HEALTHCARE COST AND UTILIZATION PROJECT

Agency for Healthcare Research and Quality

STATISTICAL BRIEF #152

March 2013

Characteristics of Homeless and Non-Homeless Individuals Using Inpatient and Emergency Department Services, 2008

Zeynal Karaca, Ph.D., Herbert S. Wong, Ph.D., and Ryan L. Mutter, Ph.D.

Introduction

Addressing the multidimensional health problems of homeless people is a challenge for public policymakers and health care providers. According to the National Coalition for the Homeless, approximately 3.5 million individuals in the United States are likely to experience homelessness in a given year.[1] Based on the 2009 Homeless Annual Assessment Report to Congress,[2] about 1.56 million people used an emergency shelter or a transitional housing program between October 1, 2008, and September 30, 2009.

Prior studies have shown that homeless people have poorer health status; higher rates of physical illness, mental illness, and substance abuse; and earlier mortality when compared to the general public.[3,4] The prevalence of these health problems among homeless people varies across age cohorts (i.e., infectious disease, substance use, and mental illness are observed more frequently among younger homeless people).[5] The fact that

Highlights

- Among homeless patients seen in emergency departments (EDs) and hospitals, mental disorders accounted for 22.4 percent of inpatient hospital stays and 49.0 percent of treat-and-release (T&R) ED visits.
- Among homeless patients diagnosed with mental disorders:
  - Schizophrenia and other psychotic disorders accounted for 33.8 percent of inpatient hospital stays.
  - Alcohol-related disorders accounted for 52.8 percent of T&R ED visits.
- Nearly one in three hospitalized homeless patients (28.1 percent) and more than two in five homeless patients visiting EDs (42.8 percent) were uninsured.
- Medicaid was the expected payer for nearly half of homeless patients in the hospital (48.2 percent) and more than one-third of homeless patients in the ED (34.7 percent).
- Nearly three out of four inpatient hospital stays by homeless individuals (73.7 percent) began in the ED.
- Females accounted for a third of inpatient hospital visits and a quarter of ED visits among homeless individuals.
- Among homeless patients admitted to the hospital, 16.1 percent were younger than 15 years old.
- Among homeless patients admitted to the hospital, 19.5 percent were White, 33.2 percent were Black, and 15.1 percent were Hispanic. Homelessness was noted in 2.8 percent of all inpatient stays for Black patients, compared to only 0.3 percent of White and 1.2 percent of Hispanic patients.
- Among homeless patients seen in the ED, 60.2 percent were White, 22.5 percent were Black, and 10.6 percent were Hispanic.

[1] How many people experience homelessness? NCH Fact Sheet No. 2. National Coalition for the Homeless Web site. February 2013. Available at http://www.nationalhomeless.org/factsheets/How_Many.pdf. (Accessed March 8, 2013).
[2] The 2009 Annual Homeless Assessment Report to Congress. U.S. Department of Housing and Urban Development, Office of Community Planning and Development. 2009.
[3] Hwang SW, Oray EJ, O'Connell JJ, Lebow JM, Brennan TA. Causes of death in homeless adults in Boston. *Ann Intern Med*. 1997 Apr 15;126(8):625–8.
[4] Hwang SW, Lebow JM, Bierer MF, O'Connell JJ, Oray EJ, Brennan TA. Risk factors for death in homeless adults in Boston. *Ann Intern Med*. 1998 Jul 13;158(13):1454–60.
[5] Wright NM, Tompkins CN. How can health services effectively meet the health needs of homeless people? *Br J Gen Pract*. 2006 Apr; 56 (525): 286–93.

homeless people have limited access to health care,[6-10] which leads to delayed clinical presentation,[11] increased reliance on emergency departments,[12] and higher rates of hospitalization[13] —often for preventable conditions[14]—is well documented.

Prior research has also shown that homeless people have higher rates of emergency department visits than the general public and are among the most frequent repeat visitors.[15,16] Prevalence of both acute and chronic conditions is higher among homeless people[17-22] who are more likely to be admitted to hospitals[13] and have longer stays.[14] More frequent admissions to hospitals, coupled with longer stays, have resulted in substantial burden on the resources of hospitals and emergency departments.[23-25] Prior research has further shown that the insurance status of homeless people has an effect on their seeking non-urgent medical care, on having a regular site of care that is not the emergency department, and on receiving inpatient treatment for mental disorders. [26-28]

This Statistical Brief compares patient characteristics, insurance coverage, and conditions treated during inpatient hospital stays and treat-and-release (T&R) emergency department (ED) visits by racial/ethnic groups for homeless and non-homeless patients. This analysis focuses on use of health care services by homeless patients regardless of where they receive care. We explored the ratio of visits admitted to inpatient facilities from EDs both in the aggregate and for specific

