determine the community where one grows up, which, by the early school years, starts to influence the child's life chances through the social networks, community values and opportunities which present themselves.

There is no reason to suppose that latent, pathway and cumulative factors only act alone. Any early life event that could exert a latent effect could also be the first step along a lifelong pathway that might have implications for health, well-being or competence in the future. Similarly, any early childhood intervention designed to improve health and well-being in the long run will occur within a specific context which will provide a mixture of opportunities and barriers.

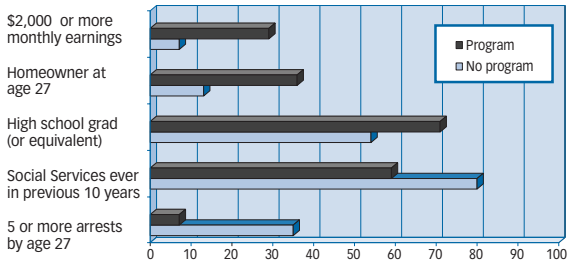
The relationships between latent, pathway and cumulative effects has been demonstrated in an analysis of the 1958 British Birth Cohort Study. Using the 1958 British Birth Cohort, the Study operationalized life course influences in terms of factors from birth to age 33, which might act through latent, pathway or cumulative effects. Three variables representing early childhood were entered into the model: socio-emotional adjustment at age 7, whether or not parents read to the child consistently up to age 7, and the percentage of adult height reached by the child by age 7. The cumulative/pathway factors were: combined socio-economic circumstances at age 0, 7, 11 and 16; socio-emotional adjustment at age 11 and 16; and end-of-school qualifications. Contemporary circumstances are represented by variables at different levels of social aggregation: macro (socio-economic circumstances); meso (involvement in civil society functions); micro (personal social support); and intersecting (job insecurity and life control). To allow for temporal ordering of events, early life factors were entered first in the final model, followed by later childhood factors and, finally, current factors.

The early childhood factors acted independently of the pathway/cumulative factors that, in turn, acted independently of the contemporary factors. Children who were not read to early, were not well-adjusted, and were growing slowly were five times more likely to report poor health by age 33 than were those who were read to, well-adjusted and growing quickly. Similarly, children who were in the lowest socio-economic group throughout childhood were poorly adjusted at ages 11 and 16; those who left school before graduation were six times more likely to report poor health by age 33. Thus, together, the life course factors "explain," in a statistical sense, a thirty-fold (six times five) difference in poor health status by age 33.

Latent, pathway and cumulative effects are also illustrated in the findings of the longitudinal follow-up of subjects from the Perry Preschool Study, to age 27 (Figure 1).[8]

FIGURE 1

High/scope Perry preschool project findings at age 27



Note: All findings are significant at $p < .05$, two-tailed.

Source: Schweinhart *et al.*, 1993.

This study is significant because it was based upon a comprehensive early intervention program for children aged three and four in an American inner city that was evaluated by comparing outcomes among children who were randomly assigned to the intervention and "no intervention" groups. The program lasted for just 18 months. The children were then followed passively for the next 23 years. The data show remarkable advantages for the intervention group children, but it can be interpreted several ways. One interpretation would emphasize that the remarkable improvements — higher rates of high school graduation, higher earnings, a higher proportion of home ownership, less use of social services, and much lower arrest rates — are a latent effect since the program was relatively short lived. A second interpretation emphasizes the fact that the earliest effect of the intervention program was to improve the intervention children's adjustment to school in the early grades, compared to the control children. This, in turn, lead to less remedial education, less labeling of the intervention group children as educationally disadvantaged, and the negative life course trajectories that would tend to unfold over time (that is, pathway effects).

A third interpretation emphasizes the fact that most of the achievements of the preschool group, although impressive when compared with the controls, do not nearly match those of middle class children who have been presented with better life circumstances but no special preschool intervention programs. After all, seven percent of the intervention group had still been arrested or detained at least five times and 59 percent had received social services in the 10 years prior to follow-up. In other words, although the intervention dealt with latent and pathway effects, it failed to deal with the accumulation of disadvantage associated with poor socio-economic circumstances.

