The Health of Homeless Adults in New York City

A Report from the New York City Departments of Health and Mental Hygiene and Homeless Services

December 2005

NYC Health

DHS
NYC Department of Homeless Services

Letter from the Commissioners

Dear Fellow New Yorker:

New York City is committed to improving the health of all New Yorkers, particularly our most vulnerable residents. The City is also committed to preventing homelessness when possible and providing short-term emergency shelter and re-housing support whenever needed.

The Health of Homeless Adults in New York City represents an unprecedented collaboration between the health and homeless services agencies to better understand, and ultimately improve, the health of tens of thousands of New Yorkers who experience homelessness each year. While we still have much to learn about the relationship between homelessness and health, the report makes it clear that homeless individuals are susceptible to poor physical and mental health. It confirms knowledge in some areas and offers new insight in others.

The report offers recommendations and immediate action steps to improve the health of homeless New Yorkers. Progress requires working closely with our partners in community-based organizations and the health care community, particularly those providing direct services to homeless people. Our agencies are fully committed to building stronger ties with these institutions.

This report is a stark reminder that homelessness and the conditions that lead to it take a heavy toll on health. We hope this unique undertaking serves as both a resource and a challenge for those seeking to improve the health of those without homes.

Thomas R. Frieden, MD, MPH
Commissioner, NYC Department of Health and Mental Hygiene

Linda Gibbs
Commissioner, NYC Department of Homeless Services

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Key Findings

From 2001 through 2003, 55,914 single adults and 46,832 adults in families used the Department of Homeless Services (DHS) shelter system for at least one night.

There were 903 deaths among those who used the single adult shelter system and 267 deaths among adults who used the family shelters. These 1,170 deaths made up 0.7% of all adult deaths in NYC. Compared with the general NYC adult population, homeless adults who used DHS facilities had substantially higher death rates (all rates presented here are age adjusted).

- The death rate among those who used the single adult shelter system was twice as high as that of the general NYC adult population.
- The death rate among adults who used the family shelter system was 1.5 times higher.

Some leading causes of death were similar between adults who used DHS shelters and the NYC adult population, but stark differences were also present.

- As in the NYC adult population, heart disease and cancer were the leading causes of death among adults who used the shelter system.
- Among those who used the single adult shelter system, substance use and HIV/AIDS accounted for nearly one-third of all deaths, compared with less than 5% in the NYC adult population.
- Among women who used the single adult system, the largest proportion of deaths was due to HIV/AIDS. Among men, the largest proportion was due to substance use.
- The death rate due to heart disease was higher among adults who used family shelters than among those who used single adult shelters; death rates due to cancer, substance use, and HIV/AIDS were higher among those who used single adult shelters.
- There were 80 exposure deaths in NYC from 2001 through 2003; 17 of these deaths (21%) occurred among homeless adults, all due to excessive cold.

From 2001 through 2003, there were 48,045 non-HIV/AIDS hospitalizations among homeless adults in NYC. Homeless adults were disproportionately hospitalized, and on average stayed in the hospital longer than non-homeless adults.

- While homeless adults made up less than 1% of adult New Yorkers, they accounted for 1.6% of adult hospitalizations.
- Substance use, alcohol use, and mental illness accounted for 69% of hospitalizations among homeless adults, compared with 10% among non-homeless adults.
- The average length of stay for homeless adults was 9 days, compared with 7 days for adults in the non-homeless population.

From 2001 through 2003, there were 98 cases of tuberculosis (TB) and 766 new HIV diagnoses among those who used the single adult shelter system; there were 19 cases of TB and 319 new HIV diagnoses among adults who used the family shelter system. Compared with the general NYC adult population, adults who used DHS shelters had higher rates of TB and new HIV diagnoses.

- The average rates of TB and new HIV diagnoses were 11 and 16 times higher, respectively, among those who used the single adult shelter system than among the NYC adult population.
- The average rates of TB and new HIV diagnoses were 3 and 8 times higher, respectively, among adults who used the family shelter system than among the NYC adult population.

Introduction

The relationship between homelessness and health is complex. Being homeless can put people at risk for poor physical and mental health, while physical illness and deteriorating mental health can also contribute to a person or family becoming homeless. Studies from the United States and elsewhere have documented high rates of illness and death in homeless populations, compared with the general public. However, accurately characterizing the health status and needs of the homeless is difficult because the population is transient and hard to reach.

As in other metropolitan areas, the number of homeless individuals in New York City (NYC) has increased dramatically in the past decade, making the health and well-being of homeless persons an issue of increased importance. Unlike most other cities, a high proportion of NYC's homeless population uses homeless shelter services. This provides a unique opportunity to develop a health profile of the City's homeless population, as most of the City's shelters are under the auspices of the NYC Department of Homeless Services (DHS), which maintains a database of all shelter residents.

The NYC Department of Health and Mental Hygiene (DOHMH) and DHS share a commitment to improve the well-being of people who are homeless. In 2004, DOHMH initiated *Take Care New York*, a policy to improve the health of all New Yorkers through 10 steps to a longer and healthier life. Also in 2004, DHS implemented *Uniting for Solutions Beyond Shelter*, a plan to end chronic homelessness and reduce the shelter and street homeless population by two-thirds in 5 years. This report, which characterizes the health of homeless adults who use DHS shelter services, is part of the larger commitment of both agencies to work together toward enacting these policies. It represents a year-long collaboration between DOHMH and DHS to prepare, match, and analyze static data sets from 2001 through 2003.

The Health of Homeless Adults in New York City focuses on the health of homeless adults. Where possible, results are presented separately for homeless adults in the two major DHS shelter systems (single adult shelters and family shelters), as their demographic and health profiles are different. Population-based information about the health of homeless children is limited and warrants its own examination. This report is not intended to explain definitively the complex mechanisms through which homelessness and poor health are associated. It does highlight the heavy burden of disease and mortality among the homeless who use the DHS shelter system and attempts to identify preventable causes of illness and death. The report concludes with recommendations and an immediate action plan resulting from this collaborative research process.

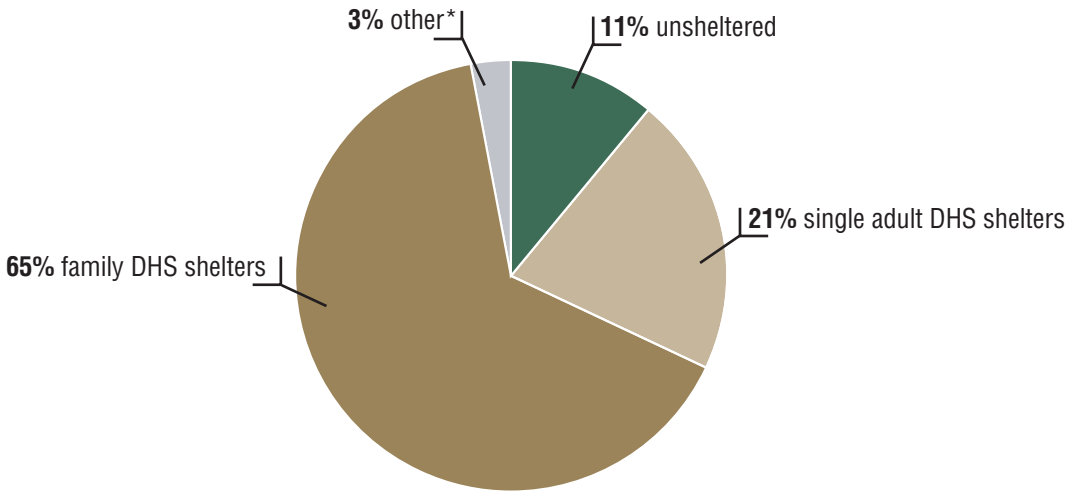
Methods To characterize health issues affecting sheltered homeless individuals in New York City, DHS and DOHMH conducted a series of cross-agency data linkage projects. Homeless individuals who resided in DHS shelters for at least 1 night from January 1, 2001 through December 31, 2003 were matched by Social Security number (when available), name, and date of birth to the NYC vital statistics, tuberculosis, and HIV/AIDS registries. Patients' addressses were used to identify the homeless in the New York State hospital discharge database. Additional detail on data matches and analyses are provided in each section of the report. State-of-the-art methods were used to identify matches for individuals with incomplete or incorrect information and to protect the confidentiality of individuals in each of the databases. Because of incomplete data matching, some individuals may have been misclassified as non-homeless. As a result, our estimates of morbidity and mortality among the homeless may underestimate the true burden on this population.

Overview of Homelessness in NYC

DHS shelter services are provided to the homeless population in NYC through two systems: one that serves single adults and one that serves families. For the purposes of this report, the term 'single adults' refers to individuals in the single adult system; 'adults in families' refers to adults in the family system. Other city agencies provide shelter services to individuals with advanced HIV infection and AIDS, teens, victims of domestic violence, and individuals facing a housing emergency such as a fire or a flood.

From 2001 through 2003, an average of 33,561 individuals resided in DHS shelters each night. DHS maintains electronic data systems to track homeless individuals in shelter, but there are currently no systems in place to track unsheltered homeless individuals. However, shelters house most of the homeless in NYC. According to the DHS 2005 Homeless Outreach Population Estimate (HOPE, an annual survey of homelessness in NYC), 86% of homeless individuals resided in shelters overseen by the NYC DHS (65% in family shelters and 21% in single adult shelters), 3% resided in alternate shelters, and 11% were unsheltered. The unsheltered population consisted of single adults only; no families with children were found on the street in this survey. In 2004, this survey was done in three boroughs, and a similar distribution was found (84% in DHS shelters, 6% in alternate shelters, and 10% unsheltered). Neither adults in alternate shelter systems nor the unsheltered homeless population are represented in most of this report; rather, the focus is on the homeless population using DHS shelters.