---

[6] Kushel MB, Vittinghoff E, Haas JS. Factors associated with the health care utilization of homeless persons. *JAMA*. 2001 Jan 10;285(2):200–6.
[7] Gelberg L, Gallagher TC, Andersen RM, Koegel P. Competing priorities as a barrier to medical care among homeless adults in Los Angeles. *Am J Public Health*. 1997 Feb;87(2):217–20.
[8] Gallagher TC, Andersen RM, Koegel P, Gelberg L. Determinants of regular source of care among homeless adults in Los Angeles. *Med Care*. 1997 Aug;35(8):814–30.
[9] Wood D, Valdez RB. Barriers to medical care for homeless families compared with housed poor families. *Am J Dis Child*. 1991 Oct;145(10):1109–15.
[10] Robertson MJ, Cousineau MR. Health status and access to health services among the urban homeless. *Am J Public Health*. 1986 May;76(5):561–3.
[11] Gelberg L, Linn LS, Usatine RP, Smith MH. Health, homelessness, and poverty: a study of clinic users. *Arch Intern Med*. 1990 Nov;150(11):2325–30.
[12] Kushel MB, Perry S, Bangsberg D, Clark R, Moss AR. Emergency department use among the homeless and marginally housed: results from a community-based study. *Am J Public Health*. 2002 May;92(5):778–84.
[13] Martell JV, Seitz RS, Harada JK, Kobayashi J, Sasaki VK, Wong C. Hospitalization in an urban homeless population: the Honolulu Urban Homeless Project. *Ann Intern Med*. 1992 Feb 15;116(4):299–303.
[14] Salit SA, Kuhn EM, Hartz AJ, Vu JM, Mosso AL. Hospitalization costs associated with homelessness in New York City. *N Engl J Med*. 1998 Jun 11;338(24):1734–40.
[15] Gill JM, Mainous AG 3rd, Nsereko M. The effect of continuity of care on emergency department use. *Arch Fam Med.* 2000 Apr;9(4):333–8.
[16] Baker DW, Stevens CD, Brook RH. Regular source of ambulatory care and medical care utilization by patients presenting to a public hospital emergency department. *JAMA*. 1994 Jun 22–29;271(24):1909–12.
[17] Zlotnick C, Zerger S. Survey findings on characteristics and health status of clients treated by the federally funded (US) Health Care for the Homeless Programs. *Health Soc Care Community*. 2009 Feb;17(1):18–26.
[18] Weinreb L, Goldberg R, Perloff J. Health characteristics and medical service use patterns of sheltered homeless and low-income housed mothers. *J Gen Intern Med*. 1998 Jun;13(6):389–97.
[19] Ferenchick GS. The medical problems of homeless clinic patients: a comparative study. *J Gen Intern Med*. 1992 May-Jun;7(3):294–7.
[20] Gelberg L, Linn LS. Demographic differences in health status of homeless adults. *J Gen Intern Med*. 1992 Nov-Dec;7(6):601–8.
[21] Breakey WR, Fischer PJ, Kramer M, et al. Health and mental health problems of homeless men and women in Baltimore. *JAMA*. 1989 Sep 8;262(10):1352–7.
[22] Gelberg L, Linn LS. Assessing the physical health of homeless adults. *JAMA*. 1989 Oct 13;262(14):1973–9.
[23] Kidder DP, Wolitski RJ, Campsmith ML, Nakamura GV. Health status, health care use, medication use, and medication adherence among homeless and housed people living with HIV/AIDS. *Am J Public Health*. 2007 Dec;97(12):2238–45.
[24] Buchanan D, Doblin B, Sai T, Garcia P. The effects of respite care for homeless patients: a cohort study. *Am J Public Health*. 2006 Jul;96(7):1278–81.
[25] O'Connell JJ. Utilization & Costs of Medical Services by Homeless Persons: A Review of the Literature & Implications for the Future. Boston, MA: Boston Health Care Program; 1999.
[26] Kushel MB, Vittinghoff E, Haas JS. Factors associated with the health care utilization of homeless persons. *JAMA*. 2001 Jan 10;285(2):200–6.
[27] O'Toole TP, Gibbon JL, Hanusa BH, Fine MJ. Utilization of health care services among subgroups of urban homeless and housed poor. *J Health Polit Policy Law*. 1999;24:91–114.
[28] Glied S, Hoven C, Moore RE, Garrett AB. Medicaid and service use among homeless adults. *Inquiry*. 1998;35:380–388.

racial/ethnic groups among homeless and non-homeless patients. This ratio may be an indicator of differences in severity of illness among patients seen in the ED.

Finally, for the highest frequency disease category—mental disorders—we compared frequencies of specific mental conditions for homeless and non-homeless patients in the aggregate and by racial/ethnic group.

Findings

There were 177,056 hospital inpatient stays by homeless patients during 2008 in the ten states used in this analysis that record homelessness on the discharge record: Arizona, California, Colorado, Florida, Georgia, Massachusetts, Missouri, New York, Pennsylvania, and Wisconsin. Similarly, there were 49,595 T&R ED visits by homeless patients during 2008 in seven of these states that collect ED data: Arizona, Florida, Georgia, Massachusetts, Missouri, New York, and Wisconsin.

Inpatient hospital use

Race/Ethnicity

Table 1 presents selected characteristics of hospitalized homeless patients and non-homeless patients. Among homeless patients admitted to the hospital, 19.5 percent were White, 33.2 percent were Black, and 15.1 percent were Hispanic. On the other hand, 63.6 percent of non-homeless hospitalized patients were White, 13.1 percent were Black, and 14.5 percent were Hispanic. These results suggest that 2.8 percent (= 58,805 ÷ (58,805+2,073,616)) of inpatient stays by Black patients were linked to homelessness, compared to only 0.3 percent of White and 1.2 percent of Hispanic patients.

Table 1. Demographic profile of discharges for homeless and non-homeless patients with inpatient hospital stays across race/ethnicity groups