Biological embedding and early childhood development

Studies in neurobiology, neurodevelopment and early intervention show that conception to school age is a critically important time in brain development. The brain of the de-

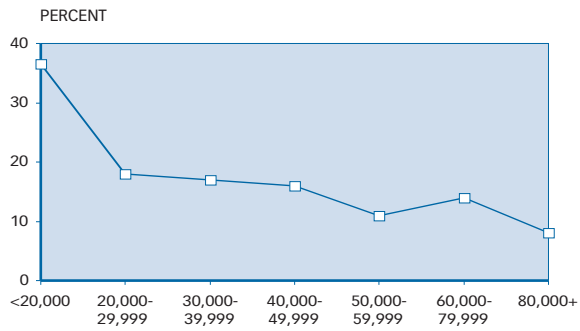
veloping fetus produces brain cells (neurons) at a rate of tens of millions per week such that, by the time a baby is born, it has virtually all the neurons it will ever have. However, the neurons of a newborn are not connected together the way they are in an adult brain, but rather as a kind of random mass. Prior to school age there is a rapid process of "sculpting" of neuron-to-neuron connections, during which some connections are reinforced and others die away. This process is crucially important, because human experience is a crucial determinant of the manner and degree of connectedness. A well-sculpted brain is one with a dense network of connections between various sensing and expressive pathways within the brain.

The brain sculpts itself in response to two influences. The first influence is the wide range of stimuli in the environment of the newborn: visual, verbal, emotional, physical, touch, smell and taste. The second influence is biological: pre-programmed "critical periods" in brain development, during which specific areas of the brain "turn on" and become ready to receive environmental stimuli. During critical periods, neuron-to-neuron connections are sculpted that, in turn, engender specific developmental competencies: cognitive (language and quantitative), sensory, muscular, emotional, behavioural and social.[9]

The current best understandings of the biological and environmental influences on children's development may be summarized as follows. Spending one's early years in an unstimulating, emotionally and physically unsupportive environment will affect brain development in adverse ways, and lead to cognitive, social and behavioural delays. The problems that children so affected will display early in school will lead them to experience much more acute and chronic stress than others, which will have both physiologic and life-course consequences. Because the central nervous system, which is the centre of human consciousness, "talks to" the immune, hormone and clotting systems, systematic differences in the experience of life will increase or decrease levels of resistance to disease. This will change the long-term function of vital organs of the body and lead to socio-economic differentials in morbidity and mortality. This process, whereby human experience affects health over the life course, is called "biological embedding."

FIGURE 2

Proportion of children with delayed vocabulary development, NLSCY



Source: Ross *et al.*, 1999.

children with delayed vocabulary across the household income spectrum, a very large difference. According to what we know about its determinants, the gradient is largely modifiable, but once the gradient in school readiness has established itself, it tends to track forward in time. Children in schools with few delayed children tend to move forward quickly, while children in schools with high proportions of delayed children tend to move forward more slowly. Thus, the individual is affected directly by his/her readiness and indirectly through the group, which is affected by the distribution of levels of readiness across the classroom and the school.

From individual to society

Those societies that tend to produce the lowest levels of inequality in health and human development across the socio-economic spectrum also tend to have the highest average levels of health and development. International comparisons have shown this for the development of literacy and numeracy skills across OECD countries (Figure 3).[11]

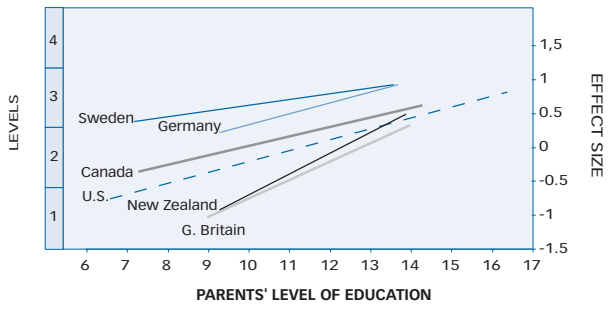
Table 1 compares the level of literacy and numeracy among the least *well educated* segments of the Swedish, Canadian and American populations. Sweden is a high life expectancy OECD country with a shallow socio-economic gradient in health status and a high level of income equality. Canada is a moderately high life expectancy country with a steeper socio-economic gradient in health status and an intermediate level of income equality. The United States is a low life expectancy country with a steep socio-economic gradient in health status and a low level of income

Emergence of socio-economic gradients in readiness for school in Canada

Thanks to the National Longitudinal Survey of Children and Youth (NLSCY), we know that, by kindergarten age, a socio-economic gradient in readiness for school has emerged in Canada. Figure 2 shows the magnitude of this gradient for one aspect of readiness, vocabulary development.[10] It suggests there is a 4.5 fold increase in the proportion of

FIGURE 3

Quantitative literacy scores for youth aged 16-25. International adult literacy study, 1994



Source: OECD/Statistics Canada, 1995.

equality. In addition, both Canada and the United States tolerate much higher levels of child poverty than anywhere in Western Europe. The table shows that literacy and numeracy skills, even among the least educated parts of Swedish society, are vastly better than in Canada or the United States.

