Poverty and Health

A Crisis among America's Most Vulnerable

Volume 1

Risks and Challenges

Kevin M. Fitzpatrick, Editor

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These volumes are dedicated to the millions of Americans who are underserved and overlooked. Their daily struggles are my inspiration to be a catalyst for change.

Contents

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Chapter 6

Homelessness and Health: Key Themes from Three Decades of Research

Travis P. Baggett and Darlene M. Jenkins

Introduction

Although there has always been homelessness in the United States, a confluence of economic, political, and social circumstances brought about major increases in the size and visibility of the U.S. homeless population in the 1980s (Institute of Medicine, 1988). In 1987, the Stewart B. McKinney Homeless Assistance Act defined a homeless person as someone who "lacks a fixed, regular and adequate nighttime residence" and who lives in a shelter or a place not designed for human habitation (U.S. Code, 1987). Using data from the 1996 National Survey of Homeless Assistance Providers and Clients, researchers at the Urban Institute estimated that 2.3 to 3.5 million people experience homelessness annually in the United States (Burt, Aron, Lee, & Valente, 2001). The U.S. Department of Housing and Urban Development (2011) reported that more than 649,000 people across the nation used homeless shelters on a given night in 2010. While single middle-aged men have historically accounted for the largest segment of the homeless population, upticks in unemployment and housing foreclosures during the recent economic recession helped fuel historic increases in the number of homeless families, composed primarily of young women and their children (National Coalition for the Homeless, July 2009; National Coalition for the Homeless et al., 2009; U.S. Conference of Mayors, 2009; U.S. Department of Housing and Urban Development, 2011). Despite these demographic shifts, homelessness in the United States persistently and disproportionately affects people of color (Ahmed & Toro, 2004).

Homelessness is an extreme case of abject poverty characterized by a unique and devastating blend of physical displacement, social isolation, and constant exposure to environmental threats. Over the past three decades, health care providers and public health professionals have witnessed firsthand the adverse health effects of homelessness. As the homeless population grew in size and outstripped the thin resources in place to assist it, hospitals and emergency departments became the de facto stopgap in managing the medical fallout of this social epidemic. This experience gave rise to a body of literature describing the health of homeless persons and, to a lesser extent, interventions to improve it. In this chapter, we summarize the key themes that have emerged from this body of work, with focus on (1) the health characteristics of homeless individuals, (2) health care access and utilization among homeless people, and (3) health outcomes of housing interventions targeting certain homeless subgroups. We aim to demonstrate that the distinctly harsh circumstances of homelessness confer health risks that extend beyond the effects of poverty alone to create a setting where disease is commonplace and premature death is the rule rather than the exception.

The Health Characteristics of Homeless Individuals

General Health

The relationship between homelessness and poor health is bidirectional (Institute of Medicine, 1988). Certain health conditions, such as substance use and mental illness, may heighten a person's susceptibility to homelessness. Conversely, homelessness can cause or exacerbate poor health through exposure to the hazards of violence, poor nutrition, substandard living conditions, and communicable diseases. When asked, most homeless individuals will mention concerns about their feet, teeth, or eyesight as their top health priorities (Levy & O'Connell, 2004), speaking to the centrality of physical mobility, nutrition, and vision to daily survival on the streets. However, a large body of evidence has demonstrated that the health problems of homeless people extend far beyond these domains of immediate concern. Indeed, homeless individuals have very high rates of medical, addictive, and psychiatric disorders, often exceeding the corresponding rates seen in nonhomeless populations. This situation is complicated by the fact that managing these illnesses is generally difficult when a patient lacks a home. As a result, more than 40% of homeless clinic patients rate their health as only fair or poor (Greene, Fahrney, & Byron, 2004). The following conditions illustrate the breadth and depth of the health problems seen in this population.

Tuberculosis and Other Lung Infections

Homelessness is a risk factor for tuberculosis infection (Chin et al., 1998), and this risk increases with greater time spent homeless and living in crowded circumstances (Gelberg, Panarites, et al., 1997; McAdam, Brickner, Scharer, Crocco, & Duff, 1990; Moss et al., 2000; Zolopa et al., 1994). In 1984–1885, Boston experienced an unprecedented outbreak of drug-resistant tuberculosis in three large homeless shelters (Bernardo et al., 1985). By 1988, the case rate of active tuberculosis among homeless persons in Boston was 10-fold higher than in the general population of the city (McAdam, Brickner, Scharer, Groth, et al., 1990). In 1994–2003, there were 11,369 reported cases of active tuberculosis in homeless persons in the United States (Haddad, Wilson, Ijaz, Marks, & Moore, 2005); this group accounted for 6.1–6.7% of all tuberculosis cases in the country despite the fact that homeless people made up a much smaller fraction of the total U.S. population. Of 91 homeless persons with active tuberculosis in Toronto in 1998–2007, many presented with advanced disease and 19% died within 12 months of diagnosis (Khan et al., 2011). The management of tuberculosis infection in homeless populations presents a unique public health challenge, as adherence to drug therapy is crucial and yet often difficult to achieve in this setting. However, approaches that employ cash incentives and directly observed therapy appear to be effective in this population (Haddad et al., 2005; Tulsky et al., 2004; Tulsky et al., 2000).

While the rates of tuberculosis are disproportionately high among homeless people, other bacterial and viral infections of the respiratory tract are far more common overall (Amarasingham, Spalding, & Anderson, 2001; O'Connell, 1991). These illnesses account for a substantial number of health care visits in this population (Sachs-Ericsson, Wise, Debrody, & Paniucki, 1999) and contribute to significantly higher rates of death due to pneumonia and influenza in comparison to nonhomeless persons (Hwang, Orav, O'Connell, Lebow, & Brennan, 1997; Hwang, Wilkins, Tjepkema, O'Campo, & Dunn, 2009).

HIV, Viral Hepatitis, and Sexually Transmitted Infections

The prevalence of HIV disease in homeless individuals is estimated to be 3–10.5% (Burt et al., 1999; Greene et al., 2004; Klinkenberg et al., 2003; Robertson et al., 2004), although prevalence estimates exceeding 60% were reported in certain high-risk subgroups of homeless individuals during the peak of the HIV epidemic (Torres, Mani, Altholz, & Brickner, 1990). In a 1988–1993 study of mortality among homeless adults in Boston, HIV accounted for 18% of all deaths and was the leading cause of death among individuals 25–44 years of age, occurring at rates two- to five-fold higher than in the general population (Hwang et al., 1997). In the 1990s, the management of HIV disease in homeless populations posed a number of ethical dilemmas brought about by concerns regarding adherence with complex medication regimens, treatment failure, and the risk for breeding viral resistance (Bangsberg, Tulsky, Hecht, & Moss, 1997). Some of these concerns were mitigated by studies showing that a substantial proportion of HIV-infected homeless and marginally housed individuals had good adherence to HIV treatment (Bangsberg et al., 2000). In Boston, the epidemic of deaths due to HIV among homeless individuals prompted the development of a multidisciplinary team-based model of HIV care tailored for homeless individuals (O'Connell et al., 2010). The simplification of HIV medication regimens in ensuing years has also facilitated treatment in this population. In addition to these medically-oriented management approaches, more recent evidence has suggested that supportive housing may confer a lower risk of mortality among homeless people with HIV (Schwarcz et al., 2009). In a Chicago-based randomized controlled trial of permanent supportive housing and intensive case management as compared to usual care for homeless persons with HIV, participants randomized to the housing intervention had significantly better control of their HIV disease at one year following the intervention (Buchanan, Kee, Sadowski, & Garcia, 2009).