Distribution of sheltered and unsheltered homeless individuals in NYC, March 2005: 86% of homeless individuals used DHS shelters



*Includes individuals in private shelters and hospital emergency rooms, and arrestees

DHS Single Adult Shelter System

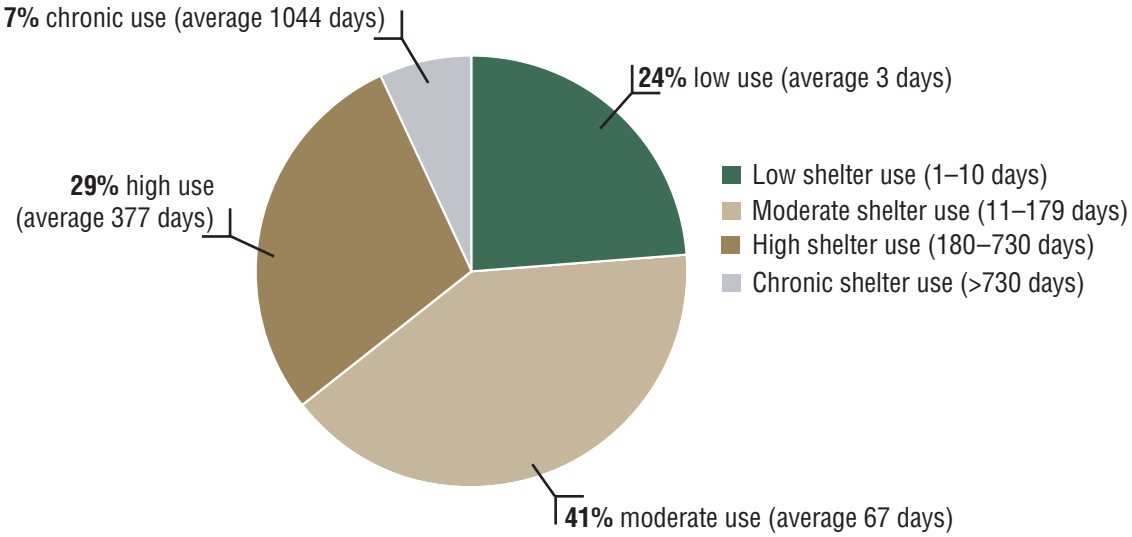
From 2001 through 2003, a total of 55,914 single adults in New York City (0.3% of NYC adult residents) used the DHS shelter system for at least one night. On any given night, about 7,800 single adults were housed in one of the DHS single adult shelters.

Homeless single adults stay in the DHS shelter system for varying lengths of time. Based on the number of days they stayed in a shelter over the previous 4 years, 4 categories were developed by DHS to measure progress toward ending chronic homelessness. Total usage was not based on consecutive time spent in the shelter system; rather, it was based on the cumulative number of days an individual stayed in the system within a 4-year period:

- *low* shelter use (1–10 days)
- *moderate* shelter use (11–179 days)
- *high* shelter use (180–730 days, or at least 6 months)
- *chronic* shelter use (more than 730 days, or more than 2 out of 4 years).

One out of 15 (7%) single adults (n=3,351) sheltered from 2001 through 2003 was classified as a *chronic* user, spending more than 2 out of 4 years in the shelter system. In contrast, 1 in 4 (24%) single adults used the system for 10 days or less during this time period. About 2 out of 3 single adult shelter users stayed for less than 6 months (180 days), and about a third of shelter users resided in a shelter for more than 6 months.

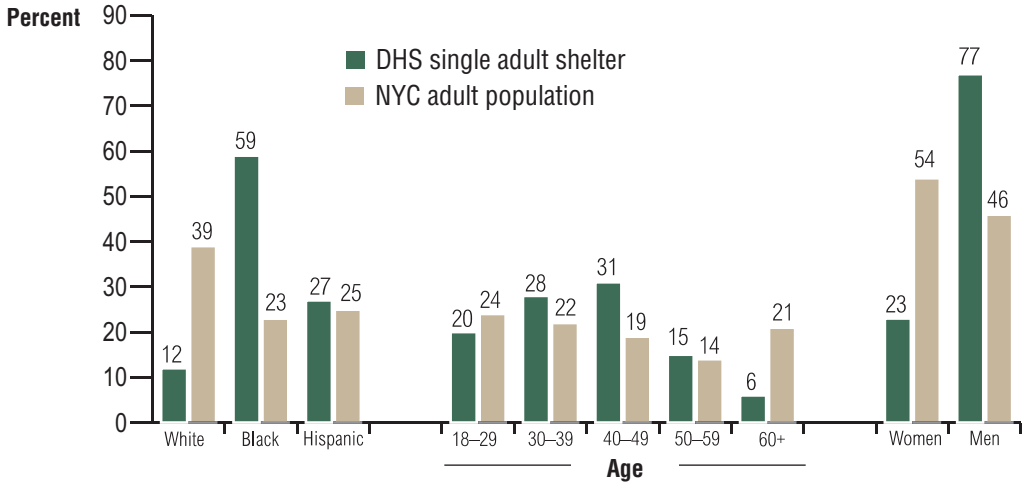
Frequency of stay in the NYC DHS single adult shelter system, 2001-2003: 7% of sheltered adults were chronic users*



*Percents do not equal 100 due to rounding

Greater proportions of adults who used the single adult shelter system were black and male, compared with the NYC adult population. Almost 60% of single adults in the shelter system from 2001 through 2003 were black, compared with 23% of the NYC adult population. More than half (59%) were 30 to 49 years old, compared with 41% in the general population, and more than three-quarters (77%) were male, compared with 46% of NYC adults.

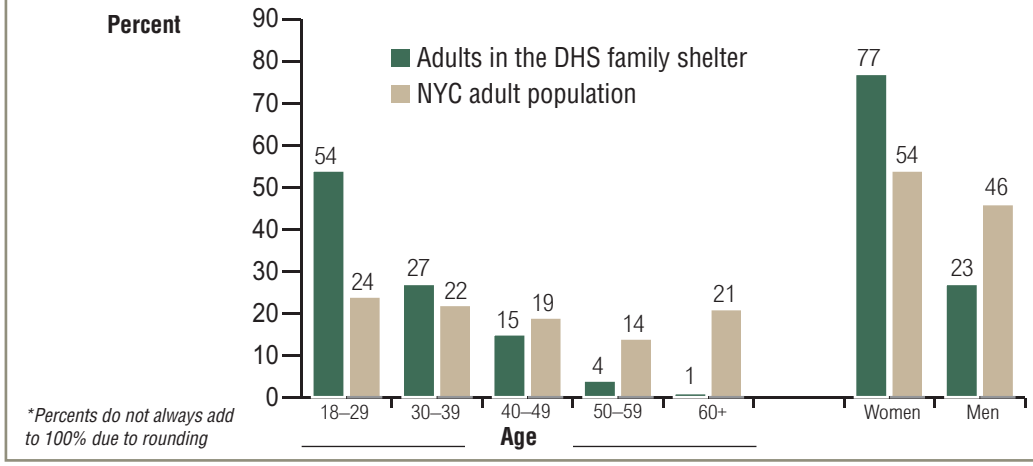
Demographics of adults in the NYC DHS single adult shelter system (2001-2003) and NYC adults



DHS Family Shelter System

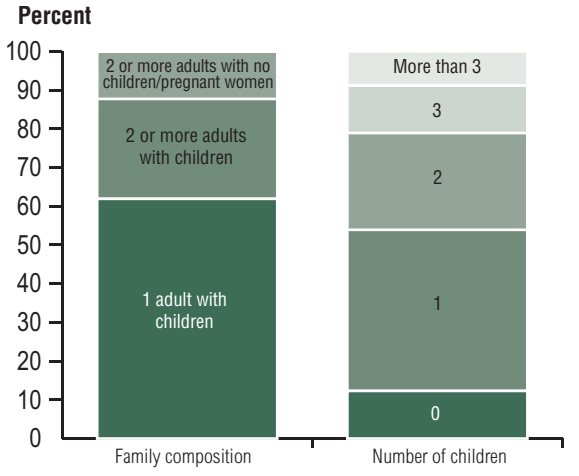
The DHS family shelter system houses pregnant women, adults with children, and adult couples without children; although pregnant women can stay at all family shelters, 5 family shelters serve this population exclusively. From 2001 through 2003, 105,068 family members were housed by the DHS family shelter system, including 46,832 adults (almost 0.3% of NYC adult residents) and 58,236 children. Adults in the family system were mostly 18 to 29 years old (54%) and female (77%). In contrast, only 24% of the NYC general population were 18 to 29, and only 54% were female.

Demographics of adults in the NYC DHS family shelter system (2001-2003) and NYC adults*

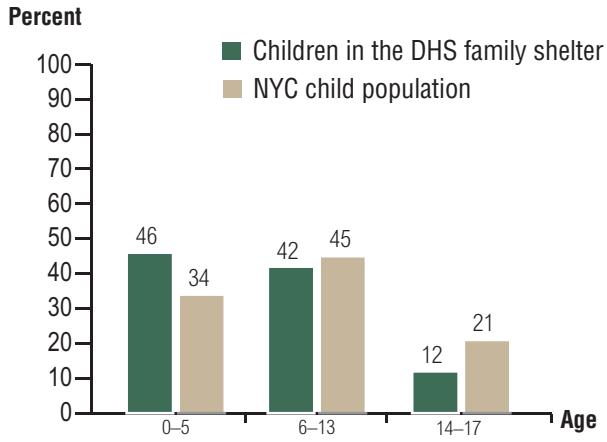


Almost 2 out of 3 families (62%) in the shelter system consisted of 1 adult with children, and 12% of families either had no children or the woman was pregnant and had no children in the shelter system. In terms of family size, almost half of families (42%) had only 1 child, and about 9% of families had more than 3 children. Nearly half of the children were 5 years old or younger (46%), while teenagers comprised only slightly over a tenth of the children (12%). Children in the DHS family shelter system were younger than the NYC general population. The majority of heads of households of families with children residing in the family shelter system were black (63%).

Family composition in the NYC DHS family shelter system, 2001-2003



Children in the NYC DHS family shelter system (2001-2003) and NYC general population



In contrast to the highly mobile single adult homeless population, homeless families tend to enter the shelter system and remain there until they receive permanent housing, with an average length of stay of 309 days. For this reason, homeless family shelter use was not categorized by frequency of stay as done for the single adult population.