In Canada and the United States, several common factors are known to be influencing the quality of child development. At the level of the family, these are income, parental education and the quality of parenting. At the neighbourhood level safety and cohesion are positive factors, while neighbourhood ghettoization is a negative factor.[12] At the broader level, access to quality child care is a positive influence. Table 2 parallels Table 1 by showing the comparative effectiveness of just one of these factors — income transfers — in Canada, the United States and Sweden.[13] The table clearly shows that Sweden's poverty prevention and amelioration programs reduce family poverty to a much greater degree than do American and Canadian programs.

Table 3 summarizes the known, consistently measured determinants of healthy child development in Canada and the United States. All of these factors are amenable to change through social action and public policy. Moreover, the finding that factors in childhood independently contribute to adult health supplies a rationale for policies that improve the circumstances in which children grow up, live and learn.

Policy translation

In seeking to address the issue of improving child development as a society, the evidence presented above leads to five strategic conclusions for Canadian policy makers. Fortunately, these conclusions are highly convergent when it comes to their implications for policy, since an environmental focus, intersectoral and multi-level collaboration, addressing gradients, and adopting an outcome orientation can be addressed by a common policy thrust.

TABLE 1
Literacy and numeracy among those who have not completed high school

	Lowest	2	3	Highest
Literacy scale				
Canada	73.6	15.4	09.7	1.3
U.S.	74.0	18.8	06.3	1.0
Sweden	22.5	38.1	33.2	6.2
Numeracy scale				
Canada	69.4	18.5	11.3	0.8
U.S.	66.8	23.2	09.1	0.8
Sweden	21.7	32.0	35.3	11.1

Source: OECD/Statistics Canada, 1995

1. The fact that the developing brain is an "environmental organ" means that improving child development is a question of improving the environments in which children grow up, live and learn; it is not simply a question of fulfilling specific service mandates. The challenge is one of adopting an environmental perspective when agencies have traditionally understood their role to be the provision of one-on-one client services.
2. The fact that health, well-being and competence all have essentially the same principal determinants means that the objectives of a wide variety of government departments, federal and provincial, can be met by acting in concert. In other words, there is a powerful evidentiary basis for intersectoral action for child development. For example, the laws and regulations that support or inhibit flexible work arrangements for those with young children are not within the control of Ministries of Health, but much of the evidence which shows that such arrangements could improve the quality of children's development relates to health outcomes.
3. Early results from the NLSCY show that determinants of child development have an impact at all levels of social aggregation: family, neighbourhood, community and economy. This underlines the importance of a strategy that is not only intersectoral, but also multi-level, and has strong local leadership.

   The knowledge drawn together from the biological and social sciences points to the kinds of experiences young children need in their everyday lives to promote optimal early development. Table 4 presents the character of intimate environments which give rise to such experiences.[14] The significance of these characteristics is that they are generic: they apply equally to the quality of environments at home, in neighbourhoods and in non-parental care settings. Moreover, they complement the determinants of healthy child development presented in Table 3, such that, taken together, one can identify the characteristics of national, civic and intimate environments which would promote optimal child development.
4. The gradient in child development in Canada demonstrates that there is room for improvement in the environments in which most Canadian children grow up, right across the socio-economic spectrum, and not just in those walks of life traditionally considered "high risk." In other words, the issue is one of "universal access" to environments that will support healthy child development, not just one of protecting those at high risk.

   Consider, for example, the range of policies that affect the intersecting issues of child care and worklife/home-life conflict: parental workplace leave and flexible hours; quality child care and early childhood education programs; and extended maternity or family leave to take care of young children. Parents, particularly mothers, report that the combined demands of work and family are highly stressful, a claim that is backed up by studies of daily fluctuations in stress hormone levels among working women. Family-friendly workplace policies can alleviate family stress and promote parent-child affiliation,

particularly in the first years of life. Such policies can take some of the pressure off juggling work and family responsibilities and, conceivably, contribute to more satisfying home life and better productivity at work.

