

## Survey findings on characteristics and health status of clients treated by the federally funded (US) Health Care for the Homeless Programs

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### Abstract

For almost two decades, the US Health Care for the Homeless (HCH) Program has funded clinics across the country for homeless populations. Between October and December 2003, for the first time ever, a nationally representative sample of the almost 200 HCH clinics with a response rate of approximately 71% (the HCH User Visit Survey) was created to examine the health status of its users ( $n = 1017$ ). This study employed the HCH User Visit Survey's cross-sectional data set to evaluate health indicators of individuals using HCH Services with the US population, and compare individuals who reported they routinely used HCH clinics ('usual' HCH users) to those who did not ('non-usual' users). HCH users had poorer health status than the US population (44.0% versus 12.3%, respectively). Usual HCH users had similar healthcare status compared to non-usual users, but were more likely to be uninsured, non-English speakers, and walking or taking public transportation to their medical appointments. Usual versus non-usual HCH users were also more apt to have slept in cars, buses or on the streets in the week prior to the survey (14.8% versus 4.3%, respectively). This study shows that the HCH clinics are serving homeless individuals who have a variety of complex health and psychosocial needs, and its most frequent users are those who experience the most barriers accessing care.

**Keywords:** chronic diseases, community health, homeless, service utilization

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### Introduction

Individuals and families who are homeless or unstably housed are sicker and die faster than those who are housed. The impact of housing as a determinant of health cannot be overstated. The realities of homelessness contribute to poor health, and poor health may lead to and sustain homelessness when individuals are unable to afford or obtain access to preventive care. Living on the streets or in shelters deleteriously affects health: lack of adequate and reliable nutrition and hygiene, exposure to violence, proximity to contagious diseases and general lack of a safe place to rest or recuperate are all responsible for poor health outcomes and premature mortality. International literature demonstrates the persistent relationship between lack of housing and mortality, and data from cities around the world reveal homeless adults have mortality rates three to four times

the housed population (Hwang 2000, Babidge *et al.* 2001, Nordentoft & Wandall-Holm 2003, Ohsaka *et al.* 2003). Equally consistent are data showing homeless people suffer from higher morbidity than the general population, both from routine conditions (Burt *et al.* 1999b, Condon *et al.* 2001) and much rarer diseases as HIV, hepatitis and tuberculosis (Van Laere & Buster 2001, Haddad *et al.* 2005).

Although disproportionately more studies have focused on mental health, substance use and risky sexual behaviours of the homeless population, there is evidence that homeless individuals also suffer from chronic medical conditions at higher rates than their housed counterparts (Brickner *et al.* 1986). A nationally representative sample of homeless clients collected in 1996 found that 46% of participants reported one or more chronic health conditions (Burt *et al.* 1999b). An even higher prevalence rate of chronic conditions (54.8%)

was obtained by a study conducted a year later using a sample of newly homeless adults in two US east coast cities (O'Toole *et al.* 2007). The samples used in these studies were designed to represent the general homeless population, and not necessarily the health status of clients served by the federally funded Health Care for the Homeless (HCH) clinics.

### HCH model of care

In 1984, largely in response to community advocates and concern over a growing homeless population, the Robert Wood Johnson Foundation and Pew Charitable Trusts launched a 4-year, \$18 million, national demonstration project called 'HCH' to establish healthcare sites for homeless and unstably housed individuals in 19 US cities (McMurray-Avila 2001).

Recipients of these grants developed an HCH model of care that provided multidisciplinary teams of professionals and services tailored to the multifarious, complex needs of their target population. Teams including medical care providers, mental health and substance use specialists and social work and case management staff not only helped clients address immediate healthcare needs but also with access to critical preventive health resources like housing, food, employment and transportation. The HCH model of care incorporated outreach as an essential service. Rather than expect individuals who were unable or reluctant to seek out needed health care and other services, outreach workers went wherever homeless clients lived, including on the streets and under bridges, in emergency shelters or abandoned buildings. The HCH demonstration program eventually was subsumed by federal funding through the Stewart B. McKinney Homeless Assistance Act, Public Law 100-77, which was enacted to sustain the original 19 sites and expand the number of clinic sites nationwide (US Congress – House of Representatives 1987).