	Homeless visits				Non-homeless visits			
	All	**White**	**Black**	**Hispanic**	**All**	**White**	**Black**	**Hispanic**
Total (N) (Percentage of total)	177,056	34,539 (19.5%)	58,805 (33.2%)	26,724 (15.1%)	15,811,363	10,056,302 (63.6%)	2,073,616 (13.1%)	2,290,339 (14.5%)
Age								
Under 15	16.1%	2.7%	15.7%	19.4%	15.2%	11.1%	15.9%	27.3%
15–24	10.1	5.5	11.1	12.6	7.6	5.7	10.4	13.1
25–44	29.3	30.5	30.0	29.6	19.4	16.7	23.4	25.3
45–64	30.4	45.0	31.2	26.3	23.6	24.7	28.4	17.0
65–74	6.8	6.2	6.2	6.4	12.6	14.6	10.4	7.5
Over 74	7.3	10.1	6.0	5.8	21.7	27.4	11.5	9.7
Gender								
Female	49.9%	33.3%	52.3%	52.4%	57.8%	56.7%	59.3%	60.8%
Insurance coverage								
Medicare	17.1%	25.8%	16.0%	15.0%	37.0%	44.6%	29.6%	18.3%
Medicaid	48.2	37.7	57.1	40.6	21.0	12.0	35.1	45.4
Private	2.0	4.5	1.7	1.8	33.8	36.5	24.7	26.0
Other	4.7	12.8	2.7	6.2	3.4	3.1	3.5	4.3
Uninsured	28.1	19.1	22.5	36.4	4.6	3.6	6.9	5.9

Source: Data include all discharges from inpatient hospitals during 2008 in Arizona, California, Colorado, Florida, Georgia, Massachusetts, Missouri, New York, Pennsylvania, and Wisconsin.

Age

Table 1 shows that 16.1 percent of hospital stays by homeless patients were for children under 15 years old, compared to 15.2 percent of stays by non-homeless children. A larger discrepancy was found among the elderly—14.1 percent of hospital stays by homeless patients were for people over 64 years old, compared to 34.3 percent of stays by non-homeless elderly patients.

Homelessness was more prevalent among younger Black and Hispanic patients. The proportion of homeless children under 15 years old among Blacks (15.7 percent) and Hispanics (19.4 percent) was at least 5 times higher than the proportion of White homeless children (2.7 percent) of the same age cohort. Likewise, hospital stays among homeless patients under 25 years old who were Black or Hispanic were substantially higher (26.8 and 32.0 percent, respectively), compared to White homeless patients (8.2 percent). Similarly, the proportions of hospitalized homeless White, Black, and Hispanic patients between 25 and 64 years old were 75.5, 61.2, and 55.9 percent, respectively—higher than their non-homeless counterparts: 41.4, 51.8, and 42.3 percent. Only for patients older than 74 years was homelessness more prevalent among White patients (10.1 percent) compared to Blacks (6.0 percent) and Hispanics (5.8 percent).

Gender

Table 1 also shows that among homeless patients, females constituted only about a third of hospital stays among White patients, while females constituted over half of visits among other race/ethnicity groups (52 percent). For non-homeless patients at inpatient facilities, the proportion of stays by female patients was between 57 and 61 percent across all race/ethnicity groups.

Insurance coverage

Table 1 reveals a sizable discrepancy in expected primary payer between homeless and non-homeless patients. Over one in four (28.1 percent) hospitalized homeless patients were uninsured. The proportion of uninsured homeless patients was over 6 times higher (= 28.1% ÷ 4.6%) than the proportion among their non-homeless counterparts.

The ratios of uninsured homeless patients to uninsured non-homeless patients were 5.3 for Whites, 3.3 for Blacks, and 6.2 for Hispanics, revealing that lack of insurance coverage for homeless patients was highest among Hispanics admitted to the hospital and lowest among Black patients when compared to their non-homeless counterparts.

Most insurance coverage for homeless patients was provided by Medicaid (48.2 percent), and Medicare was the expected payer for 17.1 percent. Only a small portion of homeless individuals had private insurance (2 percent). Medicare was the leading source of coverage for non-homeless patients (37.0 percent), followed by private insurance (33.8 percent) and Medicaid (21.0 percent).

The ratio of Medicaid coverage for all homeless patients to all non-homeless patients was 2.3 (= 48.2% ÷ 21.0%), which implies that homeless patients are more than twice as likely to be covered by Medicaid than are non-homeless patients. However, the ratios of Medicaid coverage for homeless White, Black, and Hispanic groups when compared to their non-homeless counterparts were 3.1, 1.6, and 0.9, respectively. This indicates that, among those who were admitted to the hospital, non-homeless Blacks and Hispanics relative to homeless Blacks and Hispanics were more likely to be covered by Medicaid.

Admission from the ED and disease prevalence

Table 2 presents the selected clinical characteristics of hospitalized homeless patients and non-homeless patients. The table shows that 73.7 percent of hospital admissions for homeless originated in EDs, compared to 50.6 percent of admissions for non-homeless patients. The relative racial compositions of homeless and non-homeless patient populations admitted through the ED were relatively similar.

Table 2 shows that the prevalence of various diseases treated in the hospital was generally similar between homeless and non-homeless patients for the majority of disease categories, except for mental disorders and diseases of the circulatory system. The proportion of hospitalized homeless patients with mental disorders (22.4 percent of all homeless patients) was about 3.4 times higher than their non-homeless counterparts (6.6 percent).

Table 2. Clinical profile of discharges for homeless and non-homeless patients with inpatient hospital stays across race/ethnicity groups