Summary of existing health care services for sheltered homeless residents

For many homeless single adults, entry into the shelter system is their first contact with the health care system in several years. All homeless adults entering the DHS single adult shelter system are referred to on-site health care providers for screening services that include both medical and psychiatric assessments. If a resident remains in the shelter system beyond the initial assessment period, he or she also has access to on-site medical care at about 90% of shelters. More than half of the shelters provide psychiatric services to those in need. DHS oversees the placement of new or returning single adults into the shelter system after hospitalization and ensures that they have appointments for medical follow-up and means of obtaining needed medication.

Homeless adults entering the family shelter system are more likely to already have a health care provider than are sheltered single adults. For those not in care, immediate medical services are available at most intake sites, including triage for those in need of emergency care. Once placed, shelter residents either access medical care on site or are referred to community-based medical care.

Deaths

From 2001 through 2003, there were 175,505 deaths (almost 60,000 per year) among adults in NYC. A total of 903 deaths were identified among adults who used the single adult shelter system, and an additional 267 deaths occurred among adults who used the family shelter system, for a total of 1,170 deaths (0.7% of the adult deaths in NYC).

The DHS single adult and family databases were matched to the DOHMH vital statistics mortality database, based on Social Security number, name and date of birth. These matched data were used to create death rates, which were averaged over the 3-year study period. All rates presented in this section were age adjusted, which means differences in age are accounted for in the analyses. As a result, different age distributions between homeless and non-homeless adults can no longer explain differences in observed death rates between the two groups. For some analyses, we report proportions, or percentages, instead of rates. These were not age adjusted or adjusted for population sizes; rather, they show the frequency of occurrence in each group.

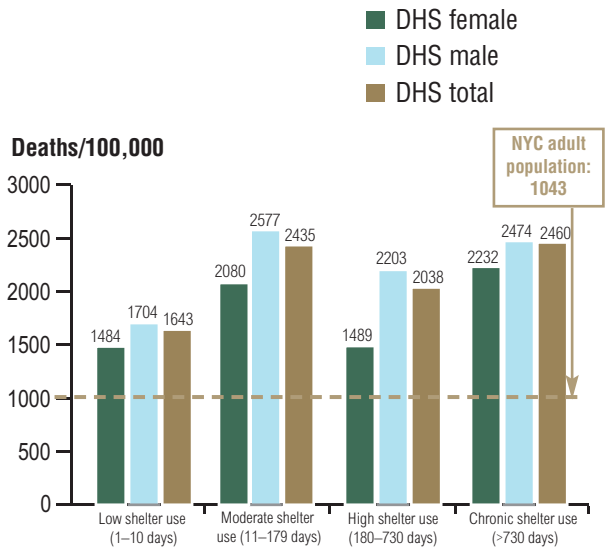
Although deaths reported here did occur among individuals who used the DHS system from 2001 through 2003, deaths did not necessarily occur during shelter stays.

DHS Single Adult Shelter System

Overview of Deaths

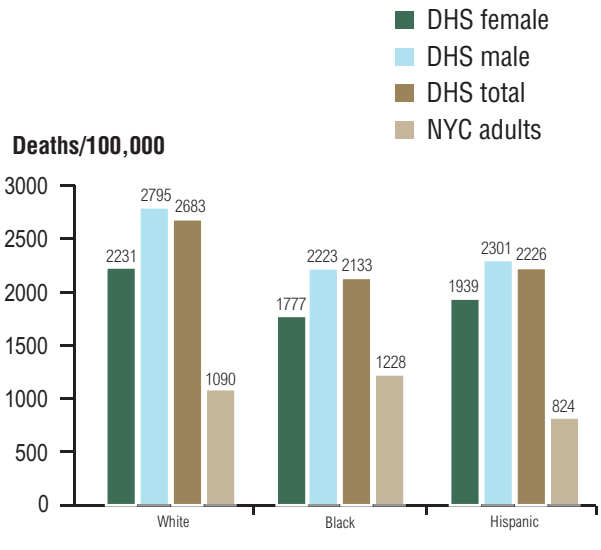
The death rate among adults who used the single adult homeless shelter system from 2001 through 2003 was 2,192 per 100,000 homeless persons (2.19%), twice that of the NYC adult population mortality rate, which was 1,043 per 100,000 population (1.04%) during the same time period. Of the 903 deaths that occurred among the single adult homeless population, 179 (20%) occurred within 30 days of the last stay in shelter; the median number of days between last shelter stay and death was 188 (about 6 months). From 2001 through 2003, average death rates were lowest among those who stayed only a few days in the shelter system (*low* shelter use), at 1,643 per 100,000. Mortality rates were highest among *chronic* (2,460 per 100,000) and *moderate* (2,435 per 100,000) shelter users. In all racial/ethnic groups, men had higher death rates than women, and both men and women had higher death rates than their respective male and female counterparts in the general adult population (data not shown).

Death rates* among adults who used DHS single adult shelters, by frequency of stay, 2001-2003



*age adusted

Death rates* among adults who used DHS single adult shelters, by race/ethnicity, 2001-2003



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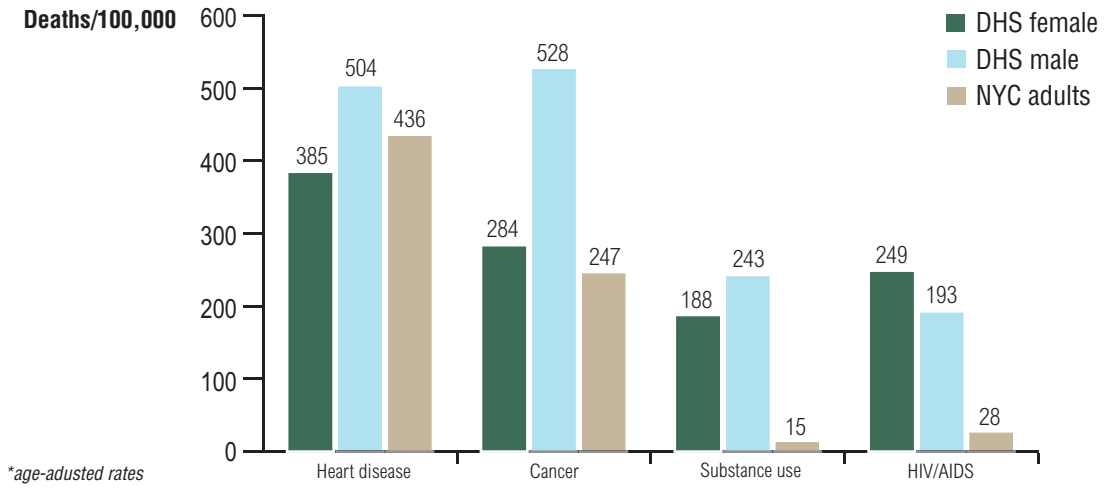
Causes of Death

Death rates show that heart disease and cancer were the leading causes of death among both male and female single adults who used the shelter system from 2001 through 2003, identical to the top 2 causes of death in the NYC adult population. Compared with the general population, however, the death rate due to cancer was more than 2 times higher among single men who used the shelter system. The leading types of cancer deaths among those who used the single adult shelters were lung, liver, and colon cancers, and the death rate due to lung cancer was twice as high among adults who used the single adult and family shelter systems (105 per 100,000) than among the NYC adult population (56 per 100,000). (Adults in the single adult and family shelters were combined due to small numbers.)

Unlike the general adult population, the third and fourth leading causes of death among those who used single adult shelters were substance use and HIV/AIDS. Among men who used the single adult shelter system, the death rate due to substance use was 16 times higher than among NYC adults. The death rate due to HIV/AIDS was 9 times higher among single adult women who used the shelters than among the NYC adult population.

Leading causes of death* among adults who used DHS single adult shelters and NYC adults, 2001-2003



While heart disease and cancer were the leading causes of death among adults who used the single adult shelter system, these conditions accounted for a much smaller proportion of death in this population than in the general adult population. Heart disease and cancer accounted for 65% of all adult deaths in the general population from 2001 through 2003, but only 32% of deaths among those who used the single adult shelter system. In contrast, substance use and HIV/AIDS accounted for 31% of deaths among single adults who used the shelters, compared with less than 5% of deaths among adults in NYC. Among women who used the single adult system, the largest proportion of deaths was due to HIV/AIDS, and among single men the largest proportion was due to substance use.

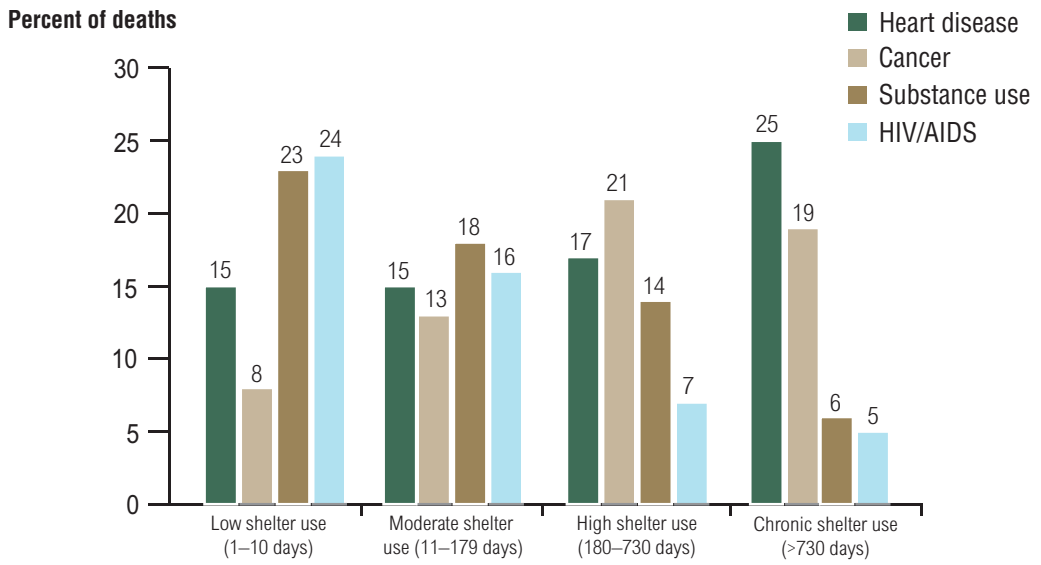
Most frequent causes of death, 2001-2003

Causes of death among adults who used the *DHS single adult shelters*				Causes of death among *NYC adults*			
Cause	Number of deaths	% of deaths	Death rates* (deaths/ 100,000)	Cause	Number of deaths	% of deaths	Death rates* (deaths/ 100,000)
Substance use	**151**	**16.7**	**231**	Heart disease	72,493	41.3	436
Heart disease	149	16.5	477	Cancer	41,411	23.6	247
Cancer	137	15.2	471	Influenza/ pneumonia	7,650	4.4	46
HIV/AIDS	**125**	**13.8**	**204**	Stroke	5,573	3.2	33
Accidents	43	4.8	**	Diabetes	5,299	3.0	32
Influenza/ pneumonia	31	3.4	**	**HIV/AIDS**	**5,105**	**2.9**	**28**
Assault	28	3.1	**	Chronic lower respiratory diseases	4,994	2.8	30
Alcohol use	27	3.0	**	Accidents	3,544	2.0	20
Viral hepatitis	26	2.9	**	**Substance use**	**2,652**	**1.5**	**15**
Suicide	26	2.9	**	Hypertension	2,210	1.3	13

*Age adjusted **Numbers were too small to age adjust among homeless population.