Under the Health Resources and Services Administration (HRSA), the number of HCH clinics has grown considerably in the past two decades; currently, more than 700 000 men, women and children receive health care and other services from 192 HCH clinic sites each year (US Department of Health and Human Services/HRSA/Bureau of Primary Health Care 2006). Many of these HCH clinics deliver care as stand-alone facilities, while others are embedded within community or migrant health centres, in public health departments, hospitals, coalitions or community-based organizations.

Despite the growth of the federally funded HCH Program, it was not until 2003 that a study with a nationally representative sample of HCH users was completed, finally enabling a better understanding of the individuals receiving HCH clinic services. This

paper uses those data to examine the healthcare status of HCH clinic users compared to the US population, and measure if there are differences in health status between self-identified 'usual' HCH clinic users (i.e. those who responded 'yes' to the question: Is the HCH Health Center the place that you usually go when you are sick or you need advice about your health?) from 'non-usual' users. Because HCH clinics target the most underserved communities and individuals, we hypothesize that: (1) adults served by HCH clinics will exhibit poorer health status than the US population; (2) HCH clinics are serving individuals with multiple, complex psychosocial and health needs; and (3) 'usual' users who rely most heavily on HCH clinics will exhibit even greater psychosocial and health vulnerability than 'non-usual' users.

### Methods

This study analyses HCH User/Visit Survey data (HCH Users Survey) collected by Research Triangle International (RTI) (Greene *et al.* 2004). Although the data consist of client interviews and medical record abstractions, this study only analyses client interviews.

#### Study design of HCH Users Survey

The HCH Users Survey is a cross-sectional data set created to represent clients using HCH-funded clinics (i.e. the target population). A three-stage sampling design was used to create the sampling frame. The first stage of the design identified the population of HCH clinics through the listing in the 2001 Uniform Data System. After excluding sites that had been in operation less than a year, the first stage of the sampling frame contained 131 HCH clinics.

The second stage stratified the 131 HCH clinics by US geographical regions (i.e. north-east, south, midwest, west), and selected 30 HCH clinics using a Probability Proportional to Size sampling scheme for each geographical region.

The third and final stage of the sampling design consisted of identifying participants from each clinic. Because each HCH clinic's operation differed, a customised procedure compatible with each clinic site was created. Between October and December 2003, the study enrolled a consecutive sample containing every client who entered the site and agreed to participate with a maximum of 33 clients per HCH clinic. The RTI Institutional Review Board-approved consents were completed prior to administration of the interview. Upon completion of the interview, each participant received an incentive of \$20 cash or gift certificate. To ensure adequate representation of clients of the HCH

Program, the goal was to enrol 1000 study participants. A total of 1444 individuals were approached to participate in the study.

### Instrument

The face-to-face interview averaged 45 minutes. Many questions were modelled after interviews created for another federally funded study (also designed by RTI). Three survey methodologists reviewed the interview questionnaire to ensure the survey items were clear, unbiased in their presentation and valid. A team of experts and officials from the Bureau of Primary Health Care were assembled to review the interview and further assess its comprehensiveness and validity (Greene *et al.* 2004).

Questions focused on demographic characteristics, health conditions, health risk behaviors, services and satisfaction with services. In addition, patient satisfaction was measured using a scale containing five questions: (1) the HCH health center staff talks to you in a way you can understand; (2) the HCH staff gives you enough time and privacy to ask questions; (3) the HCH staff treats you with respect; (4) you feel comfortable telling your doctor about your worries; and (5) your doctor at the HCH center knows about your health problems. The response to each question was coded on a categorical scale ranging from 1 (always) to 5 (never).

Interviewers underwent training to increase response reliability. Spanish-speaking interviewers with bilingual certification, and Spanish versions of the consent and interview, were available.

### Weights and analyses

All analyses, such as chi-square tests for independence and Student's *t*-tests, were conducted using SAS version 9.1.3, SUDAAN and the RTI-recommended weights. SUDAAN was employed to adjust the variability of point estimates in this multi-stage study design. Weights were developed by RTI and incorporated three components: (1) the initial sampling weight; (2) an adjustment for non-response; and (3) an adjustment for post-stratification (Greene *et al.* 2004). The post-stratification adjustment was calibrated using generalised exponential modelling techniques developed at RTI (Folsom & Singh 2000). All frequencies in this study were weighted, and sample sizes were unweighted.