	Homeless visits				Non-homeless visits			
	All	**White**	**Black**	**Hispanic**	**All**	**White**	**Black**	**Hispanic**
Total (N) (Percentage of total)	177,056	34,539 (19.5%)	58,805 (33.2%)	26,724 (15.1%)	15,811,363	10,056,302 (63.6%)	2,073,616 (13.1%)	2,290,339 (14.5%)
Admitted from emergency department	73.7%	73.2%	77.0%	72.0%	50.6%	52.1%	57.6%	43.2%
Disease categories based on principal diagnosis*								
Infectious and parasitic diseases	2.4%	2.8%	2.6%	2.2%	2.6%	2.6%	3.2%	2.2%
Neoplasms	2.7	1.7	2.9	1.9	4.9	5.2	4.5	3.5
Endocrine, nutritional, and metabolic diseases and immunity disorders	3.7	2.9	3.9	4.1	3.4	3.3	4.6	3.2
Diseases of the blood and blood-forming organs	1.3	0.6	2.2	0.8	1.1	0.9	2.5	0.8
Mental illness	22.4	43.0	22.6	19.4	6.6	6.8	8.1	5.0
Diseases of the nervous system and sense organs	2.5	2.4	2.6	2.5	2.5	2.5	2.8	2.2
Diseases of the circulatory system	10.4	10.4	10.9	7.9	16.0	17.8	16.1	10.0
Diseases of the respiratory system	8.0	6.9	8.3	7.5	8.4	8.9	8.6	6.7
Diseases of the digestive system	6.1	5.7	5.1	7.0	9.1	9.7	7.5	8.8
Diseases of the genitourinary system	3.0	2.5	2.7	3.3	4.5	4.9	4.1	3.9
Complications of pregnancy, childbirth, and the puerperium	13.3	2.5	13.3	16.3	11.6	8.5	12.2	21.3
Diseases of the skin and subcutaneous tissue	2.4	4.0	1.9	2.5	1.7	1.9	1.8	1.6
Diseases of the musculoskeletal system and connective tissue	1.7	1.7	1.8	1.8	5.1	6.3	3.3	2.4
Congenital anomalies	0.2	0.1	0.1	0.2	0.4	0.4	0.3	0.6
Certain conditions originating in the perinatal period	10.8	2.0	10.1	12.6	10.9	8.0	10.5	19.7
Injury and poisoning	6.1	7.9	6.0	6.5	7.9	8.8	6.7	5.9
Other conditions	3.2	3.1	3.1	3.6	3.5	3.8	3.4	2.3

Source: Data include all discharges from inpatient hospitals during 2008 in Arizona, California, Colorado, Florida, Georgia, Massachusetts, Missouri, New York, Pennsylvania, and Wisconsin. Statistics are not reported whenever there are fewer than 10 observations in a particular cell.

***** Disease categories are based on the Clinical Classification Software, a diagnosis and procedure categorization scheme based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM). The percentages are based on principal diagnosis codes.

There were also racial/ethnic differences among homeless and non-homeless patients hospitalized for mental disorders. Forty-three percent of White homeless patients had a mental illness principal diagnosis, compared to only 6.8 percent of white non-homeless patients—6.3 times higher among homeless patients. Among blacks, homeless patients had 2.8 times higher prevalence of mental disorder principal diagnoses than non-homeless patients. Among Hispanics, homeless patients had 3.9 times higher prevalence of mental disorders than non-homeless patients.

Mental disorders subcategories

Table 3 presents details on specific types of mental disorders and shows that 33.8 percent of hospital stays by homeless individuals with mental disorders were related to schizophrenia and other psychotic disorders, followed by mood disorders (24.7 percent), alcohol-related disorders

Table 3. Clinical profile of discharges for homeless patients with mental disorders across race/ethnicity groups at inpatient facilities and hospital-affiliated emergency departments

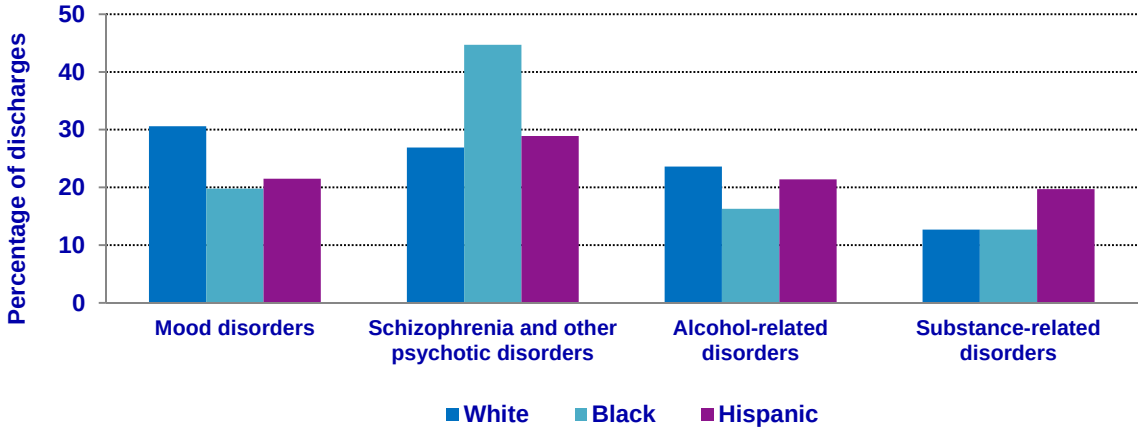
	Inpatient facilities				Emergency departments			
	All	**White**	**Black**	**Hispanic**	**All**	**White**	**Black**	**Hispanic**
Total (N) (Percentage of total)	39,700	14,859 (37.4%)	13,267 (33.4%)	5,194 (13.1%)	24,304	15,818 (65.1%)	5138 (21.1%)	2198 (9.0%)
Mental disorders (based on principal diagnosis for inpatient stays and all-listed diagnoses for ED visits)*								
Adjustment disorders	1.4%	1.2%	1.5%	1.1%	0.5%	0.5%	0.5%	0.6%
Anxiety disorders	0.7	0.9	0.4	0.7	6.2	7.0	3.5	6.3
Attention deficit, conduct, and disruptive behavior disorders	0.7	0.2	1.1	0.5	1.1	1.1	1.1	1.2
Delirium, dementia, and amnestic and other cognitive disorders	0.9	0.7	0.7	1.1	0.3	0.3	0.2	.
Developmental disorders	0.1	.	0.1	.	0.7	0.7	0.6	0.8
Disorders usually diagnosed in infancy, childhood, or adolescence	0.1	0.1	0.1	.	0.1	0.1	.	.
Impulse control disorders	0.5	0.2	0.8	.	.	.	.	.
Mood disorders	24.7	30.6	19.8	21.5	21.1	22.9	18.5	17.7
Personality disorders	0.2	0.2	0.1	.	0.5	0.6	0.4	0.5
Schizophrenia and other psychotic disorders	33.8	26.9	44.7	28.9	7.8	5.7	15.1	6.8
Alcohol-related disorders	20.6	23.6	16.3	21.4	52.8	54.8	43.2	58.1
Substance-related disorders	13.5	12.7	12.7	19.7	17.6	16.5	20.8	19.8
Suicide and intentional self-inflicted injury	.	.	.	.	7.1	7.7	6.0	6.1
Screening and history of mental health and substance abuse	2.3	2.4	1.1	3.6	29.7	31.2	32.4	15.3
Miscellaneous disorders	0.6	0.3	0.7	0.7	0.4	0.3	0.4	.