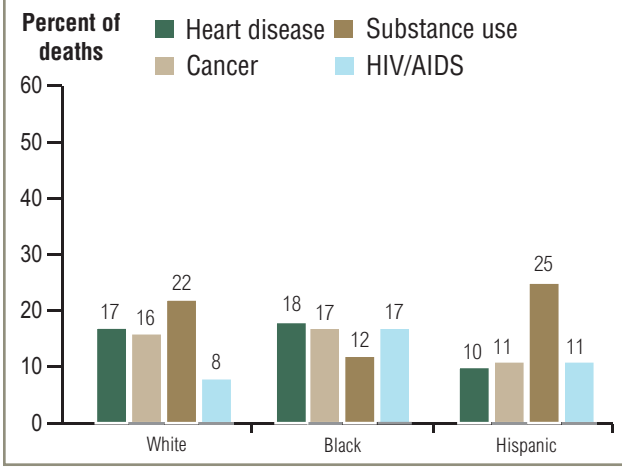
Causes of death varied with frequency of shelter use. As frequency of shelter use increased, the proportion of deaths due to substance use and HIV/AIDS decreased, and the proportion due to cancer and heart disease increased. Among single homeless adults who stayed in the system for a longer period of time (*chronic* users), 44% of deaths were due to heart disease and cancer.

Most frequent causes of death among adults who used DHS single adult shelters, by frequency of shelter use, 2001-2003

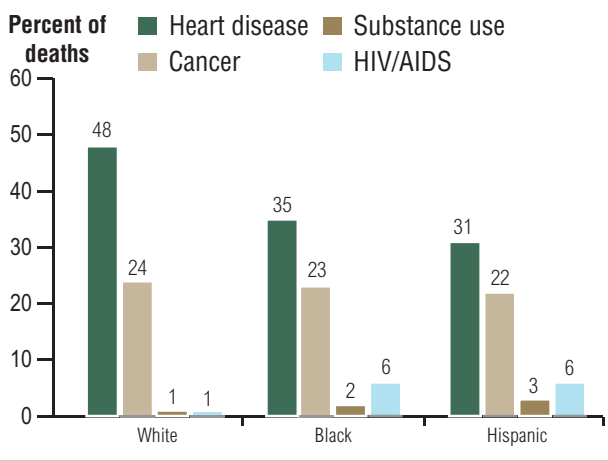


Frequency of cause-specific deaths also differed by race/ethnicity among single homeless adults. Among white and black single adults who used the shelter system, higher proportions of deaths were due to heart disease and cancer than among Hispanic adults. Black adults had the highest proportion of deaths due to HIV/AIDS and the lowest due to substance use. Hispanics had the highest proportion of deaths due to substance use, and whites had the lowest proportion of deaths from HIV/AIDS. In all racial/ethnic groups, the proportion of deaths due to substance use and HIV/AIDS was higher than in the NYC adult population.

Most frequent causes of death among adults who used *DHS single adult shelters*, 2001-2003



Corresponding causes of death among *NYC adults*, 2001-2003

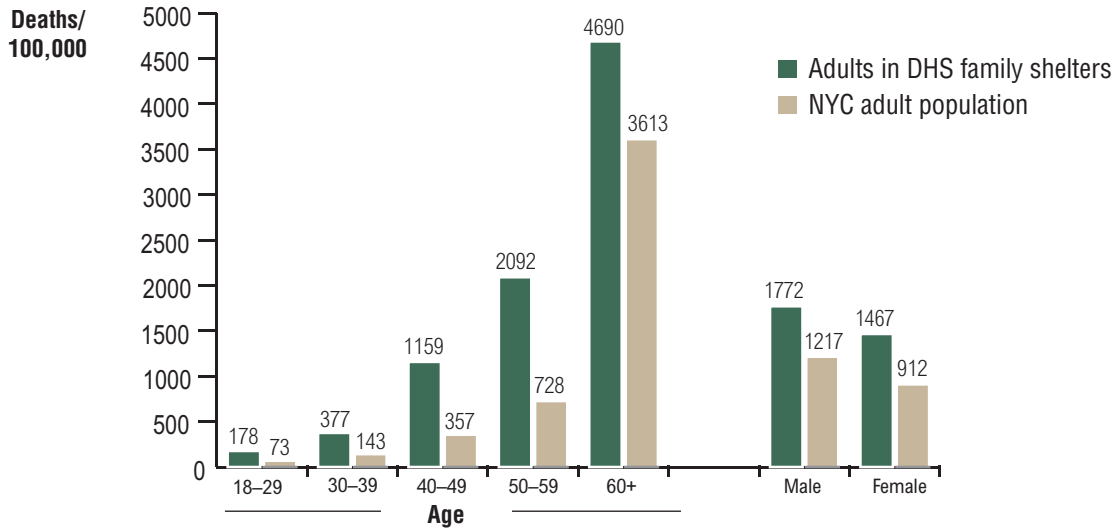


DHS Family Shelter System

Overview of Deaths

Among adults who used the family shelter system, the death rate was 1,572 per 100,000 (1.57%), compared with 1,043 per 100,0000 (1.04%) among adults in the general population. The death rate increased as age increased, and was slightly higher among males. In all age groups and in both males and females, death rates were higher among those who used the family shelter system than among NYC adults. The discrepancy was greatest among adults age 40-59.

Death rates* among adults who used DHS family shelters and NYC adults, 2001-2003

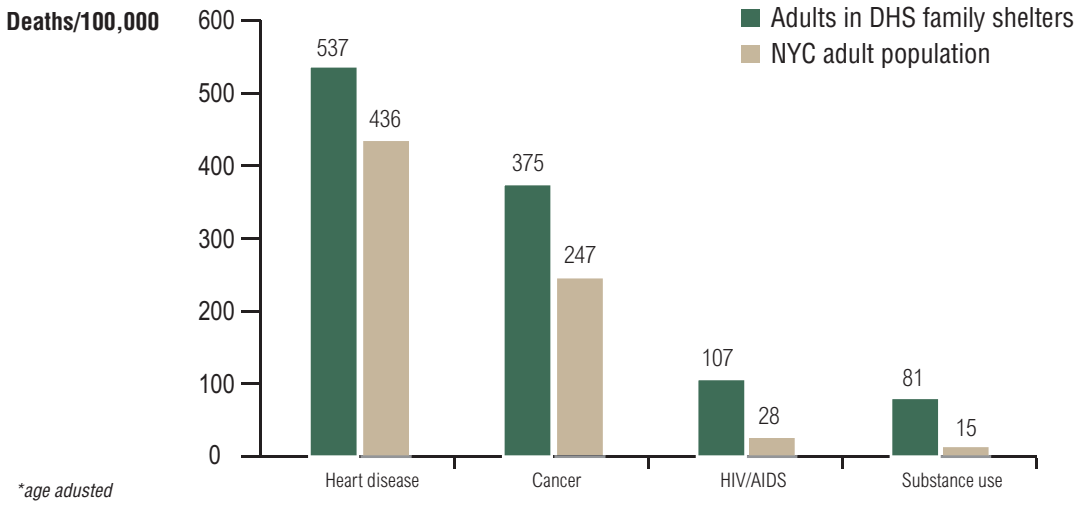


*male and female death rates are age adusted

Causes of Death

As in the single adult homeless population, the 4 leading causes of death among adults who used the family shelter system from 2001 through 2003 were heart disease, cancer, HIV/AIDS, and substance use. Compared with the NYC adult population, death rates in all 4 disease categories were higher among adults who used the family shelter system. Heart disease death rates were higher among adults who used family shelters than among those who used single adult shelters, but death rates for cancer, substance use, and HIV/AIDS were lower.