To illustrate the differences in health status between homeless individuals and individuals living in the general US population, we compare health problem and utilization rates found in the HCH Users Survey with those tabulated in representative US population samples (CDC 2006, 2007, Pleis & Lethbridge-Çejku

2006, Substance Abuse and Mental Health Services Administration 2006). Analyses were made between individuals who were usual HCH clinic users versus non-usual users based on their response to: 'Is the HCH Health Center the place that you usually go when you are sick or you need advice about your health?' Comparisons between usual and non-usual users were made using chi-square tests for categorical variables, and Student's *t*-tests with means, standard deviations (SDs), degrees of freedom (d.f.) and *P* values for continuous variables. Significance was declared at  $P < 0.05$ .

### Results

Of the 1444 individuals approached, 11 were ineligible using an a priori eligibility screen to ensure all participants had received services at least once over the past 12 months. Of the remaining 1433, a total of 416 individuals either refused to be interviewed or broke off the interview prior to completion. The remaining 1017 individuals completed the interview; consequently, the response rate was 70.4% of all individuals approached and 71% of eligible individuals.

#### Hypothesis 1: adults served by HCH clinics will exhibit poorer health status than the US population

To examine differences in health status and morbidity rates between adults served by HCH clinics and the US population, we analysed the HCH Users Survey data ( $n = 1017$ ) and compared them to several data sources generalizable to the US population ( $n = 290\,796\,023$ ) (see Table 1). Almost twice as many individuals in the US population compared to the HCH clinics obtained preventive care such as physical examinations in the past year or dental examinations in the past 2 years. Similarly, more than two times the number of individuals in the US population rated their health status as excellent or very good compared to individuals using HCH sites. Higher prevalence rates of asthma, diabetes, hypertension, cerebral vascular accident (stroke), AIDS/HIV, tuberculosis, substance abuse and mental health problems were found among individuals using HCH sites compared to the general US population. Only for two indicators, cancer and heart disease, were prevalence rates higher in the general US population compared to the HCH clinic sample.

#### Hypothesis 2: HCH clinics are serving individuals with multiple, complex psychosocial and health needs

To address this hypothesis, we examined the HCH Users Survey sample ( $n = 1017$ ). In this sample, more

**Table 1** Comparison of health status, utilization and problems: Health Care for the Homeless (HCH) clinic users and the US population

Demographic characteristics	HCH* ( <i>n</i> = 1017) %	US population ( <i>n</i> = 290 796 023)† %
Health status		
Excellent/Very good	28.2	61.6‡
Good	27.8	26.1
Fair/Poor	44.0	12.3
Last physical examination		
In the past year (year)	41.7	82.8‡
> 1 year ago	52.4	16.2
Never	5.9	1.0
Last dental examination		
6 months–2 years ago	39.7	75.4‡
> 2 years ago	56.7	23.5
Never	3.6	1.0
Medical conditions		
Asthma	28.5	10.7‡
Diabetes	9.0	7.5‡
Hypertension	29.3	22.4‡
Cancer	0.3	7.4‡
Cerebral vascular accident (stroke)	2.9	2.4‡
Heart disease or attack	4.0	6.5‡
AIDS/HIV	3.5	0.006§
Tuberculosis	3.1	0.0004¶
Substance abuse	11.3	Past mo – 7.6**
Mental health problem	40.5	Past mo – 6.9¶

\* Percentages were weighted for HCH data.

† Population Division – US Census Bureau 2006.

‡ Pleis & Lethbridge-Çejku 2006.

§ CDC 2006.

¶ CDC 2007.

\*\* Substance Abuse and Mental Health Services Administration 2006.

than half were males, two-fifths were females and two individuals self-identified as transgenders (see Table 2). Less than one-tenth (*n* = 107) had a child with them at the time of interview. Two-thirds of the sample (*n* = 676) were between the age of 20 and 50. Approximately one-third self-identified as African American (*n* = 413), one-third as white (*n* = 346), one-fifth as Latino (*n* = 194) and less than 5% as American Indian/Alaskan (*n* = 59) or Asian (*n* = 5). More than three-quarters (*n* = 868) were English speakers, and more than half (*n* = 582) had a high school diploma or equivalent. Less than one-tenth (*n* = 119) had been in active military service. The majority had no health insurance and had either walked or taken a public bus or outreach van to their healthcare appointment.