The estimated prevalence of hepatitis C virus infection in homeless persons is 22–42% (Desai, Rosenheck, & Agnello, 2003; Nyamathi et al., 2002; Strehlow et al., 2012), as compared to 1.6% in the general population (Armstrong et al., 2006). Hepatitis B virus infection, although less common than hepatitis C, is also seen in disproportionately high rates among homeless persons (Cheung, Hanson, Maganti, Keeffe, & Matsui, 2002; Gelberg et al., 2001; Klinkenberg et al., 2003). The high prevalence of viral hepatitis, coupled with the heavy burden of alcohol abuse in this population, contributes to rates of death from cirrhosis and chronic liver diseases that are substantially higher than in the general population (Hwang et al., 1997; Hwang et al., 2009).

Sexually transmitted infections also occur with increased frequency among homeless persons, particularly those who in engage in survival sex and other high-risk sexual practices (Greene, Ennett, & Ringwalt, 1999). Among 203 homeless people who underwent interviews and physical examinations in Baltimore missions, shelters, and jails, 8% of men and 11% of women had laboratory evidence of gonorrhea or syphilis infection, and nearly one third reported a history of sexually transmitted infections (Breakey et al., 1989).

Skin and Foot Conditions

Infectious and noninfectious skin problems, particularly those involving the feet and legs, are pervasive in the setting of homelessness and are frequently cited reasons for treatment-seeking among homeless individuals (Gelberg, Linn, Usatine, & Smith, 1990). Scabies and lice infestations are perhaps the most distinctive skin conditions associated with homelessness, being more common in overcrowded and substandard living conditions (Moy & Sanchez, 1992). Body lice preferentially reside on the inner seams of clothing, where they leave periodically to feed on the human host (Williams & May, 2004). In a study of 930 homeless clinic patients in France, 22% had scratching lesions suggestive of body lice infestation (Brouqui et al., 2005). In addition to causing bothersome skin itching, body lice are vectors for *Bartonella quintana*, a bacterial microorganism that can cause "urban trench fever" and serious bloodstream infections involving the heart valves (Brouqui, Lascola, Roux, & Raoult, 1999; Foucault, Barrau, Brouqui, & Raoult, 2002; Ohl & Spach, 2000; Spach et al., 1995).

Scabies is a skin infestation syndrome caused by the *Sarcoptes scabiei* mite. It is typically transmitted through close contact with infested individuals, clothing, or bedding. Mites burrow into human skin and lay eggs, causing an inflammatory reaction and severe itching that is frequently worse at night or after showering (Green, 1985; May, 2004). Repetitive scratching can cause breaks in the skin that are easily inoculated with bacteria, leading to additional skin infections.

Another infestation encountered in the setting of homelessness is caused by *Cimex lectularis*, commonly known as bedbugs. These insects feed on the human host at nighttime and typically reside in the seams, cracks, and crevices of bedroom furniture by day (Goddard & deShazo, 2009). While there is no compelling evidence that they transmit human diseases (Goddard & deShazo, 2009), bedbug bites can be uncomfortable and distressing. In a 2003 survey of homeless shelters in Toronto, 20 of 65 facilities reported past or current bedbug infestations (Hwang, Svoboda, De Jong, Kabasele, & Gogosis, 2005). Because of the fastidious nature of these insects and the resources required to exterminate them, bedbug infestations can present a significant financial burden for affected facilities, with the Toronto study reporting a mean cost of $3,085 per affected shelter (Hwang, Svoboda, et al., 2005).

Cellulitis, a bacterial infection of the skin and soft tissue, is also common among homeless individuals (Noble, Scott, Cavicci, & Robinson, 1985). The congregate living circumstances of shelter life also heighten the risk of skin infections involving methicillin-resistant *Staphylococcus aureus* (Cohen, 2007; Elston, 2007; Gilbert et al., 2006), a highly virulent microbe that causes abscesses and other complications.

Fungal skin diseases, particularly those involving the feet, are the most prevalent skin infections in homeless persons. In a study of homeless men who used a shelter-based clinic in Boston, 38% were found to have tinea pedis (foot fungus or "athlete's foot") and 16% had onychomycosis (toenail fungus) (Stratigos et al., 1999).

Venous stasis disease is a common cause of chronic noninfectious lower-extremity skin problems in the setting of homelessness, fostered by conditions requiring individuals to spend large amounts of time on their feet or with their feet in a downward position (Brickner et al., 1986; McBride & Mulcare, 1985). The ambulatory lifestyle of homelessness also confers a high risk of painful corns and calluses, which were the most common foot conditions seen among homeless individuals in one study (Jones, 1990).

Although less common, exposure-related skin conditions such as frostbite and immersion foot (also known as "trench foot") account for a number of skin complications in this population (Jones, 1990; Wrenn, 1990, 1991). Frostbite occurs when skin tissue freezes (Wrenn, 1990), whereas immersion foot is characterized by painful waterlogging of the skin in chronically moist conditions (Wrenn, 1991). Although these conditions are rarely fatal, they may herald an underlying level of vulnerability that predicts a higher likelihood of death. An analysis of homeless adults in Boston found that individuals with a history of frostbite, trench foot, or hypothermia had eightfold higher odds of death during the study period (Hwang et al., 1998).

Recognizing the centrality of skin concerns involving the feet among homeless persons, the Boston Health Care for the Homeless Program operates a foot soak clinic at a drop-in center in downtown Boston. Nurses and other health workers provide basic foot care, including skin cleansing and application of antifungal creams, coupled with education around foot hygiene. For many guests, this is the only time they may feel comfortable removing their shoes, as those persons living in shelters often sleep with their shoes on to prevent them from being stolen. This service not only meets a basic need for many individuals, but also promotes human dignity and is an effective way to establish a trusting relationship with individuals who otherwise may be difficult to engage in care.

Musculoskeletal Conditions, Chronic Pain, and Impaired Physical Functioning

One in four respondents to the 1996 National Survey of Homeless Assistance Providers and Clients reported a chronic joint problem, which was the most commonly cited chronic health condition among the 10 assessed in that survey (Burt et al., 1999). In a Baltimore study of homeless persons, 38% of men and 45% of women were found to have a musculoskeletal condition on interview and physical examination (Breakey et al., 1989). These conditions contribute to a high prevalence of chronic pain syndromes involving the back, knees, shoulders, and feet (Hwang et al., 2011). More than one third of homeless individuals with chronic pain report that their symptoms are highly disabling and severely limiting, and this is compounded by the stressors of shelter life, financial difficulty affording certain treatments, and poor sleeping conditions (Hwang et al., 2011). Additionally, clinicians serving this population report having inadequate access to specialty and nonpharmacologic care options and express discomfort in managing pain in the context of addiction (Elder et al., 2011).