Death rates* among adults who used the DHS family shelters and NYC adults, 2001-2003

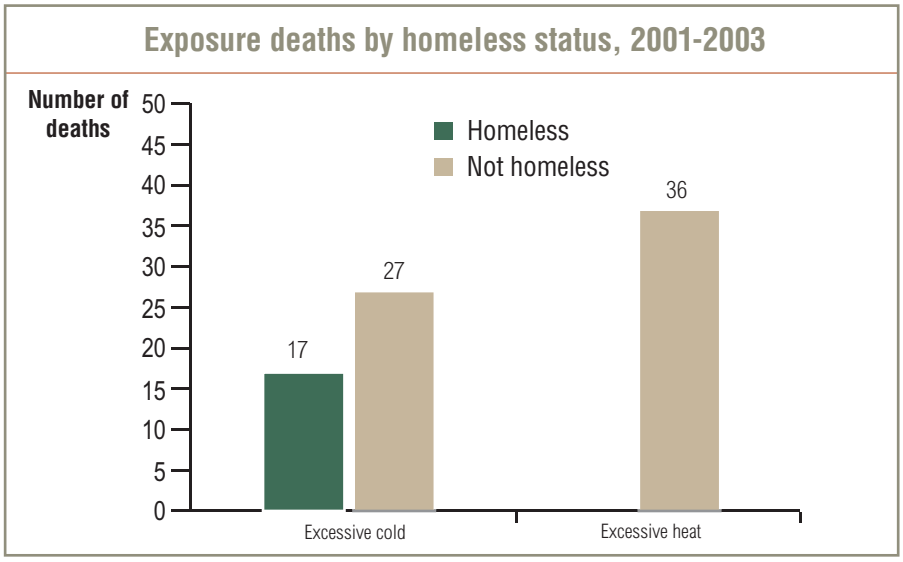


Exposure Deaths

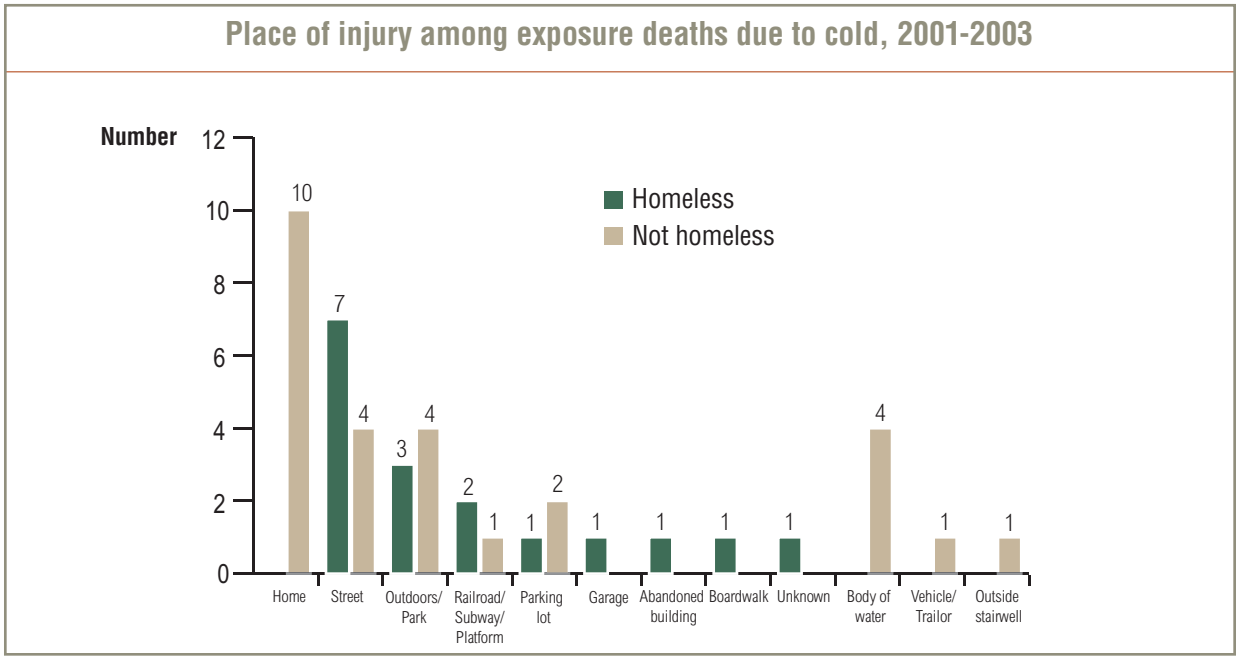
An obvious health risk for homeless individuals is excessive exposure to natural elements or extreme weather. Exposure deaths occur as a result of prolonged exposure to excessive heat or cold; they are usually preventable, and unsheltered homeless individuals are particularly at risk. For these reasons, exposure deaths are examined in detail in this report. These deaths are not defined by a specific range of temperatures, but rather as a bodily reaction to a temperature that ultimately results in death. Adults with heart disease or alcoholism may be at greater risk of dying when exposed to extreme temperatures.

Exposure deaths among the homeless were obtained through an intensive review of all exposure deaths, including death certificate documents and Medical Examiner's files (all exposure deaths in NYC must be investigated by the Medical Examiner's office). This allowed for determination of homeless status for these deaths, irrespective of shelter use (including both sheltered and unsheltered homeless). The information required to identify a person in the DHS registry (both name and date of birth), was missing for the majority of homeless exposure deaths (10 out of 17, or 59%). Among the 7 deaths where this information was available, none was found to have used a shelter from 2001 through 2003.

From 2001 through 2003, a total of 80 exposure deaths occurred in NYC. About 21% (17 of 80) occurred among homeless individuals, all due to excessive cold. Three-quarters (76%) of homeless deaths due to exposure occurred during January and February (13 out of 17), 88% occurred among males, and 88% among adults age 40 to 64.

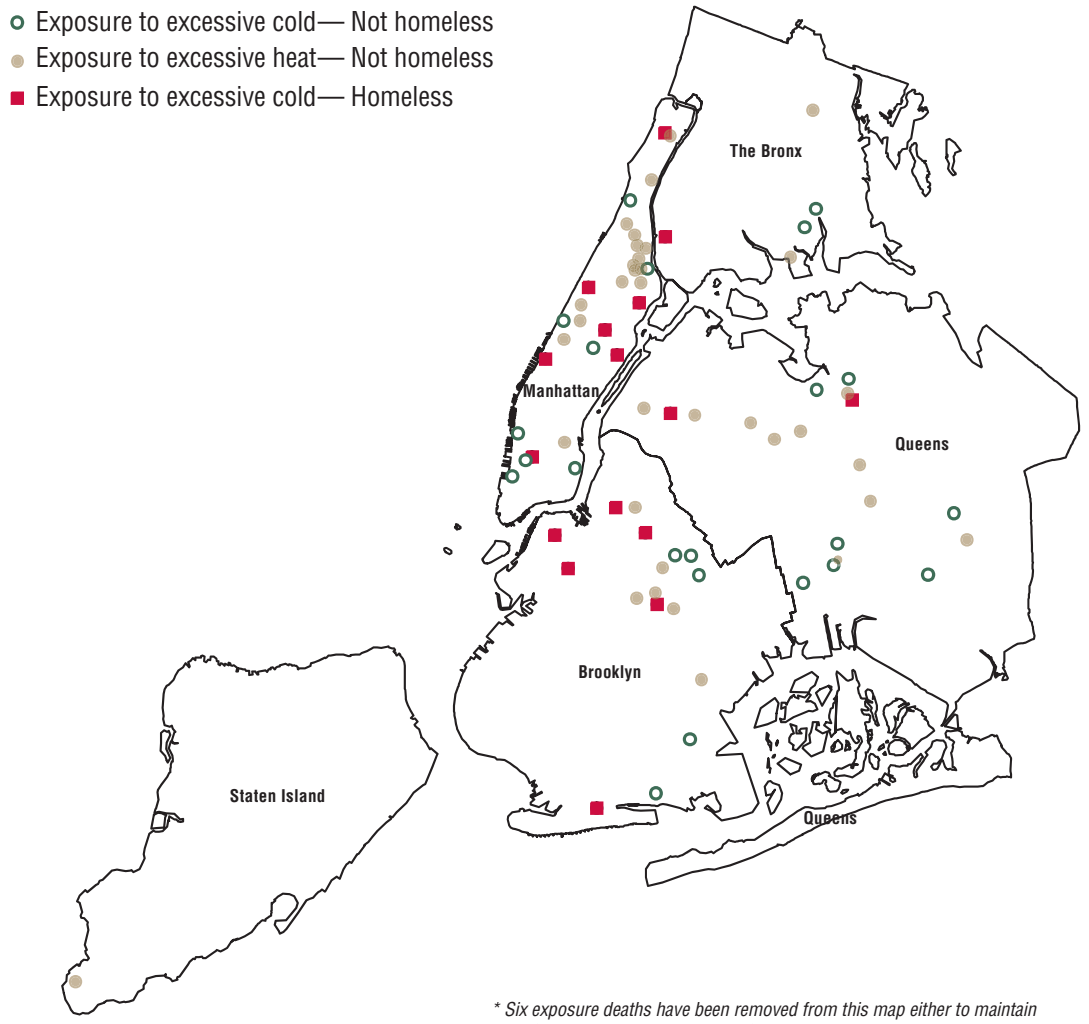


All deaths due to exposure to excessive cold among the homeless were the result of exposures that occurred outside of public or private residences, while 37% of the non-homeless exposure deaths due to cold (10 out of 27) were the result of exposures occurring inside the home. The majority of the homeless individuals who died as a result of excessive outdoor cold (59%) died in a hospital. For 9 of the 17 homeless (53%) who died from exposure to cold, alcohol/substance use was a known contributing factor, and for 6 individuals (35%) cardiovascular disease was a contributor.



The following map illustrates where exposure deaths among the homeless and non-homeless occurred from 2001 through 2003. Homeless deaths were not clustered in a single area or neighborhood. Most took place in Brooklyn and Manhattan, where there are greater numbers of unsheltered homeless adults. None occurred in Staten Island.

Exposure deaths: Place of injury among NYC homeless and non-homeless populations, 2001-2003*



** Six exposure deaths have been removed from this map either to maintain confidentiality or because place of death is unknown.*

Bureau of Vital Statistics, New York City Department of Health and Mental Hygiene

Illness

Hospitalizations

Homeless people suffer from many conditions that diminish their health but are not necessarily fatal, resulting in higher rates of illness than in the non-homeless population. A review of hospitalizations among homeless persons highlights these causes of illnesses and underscores the high occurrence of hospitalizations in this population.

The administrative hospitalization discharge database for NYC (New York State Department of Health Statewide Planning and Research Cooperative System, or SPARCS) does not contain names or Social Security numbers; thus, these data were not matched to the DHS database. SPARCS does, however, document the addresses of patients. If an address was documented as "homeless," "undomiciled," or that of a known shelter, the patient was counted in the homeless population. These data differ from those reported elsewhere in this report, as only this section and the section on exposure deaths include homeless adults who did not receive shelter services. The description of hospitalization history has one key limitation. For patients hospitalized for HIV/AIDS, no address is documented in the SPARCS system because of confidentiality concerns. Therefore, HIV-related hospitalizations were not included in these analyses for either homeless or non-homeless adults.