We also examined homeless histories (see Table 3). In the 7 days prior to the interview, almost a fifth of respondents had lived in a doubled-up situation, a quarter had been in emergency shelters, a third had lived in transitional housing and almost a tenth had lived in either a foster or group home, or on the streets. Three-quarters reported having no permanent

housing for more than 30 days at some point in their lives; one-quarter had spent more than a year being homeless.

Next, we examined HCH Users' health status, service utilization and health problems. More than two-fifths of respondents reported their health status was fair or poor (see Table 4). In the year prior to the interview, two-fifths had received a physical examination, more than a third had a flu shot and a fifth had a pneumonia shot. Two-fifths reported having a dental examination within the previous 2 years. When examining preventive care measures specific to age and/or gender, half of adults aged 40 or older had a proctoscopic examination, and more than half of men aged 18 or older reported having a testicular examination. Nearly all women aged 18 or older reported having had a pap smear. Similarly, almost nine-tenths of women aged 30 or older had received a mammogram.

Many individuals reported morbidity (see Table 4). More than a quarter of respondents have asthma or hypertension, and two-fifths reported mental health problems.

**Table 2** Comparison of demographic characteristics between usual versus non-usual Health Care for the Homeless (HCH) clinic users

Demographic characteristics	Total sample ( <i>n</i> = 1017) %	HCH clinic	
		Usual users ( <i>n</i> = 799) % ( <i>n</i> )	Non-usual users ( <i>n</i> = 218) % ( <i>n</i> )
Gender			
Female	42.1	42.2 (302)	41.6 (96)
Male	57.3	57.4 (496)	56.8 (121)
Transgender	0.6	0.4 (1)	1.6 (1)
Living with a child	9.2	8.8 (71)	10.7 (36)
Age (years)			
< 19	13.6	14.0 (45)	11.9 (13)
20–50	69.0	67.8 (522)	73.4 (154)
51+	17.4	18.0 (232)	14.7 (51)
Ethnicity**			
African American	38.3	33.9 (287)	55.3 (126)
Latino	20.5	24.1 (176)	6.6 (18)
American Indian/Alaskan	4.5	5.3 (53)	1.5 (6)
Asian	0.2	0.2 (4)	0.1 (1)
White†	36.5	36.5 (279)	36.5 (67)
Language***			
English	86.3	86.2 (673)	86.7 (195)
Spanish	7.0	8.6 (92)	0.6 (4)
Other	6.7	5.2 (34)	12.7 (19)
HS diploma or GED	57.4	55.0 (451)	66.7 (131)
Never married	90.2	89.5 (733)	92.9 (201)
Veterans – once active	6.6	8.1 (86)	3.4 (33)
Insurance*			
Medicaid	23.3	22.4 (170)	27.0 (70)
Medicare	3.8	3.5 (26)	5.0 (9)
Other government insurance	15.3	15.3 (111)	15.3 (34)
Private	0.3	0.3 (6)	3.1 (1)
Other	2.9	2.7 (486)	3.7 (104)
None	54.5	55.9 (454)	48.9 (92)
Transportation Used***			
Walks	41.9	45.9 (333)	26.4 (54)
Public bus/outreach van	17.5	18.5 (177)	13.8 (32)
Received ride	8.6	10.0 (79)	3.3 (10)
Drove self/other	32.0	25.7 (210)	56.5 (122)

\*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$ .

† Four individuals were marked as other.

Percentages are weighted; numbers are unweighted.

### Hypothesis 3: ‘usual’ users who rely most heavily on HCH clinics will exhibit even greater psychosocial and health vulnerability than ‘non-usual’ users

To test this hypothesis, comparisons were made between individuals who reported that the HCH clinic was ‘the place that [they] usually go to when [they] are sick’ and those who did not. Almost four-fifths ( $n = 799$ ) reported that the HCH site was their usual source of care (see Table 2). Differences in demographic characteristics were found between usual and non-usual users. Usual compared to non-usual users were more likely to be Latino (24.1% versus 6.6%) or American Indian/Alaskan (5.3% versus 1.5%, across all ethnic categories  $P = 0.002$ ), Spanish speaking (8.6% versus 0.6%,  $P < 0.001$ ) and

uninsured (55.9% versus 48.9%,  $P = 0.024$ ). They were also more likely than non-usual users to have walked to their healthcare appointment (45.9% versus 26.4%) or received a ride (10.0% versus 3.3%,  $P = 0.001$ ).