Source: Data for inpatient facilities include all discharges from inpatient hospitals during 2008 in Arizona, California, Colorado, Florida, Georgia, Massachusetts, Missouri, New York, Pennsylvania, and Wisconsin. Data for emergency departments include all treat-and-release discharges from hospital-affiliated emergency departments during 2008 in Arizona, Florida, Georgia, Massachusetts, Missouri, New York, and Wisconsin. Statistics are not reported whenever there are fewer than 10 observations in a particular cell.

***** Disease categories are based on the Clinical Classification Software, a diagnosis and procedure categorization scheme based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM).The percentages are based on principal diagnosis codes at inpatient facilities. The HCUP SEDD do not differentiate between the principal diagnosis codes and other diagnosis codes. Therefore, we used all diagnosis codes reported for each visit when creating broader CCS disease categories.

(20.6 percent), and substance-related disorders (13.5 percent). As shown in Figure 1, the prevalence of hospital stays due to mood disorders was highest among White homeless patients and the prevalence of stays due to schizophrenia and other psychotic disorders was substantially higher among Black patients than among Whites and Hispanics.

Figure 1. Clinical profile of discharges for homeless patients with mental disorders across race/ethnicity groups at inpatient hospitals



Note: Data include all discharges from inpatient hospitals during 2008 in Arizona, California, Colorado, Florida, Georgia, Massachusetts, Missouri, New York, Pennsylvania, and Wisconsin. Disease categories are based on the Clinical Classification Software, a diagnosis and procedure categorization scheme based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM). The percentages are based on principal diagnosis codes.

Use of hospital-affiliated EDs

Race/Ethnicity

Table 4 presents descriptive statistics of T&R ED visits by homeless and non-homeless patients at hospital-affiliated EDs. Overall, Whites constituted 60.2 percent of ED visits for homeless patients, Blacks constituted 22.5 percent, and Hispanics 10.6 percent. These proportions are similar for non-homeless patients: 57.1 percent White, 21.7 percent Black, and 12.3 percent Hispanic.

Table 4. Demographic profile of discharges for homeless and non-homeless patients with hospital-affiliated emergency departments visits across race/ethnicity groups

	Homeless visits				Non-homeless visits			
	All	**White**	**Black**	**Hispanic**	**All**	**White**	**Black**	**Hispanic**
Total (N) (Percentage of total)	49,595	29,842 (60.2%)	11,181 (22.5%)	5,258 (10.6%)	23,661,159	13,513,116 (57.1%)	5,132,149 (21.7%)	2,903,289 (12.3%)
Age								
Under 15	2.9%	1.9%	1.5%	6.0%	25.9%	16.5%	22.9%	32.4%
15–24	9.1	8.5	7.3	11.7	8.3	16.6	19.7	17.7
25–44	39.0	36.8	39.6	49.0	20.8	29.9	32.1	29.7
45–64	45.9	49.6	48.8	30.1	20.0	21.9	19.6	14.7
65–74	2.4	2.3	2.5	2.4	10.0	6.2	3.3	3.1
Over 74	0.8	0.9	0.3	0.8	15.1	9.0	2.5	2.5
Gender								
Female	25.8%	26.7%	23.9%	21.4%	55.0%	54.5%	57.8%	53.9%
Insurance coverage								
Medicare	12.4%	13.1%	14.6%	7.8%	13.8%	18.0%	9.1%	6.3%
Medicaid	34.7	32.6	43.5	36.8	22.5	18.0	29.4	32.6
Private	5.7	6.2	3.6	6.8	38.3	40.5	32.1	35.5
Other	2.3	2.7	1.6	2.1	4.7	5.1	3.9	3.9
Uninsured	42.8	43.2	35.2	42.9	19.9	17.6	24.9	21.1

Source: Data include all treat-and-release discharges from hospital-affiliated emergency departments during 2008 in Arizona, Florida, Georgia, Massachusetts, Missouri, New York, and Wisconsin. Statistics are not reported whenever there are fewer than 10 observations in a particular cell.

Age

Table 4 shows that only 2.9 percent of T&R ED visits by homeless patients were for those under 15 years old—substantially lower than for their non-homeless counterparts (25.9 percent). The majority of T&R ED visits by homeless patients were made by individuals 25–44 years old (39.0 percent) and 45–64 years old (45.9 percent), compared to 20.8 and 20.0 percent for non-homeless patients, respectively.

There was little age discrepancy across race/ethnicity groups between homeless and non-homeless patients; however, Hispanic children had relatively higher numbers of ED visits compared to White and Black children. Six percent of all ED visits by homeless Hispanic patients were for children under the age of 15—3 to 4 times higher than for White (1.9 percent) and Black (1.5 percent) homeless children. Among ED visits for non-homeless patients, 32.4 percent were for Hispanic children under age 15, 16.5 percent were for White children, and 22.9 percent were for Black children.