In addition to chronic pain syndromes, other impairments in physical functioning are very common among homeless persons. In a shelter-based sample of homeless adults aged 50 years and older in Boston, about one third reported difficulty performing at least one activity of daily living, and more than half had fallen in the prior year (Brown, Kiely, Bharel, & Mitchell, 2011). In a community-based sample of homeless adults in Los Angeles, 46% of those younger than age 50 reported that they were limited in their ability to engage in vigorous activities and 40% reported they were limited in the type or amount of work they could perform; these figures rose to 69% and 70%, respectively, among adults 50 years and older (Gelberg, Linn, & Mayer-Oakes, 1990). In the older-adult sample, 23% had objectively confirmed hearing impairment (Gelberg, Linn, & Mayer-Oakes, 1990). In a different community-based study of homeless people in Los Angeles, nearly 40% were found to have functional vision impairment (Gelberg, Andersen, & Leake, 2000). In addition to affecting quality of life and daily functioning, such sensory impairments may limit a person's access to various types of needed health care services (Baggett, O'Connell, Singer, & Rigotti, 2010).

Dental Problems

Dental problems are pervasive in homeless populations, and dental care is one of the most frequently cited health needs of homeless persons (King & Gibson, 2003). In a nationwide survey of homeless veterans, 60% rated their oral health as fair or poor and 68% reported that they were in need of dental care (Gibson et al., 2003). In a Baltimore study, about two thirds of homeless individuals were found to have an orodental problem, half were noted to have missing teeth, and one third had obvious dental caries (Breakey et al., 1989). In a sample of homeless adults who used a shelter-based dental program in Boston, untreated dental caries were found in 91% of those examined (Kaste & Bolden, 1995). In a community-based study in Los Angeles, the average number of grossly decayed teeth was significantly higher in homeless participants than in nonhomeless persons (Gelberg, Linn, & Rosenberg, 1988). Despite their immense need for dental services, more than 40% of homeless individuals report difficulty obtaining dental care in the prior year (Baggett et al., 2010).

Cardiovascular Diseases

Coronary artery disease, high blood pressure, high cholesterol, and diabetes do not appear to be more prevalent among homeless individuals than in nonhomeless populations; however, when they are present, these diseases are often more poorly controlled or more advanced in the setting of homelessness (Lee et al., 2005). Hypertension is among the most common chronic conditions encountered in homeless persons, with a self-reported prevalence of 29–41% and objectively elevated blood pressure readings found in 14–35% of this population (Baggett & Rigotti, 2010; Gelberg et al., 2000; Gelberg & Linn, 1989; Gelberg, Linn, Usatine, et al., 1990; Lee et al., 2005). More problematic is the finding that only one third of homeless people noted to have elevated blood pressure readings on exam were aware of having hypertension and only 17% were taking blood pressure medications (Lee et al., 2005).

The self-reported prevalence of diabetes among homeless persons is 5–9% (Burt et al., 1999; Lee et al., 2005; Zlotnick & Zerger, 2009). A study of homeless diabetics in Toronto highlighted the myriad challenges to managing diabetes in the context of homelessness (Hwang & Bugeja, 2000). Dietary concerns were the most commonly reported barrier, including inappropriate food served at shelters and the inability to make dietary choices. Difficulty coordinating medication usage with meals and an inability to obtain insulin and other diabetic supplies when needed were other important barriers. Additionally, this study found that 44% of homeless diabetics had suboptimal blood sugar control according to accepted guidelines.

Mental Illness

Studies of the prevalence of mental illness among homeless persons have generated widely varying findings, with estimates ranging from 15% to 90% (Bassuk, Rubin, & Lauriat, 1984; Snow, Baker, Anderson, & Martin, 1986). Much of this variation relates to differences in sampling strategies as well as the methods used to assess mental illness. In 1988, Koegel and colleagues (1988) used a standardized instrument to assess mental illness in a community-based sample of homeless adults in Los Angeles. They found that the lifetime prevalence of severe and persistent mental illness among all respondents was 28%, including a 14% lifetime prevalence of schizophrenia. This is similar to the 26% prevalence of serious mental illness reported by the U.S. Department of Housing and Urban

Development (2011) for sheltered homeless adults in 2010. Other studies using a broader definition of mental illness have reported lifetime prevalence estimates of mental illness exceeding 50% (Burt et al., 1999). Importantly, the Los Angeles study found that 38% of homeless participants had no evidence of psychiatric disease or substance use disorders (Koegel et al., 1988), underscoring that homelessness is not synonymous with mental illness or drug abuse.

A 2004 systematic review of the literature conducted by Hwang and colleagues found 15 studies of fair or good quality that tested interventions for homeless people with mental illness (Hwang, Tolomiczenko, Kouyoumdjian, & Garner, 2005). According to these studies, case management linked to other social and health services appears to reduce psychiatric symptoms and improve quality of life in this population (Shern et al., 2000). Assertive community treatment models using multidisciplinary teams consisting of psychiatrists, nurses, and social workers also appear effective at reducing psychiatric hospitalizations (Lehman, Dixon, Kernan, DeForge, & Postrado, 1997) and improving some psychiatric symptoms (Morse et al., 1997). Certain housing interventions for homeless persons with serious mental illness appear effective as well and are discussed in greater depth later in this chapter.

Substance Abuse

As when estimating the prevalence of mental illness, the prevalence of substance use disorders among homeless individuals depends on the subset of the population being sampled and the instrument used. Koegel and colleagues (1988) reported a 63% lifetime prevalence of alcohol abuse or dependence and a 31% lifetime prevalence of other drug abuse or dependence in the Los Angeles study mentioned earlier. The 1996 National Survey of Homeless Assistance Providers and Clients yielded similar findings, including a 62% lifetime prevalence of alcohol problems and a 58% lifetime prevalence of drug problems in a nationwide sample of homeless service users (Burt et al., 1999). In a representative sample of homeless persons in Toronto in 2004–2005, 60% of respondents reported regular use of at least one drug in their lifetime, and 40% had a drug problem in the past 30 days (Grinman et al., 2010). Marijuana, cocaine, and opiates appear to be the most commonly used substances in this population (Grinman et al., 2010).

In their 2004 systematic review, Hwang, Tolomiczenko, and colleagues (2005) found 13 studies of fair or good quality that tested interventions for homeless people with substance use disorders and an additional 7 studies that examined interventions in persons with concurrent mental illness and substance use disorders. Case management services (Cox et al., 1998) and post-detoxification stabilization programs (Kertesz, Horton, Friedmann, Saitz, & Samet, 2003) appear to be superior to usual care in reducing alcohol and drug use among substance-dependent homeless persons. A 2003–2004 study of outpatient buprenorphine for the management of opioid dependence found that homeless individuals had similar outcomes to nonhomeless individuals with respect to treatment failure, illicit opioid use, and utilization of substance abuse treatment, demonstrating the feasibility of this treatment approach in the setting of homelessness (Alford et al., 2007). Several studies have examined the impact of interventions that incorporate various housing strategies in combination with treatment programming for homeless persons with substance use disorders, and some of these are discussed in greater depth later in this chapter.