Differences were also found between usual and non-usual users’ living situations (see Table 3). Usual users were less apt than non-usual users to have stayed in an emergency shelter (23.0% versus 48.5%,  $P = 0.024$ ), but more likely to have spent a night in a car or bus (4.9% versus 1.3%,  $P = 0.006$ ) or on the streets (9.9% versus 3.0%,  $P = 0.003$ ) during the week prior to the interview.

The only statistically significant difference between usual and non-usual users on preventive measures was report of having had a physical examination within



**Table 3** Comparison of homeless characteristics between usual versus non-usual Health Care for the Homeless (HCH) clinic users

Comparison of homeless characteristics	Total sample ( <i>n</i> = 1017) %	HCH clinic	
		Usual users ( <i>n</i> = 799) % ( <i>n</i> )	Non-usual users ( <i>n</i> = 218) % ( <i>n</i> )
Overnight stay in the past 7 days			
Doubled-up	16.6	18.1 (162)	10.7 (31)
Emergency shelter*	28.2	23.0 (181)	48.5 (100)
Transitional housing	36.4	37.5 (257)	31.9 (57)
Foster or group home	7.4	8.7 (48)	1.9 (1)
Permanent housing	0.4	0.4 (3)	0.4 (2)
Paid for motel	3.4	3.6 (31)	2.7 (9)
Car or bus**	4.1	4.9 (34)	1.3 (4)
Streets**	8.5	9.9 (86)	3.0 (10)
Ever no housing for more than 30 days	77.7	79.4 (626)	71.3 (156)
Chronic homelessness (> 365 days or more)	24.8	26.5 (187)	19.8 (42)

\*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$ .

Percentages are weighted; numbers are unweighted.

the past year (40.1% versus 48.0%,  $P = 0.010$ ), but there were no significant differences in health problems between usual and non-usual users (see Table 4).

Finally, we made comparisons on patient satisfaction between usual and non-usual users with the aforementioned five-question scale (see Methods section). The response to each question was coded on a scale ranging from 1 (always) to 5 (never). A total satisfaction score was the sum of the five questions and ranged from 5 to 25, with a lower score reflecting higher satisfaction. The mean score was 6.6 (SD = 0.2), and usual compared to non-usual users demonstrated significantly higher satisfaction (mean = 6.2, SD = 0.2 versus mean = 7.7, SD = 0.4;  $t$ -test = -5.36, d.f. = 258 adjusted by Satterthwaite method for unequal variances;  $P < 0.001$ ) (not shown in tables).

## Discussion

Homeless adults exhibit much higher prevalence rates in many health problems when compared to the general population. In the USA, only 12.3% of the general population reported their health status as fair/poor (CDC 2002), compared to 44.0% of homeless people using the HCH clinics. Homeless individuals are also far less likely to receive regular exams because of healthcare access barriers and competing priorities for survival. Living without a stable home is responsible for these poor preventive health outcomes (Wright 1990, Gelberg *et al.* 2000).

HCH clinics strive to treat the most at-risk clients, and provide a model of care characterised by flexibility and multidisciplinary approaches uniquely designed to do so (McMurray-Avila 2001, McCary & O'Connell 2005, O'Connell *et al.* 2005). A recent study found 12.6%

of newly homeless adults in two urban centres reported going to an HCH clinic as their first stop to obtain assistance (O'Toole *et al.* 2007). This study indicates that the HCH clinics are not only addressing chronic and complex health needs of those who have been homeless for varying periods of time, but also those of varying ages, ethnicities/races, educational levels and family structures.

Much homelessness research has documented high illness prevalence rates in this population, but national samples remain rare (Wright 1990, Burt *et al.* 1999a, Zuvekas 2002). The most recent nationwide sample of homeless adults (National Survey of Homeless Assistance and Providers and Clients), conducted in 1996, indicated that 46% of those receiving a variety of different homeless services reported a chronic illness (at least one of the following: arthritis or rheumatism, high blood pressure, anaemia, liver problems, diabetes, heart disease or stroke, HIV/AIDS or cancer) (Burt *et al.* 1999a). The HCH Users Survey sample revealed even higher rates of chronic disease (71.8%), but it is important to note that the HCH Users sample used a more extensive list of chronic diseases and was collected solely from HCH clinic sites.