From 2001 through 2003, there were 2,929,031 non-HIV/AIDS hospitalizations among NYC adults. A total of 48,045 (1.6%) of these were identified as hospitalizations among homeless adults, whereas sheltered homeless adults comprise only 0.6% of the NYC adult population. The average length of stay among non-homeless adults was 7 days, and homeless adults stayed in the hospital for an average of 9 days.

More than 2 out of 3 (69%) hospitalizations among homeless adults from 2001 through 2003 were due to substance use, alcohol use, and mental illness; 10% of hospitalizations among non-homeless adults were due to these causes. Among the non-homeless adult population, the most common causes of hospitalizations were heart disease, pregnancy, and injuries. A breakdown of hospitalizations by type of shelter (single adult vs. family) was not available, as hospitalization data were not matched directly to shelter registries (see above text box on this page).

Most frequent causes of hospitalizations, NYC 2001-2003

Among homeless adults			Among non-homeless adults		
Cause	Number	Percent	Cause	Number	Percent
Substance use	**14,865**	**31%**	Heart disease	338,917	12%
Alcohol use	**11,589**	**24%**	Pregnancy related	250,997	9%
Mental illness	**6,821**	**14%**	Injuries	229,662	8%
Injuries	1,874	4%	Cancer	148,845	5%
Pregnancy related	1,724	4%	**Mental illness**	**130,775**	**5%**
Heart disease	1,045	2%	**Substance use**	**88,427**	**3%**
Diabetes	692	1%	Influenza/pneumonia	76,730	3%
Influenza/pneumonia	670	1%	**Alcohol use**	**66,622**	**2%**
Asthma	632	1%	Diabetes	59,380	2%
Bronchitis	263	<1%	Benign cancer	53,833	2%

Tuberculosis

Tuberculosis (TB) is an important health problem among homeless persons. Compared with the general population, homeless persons have a higher risk of becoming infected and developing active disease. In part, the high rate of disease may be related to the depressed immune system of a generally unhealthy population. The development of active disease also may be related to transmission within the congregate settings where the sheltered homeless sometimes live.

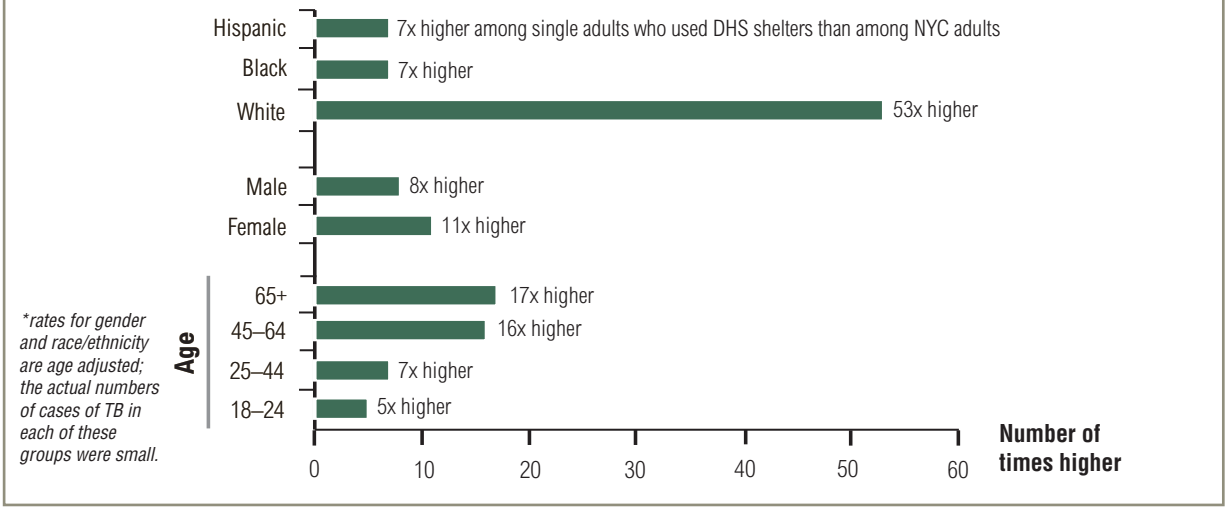
Suspected and confirmed TB cases in NYC, including housing status, are reported to DOHMH and entered into a TB registry. TB registry data from 2001 through 2003 were matched to the DHS database by Social Security number, name, and date of birth. These matched data were used to create rates of new TB diagnoses. All rates presented in this section were age adjusted and averaged over the 3-year study period. In 2003, a large outbreak of TB occurred in one of the DHS shelters; the rates presented in this section reflect the impact of that outbreak.

Despite a declining trend in TB rates over the past decade, there were 3,436 cases of TB reported in NYC from 2001 through 2003, and the rate of TB in NYC was higher than the 2003 national average (14 per 100,000 vs. 5 per 100,000). Of the 3,236 cases reported among adults citywide, 117 (3.6%) were among sheltered homeless individuals (98 among adults who used the single adult shelter system and 19 among adults who used the family shelter system).

DHS Single Adult Shelter System

The rate of TB among adults who used single adult shelters from 2001 through 2003 was 196 per 100,000, 11 times that of adults in the general public (18 per 100,000). The majority of TB cases among sheltered single homeless adults occurred among older, male, and black adults. Although the numbers of TB cases among white and female adults in the single adult shelter system were small (for example, only 14 TB cases were reported among white adults from 2001 through 2003), rates were 53 and 11 times higher in these groups than in the NYC white and female populations, respectively.

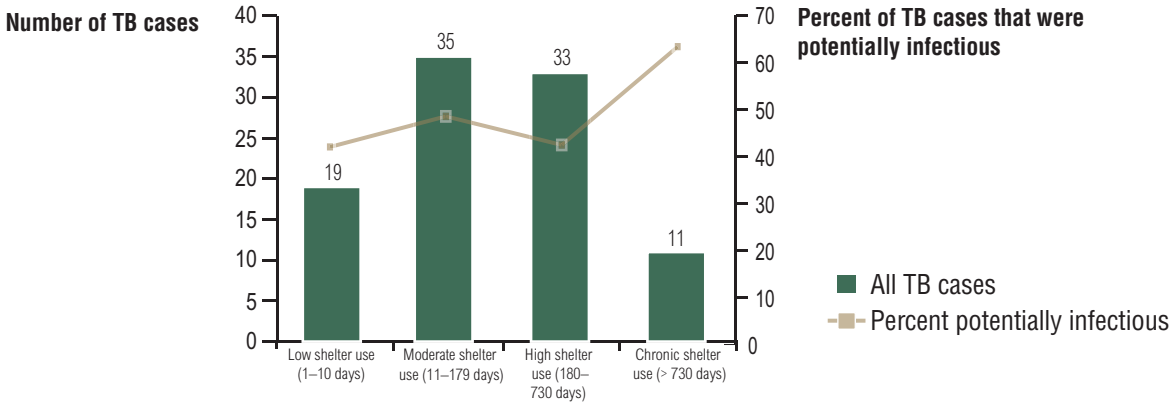
Comparison of TB rates* among adults who used DHS single adult shelters with TB rates among NYC adults, 2001-2003



*rates for gender and race/ethnicity are age adjusted; the actual numbers of cases of TB in each of these groups were small.

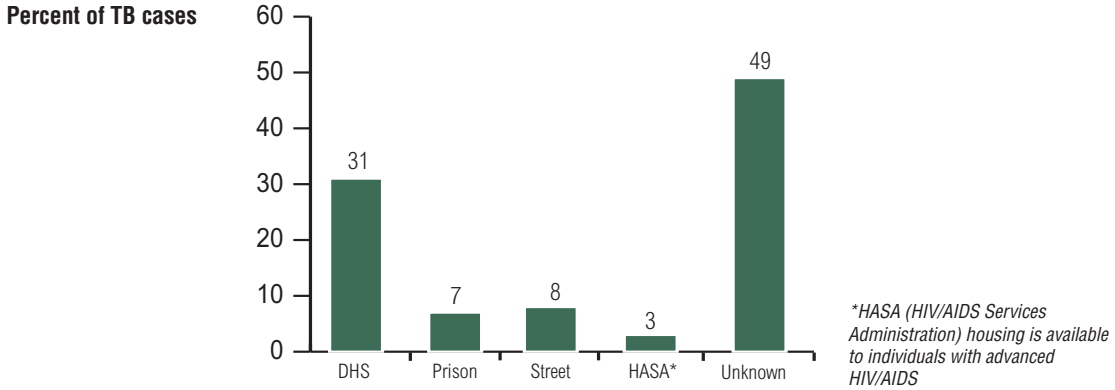
Cases of TB were highest among *moderate* and *high* users of single adult homeless shelters. Not all cases of TB, however, are infectious. Of all the TB cases in the single adult shelter system from 2001 through 2003, half (47%, or 46 cases in 3 years) were diagnosed while the person was potentially more infectious to others (respiratory smear positive for acid-fast bacilli). *Chronic* shelter users had the greatest percentage of cases that were potentially infectious (64%).

TB cases and potentially infectious cases among adults who used DHS single adult shelters, 2001-2003



Most homeless individuals with TB were not diagnosed while staying in a shelter. Only 1 in 3 was known to be living in a DHS shelter at the time of diagnosis (half of those with TB had an unknown housing status when the diagnosis was made).

Housing status at diagnosis of TB among adults who used DHS single adult shelters, 2001-2003



DHS Family Shelter System

Among adults who used the family shelter system, the rate of TB was 65 per 100,000, more than 3 times the rate among adults in the general population (18 per 100,000). Adults who used the family shelter system who were 45 to 64 years of age were 10 times more likely than the comparable NYC population to develop TB. Men and women who used the family shelter system were equally likely to have TB.