In addition to the high prevalence of alcohol and illicit drug use, an estimated 68–81% of homeless adults are current cigarette smokers (Baggett & Rigotti, 2010; Connor, Cook, Herbert, Neal, & Williams, 2002; Snyder & Eisner, 2004; Torchalla et al., 2011; Tsai & Rosenheck, 2012), representing a considerable disparity in relation to the 21% prevalence in the U.S. general population (Dube et al., 2010). This behavior contributes to a disproportionate burden of chronic lung diseases such as asthma and emphysema observed among homeless people (Snyder & Eisner, 2004). In comparison to nonhomeless smokers, homeless smokers begin smoking at an earlier age and smoke more heavily, with a tendency toward higher levels of nicotine dependence (Butler et al., 2002). Additionally, many homeless smokers report difficulty accessing cessation therapies (Okuyemi, Caldwell, et al., 2006), contributing to very low rates of quitting despite interest in doing so (Arnsten, Reid, Bierer, & Rigotti, 2004; Baggett & Rigotti, 2010; Connor et al., 2002). Very few smoking cessation interventions have been rigorously tested in homeless populations. Two randomized trials have examined counseling-based interventions in combination with nicotine replacement therapy (Okuyemi, Thomas, et al., 2006; Shelley, Cantrell, Wong, & Warn, 2010), and a third trial investigated the effect of a behaviorally oriented, multicomponent smoking cessation intervention in substance-dependent homeless persons in residential treatment (Burling, Burling, & Latini, 2001). All of these interventions yielded relatively modest rates of abstinence but demonstrated the feasibility of conducting smoking cessation studies in homeless populations.

Violence, Victimization, and Trauma

Violence and traumatic victimization are common experiences among homeless individuals and represent both a cause and a consequence of homelessness. Physical or sexual abuse as a minor confers a higher risk of homelessness as an adult (Herman, Susser, Struening, & Link, 1997), and homeless women and families frequently cite domestic violence as the principal cause of their homelessness (Bassuk & Rosenberg, 1988; Shinn et al., 1998; U.S. Conference of Mayors, 2009; Wood, Valdez, Hayashi, & Shen, 1990). Among female veterans, a history of sexual assault while in military service is associated with homelessness (Hamilton, Poza, & Washington, 2011; Washington et al., 2010). In a study of homeless women in Worcester, Massachusetts, 63% had experienced severe violence by an adult partner, 43% had been sexually molested as a child, 67% had experienced severe physical abuse as a child, and 88% had experienced at least one of these forms of violence in their lifetime (Weinreb, Goldberg, & Perloff, 1998).

These traumatic experiences are not confined to women. In a sample of homeless persons in Los Angeles, 21% of men had been physically or sexually assaulted in the past 30 days (Wenzel, Koegel, & Gelberg, 2000). Among homeless and marginally housed adults in San Francisco, 27% of men and 38% of transgendered respondents reported a history of physical or sexual assault in the prior year (Kushel, Evans, Perry, Robertson, & Moss, 2003). In a survey of homeless individuals in Toronto, 53% reported a history of traumatic brain injury, and this finding was significantly more common among men (Hwang et al., 2008). Seventy percent of individuals with a history of traumatic brain injury indicated that their first such injury occurred before they became homeless (Hwang et al., 2008), raising the question of whether traumatic brain injury may be an underrecognized risk factor for homelessness.

National surveys have yielded even more sobering figures on the full scope of violence and victimization in homeless individuals. Among respondents to the 2003 Health Care for the Homeless User Survey, 59% reported having been robbed while homeless, 29% reported having been physically assaulted while homeless, and 11% reported having been sexually assaulted or raped while homeless (Greene et al., 2004). A five-city survey of 516 homeless adults who used Health Care for the Homeless clinical services in 2010 found that nearly two thirds of respondents had ever witnessed a violent attack on another homeless individual and half had personally been the victim of such an attack while homeless (Meinbresse et al., in press). Of those who had been a victim of violence, 56% reported being bruised, 31% had been mentally traumatized, 15% had been raped or sexually assaulted, 13% had sustained a head injury, and 13% had fractured a bone. Fifteen percent of victims believed that the attack was a hate crime.

Pulling data from various media and community sources, the National Coalition for the Homeless assembled 10 consecutive annual reports spanning the years 1999–2008 that outlined the alarming number of hate crimes committed against homeless persons in the United States. During that 10-year period, the organization found a total of 880 hate crimes, including 244 resulting in the death of the victim (National Coalition for the Homeless, August 2009). These crimes occurred in virtually every state and were most commonly perpetrated by young men. In 2008, the majority of such crimes took the form of beating; however, rape, shooting, and setting persons on fire were also reported. As a result of these horrific acts, a number of cities and states have expanded or amended their hate crimes legislation to include special consideration for victims who are homeless.

Premature Mortality and Causes of Death

In view of the data highlighted in this chapter, it is not surprising that numerous studies conducted in the United States and abroad have demonstrated very high mortality rates among homeless people in comparison to nonhomeless populations. In a Philadelphia study, the age-adjusted mortality rate among homeless persons was 3.5 times higher than in the general population of the city (Hibbs et al., 1994). The mortality disparities experienced by homeless populations are particularly stark among younger age groups (Baggett et al., 2013; Hwang et al., 1997), and studies of street youth have found an 11-fold increased risk of death in this population in comparison to nonhomeless youth (Roy et al., 2004). A Danish study found that 15- to 24-year-old homeless men had a life expectancy 21.6 years less than men in the general population (Nielsen, Hjorthoj, Erlangsen, & Nordentoft, 2011). A study in Scotland found that homelessness was an independent risk factor for death (Morrison, 2009). In a nationwide Canadian study of mortality among residents of shelters, rooming houses, and hotels, the risk of death in this group exceeded that expected on the basis of low income alone (Hwang et al., 2009), suggesting that the experience of homelessness confers health risks that extend those associated with the usual metrics of poverty.

Several studies have examined causes of death among homeless persons. Epidemiologic data from Fulton County, Georgia (Hanzlick & Parrish, 1993), and San Francisco, California (Wlodarczyk, Teng, Taylor, & Stephens, 1991), documented the high burden of deaths due to unintentional injuries as well as drug and alcohol use. A 1988–1993 study among homeless adults in Boston demonstrated the profound impact of deaths due to HIV/AIDS, particularly among 25- to 44-year-old men (Hwang et al., 1997). More recent data have shown a decline in HIV-related deaths (Baggett et al., 2013), likely owing to the availability of improved treatments for this disease and public health initiatives aimed at HIV prevention. Nevertheless, these reductions in HIV mortality have been offset by dramatic increases in the number of deaths due to drug overdose and substance use disorders, which collectively account for one fourth of all deaths among homeless individuals and more than 40% of deaths among those younger than 45 years of age (Baggett et al., 2013). These data underscore the continued need for comprehensive and tailored addiction treatment services for this population, coupled with public health and policy measures to reduce the emerging epidemic of drug overdose deaths in this and other vulnerable groups.