Many homeless adults have difficulty gaining access to healthcare services and consequently receive little or fragmented health care. Lacking a regular source of health care, many use costly hospital services and emergency rooms (Padgett *et al.* 1990, Gallagher *et al.* 1997, Gelberg *et al.* 2000). Having a usual source of health care has important implications, including reduction in the occurrence and complications of untreated chronic health problems, decreased reliance on the emergency room for health care and a greater likelihood that they will receive preventive health care and consistent

**Table 4** Comparison of health status, utilization and problems between usual versus non-usual Health Care for the Homeless (HCH) clinic users

Demographic characteristics	Total sample ( <i>n</i> = 1017) %	HCH clinic	
		Usual users ( <i>n</i> = 799) % ( <i>n</i> )	Non-usual users ( <i>n</i> = 218) % ( <i>n</i> )
Health status			
Excellent	9.8	8.4 (51)	15.6 (27)
Very good	18.4	17.8 (123)	20.6 (40)
Good	27.8	27.5 (207)	29.2 (63)
Fair	34.6	36.5 (309)	27.2 (65)
Poor	9.4	9.8 (109)	7.5 (23)
Preventive health measures			
Last physical exam**			
In the past year (year)	41.7	40.1 (267)	48.0 (72)
> 1 year ago	52.4	52.7 (407)	51.5 (118)
Never	5.9	7.3 (47)	0.5 (3)
Flu shot past year	36.5	37.1 (294)	33.7 (58)
Pneumonia shot past year	20.0	18.1 (152)	27.6 (39)
Last dental exam			
6 months–2 years ago	39.7	40.2 (309)	37.8 (75)
> 2 years ago	56.7	56.1 (417)	58.8 (121)
Never	3.6	3.6 (20)	3.4 (6)
Had a proctoscopic exam for all ≥ 40 years ( <i>n</i> = 602)	50.4	51.5 (252)	45.6 (53)
Had a testicular exam for men ≥ 18 years ( <i>n</i> = 387)	58.3	57.1 (186)	63.4 (42)
Had a pap smear for women ≥ 18 years ( <i>n</i> = 350)	96.1	96.5 (261)	94.4 (76)
Had a mammogram for women ≥ 30 years ( <i>n</i> = 286)	87.0	86.9 (204)	87.3 (53)
Medical conditions			
Any of the below chronic health problems (may have more than one)	71.8	73.6 (559)	65.2 (143)
Asthma	28.5	30.3 (198)	21.4 (49)
Diabetes	9.0	9.9 (115)	5.6 (20)
Hypertension	29.3	29.0 (178)	30.4 (83)
Cancer	0.3	0.4 (2)	0
Hepatitis	0.4	0.5 (8)	0.1 (1)
Chronic obstructive pulmonary disease or emphysema	0.1	0.1 (2)	0.3 (1)
Cerebral vascular accident	2.9	2.9 (29)	2.9 (9)
Heart disease or attack	4.0	3.7 (47)	5.2 (16)
Liver cirrhosis	0.1	0.2 (2)	0
AIDS/HIV	3.5	3.9 (27)	1.8 (6)
Tuberculosis	3.1	3.4 (27)	1.6 (7)
Substance abuse problem	11.3	10.8 (69)	13.4 (17)
Mental health problem	40.5	41.2 (303)	37.7 (88)

\*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$ .

Percentages are weighted; numbers are unweighted.

follow-up. The fact that all of the HCH users, especially the usual users, are highly satisfied with their health centre and its providers, indicates an increased likelihood that they will return for needed services.

The HCH clinics explicitly strive to address the complex physical, mental and social needs of homeless and under-housed individuals; through outreach, they serve those who otherwise would not seek healthcare services. These data clearly indicate they are reaching these hard-to-reach individuals: one-quarter of clients have spent over a year of lives being homeless, over half

have no health insurance and nearly three-quarters have at least one chronic health condition. Given the extreme poverty these individuals are experiencing, our findings, while unnerving, are not surprising (Kushel *et al.* 2001).