HIV/AIDS

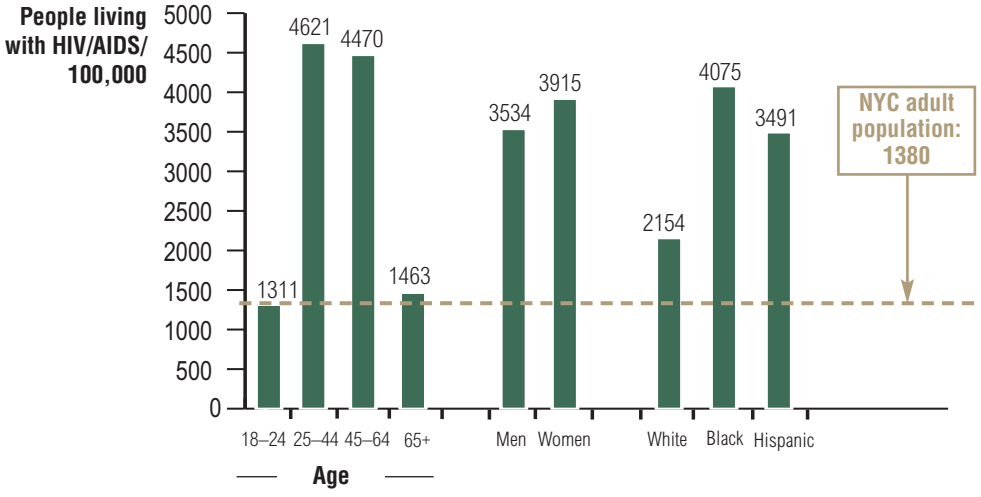
HIV/AIDS is a condition of major concern in the homeless population. From 2001 through 2003, 88,014 New Yorkers (approximately 1.1% of NYC residents) were known to be living with HIV/AIDS; 3,108 of these persons (3.5%) used the homeless shelter system for at least one night during this period. Individuals with advanced HIV infection and AIDS are eligible for separate housing, administered by the HIV/AIDS Services Administration (HASA).

All new diagnoses of HIV and AIDS are reported to the NYC and New York State Health Departments and maintained in a secure, confidential registry called the HIV/AIDS Reporting System (HARS). HARS data were matched to the registries of adults who used the single adult and family shelters by name and date of birth. These matched data were used to create rates of HIV/AIDS prevalence and new HIV diagnoses, which were age adjusted. Rates of new HIV diagnoses were averaged over the 3-year study period.

DHS Single Adult Shelter System

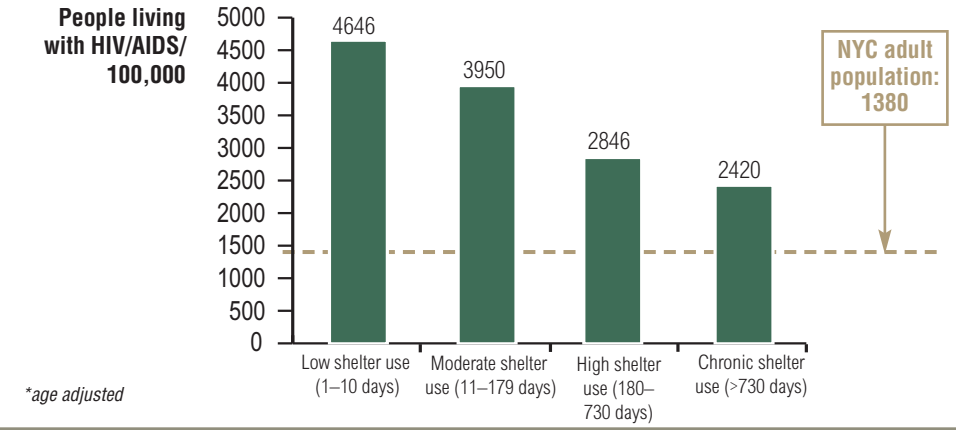
While homeless single adults represent a small proportion of total HIV/AIDS cases in NYC, the prevalence of HIV/AIDS among adults who used the single adult shelter system (3,612 per 100,000) was more than twice as high as the prevalence in the NYC adult population (1,380 per 100,000). The prevalence of HIV/AIDS was highest among adults age 25 to 64, and the prevalence of HIV/AIDS among black adults (4,075 per 100,000) was nearly twice as high as that of white adults (2,154 per 100,000).

Prevalence rates* of HIV/AIDS among adults who used DHS single adult shelters, 2001-2003



*rates for sex and race/ethnicity are age adjusted

Prevalence rates* of HIV/AIDS among adults who used DHS single adult shelters, 2001-2003

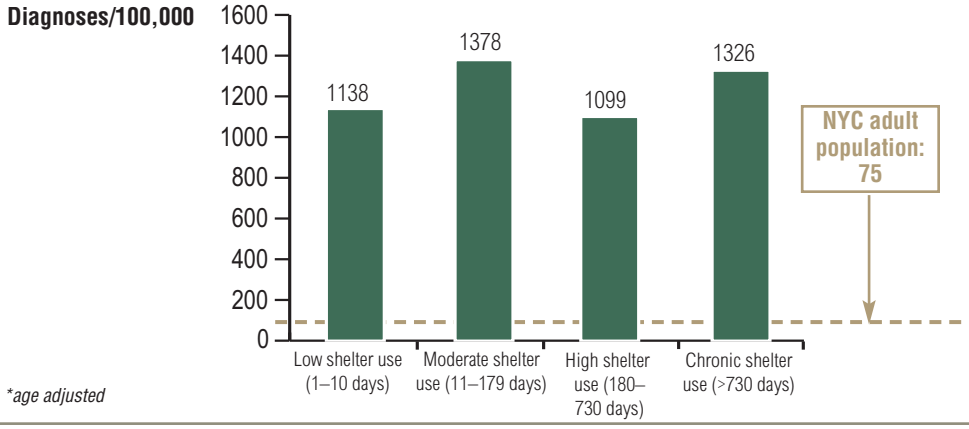


The prevalence of diagnosed HIV/AIDS decreased as the frequency of stay in the single adult shelter system increased. This could potentially be due to alternative housing options available for those with advanced disease.

Surveillance of new diagnoses of HIV is the only available way to monitor transmission trends. However, because people with HIV can live for many years before being diagnosed, a new diagnosis cannot be considered to represent a new infection.

Of the 2,296 HIV-infected adults who used the single adult shelter system from 2001 through 2003, 67% were diagnosed prior to 2001, and 33% (766 cases of HIV) were diagnosed from 2001 through 2003. The rate of new HIV diagnoses among adults who used the single adult shelter system from 2001 through 2003 was 1,241 per 100,000. This was over 16 times the rate among adults in NYC (75 per 100,000), and accounted for 5.4% of all new HIV diagnoses in NYC. Rates of new HIV diagnoses did not vary significantly with number of days of shelter use.

New HIV diagnoses rates* among adults who used DHS single adult shelters, 2001-2003



DHS Family Shelter System

The prevalence of HIV/AIDS among adults who used the DHS family shelter system was 1,846 per 100,000, compared with 1,380 per 100,000 among adults in the general population. The rate of new HIV diagnoses was 635 per 100,000, 8 times higher than among adults in NYC (75 per 100,000).

Discussion

Limitations

With the exception of the hospitalizations and exposure death analyses, this report focuses on the health of adults who spent at least one night in a DHS shelter from 2001 through 2003. As a result, data are not generalizable to homeless adults who are persistently unsheltered or those residing in alternate shelter systems that serve persons with advanced HIV and AIDS, victims of domestic violence, or individuals facing housing emergencies such as fire or flood. If the health status of homeless adults not using DHS shelters from 2001 through 2003 was worse than that of individuals who used the DHS shelters even occasionally, then rates of illness and death in this report would underestimate the health burden experienced by homeless adults. Similarly, rates presented in this report may be underestimates due to incomplete data matching, which would have misclassified homeless individuals as non-homeless. Additionally, the data presented here do not include deaths and illness of homeless persons who left NYC during the 3-year study period.

This health profile of sheltered homeless has other limitations as well. While the health of homeless families is included in this report, information on the specific health concerns of homeless children and adolescents is not presented. Additional research is needed to better elucidate the unique health problems of homeless children.

Lastly, the data presented here represent the morbidity and mortality of homeless individuals who resided in a DHS shelter for at least one day from 2001 through 2003. Most deaths, as well as TB and HIV diagnoses, occurred outside the shelter system. As a result, no inferences about causality or the effectiveness of DHS-centered interventions can be made.

Summary and Recommendations

This report, *The Health of Homeless Adults in New York City*, describes the health status of homeless adults who use the DHS shelter system. The findings document a high burden of illness and death among homeless adults in NYC and will serve as a baseline for continued monitoring of the health of this population.

Safe, affordable housing is the most important resource for improving the lives and health of homeless individuals and families. To address their health needs, we have prepared a series of recommendations to improve the health of the homeless adult population, and, where possible, identified opportunities to couple services with supportive housing. These recommendations are based on the major areas of health concern highlighted in this report. They are intended to serve as a guide to all organizations and agencies working with homeless populations. We have also identified immediate steps that DOHMH and DHS will take to improve the health of the homeless in NYC. These actions steps are outlined at the end of this report.

Heart Disease and Cancer

Heart disease and cancer are among the leading causes of homeless death, particularly among *chronically* homeless single adults. Compared with the NYC adult population, the death rate due to cancer was more than twice as high among men who used the single adult shelter system.

Recommendations

- In accordance with DOHMH's *Take Care New York* initiative, provide DOHMH-DHS sponsored trainings on medical best practices to health care providers for the homeless, and create stronger linkages with health promotion and disease prevention services in the community.
- Improve linkages to primary care for treatment and control of hypertension, high cholesterol, and diabetes.
- Improve access to cancer screening for adult shelter residents (colon cancer for men and women, and breast and cervical cancers for women).
- Provide training and resources on smoking cessation (promoting the use of nicotine replacement therapy) to all direct care providers and to cessation programs working with adults in the shelter system, as well as to shelter staff.

Hospitalizations

Homeless adults were hospitalized disproportionately in NYC and had a longer average length of stay than non-homeless adults (9 days vs. 7 days). In part, this may be due to a lack of discharge options for homeless adults, which may result in uncompensated care that is often lengthy and costly. With additional training, hospital staff can tailor important health care and housing interventions to homeless individuals while they are hospitalized.