Our research on the NLSCY indicates that, as one goes down the socio-economic spectrum, cognitive development among children increasingly improves with involvement in organized child care.[15] Yet, until now, Canada has not had a policy of universal access to care. Child care in Canada is expensive and, despite its disproportionate benefits at low family income levels, is generally affordable only to those from upper income groups. Moreover, licensed care is hard to find.

Research on the quality of child care has emphasized the importance of three factors: low child-to-caregiver ratios, highly educated staff with specialized training, and the availability of a safe and stimulating environment. Until now, assessment of quality of care has not been part of the licensing process, and a complete non-issue in informal care settings. The net result has been that most young children in Canada spend their days in a series of ad hoc care environments with relatives and informal care givers. Children from upper socio-economic groups have more access to organized care, and access to care of better quality, than children from lower socio-economic groups. It is reasonable to conclude that Canada's non-system of child care has exacerbated the gradient in cognitive and behavioural development.

5. There is need for an outcome orientation in child development, based on early behavioural, social, emotional and cognitive indicators. Until now, Canada has not had a data infrastructure capable of asking and answering "compared to what?" questions in children's development.

Given the wide variety of influences on child development, Canada needs a system for monitoring differences in the quality of child development over time, between localities, and among subgroups of the population whose development has traditionally been systematically different. The system should monitor changes in the determinants of healthy child development over time and place. In short, Canada needs a population-based, person-specific, longitudinal data system. The NLSCY is a good start. The challenge now is to complement the NLSCY with a broader system of population data flows that are valid at the level of the local community.

TABLE 2
Household poverty rates before and after transfer programs

	A Market income	B *Col A+* Private income transfers	C *Col B+* Universal and social transfers	D *Col C-* Taxes	E *Col D+* Social assistance transfers	Percent change columns A to E
Canada 1994	23.9	21.1	15.4	16.6	14.5	-39.3
Sweden 1992	20.7	20.1	5.0	8.5	3.8	-81.6
U.S. 1994	23.2	21.0	18.4	20.5	18.9	-18.5

Source: Luxembourg Income Study, 1999.

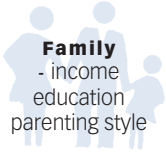
Recent progress toward improving outcomes for children

Notwithstanding the unrelenting pressures put on Canadian families from increasing market income inequality, stagnating family incomes and reductions in the social safety net, during the 1990s there have been several developments that should help improve child development in Canada over the long term.

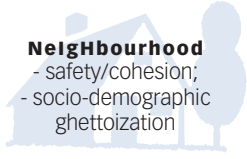
First, there has been a rediscovery, in the policy world, of the role of early childhood as a lifelong determinant of health, well-being and competence. This has occurred because issues of early childhood development began to be expressed in a credible vocabulary for modern society — the vocabulary of science. Recent insights from neurobiology, developmental psychology and longitudinal studies of children give credibility to notions long held as common sense.[16] This development has provided children with a network of allies whose credibility extends into policy circles inaccessible to the traditional child advocacy and anti-poverty community. The clearest example of this trend is the 1999 Ontario *Early Years Study* that recommends a comprehensive child development strategy, based upon the knowledge base reviewed in the first part of this paper.[17] In Britain, the recent *Acheson Report*[18] makes recommendations that a strategy of reducing health inequalities through intervening in contemporary circumstances should be supplemented with policies to improve circumstances in early childhood

Second, through its initiation, support and expansion of the NLSCY, the federal government has made a conscientious,

TABLE 3
Determinants of healthy child development in the U.S. and Canada



Family
- income
education
parenting style



NeIgHbourhood
- safety/cohesion;
- socio-demographic
ghettoization

Society
- access to
"quality"
care arrangements

long-term commitment to monitoring the development of Canadian children. Already, the results of the first wave of analyzes of the NLSCY have helped focus public discussion on factors that matter, and policy initiatives that may be helpful (as described in the previous section of this paper). Now, through the Understanding the Early Years program, HRDC is piloting a complementary system of monitoring early childhood development at the local level that, together with the NLSCY, will meet the criteria for a population-based, person-specific and longitudinal data system described above.