Gender

One out of four T&R ED visits by homeless patients was made by females compared with about 1 out of 2 visits by non-homeless patients. This was similar across race/ethnicity groups.

Insurance coverage

Table 4 shows a sizable discrepancy in payer status between homeless and non-homeless patients. Overall, the proportion of T&R ED visits by uninsured homeless patients (42.8 percent) was 2.2 times higher than for their non-homeless counterparts (19.9 percent). The lack of insurance coverage for homeless patients was lowest among Black patients when compared to their non-homeless counterparts.

Most coverage for homeless patients was provided by Medicaid (34.7 percent), followed by Medicare (12.4 percent) and private insurance (5.7 percent). Private insurance provided coverage for 38.3 percent of visits by non-homeless patients, followed by Medicaid (22.5 percent) and Medicare (13.8 percent).

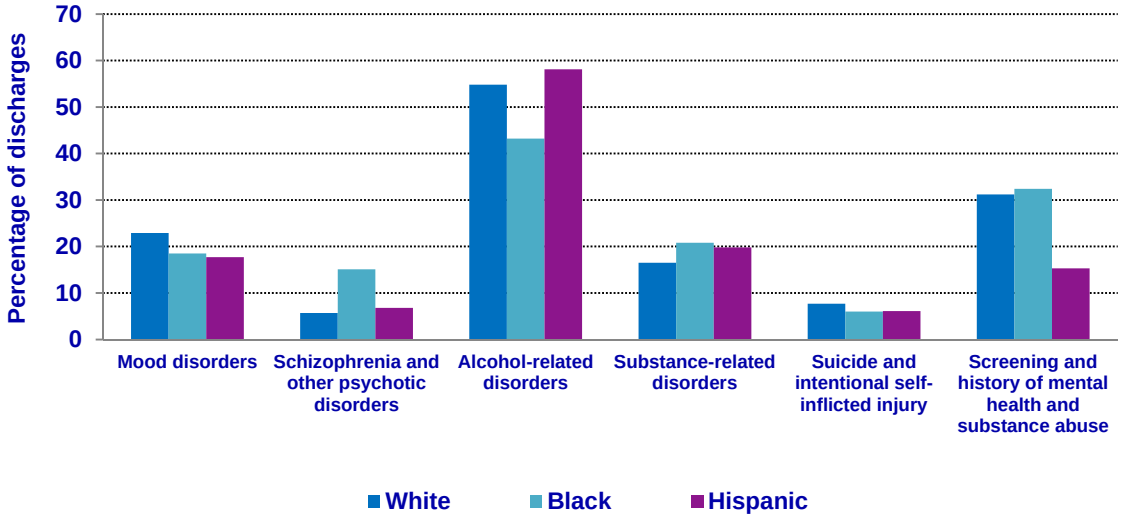
Disease prevalence

Table 5 shows that nearly half of all T&R ED visits by homeless patients involved a mental illness diagnosis (49.0 percent). This was 3.5 times higher than their non-homeless counterparts (14.0 percent).

A similar pattern was evident by race/ethnicity. While there were some discrepancies between homeless and non-homeless patients in the prevalence of other conditions recorded during T&R ED visits, the magnitude of the differences was relatively small compared to mental disorders. The results presented in Table 3 show that alcohol-related disorders was the most common mental condition noted during ED visits for the homeless (52.8 percent), followed by screening and history of mental health and substance abuse (29.7 percent), mood disorders (21.1 percent), and substance-related disorders (17.6 percent).

As shown in Figure 2, the prevalence of alcohol-related disorders was higher among Hispanic homeless patients. Similarly, Black homeless patients had relatively higher ED encounters for schizophrenia and other psychotic disorders.

Figure 2. Clinical profile of discharges for homeless patients with mental disorders across race/ethnicity groups at hospital-affiliated emergency departments



Note: Data include all treat-and-release discharges from hospital-affiliated emergency departments during 2008 in Arizona, Florida, Georgia, Massachusetts, Missouri, New York, and Wisconsin. Disease categories are based on the Clinical Classification Software, a diagnosis and procedure categorization scheme based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM). The HCUP SEDD do not differentiate between the principal diagnosis codes and other diagnosis codes. Therefore, we used all diagnosis codes reported for each visit when creating broader CCS disease categories.

Table 5. Clinical profile of discharges for homeless and non-homeless patients with hospital-affiliated emergency departments visits across race/ethnicity groups

	Homeless visits				Non-homeless visits			
	All	**White**	**Black**	**Hispanic**	**All**	**White**	**Black**	**Hispanic**
Total (N) (Percentage of total)	49,595	29,842 (60.2%)	11,181 (22.5%)	5,258 (10.6%)	23,661,159	13,513,116 (57.1%)	5,132,149 (21.7%)	2,903,289 (12.3%)
Disease categories based on all-listed diagnoses*								
Infectious and parasitic diseases	6.4%	6.1%	8.1%	5.6%	5.7%	4.8%	7.1%	7.0%
Neoplasms	0.6	0.1	0.1	.	4.4	0.2	0.2	0.1
Endocrine, nutritional, and metabolic diseases and immunity disorders	7.1	7.3	7.5	5.6	10.3	11.5	9.5	7.6
Diseases of the blood and blood-forming organs	1.1	1.0	1.8	0.7	1.4	1.3	2.2	1.0
Mental illness	49.0	53.0	46.0	41.8	14.0	17.0	10.7	8.4
Diseases of the nervous system and sense organs	13.2	13.8	13.2	10.5	15.2	15.4	15.1	15.3
Diseases of the circulatory system	14.0	14.3	16.7	9.0	17.7	19.6	18.1	11.4
Diseases of the respiratory system	13.0	13.3	13.2	12.3	20.2	18.7	22.8	22.5
Diseases of the digestive system	7.7	7.6	8.0	7.6	11.6	12.1	10.8	11.5
Diseases of the genitourinary system	4.4	4.1	5.3	4.1	9.6	9.5	10.3	9.6
Complications of pregnancy, childbirth, and the puerperium	0.9	0.7	1.0	1.1	3.2	2.2	4.5	4.6
Diseases of the skin and subcutaneous tissue	5.6	6.1	5.1	4.5	4.9	5.0	5.3	4.7
Diseases of the musculoskeletal system and connective tissue	13.4	13.9	14.4	11.7	12.4	13.6	11.9	10.0
Congenital anomalies	0.2	0.2	0.1	–	0.3	0.3	0.2	0.2
Certain conditions originating in the perinatal period	–	–	–	–	0.2	0.2	0.3	0.4
Injury and poisoning	20.4	22.0	15.3	20.6	27.3	31.0	21.0	22.3
Other conditions	31.5	31.7	30.6	29.8	26.0	26.7	24.2	27.2