Individuals who rely on the HCH clinics as their usual source of care are even more vulnerable. HCH usual users are less apt to have health insurance, including Medicaid or Medicare, than non-usual users. Although HCH clinics strive to help their clients obtain insurance, many remain ineligible according to current

guidelines (Post 2001). Although all individuals in the HCH Users Survey sample were homeless or underhoused, usual compared to non-usual users reported more tenuous circumstances. For example, usual users were more apt to have stayed in an automobile or on the streets, and less likely to be housed in a shelter. They were also more likely to have reached the clinic by foot, outreach van, public bus or a ride from another person.

Most demographic characteristics between usual and non-usual users were comparable, although Latinos and Spanish speakers were much more apt to report HCH as their usual source of care. This information contradicts another study's finding that Latinos were less likely to have a regular source of care (Gallagher *et al.* 1997). Perhaps this is evidence that 'safety-net' providers such as HCH clinics are effective at tailoring their clinical treatment and healthcare delivery to their clients (O'Malley *et al.* 2005, Taylor *et al.* 2006).

This study's limitations include its self-reported data and cross-sectional design. Still, this study provides the first comparison of health status between the general and homeless population using HCH clinics.

## Conclusions

Not surprisingly, the homeless population exhibits higher rates of morbidity than the general population. However, this first-time-ever data set representing clients who use the HCH clinics demonstrated that usual clinic clients, compared to others, are at much higher risk for morbidity based on where they sleep, mode of transportation, lack of health insurance and inability to speak English. Consequently, this study indicates that HCH clinics are meeting their federal mandate – to serve high-risk homeless individuals with complex health and social needs.

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## References

- Babidge N., Buhrich N. & Butler T. (2001) Mortality among homeless people with schizophrenia in Sydney, Australia – a 10 years follow-up. *Acta Psychiatrica Scandinavica* **103**, 105–110.
- Brickner P.W., Scanlan B.C. & Conanan B.E.A. (1986) Homeless persons and health care. *Annals of International Medicine* **104**, 405–409.
- Burt M.R., Aron L.Y., Douglas T., Valente J., Lee E. & Iwen B. (1999a) *Homelessness: Programs and the People They Serve – Technical Report*. Urban Institute, Washington, DC.
- Burt M.R., Aron L.Y., Douglas T., Valente J., Lee E. & Iwen B. (1999b) *Homelessness: Programs and the People They Serve: Findings of the National Survey of Homeless Assistance Providers and Clients*. Urban Institute, Washington, DC.
- Centers for Disease Control and Prevention (CDC) (2002) *Percentages of Person Whose Health Status was Assessed as 'Poor'* [WWW document]. URL <http://www.cdc.gov/nchs/data/nhis/measure11.pdf>
- Centers for Disease Control and Prevention (CDC) (2006) Epidemiology of HIV/AIDS – United States, 1981–2005. *MMWR* **55** (21), 589–592.
- Centers for Disease Control and Prevention (CDC) (2007) Trends in tuberculosis incidence – United States, 2006. *MMWR* **56** (11), 245–250.
- Condon M., Holohan T., Hyland C., *et al.* (2001) *The Health and Dental Needs of Homeless People in Dublin*. Northern Area Health Board, Dublin, Ireland.
- Folsom R. & Singh A. (2000) *The Generalized Exponential Model for Sampling Weight Calibration for Extreme Values, Nonresponse, and Poststratification*. Research Triangle Institute (RTI), Research Triangle Park, NC.
- Gallagher T.C., Andersen R.M., Koegel P. & Gelberg L. (1997) Determinants of regular source of care among homeless adults in Los Angeles. *Medical Care* **35**, 814–830.
- Gelberg L., Andersen R.M. & Leake B.D. (2000) The behavioral model for vulnerable populations: application to medical care use and outcomes for homeless people. *Health Services Research* **34**, 1273–1302.
- Greene J., Byron M. & Fahrney K. (2004) *Health Care for the Homeless User/Visit Surveys – RTI Project Number 07147.021*. RTI International, Research Triangle Park, NC.
- Haddad M., Wilson T., Ijak K., Marks S. & Moore M. (2005) Tuberculosis and homelessness in the United States, 1994–2003. *Journal of the American Medical Association* **293**, 2762–2766.
- Hwang S.W. (2000) Mortality among men using homeless shelters in Toronto, Ontario. *Journal of the American Medical Association* **283**, 2152–2157.
- Kushel M.B., Vittinghoff E. & Haas J.S. (2001) Factors associated with the health care utilization of homeless persons. *Journal of the American Medical Association* **285**, 200–206.
- McCary J.M. & O'Connell J.J. (2005) Health, housing, and the heart: cardiovascular disparities in homeless people. *Circulation* **111**, 2555–2556.
- McMurray-Avila M. (2001) *Organizing Health Services for Homeless People: A Practical Guide*. National Health Care for the Homeless Council, Nashville, TN.
- Nordentoft M. & Wandall-Holm N. (2003) Ten year follow-up study of mortality among users of hostels for homeless people in Copenhagen. *British Medical Journal* **327**, 81.
- O'Connell J.J., Mattison S., Judge C.M., Allen J.S. & Koh H.K. (2005) A public health approach to reducing morbidity and mortality among homeless people in Boston. *Journal of Public Health Management Practice* **11**, 311–316.
- Ohsaka T., Sakai Y., Kuroda K. & Matoba R. (2003) A survey of deaths of homeless people in Osaka City. *Nippon Koshu Eisei Zasshi* **50**, 686–696.
- O'Malley A.S., Forrest C.B., Politzer R.M., Wulu J.T. & Shi L. (2005) Health center trends, 1994–2001: what do they portend for the federal growth initiative. *Health Affairs* **24**, 465–471.