Health Care Access and Utilization

The Problem of Dysutilization

A body of literature has repeatedly underscored a fundamental observation: homeless persons have particularly high rates of hospitalization and emergency department use, often fueled by poor access to basic health care services and suboptimal rates of ambulatory office visits. While considerable attention has been devoted to the excessive patterns of health care use in this population, the problem should be understood more globally as one of *dysutilization*—that is, underuse of desirable outpatient preventive services resulting from patient-, provider-, and policy-level barriers, with consequent overuse of costly acute services.

Hospitalization. In a 1988–1990 study in Hawaii, homeless individuals were medically hospitalized 5 times more often and psychiatrically hospitalized 100 times more often than the general population of the state (Martell et al., 1992). More recent surveys of homeless individuals have found similarly high self-reported rates of medical and psychiatric hospitalization (Baggett et al., 2011; Kushel, Vittinghoff, & Haas, 2001). A 1992–1993 study in New York City found that in comparison to nonhomeless persons, homeless patients admitted to the hospital stayed 36% longer per admission, resulting in substantial excess costs (Salit, Kuhn, Hartz, Vu, & Mosso, 1998). More than half of all admissions of homeless individuals were related to substance abuse or mental illness, and about one fifth were related to potentially preventable medical conditions (Salit et al., 1998).

Emergency Department Use. A 1996–1997 community-based survey of homeless adults in San Francisco found that 40% of respondents reported one or more emergency department (ED) visits in the prior year (Kushel, Perry, Bangsberg, Clark, & Moss, 2002), which was comparable to contemporary data from the 1996 National Survey of Homeless Assistance Providers and Clients (Kushel et al., 2001) as well as earlier data from New York City (Padgett, Struening, Andrews, & Pittman, 1995). The 2003 Health Care for the Homeless User Survey found even higher rates of emergency department utilization, with 62% of homeless respondents reporting any ED use in the prior year and 18% reporting four or more visits in the prior year (Baggett et al., 2011). These rates of emergency department use are substantially higher than those observed in the U.S. general population (Agency for Healthcare Research and Quality, 2003). Repeated ED use by a relatively small subset of individuals appears to drive at least some of the excess utilization seen in this population. In the San Francisco study, the 8% of adults who used the ED four or more times in the prior year accounted for 55% of all ED visits reported by the study sample (Kushel et al., 2002).

Unmet Needs. Despite these high rates of acute health services utilization, homeless persons also report high rates of unmet need for basic health care services. An analysis of the 2003 Health Care for the Homeless User Survey found that 73% of adult respondents reported at least one unmet health care need, including an inability to obtain needed medical or surgical care (32%), prescription medications (36%), mental health care (21%), eyeglasses (41%), or dental care (41%). These percentages are about 6–10 times higher than in the U.S. general population (Agency for Healthcare Research and Quality, 2006; Strunk & Cunningham, 2004), and they are generally similar to the high rates of unmet health care needs reported in other studies of homeless individuals (Desai & Rosenheck, 2005; Kertesz, Hwang, Irwin, Ritchey, & Lagory, 2009; Lewis, Andersen, & Gelberg, 2003).

A Conceptual Framework

Collectively, these data suggest that inadequate access to basic ambulatory health care services may predispose homeless persons to use of acute health care services at higher rates than found in the nonhomeless population. A number of factors may contribute to this pattern of dysutilization. Gelberg and colleagues (2000) used data from a cohort of homeless adults in Los Angeles to develop and validate a theoretical framework for understanding and addressing the factors influencing health care access and utilization in homeless persons. Based on Andersen's (1995) Behavioral Model, Gelberg et al.'s adaptation for vulnerable populations suggests that health care access and utilization is influenced by predisposing, enabling/impeding, and need factors. *Predisposing* factors are personal characteristics, such as demographics and health beliefs, that may influence a person's propensity for seeking health care (Andersen & Aday, 1978; Andersen, McCutcheon, Aday, Chiu, & Bell, 1983; Gelberg et al., 2000). *Enabling/impeding* factors refer to personal and community resources, such as health insurance and social support, that facilitate or impede health care access and use (Andersen & Aday, 1978; Andersen et al., 1983; Gelberg et al., 2000). *Need* factors refer to health conditions, such as diabetes or arthritis, for which a person is likely to require care (Andersen & Aday, 1978; Andersen et al., 1983; Gelberg et al., 2000).

The earlier sections of this chapter convey the unique complement of predisposing and need factors seen among homeless persons. The enabling/impeding domain is generally viewed as the most policy relevant, as it encompasses mutable factors that may be amenable to certain policy interventions (Andersen & Aday, 1978). Three specific entities in this domain deserve special attention: competing subsistence priorities, lack of health insurance, and lack of a usual source of health care.

Competing Subsistence Priorities. The primacy of competing subsistence priorities for food, shelter, clothing, and safety is a frequently cited barrier to health care in the setting of homelessness (Gelberg, Gallagher, Andersen, & Koegel, 1997). In the 1991 UCLA Homeless Health Study, individuals with frequent subsistence difficulty had significantly lower odds of having a regular source of medical care and significantly higher odds of going without needed medical care in the past year (Gallagher, Andersen, Koegel, & Gelberg, 1997; Gelberg, Gallagher, et al., 1997). Inadequate food access appears to confer a particularly high risk of adverse health care outcomes. Among adult respondents to the 2003 Health Care for the Homeless User Survey, food insufficiency was associated with a higher likelihood of going without needed medical or surgical care, prescription medications, and mental health care (Baggett et al., 2010). Food-insufficient respondents also had higher rates of medical and psychiatric hospitalization and were more likely to use the emergency department four or more times in one year, even after controlling for important confounders (Baggett et al., 2011). Collectively, these findings suggest that homeless persons with frequent subsistence difficulties may postpone the pursuit of health care until the need becomes acute, resulting in downstream service utilization patterns that shift the point of care from the outpatient clinic to the hospital emergency department and inpatient wards.

Health Insurance. An analysis of data from the 2003 Health Care for the Homeless User Survey found that 60% of adult respondents lacked health insurance coverage (Baggett et al., 2010). As compared to respondents with health insurance, uninsured respondents were significantly more likely to report an inability to obtain needed medical or surgical care, prescription medications, mental health care, and eyeglasses in the prior year. Homeless adults who performed any work for pay in the prior year had significantly higher odds of lacking health insurance, with the likelihood of being uninsured increasing in a stepwise fashion with the number of months of employment. This may point toward a lesser degree of disability among homeless workers, making them ineligible for public health insurance coverage in many states. At the same time, very few of these individuals had employer-based health insurance coverage or other forms of private insurance, suggesting that homeless individuals who work may fall in a coverage gap. To the extent that such individuals frequently earn an income less than 133% of the federal poverty level, the Medicaid expansion provision of the Patient Protection and Affordable Care Act may help remedy such gaps for working homeless individuals (U.S. Department of Health and Human Services, 2012).