Source: Data include all treat-and-release discharges from hospital-affiliated emergency departments during 2008 in Arizona, Florida, Georgia, Massachusetts, Missouri, New York, and Wisconsin. Statistics are not reported whenever there are fewer than 10 observations in a particular cell.

***** Disease categories are based on the Clinical Classification Software, a diagnosis and procedure categorization scheme based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM). The HCUP SEDD do not differentiate between the principal diagnosis codes and other diagnosis codes. Therefore, we used all diagnosis codes reported for each visit when creating broader CCS disease categories.

Data Source

The estimates in this Statistical Brief are based upon data from the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and State Emergency Department Databases (SEDD) for 2008. The SID employed in this study include data on 15,811,363 inpatient stays—of which 177,056 are for homeless patients—from inpatient hospitals in 10 geographically dispersed states (Arizona, California, Colorado, Florida, Georgia, Massachusetts, Missouri, New York, Pennsylvania, and Wisconsin). The SEDD include data on 23,710,754 treat-and-release emergency department (T&R ED) visits—of which 49,595 are for homeless patients—from hospital-affiliated emergency departments in seven geographically dispersed states (Arizona, Florida, Georgia, Massachusetts, Missouri, New York, and Wisconsin).

Definitions

Diagnoses, ICD-9-CM, and Clinical Classifications Software (CCS)
The *principal diagnosis* is that condition established after study to be chiefly responsible for the patient's admission to the hospital. *Secondary diagnoses* are concomitant conditions that coexist at the time of admission or develop during the stay.

ICD-9-CM is the International Classification of Diseases, Ninth Revision, Clinical Modification, which assigns numeric codes to diagnoses. There are approximately 14,000 ICD-9-CM diagnosis codes.

CCS categorizes ICD-9-CM diagnoses into a manageable number of clinically meaningful categories.[29] This "clinical grouper" makes it easier to quickly understand patterns of diagnoses. CCS categories identified as "Other" typically are not reported; these categories include miscellaneous, otherwise unclassifiable diagnoses that may be difficult to interpret as a group.

Case definition
Homelessness is directly reported by the hospitals. There is an indicator for each discharge from inpatient hospitals or hospital-affiliated EDs regarding patient's homelessness status.

Types of hospitals included in HCUP
This analysis is based on the data that includes all discharges reported by all hospitals including mental health facilities in HCUP SID for Arizona, California, Colorado, Florida, Georgia, Massachusetts, Missouri, New York, Pennsylvania, and Wisconsin; and HCUP SEDD for Arizona, Florida, Georgia, Massachusetts, Missouri, New York, and Wisconsin during 2008.

Unit of analysis
HCUP SID and SEDD data are based on encounters as the unit of analysis, so a given patient may have many encounters. As a consequence, the summary information reported under patient characteristics might overestimate or underestimate demographics for individual patients.

In addition, it is difficult to differentiate between the principal diagnosis codes and other diagnosis codes in emergency department settings. Therefore, we used all diagnosis codes reported for each visit when developing our disease categories.

[29] HCUP Clinical Classifications Software (CCS). Healthcare Cost and Utilization Project (HCUP). U.S. Agency for Healthcare Research and Quality, Rockville, MD. Available at http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp. (Accessed January 22, 2013).

Payer
Payer is the expected primary payer for the hospital stay. To make coding uniform across all HCUP data sources, payer combines detailed categories into general groups:

- Medicare: includes patients covered by fee-for-service and managed care Medicare
- Medicaid: includes patients covered by fee-for-service and managed care Medicaid. Patients covered by the State Children's Health Insurance Program (SCHIP) may be included here. Because most State data do not identify SCHIP patients specifically, it is not possible to present this information separately.
- Private Insurance: includes Blue Cross, commercial carriers, and private health maintenance organizations (HMOs) and preferred provider organizations (PPOs)
- Other: includes Worker's Compensation, TRICARE/CHAMPUS, CHAMPVA, Title V, and other government programs
- Uninsured: includes an insurance status of "self-pay" and "no charge."

When more than one payer is listed for a hospital discharge, the first-listed payer is used.

Admission source or point of origin
Admission source (now known as patient's point of origin) indicates where the patient was located prior to admission to the hospital. Emergency admission indicates that the patient was admitted to the hospital through the emergency department. Admission from another hospital indicates that the patient was admitted to this hospital from another short-term, acute-care hospital. This usually signifies that the patient required the transfer in order to obtain more specialized services that the originating hospital could not provide. Admission from a long-term care facility indicates that the patient was admitted from a long-term facility such as a nursing home.