Recommendations

- Improve hospital discharge planning and linkages to housing, substance abuse rehabilitation, and mental health treatment resources. This includes identifying and assigning community-based case managers to engage individuals in the process of becoming housed, and completing Medicaid eligibility (or renewal) forms, psychosocial assessments, and housing applications while patients are accessible and potentially more readily engaged.
- Implement pilot programs to improve health outcomes for patients with high levels of hospital utilization. These include models such as Intensive Case Management (ICM) and Assertive Community Treatment (ACT), programs supported by DOHMH that attempt to provide physical and mental health services, coupled with supportive housing.
- Increase the availability of ambulatory detoxification services, linked to ongoing care, as a safe and effective alternative to inpatient detoxification for substance abuse and dependence.

Substance Abuse and Mental Health

Substance use and mental illness are a large burden to the single adult sheltered homeless population in NYC. While 69% of hospitalizations among homeless adults were due to substance use, alcohol use, and mental illness, 10% of hospitalizations among non-homeless adults in NYC were due to these conditions. From 2001 through 2003, substance use caused more deaths among adults who used single adult shelters than any other cause.

Recommendations

- Identify high-level users of Medicaid-funded alcohol and substance abuse services (especially hospital-based detoxification treatment) and engage these individuals in ICM and rehabilitative

services coupled with supportive housing, as well as other programs to improve health outcomes and reduce homelessness.

- Provide ambulatory detoxification services, as well as follow-up treatment, to individuals who use the shelter system.
- Increase capacity of low-threshold, progressive demand housing programs, including both congregate and scatter-site, for homeless individuals with substance abuse or mental health problems.
- Increase the City's capacity for case management programs such as ACT and ICM, especially for people who use high levels of Medicaid-funded services.
- Increase use of extended stay residential drug rehabilitation programs (a form of transitional housing) for adults with histories of chronic substance abuse and multiple treatment failures; increase capacity for initial ambulatory detoxification services.
- Prioritize chronically homeless adults with substance abuse problems or mental illness for placement in existing supportive housing, with an emphasis on the "Housing First" model.
- Improve discharge planning among all agencies serving institutionalized populations, including correctional facilities, mental health institutions, substance abuse treatment facilities, and foster care.
- For homeless adults in health and mental health acute care settings, provide case finding and complete psychosocial assessments, Medicaid eligibility (or renewal) assessments, and housing applications while individuals are accessible and more readily engaged; improve engagement of these individuals in ICM and rehabilitative services coupled with supportive housing.
- Provide training on brief intervention for alcohol and drug abuse to shelter health care providers and staff, and link individuals to appropriate treatment.
- Increase access to substance abuse treatment, including buprenorphine programs for homeless individuals using heroin or other opioids.
- Increase information about and access to harm reduction programs, including syringe exchange programs.

Infectious Disease Prevention

The rates of HIV/AIDS and TB were greater among adults who used DHS shelter systems than in the NYC adult population. Among those who used the single adult shelters, the rate of new HIV diagnoses was 16 times higher, and the rate of TB was 11 times higher, than among NYC adults. Among adults who used the family shelter system, rates of HIV/AIDS, new HIV diagnoses, and TB were also higher than among adults in the general population.

Recommendations

HIV/AIDS

- Expand HIV rapid testing at DHS facilities, including facilities that serve single adult women.
- Increase HIV prevention education and resources in homeless shelters by expanding the availability of condoms and prevention information in all shelters.

- Improve identification of homeless adults with HIV/AIDS who qualify for preferential housing.
- Ensure linkage to HIV health care.

Tuberculosis

- Offer TB education for medical providers working in DHS shelters.
- Continue to assess barriers to tuberculosis screening at homeless shelters and implement methods to improve screening and treatment of latent TB infection.
- Continue to improve programs to identify, test, and treat contacts of infectious cases in the DHS shelters (contact investigations). Programs should build on models such as the DOHMH-DHS collaboration at a large men's shelter, which successfully treated large numbers of homeless men with TB infection.

Immunizations

- Provide influenza and tetanus immunizations to all sheltered homeless adults, pneumococcal immunizations to individuals with an indication, and hepatitis B immunizations when risk factors such as substance use are identified.
- Immunize shelter staff against influenza annually to help prevent spread of disease.

Exposure Deaths

From 2001 through 2003, about 1 in 5 exposure deaths occurred among the homeless, all due to excessive cold. Most homeless deaths due to exposure occurred during January and February, and among men. In more than one-third of homeless exposure deaths, coronary heart disease was a cause or contributing factor, and in more than half drug or alcohol abuse was a cause or contributing factor.

Recommendations

- Review all exposure deaths quarterly for homeless status and other risk factors (such as alcohol and drug toxicity); identify and pursue prevention opportunities where possible.
- Monitor location information for exposure deaths to determine if they take place in specific settings where homeless individuals gather regularly. Direct outreach efforts to these high-risk settings.

Conclusions

The health of the homeless population in New York City is influenced by many socio-economic factors; these factors also affect the health of non-homeless New Yorkers. Nonetheless, homeless adults described in this report experience higher levels of illness and death than those who live in the poorest neighborhoods of our City. Improving the health of the homeless requires the continuation and expansion of existing programs, as well as the implemention of new initiatives. For example, Intensive Case Management and supportive housing programs should be better coordinated in health care facilities, particularly among patients with chronic substance abuse and mental health issues. These efforts should be collaborative and coordinated through various City agencies, non-profit organizations, and advocacy groups that work with homeless individuals and families. This report provides an example of one such collaborative effort and presents recommendations that, if implemented, will improve the health and well-being of the homeless population in NYC.

Immediate Action Steps

By December 2006, DOHMH and DHS plan to:

1. Enhance medical screening and treatment options for shelter residents.

Increase HIV testing. Expand HIV rapid testing in DHS shelters, prioritizing facilities that serve single adult women. Link all persons who test positive to appropriate HIV care in the community.

Increase the identification and treatment of alcohol and drug abuse. Provide training on an evidence-based brief intervention for the identification and treatment of alcohol and substance abuse to health care providers and staff working with shelter residents, and link individuals to other appropriate treatments.

Increase the use of effective treatments for opioid use. Train medical providers working with shelter residents on the benefits of buprenorphine to treat opioid use and encourage them to prescribe buprenorphine. Provide shelter staff and medical providers with a list of substance abuse treatment programs in Health and Hospital Corporation (HHC) and voluntary hospitals that prescribe buprenorphine, and encourage them to make referrals to such facilities.

Reduce smoking. Provide free nicotine replacement therapy medications for all shelter residents who want to quit smoking. Provide training and resources on smoking cessation to all direct care providers and to cessation programs working with shelter residents.

2. Increase services for shelter residents.

Increase case management for substance users. Identify chronic substance users and engage these individuals in Intensive Case Management and rehabilitative services, coupled with supportive housing and medical care.

Increase effective use of services for mental health. Identify high users of mental health services and engage these individuals in Assertive Community Treatment programs, coupled with supportive housing and medical care.

Provide ambulatory detoxification services in up to 3 shelters. Provide clients who complete ambulatory detoxification with appropriate substance abuse treatment services, with an emphasis on placement into housing or long-term residential treatment as appropriate.

Provide assistance for pregnant first-time mothers. Offer first-time mothers at shelters serving single, pregnant women the opportunity to enroll in the Nurse Family Partnership, a case management program with an established track record in improving health and social outcomes for high-risk mothers and their infants.

Increase HIV prevention, education, and resources. Expand the provision of free condoms and information at all homeless shelters and refer patients to syringe exchange programs if appropriate.

Increase flu vaccination. Expand the availability of flu vaccines in all shelter settings and encourage vaccination among the homeless population and shelter staff.

3. Monitor progress.

Create performance indicators to track the extent to which action steps are implemented.

Analyze exposure deaths quarterly.

Technical Notes

Methodology

Matching: Individuals in the DHS and DOHMH registries were matched using Social Security number (when available), name, and date of birth. Combinations of matching identifiers and variations of the identifiers were reviewed to determine their potential match. Two individuals reviewed potential matches independently. Only individuals conducting the matches had access to identifiable data.

Study population: The study population consisted of adults who spent at least 1 night in a NYC DHS shelter from January 2001 through December 2003. Separate analyses were done for the the single adult and family shelter populations.

Rates among the homeless: To calculate rates among sheltered homeless adults, the study population was used as the denominator. Anyone in this population who had an event* over the 3-year period was included in the numerator. The numerator and denominator were each divided by 3 to calculate the average annual rate (except for rates of HIV/AIDS prevalence, which were not annualized).

$$\frac{\text{Any adult in a DHS shelter for at least 1 night (2001–2003) who had an event (2001–2003)}/3}{\text{Any adult in a DHS shelter for at least 1 night from 2001 through 2003}/3}$$

Rates among the NYC population: To calculate rates for the NYC adult population, we used the annual NYC adult population (6,068,009) as the denominator. We included any adult who had an event* from 2001 through 2003 in NYC in the numerator. We divided the numerator by 3 in order to calculate the average annual rate (except for the rate of HIV/AIDS prevalence, which was not annualized).

$$\frac{\text{Any adult who had an event in NYC from 2001 through 2003}/3}{6{,}068{,}009}$$

* An event refers to either a TB case, an HIV/AIDS case, a new HIV diagnosis or a death, depending on the data source.

Adjustments: Death rates, prevalence rates and new diagnoses rates were age adjusted and averaged over the 3-year period (except for rates of HIV/AIDS prevalence, which were not annualized). Death rates do not include deaths that occurred as a result of the Word Trade Center explosions. Age-adjusted analyses were standardized to the year 2000 projected U.S. population. Most percentages and rates have been rounded to the nearest whole number.

Race/ethnicity: Individuals classified as black or white were identified as non-Hispanic.

Data source for NYC demographic data: U.S. Census 2000/NYC Department of City Planning.

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Please call 311, visit nyc.gov/health or nyc.gov/dhs, or e-mail homeless@health.nyc.gov.

Thomas R. Frieden, MD, MPH
Commissioner of Health and Mental Hygiene

Linda Gibbs
Commissioner of Homeless Services

Division of Epidemiology
Lorna Thorpe, PhD

Division of Policy and Planning
Maryanne Schretzman, DSW

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