- O'Toole T.P., Conde-Martel A., Gibbon J.L., Hanusa B.H., Freyder P.J. & Fine M.J. (2007) Where do people go when they first become homeless? A survey of homeless adults in the USA. *Health and Social Care in the Community* **15**, 446–453.
- Padgett D., Struening E. & Andrews H. (1990) Factors affecting the use of medical, mental health, alcohol, and drug treatment services by homeless adults. *Medical Care* **28**, 805–821.
- Pleis J. & Lethbridge-Çejku M. (2006) Summary health statistics for US adults: National Health Interview Survey, 2005. *Vital and Health Statistics* **10** (232), 196–248.
- Population Division – US Census Bureau (2006) *Table 1: annual estimates of the population of the United States, regions, and states and for Puerto Rico: April 1, 2000 to July 1, 2006 (NST-EST2006-01)*. [WWW document]. URL <http://www.census.gov/popest/states/tables/NST-EST2006-01>
- Post P. (2001) *Casualties of Complexity: Why Eligible Homeless People are not Enrolled in Medicaid*. National Health Care for the Homeless Council, Nashville, TN.
- Substance Abuse and Mental Health Services Administration (2006) Results from the 2005 National Survey on drug use and health: national findings. In: Office of Applied Studies (Ed.) *NSDUH Series H-30, Publication no. SMA 06-4194*, pp. 65–76. Department of Health and Human Services, Rockville, MD.
- Taylor E.F., Cunningham P. & McKenzie K. (2006) Community approaches to providing care for the uninsured. *Health Affairs* **25**, w173–w182.
- US Congress – House of Representatives (1987) *Stewart B. McKinney Homeless Assistance Act*. Conference Report to Accompany H.R. 588. P.L. 100-77. 100th Congress – 1st Session ed.
- US Department of Health and Human Services/HRSA/Bureau of Primary Health Care (2006) *HCH Successes. Health Care for the Homeless Information*. Resource Center. [WWW document]. URL [http://bphc.hrsa.gov/hchirc/about/prog\\_successes.htm](http://bphc.hrsa.gov/hchirc/about/prog_successes.htm)
- Van Laere I. & Buster M. (2001) Health problems of homeless people attending the outreach primary care surgeries in Amsterdam. *Nederlands Tijdschrift Voor Geneeskunde* **145**, 1156–1160.
- Wright J.D. (1990) Poor people, poor health: the health status of the homeless. *Journal of Social Issues* **46**, 49–64.
- Zuvekas A. (2002) *Measuring Farmworkers and Homeless Persons Experiences in Community Health Centers*. National Association of Community Health Centers, Washington, DC.