Reporting of race and ethnicity
HCUP SID for Arizona, California, Colorado, Florida, Georgia, Massachusetts, Missouri, New York, Pennsylvania, and Wisconsin; and HCUP SEDD for Arizona, Florida, Georgia, Massachusetts, Missouri, New York, and Wisconsin report race and ethnicity. This Statistical Brief reports the HCUP uniform coding of race/ethnicity for the following categories: White, Black, and Hispanic.

About HCUP

HCUP is a family of powerful health care databases, software tools, and products for advancing research. Sponsored by the Agency for Healthcare Research and Quality (AHRQ), HCUP includes the largest all-payer encounter-level collection of longitudinal health care data (inpatient, ambulatory surgery, and emergency department) in the United States, beginning in 1988. HCUP is a Federal-State-Industry Partnership that brings together the data collection efforts of many organizations—such as State data organizations, hospital associations, private data organizations, and the Federal government—to create a national information resource.

HCUP would not be possible without the contributions of the following data collection Partners from across the United States:

Alaska State Hospital and Nursing Home Association
Arizona Department of Health Services
Arkansas Department of Health
California Office of Statewide Health Planning and Development
Colorado Hospital Association
Connecticut Hospital Association
Florida Agency for Health Care Administration
Georgia Hospital Association
Hawaii Health Information Corporation
Illinois Department of Public Health
Indiana Hospital Association

Iowa Hospital Association
Kansas Hospital Association
Kentucky Cabinet for Health and Family Services
Louisiana Department of Health and Hospitals
Maine Health Data Organization
Maryland Health Services Cost Review Commission
Massachusetts Center for Health Information and Analysis
Michigan Health & Hospital Association
Minnesota Hospital Association
Mississippi Department of Health
Missouri Hospital Industry Data Institute
Montana MHA - An Association of Montana Health Care Providers
Nebraska Hospital Association
Nevada Department of Health and Human Services
New Hampshire Department of Health & Human Services
New Jersey Department of Health
New Mexico Department of Health
New York State Department of Health
North Carolina Department of Health and Human Services
North Dakota (data provided by the Minnesota Hospital Association)
Ohio Hospital Association
Oklahoma State Department of Health
Oregon Association of Hospitals and Health Systems
Oregon Health Policy and Research
Pennsylvania Health Care Cost Containment Council
Rhode Island Department of Health
South Carolina Budget & Control Board
South Dakota Association of Healthcare Organizations
Tennessee Hospital Association
Texas Department of State Health Services
Utah Department of Health
Vermont Association of Hospitals and Health Systems
Virginia Health Information
Washington State Department of Health
West Virginia Health Care Authority
Wisconsin Department of Health Services
Wyoming Hospital Association

About the SID

The HCUP State Inpatient Databases (SID) are hospital inpatient databases from data organizations participating in HCUP. The SID contain the universe of the inpatient discharge abstracts in the participating HCUP States, translated into a uniform format to facilitate multistate comparisons and analyses. Together, the SID encompass more than 95 percent of all U.S. community hospital discharges in 2008. The SID can be used to investigate questions unique to one State; to compare data from two or more States; to conduct market area variation analyses, and to identify State-specific trends in inpatient care utilization, access, charges, and outcomes.

About the SEDD

The HCUP State Emergency Department Databases (SEDD) are a powerful set of databases, from data organizations in participating States, that capture discharge information on all emergency department visits that do not result in an admission. The SEDD combined with SID discharges that originate in the emergency department are well suited for research that requires complete enumeration of hospital-affiliated emergency departments within market areas or States. Researchers and policymakers use the SEDD to conduct market area research or small area variation analyses, identify patterns of care for

patients with various demographic and clinical characteristics, and examine State-specific trends in emergency department utilization, access, charges, and outcomes.

For More Information

For more information about HCUP, visit http://www.hcup-us.ahrq.gov/.

For additional HCUP statistics, visit HCUPnet, our interactive query system, at http://hcupnet.ahrq.gov/.

For information on other hospitalizations in the United States, download *HCUP Facts and Figures: Statistics on Hospital-Based Care in the United States in 2009*, located at http://www.hcup-us.ahrq.gov/reports.jsp.

Introduction to the HCUP State Inpatient Databases. Online. September 2011. U.S. Agency for Healthcare Research and Quality. Available at http://hcup-us.ahrq.gov/db/state/siddist/Introduction_to_SID.pdf. (Accessed January 29, 2013).

Introduction to the HCUP State Emergency Department Databases. Online. September 2011. U.S. Agency for Healthcare Research and Quality. Available at http://hcup-us.ahrq.gov/db/state/sedddist/Introduction_to_SEDD.pdf. (Accessed January 29, 2013).

Suggested Citation

Karaca Z (AHRQ), Wong H (AHRQ), Mutter R (AHRQ). *Characteristics of Homeless and Non-Homeless Individuals Using Inpatient and Emergency Department Services, 2008.* Statistical Brief #152. March 2013. Agency for Healthcare Research and Quality, Rockville, MD. Available at http://www.hcup-us.ahrq.gov/reports/statbriefs/sb152.pdf.

Acknowledgments

The authors would like to acknowledge the contributions of Janette Walters of Social & Scientific Systems, Inc.

* * *

AHRQ welcomes questions and comments from readers of this publication who are interested in obtaining more information about access, cost, use, financing, and quality of health care in the United States. We also invite you to tell us how you are using this Statistical Brief and other HCUP data and tools, and to share suggestions on how HCUP products might be enhanced to further meet your needs. Please email us at hcup@ahrq.gov or send a letter to the address below:

Irene Fraser, Ph.D., Director
Center for Delivery, Organization, and Markets
Agency for Healthcare Research and Quality
540 Gaither Road
Rockville, MD 20850