The health insurance findings from the 2003 Health Care for the Homeless User Survey echoed similar findings in several earlier studies. An analysis of the 1996 National Survey of Homeless Assistance Providers and Clients found that currently homeless individuals who had health insurance were significantly less likely to report an unmet need for health care or to report an inability to comply with prescribed medications (Kushel et al., 2001). In a 1995 study of homeless adults in Allegheny County, Pennsylvania, lacking health insurance was associated with a higher risk of having no usual source of care or reporting an emergency department or shelter-based clinic as the site of usual health care rather than a traditional ambulatory clinic site (O'Toole, Gibbon, Hanusa, & Fine, 1999). Similarly, analysis of data from two surveys of homeless adults in New York City in 1985 and 1987 concluded that Medicaid coverage may improve access to nonhospital medical care in this population (Glied, Hoven, Moore, & Garrett, 1998). These findings underscore that even amid the chaos of homelessness, health insurance remains a critical determinant of health care access.

Usual Care Source. Homeless people frequently lack a usual source of health care (Gallagher et al., 1997), owing in part to the factors described previously as well as the lack of policy-level incentives for physicians and health care organizations to take responsibility for the care of these vulnerable individuals. In a representative sample of homeless adults in Los Angeles, 57% lacked a usual source of care—a rate that was more than twofold higher than the rate in the U.S. poverty population and threefold higher than the rate in the U.S. general population (Gallagher et al., 1997). Chronic homelessness, social isolation, and frequent subsistence difficulties lessened the likelihood of having a usual care source, while having non-Medicaid health insurance coverage conferred a higher likelihood of having a usual care source. In a separate Los Angeles study, homeless families were more likely than nonhomeless low-income families to lack a regular source of well-child and illness care for their children (Wood & Valdez, 1991).

As with health insurance, having a usual care source appears to be an important determinant of health care utilization among homeless individuals, concordant with findings in nonhomeless populations (Andersen & Aday, 1978). Among homeless women in Los Angeles, having a regular source of care was associated with a lower likelihood of going without needed medical care (Lewis et al., 2003). Among homeless adults with serious mental illness, having a therapeutic alliance with a primary clinician was associated with significantly lower rates of unmet need for medical care as compared to those with no primary clinician (Desai & Rosenheck, 2005). Among adult respondents to the 2003 Health Care for the Homeless User Survey, those reporting no usual source of care were significantly more likely to have an unmet need for mental health care and marginally more likely to have an unmet need for medical or surgical care in the prior year (Baggett et al., 2010).

Tailored Services for Homeless Persons

In addition to patient-level barriers to care, health care providers and organizations may feel ill equipped to handle the complex array of medical, psychiatric, addictive, and social disturbances seen in this population. Indeed, the traditional health care service delivery model is often not well matched to the needs of homeless people, contributing to the perception that traditional medicine is neither welcoming nor relevant for this population (Stark, 1992). Tailored service delivery models have attempted to overcome this barrier by providing care that is better matched to meet these needs in a format that is both flexible and accessible. The Health Care for the Homeless program (discussed next) represented the first nationwide attempt to provide such tailored services. A by-product of this effort, the medical respite model, is an illustrative example of a creative and uniquely tailored approach to service delivery for homeless individuals coping with acute and subacute health concerns.

Health Care for the Homeless Program. In response to the growing recognition of the poor health and unmet health care needs of homeless individuals in the United States, the Robert Wood Johnson Foundation and Pew Charitable Trusts funded the Health Care for the Homeless (HCH) demonstration project in 1985 (Somers et al., 1990). After a competitive application process, HCH grantees in 19 U.S. cities received a combined total of $25 million to devise and deliver care for this population (Somers et al., 1990). As one of the 19 original grantees, the Boston Health Care for the Homeless Program (BHCHP) articulated six guiding principles in its grant proposal and in its first annual report to the Robert Wood Johnson Foundation: (1) Continuity of care from street and shelter to hospital requires an enduring and trusting relationship between the doctor or clinician and patient; (2) Multidisciplinary teams should deliver care; (3) BHCHP should act as a catalyst within the mainstream health care system to ensure that the special needs of homeless persons are addressed; (4) BHCHP should serve as the "glue" linking hospitals and health centers with the community of shelters and homeless service providers; (5) BHCHP should strive to bridge medicine and public health; and (6) BHCHP should create and implement "respite care" (O'Connell et al., 2010). These principles underscored the general philosophy of care that characterized the national HCH project.

In 1987, the McKinney Homeless Assistance Act provided federal funding for the expansion of the HCH program under the direction of the Health Resources and Services Administration's Bureau of Health Care Delivery and Assistance (now the Bureau of Primary Health Care) in the U.S. Department of Health and Human Services (Greene et al., 1990). Since that time, the HCH program has grown from its initial size of 19 grantees to include more than 220 grantees that provide care to more than 800,000 homeless persons annually in all 50 states, the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands (Health Resources and Services Administration, 2011).

The National Health Care for the Homeless Council started during the Robert Wood Johnson Foundation's HCH demonstration project of the mid-1980s. The council supports the activities of HCH grantees nationally and provides a forum for collaboration and dissemination of best practices in the care of this vulnerable population. Each year, the council hosts a scientific conference and policy symposium that attracts attendees from across the United States and the world. Additionally, the council convenes various committees and subcommittees commissioned with the task of addressing specific domains of interest within the realm of homeless health care. The Research Coordinating Committee oversees the research agenda of the council and provides technical assistance to grantees and individual investigators. The National HCH Council also established the HCH Practice-Based Research Network (PBRN) to give HCH providers and consumers the opportunity to define and participate in research focusing on health care for people experiencing homelessness. Thirty-five HCH projects throughout the United States make up the HCH PBRN, and it is one of the few national PBRNs registered with the Agency for Healthcare Quality and Research. Research publications emerging from the HCH PBRN include studies of contraceptive prescribing practices among HCH clinicians (Saver, Weinreb, Gelberg, & Zerger, 2012) and hepatitis C infection among HCH clinic users (Strehlow et al., 2012).

Medical Respite Care. In keeping with its sixth guiding principle, the Boston Health Care for the Homeless Program established the first medical respite program in the United States in September 1985 (O'Connell et al., 2010). Comprising 25 beds in the corner of a local homeless shelter, the original respite care model was developed to provide a safe alternative to hospitalization for homeless individuals with medical problems that were too complex to manage on the streets or in shelters (O'Connell et al., 2010). Since that time, the BHCHP medical respite program has evolved considerably in size and scope, offering acute, subacute, perioperative, rehabilitative, and palliative care services in a state-of-the-art 104-bed facility (O'Connell et al., 2010).

Studies examining respite care in homeless persons have focused primarily on its role following hospital discharge and its impact on reducing readmission rates. In a Chicago study conducted in 1998–2000, homeless patients discharged to medical respite following an index hospitalization had 4.7 fewer hospital days on average during 12 months of follow-up than those who were not discharged to respite care (Buchanan, Doblin, Sai, & Garcia, 2006). The average cost of respite care per hospital day avoided was $706.

A contemporaneous study conducted in Boston in 1998–2001 examined the impact of medical respite on 90-day hospital readmission rates among homeless individuals following hospital discharge (Kertesz, Posner, et al., 2009). In comparison to homeless persons discharged to their own care, those discharged to the medical respite facility had 46% lower odds of being rehospitalized in the ensuing three months. In this study, the cost of a respite care discharge was higher than for discharge to one's own care, even after accounting for lower readmission rates in the respite care group. The differing cost findings between the Boston and Chicago studies may reflect the more clinically oriented nature of the Boston respite program in comparison to Chicago, where respite care was less intensive and targeted to individuals without skilled nursing needs (Buchanan et al., 2006; Kertesz, Posner, et al., 2009).