Third, there is now a real recognition of the need for intersectoral collaboration to improve child outcomes. The National Children's Agenda framework agreement was negotiated among the federal, provincial and territorial governments, in conjunction with each ministry at each level of government with a significant interest in children. It created a shared vision for children from conception to age 18, affirming the special importance of early development and the need to address the socio-economic and psycho-social circumstances of children as a way to improve developmental trajectories and, therefore, health status in adult life. In parallel with the policy process at senior levels of government, local intersectoral coalitions for child development have been forming in many Canadian communities. When these coalitions combine municipal, school board, health department, social services, philanthropic and chamber of commerce representatives with the traditional child advocacy groups, they cover the full range of policy influences on the environments of early childhood.

Finally, as of this writing, Federal-Provincial negotiation of an early childhood development strategy is emerging from the shadow of the Canada Health and Social Transfer controversy. The 1999 federal speech from the throne had indicated that the 2000 budget would be a children's budget. Yet, in the four months between the throne speech and the budget, the children's agenda was overshadowed by the ongoing federal-provincial conflicts over health care funding. Ultimately, significant initiatives for children were not taken in the budget, but the budget papers included a federal commitment to try to negotiate an early childhood development strategy with the provinces by December 2000. Since the budget there have been repeated threats by the premiers to hold these negotiations hostage to a successful resolution of the health care funding conflict. Nonetheless, there now appears to be strong support to de-link children from health care funding among senior policy makers in several provinces, and to meet the December 2000 deadline.

TABLE 4
Experiential attributes of optimal early childhood environments

1. Encouragement of exploration
2. Mentoring in basic skills
3. Celebration of developmental advances
4. Guided rehearsal & extension of new skills
5. Protection from inappropriate disapproval, teasing or punishment
6. A rich & responsive language environment

Source: C.T. Ramey and S.L. Ramey, "Prevention of Intellectual disabilities," *Preventive Medicine,* Vol. 27 (1998), pp. 224-232.

What should a Canadian early childhood development strategy look like?

In light of the current negotiations, how should our understandings of the determinants of healthy child development be reflected in an early childhood development strategy? The federal, provincial and territorial government should offer to fund early childhood development initiatives in local jurisdictions that fulfill the following principles.[19]

Comprehensive

Early childhood development programs must incorporate three basic components: early childhood education, child care and parenting/caregiving support. Comprehensive early childhood development programs should meet the needs of parents who are at home as well as those who participate in the paid labour force.

Universally available and accessible

All families should have the opportunity to participate in early childhood development programs. That opportunity should not be overly compromised by prohibitive financial costs or targeted eligibility requirements, although affordable fees may apply. Furthermore, no children should be excluded, regardless of aptitudes, abilities, disabilities or geographic location. This does not mean, however, that all children should be required to attend early childhood development programs.

Integrated

Integrated early childhood development programs should create holistic environments for young children and their families.They should integrate existing program pieces across education, social services and health sectors. They should also combine programs and resources from federal, provincial and local governments.

Community-driven

The design of early childhood development environments, the allocation of resources, and the delivery of programs

should rest with intersectoral authorities in communities. They are more likely to be sensitive to community cultural values and geographic realities. Legally established local authorities should include representation from public health, education, municipal government, child care, voluntary sector and recreation to ensure that the environments of childhood are fully covered.

Quality

Provincial and territorial governments should establish standards of practice that reflect current knowledge and understanding of child development.

Accountability

Early childhood development initiatives should be accountable to governments and the public in terms of finances, administration and performance. This will require ongoing monitoring and an outcome orientation. Local communities should be able to use outcome information to measure their progress and allocate resources.

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Endnotes

1. Across all countries in the world, poorer generally means less healthy. However, among the 30 wealthiest countries, this relationship is much weaker, and distributional factors come to the fore. For instance, among the 60 provinces and states of Canada and the United States, those with the greatest equity in income distribution are healthier than those with more inequitable distributions of income. See N.A. Ross, M.C. Wolfson, J.R. Dunn, J.M. Berthelot, G.A. Kaplan and J.W. Lynch, "Relation between income inequality and mortality in Canada and in the United States: cross sectional assessment using census data and vital statistics," *British Medical Journal*, Vol. 320, (2000) pp. 898-902.
2. In this paper, civil society is meant to encompass the full range of functions "above" the intimate realm of family and informal social support, but "below" the national socio-economic environment. Factors such as social trust, social embeddedness, psychosocial working conditions, the responsiveness of institutions to individual and changing needs, and neighbourhood cohesion and safety all fit this definition.
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19. These principals were put forward by the author and Jane Bertrand, based upon the work referred to in endnotes 5 and 17, as well as the work of Battle and Torjman on a national early childhood development system, on behalf of the Caledon Institute of Social policy.