More than 60 medical respite programs geared toward the homeless population can now be found across the United States. While there is considerable heterogeneity in the format and intensity of these services, the National Health Care for the Homeless Council's Respite Care Providers' Network is developing clinical and operational standards that will define medical respite care moving forward in an effort to bring some uniformity to these services. The most significant challenge related to this task is the variability in funding and reimbursement for such services from state to state, particularly in settings where the target population is largely uninsured.

Housing Interventions and Health Outcomes

Housing: Approaches and Controversies

The provision of housing for homeless persons has been an area of growing political and research interest for several years. In an analysis of 4,679 homeless persons with serious mental illness who were placed in supportive housing in New York City between 1989 and 1997, shelter use declined 86%, total inpatient psychiatric days decreased by 57%, days spent in municipal hospitals decreased by 80%, and days spent in prison and jail decreased by 74% and 40%, respectively (Culhane, Metraux, & Hadley, 2002). These changes were significantly different than those seen in a control group of homeless individuals who were not placed in housing. Cost analyses suggested that the savings accrued by service use reductions covered 90% of the cost of supportive housing. In a more recent analysis of data from 160,525 persons who used the homeless shelter system in New York City in 1990–2002, exit to subsidized or nonsubsidized stable housing was associated with reduced mortality risk as compared to persistence of homelessness (Metraux, Eng, Bainbridge, & Culhane, 2011). Collectively, these data suggest what many would intuitively expect: acquiring housing is associated with less adverse patterns of social and health services utilization and improved health. However, the optimal approach to the provision of housing for homeless individuals remains an area of some controversy.

Early housing intervention models were largely based on an approach that made housing contingent upon abstinence from drugs and alcohol or engagement in treatment services for these and other behavioral health issues. These models are sometimes referred to as "linear" programs, as they typically require progression through a series of treatment and stabilization programs over a continuum of settings leading to permanent housing (Kertesz, Crouch, Milby, Cusimano, & Schumacher, 2009; Schinka, Casey, Kasprow, & Rosenheck, 2011; Tsemberis & Eisenberg, 2000). More recent efforts have embraced a "Housing First" approach, where the provision of permanent supportive housing is not contingent upon the completion of treatment programming or the maintenance of sobriety (Tsemberis & Eisenberg, 2000; Tsemberis, Gulcur, & Nakae, 2004). These differing approaches to housing highlight a fundamental philosophical divide. Proponents of linear, abstinence-based approaches maintain that homeless persons are highly unlikely to succeed in housing until they have achieved some stability in their addictive and psychiatric comorbidities. In contrast, proponents of the Housing First approach argue that housing is a basic human need, that linear models impose too many barriers to fulfilling that need, and that it is unrealistic to expect any substantial progress on maintaining sobriety until that basic need is addressed. Housing First advocates emphasize the centrality of consumer choice and autonomy (Tsemberis & Eisenberg, 2000; Tsemberis et al., 2004).

Linear, Abstinence-Based Housing

Homeless Persons with Cocaine Dependence: The Birmingham Model. Between 1990 and 2006, four randomized controlled trials examined various permutations of an intervention based on abstinence-contingent housing and work therapy for cocaine-dependent homeless persons in Birmingham, Alabama (Milby et al., 2000; Milby et al., 1996; Milby et al., 2008; Milby, Schumacher, Wallace, Freedman, & Vuchinich, 2005). Referred to as the "Birmingham Model" (Kertesz, Crouch, et al., 2009), this series of interventions provided clients with a furnished apartment at a location separate from their treatment and employment activities. After a run-in period, continued access to the apartment was contingent upon negative urine drug tests. The program format generally consisted of intensive substance abuse day treatment for two months, followed by work therapy for the following four months. A meta-analysis of these four trials found that abstinence-contingent housing with or without day treatment programming consistently produced better drug abstinence rates than day treatment alone or usual care (Schumacher et al., 2007). Of note, the third trial examined the effect of three experimental conditions—abstinence-contingent housing, non-abstinence-contingent housing, and no housing—all of which were paired with day treatment and work therapy (Milby et al., 2005). This trial found that both abstinence-contingent and non-abstinence-contingent housing yielded superior drug abstinence outcomes in comparison to no housing. The overall prevalence of drug abstinence was not different between the two housing conditions; however, subgroup analyses found superior abstinence in the contingent group than in the noncontingent group among those with high program participation. Interestingly, the mean number of days housed and days employed improved significantly for all treatment conditions over 12 months of follow-up, with no between-group differences being observed.

This series of studies provides evidence in support of the potential utility of abstinence-contingent housing for drug-dependent homeless persons. Such programs promote high rates of early substance abstinence; however, the utility of this model in promoting long-term abstinence and housing stability is less certain. Data from linear residential treatment programs in New York City have suggested low long-term housing retention rates in such programs (Tsemberis & Eisenberg, 2000). Additionally, the net benefit of an abstinence-based model in comparison to lower-threshold programs with more lenient abstinence requirements is uncertain. In an analysis of data from the U.S. Department of Veterans Affairs (VA), Schinka and colleagues (2011) found small but significant differences in treatment outcomes in unadjusted comparisons of housing programs that did and did not require sobriety at program entry, with those requiring sobriety appearing to produce slightly more favorable results. However, after controlling for important differences between these groups, requiring sobriety at program entry was not a significant predictor of program completion, homelessness recidivism, residence on discharge, or employment on discharge.

Similarly, in an analysis of VA-supported housing data from 1993 to 2000, Mares and colleagues (2004) found that completion of a residential treatment program prior to housing entry had no significant effect on housing outcomes among homeless veterans with psychiatric or substance abuse disorders.

Such observations have called into question the necessity of requiring sobriety or completion of substance abuse treatment prior to entering housing. They also highlight a fundamental distinction between the abstinence-based models and Housing First models: proponents of the former view drug abstinence as the primary outcome of importance, while proponents of the latter view the maintenance of housing as the principal outcome (Kertesz & Weiner, 2009). The definition of "success," therefore, depends in large part on the theoretical framework within which the intervention is conducted.

Housing First

Homeless Persons with Serious Mental Illness: Pathways to Housing, New York City. In a 1997–2001 landmark study in New York City, Tsemberis and colleagues (2004) conducted a randomized controlled trial comparing the effect of a Housing First program ("Pathways to Housing") to a control group allocated to the abstinence-based, treatment-contingent continuum of care model among chronically homeless individuals with serious mental illness. Ninety percent of participants also had a current or past diagnosis of alcohol or substance use disorders. Over the two-year course of follow-up, those assigned to the Housing First intervention reported greater consumer choice, showed better residential stability, and had less substance abuse treatment utilization in comparison to those assigned to the linear continuum of care model. At 24 months, Housing First participants had more than double the proportion of time spent stably housed as compared to control group participants. There was no significant difference between the two groups with respect to substance use or psychiatric symptoms. This study provided early evidence in support of the notion that Housing First promotes greater residential outcomes without worsened substance use or psychiatric symptoms in comparison to linear approaches, suggesting that the abstinence-contingent approaches of linear models may be unwarranted.

Homeless Persons with Severe Alcohol Dependence: 1811 Eastlake, Seattle. Larimer and colleagues (2009) used quasi-experimental methods to test the effect of a project-based Housing First intervention in Seattle for heavily alcohol-dependent, chronically homeless individuals in comparison to a wait-listed control group. All study subjects had a history of substantial public service utilization and were selected for participation on this basis. Although on-site counseling and addiction services were made available to clients, partaking in these services was not required and individuals were permitted to consume alcohol in their rooms. The authors found that individuals admitted to the Housing First project had lower public service utilization and accrued fewer public service costs than wait-listed controls. In a follow-up study examining alcohol use trajectories of Housing First participants over the ensuing two years after program entry, the authors found significant reductions in alcohol intake despite the fact that abstinence was not required for program participation (Collins et al., 2012). Although hampered by a nonrandomized study design, the Seattle project-based Housing First model provided the first robust evidence in support of Housing First for homeless individuals with severe alcohol use disorders.

Homeless Persons with Medical Comorbidities: The Chicago Trial. A randomized controlled trial conducted in Chicago in 2003–2006 examined the effect of transitional housing followed by long-term housing for chronically ill homeless adults (Sadowski, Kee, VanderWeele, & Buchanan, 2009). Homeless participants were recruited during a hospitalization and randomly allocated to the housing intervention or usual discharge planning and care. Those randomized to the housing intervention were offered intensive case management and discharge to a respite facility for transitional care, followed by placement in stable housing based on a Housing First approach. In comparison to those persons who received usual care, participants randomized to the housing intervention had significantly lower rates of hospitalizations, hospital days, and emergency department visits, but there were no significant differences in self-reported physical functioning and mental health. A follow-up analysis found a nonsignificant trend toward lower costs for the housing intervention group in comparison to usual care controls (Basu, Kee, Buchanan, & Sadowski, 2012).

Chronically Homeless Veterans: The Collaborative Initiative to Help End Chronic Homelessness. The 11-city Collaborative Initiative to Help End Chronic Homelessness (CICH) provided chronically homeless veterans with case management based on the assertive community treatment model in addition to supported housing based on a Housing First approach (Mares & Rosenheck, 2009). Although the principal analysis was limited by the lack of a control group, data from the 59% of participants who responded to the national survey over 12 months of follow-up suggested that time spent in housing increased quality of life and improved mental health functioning, with substance abuse remaining generally stable (Mares & Rosenheck, 2009). A subsequent analysis examined health and service use outcomes in a subset of CICH participants from five cities in comparison to a usual care group whose members did not receive the housing intervention (Mares & Rosenheck, 2011). Over two years of follow-up, CICH participants were housed an average of

52% more days, spent fewer days institutionalized or homeless, and attended more outpatient medical, psychiatric, and substance abuse treatment visits, resulting in higher total health care costs as compared to those receiving usual care. There were no significant differences between the two groups with respect to substance use, community adjustment, or health status. A follow-up analysis of CICH participants found similar rates of housing retention between high-frequency substance users and substance abstainers despite a greater burden of psychiatric symptoms in the former (Edens, Mares, Tsai, & Rosenheck, 2011).

Collectively, this small body of evidence suggests that Housing First interventions improve housing outcomes and service utilization patterns in selected high-risk subpopulations of homeless individuals. Whether these programs result in net cost savings or significant cost offsets may depend in part on the group being studied (Kertesz & Weiner, 2009). Importantly, the absence of a sobriety requirement for such programs does not appear to result in increased substance use or other adverse outcomes.

Preventing and Ending Homelessness

In 1987, the Stewart B. McKinney Homeless Assistance Act was signed into law in the United States. The act contained nine titles that outlined a comprehensive federal response to homelessness through the creation of 15 programs providing supportive services to homeless people across a continuum of needs, including housing, medical care, and job training (National Coalition for the Homeless, 2006). Amendments to the McKinney Act through the 1990s expanded these services tremendously. While this landmark legislation represents the most comprehensive and effective federal response to homelessness to date, its core weaknesses included its focus on emergency measures and its response to the symptoms—rather than the root causes—of homelessness. These shortcomings gave rise to a shift in strategy, placing greater emphasis on homelessness prevention than on emergency response. The Homelessness Prevention and Rapid Rehousing Program provision of the 2009 American Recovery and Reinvestment Act signified a federal commitment to this shifting strategy (U.S. Department of Housing and Urban Development, n.d.). Months later, the Homelessness Emergency Assistance and Rapid Transition to Housing (HEARTH) Act was signed into law, amending and reauthorizing the McKinney Act with substantial changes, including an increase in prevention-oriented resources (U.S. Department of Housing and Urban Development, n.d.).

A 2005 paper commissioned by the U.S. Department of Housing and Urban Development identified five promising strategies for the prevention of homelessness (Burt, Montgomery, & Pearson, 2005): (1) the provision of housing subsidies for people living in poverty, (2) supportive services coupled with permanent housing for individuals at high risk for new or recurrent homelessness, (3) mediation in Housing Courts for individuals facing eviction, (4) cash assistance for those behind on rent or mortgage payments, and (5) programs to promote rapid exit for newly homeless people just entering emergency shelters. A related strategy targets critical moments when people are particularly vulnerable to homelessness, such as at discharge from hospitals, correctional facilities, or other institutional settings (Burt et al., 2005; Herman, Conover, Felix, Nakagawa, & Mills, 2007). Such "critical time" interventions have been effective in improving housing stability and decreasing rehospitalization rates after hospital discharge among persons with serious mental illness (Herman et al., 2011; Tomita & Herman, 2012).

Conclusion

The poor health of homeless individuals reflects the devastating conditions in which they live and all too frequently die. Although a manifestation of abject poverty, homelessness is uniquely disruptive to health in ways that extend beyond poverty by virtue of the placelessness, disaffiliation, and constant exposure to the temperamental winds of weather and violence that characterize life on the streets. As scientists, we view the evidence of the negative health effects of homelessness as overwhelming. As citizens, we find this unacceptable. Article 25 of the Universal Declaration of Human Rights underscores the necessity of housing in ensuring every person's right to a standard of living sufficient to promote human health and well-being (United Nations, 1948). Homelessness represents a violation of this covenant.

Addressing the devastating health consequences of homelessness will require a two-pronged approach. First, for persons experiencing homelessness, we should continue our work to identify and address the most pressing health needs of those individuals through high-quality research, creative clinical programming, and public health initiatives to reduce the burden of death and disease in this population. Yet however important these interventions may be, they are merely bandages that address the symptoms rather than the sources of the problem. Therefore, the second and more important prong of this approach requires that we make strides toward eradicating homelessness by preventing its occurrence and shortening its duration for those who experience it. Beyond the ethical dimensions of a just society's obligation to provide for the basic needs of its constituents, the balance of evidence provides a sound scientific basis for viewing housing as a crucial component of both health and social policy interventions for people experiencing, or at risk of experiencing, homelessness. As scientists and as citizens, we should settle for no less.

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