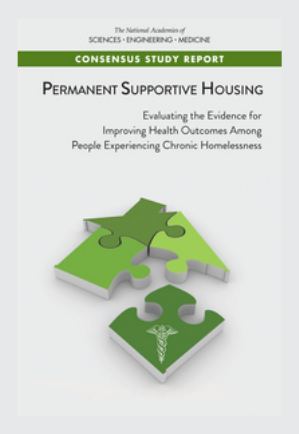

Permanent Supportive Housing: Evaluating the Evidence for Improving Health Outcomes Among People Experiencing Chronic Homelessness

DETAILS

226 pages | 6 x 9 | PAPERBACK
ISBN 978-0-309-47704-8 | DOI 10.17226/25133

CONTRIBUTORS

Committee on an Evaluation of Permanent Supportive Housing Programs for Homeless Individuals; Science and Technology for Sustainability Program; Policy and Global Affairs; Board on Population Health and Public Health Practice; Health and Medicine Division; National Academies of Sciences, Engineering, and Medicine

Permanent Supportive Housing
Evaluating the Evidence for Improving Health Outcomes Among People Experiencing Chronic Homelessness

Committee on an Evaluation of Permanent Supportive Housing Programs for Homeless Individuals

Science and Technology for Sustainability Program
Policy and Global Affairs

Board on Population Health and Public Health Practice
Health and Medicine Division

A Consensus Study Report of
The National Academies of
SCIENCES • ENGINEERING • MEDICINE

THE NATIONAL ACADEMIES PRESS
Washington, DC
www.nap.edu

THE NATIONAL ACADEMIES PRESS 500 Fifth Street, NW Washington, DC 20001

This activity was supported by a grant from Blue Shield of California Foundation under award number P-1602-08122, California Health Care Foundation under award number 19157, Elsevier, Bill & Melinda Gates Foundation under award number OPP1139235, the Conrad N. Hilton Foundation under award number 20150347, The Kresge Foundation under award number R-1508-252812, Melville Charitable Trust under award number 2015-050, and the U.S. Department of Veterans Affairs under award number VA268-16-C-0033/642-C60241. Any opinions, findings, conclusions, or recommendations expressed in this publication do not necessarily reflect the views of any organization or agency that provided support for the project.

International Standard Book Number-13: 978-0-309-44704-8
International Standard Book Number-10: 0-309-47704-2
Digital Object Identifier: https://doi.org /10.17226/25133

Additional copies of this publication are available for sale from the National Academies Press, 500 Fifth Street, NW, Keck 360, Washington, DC 20001; (800) 624-6242 or (202) 334-3313; http://www.nap.edu.

Printed in the United States of America

Suggested citation: National Academies of Sciences, Engineering, and Medicine. 2018. *Permanent Supportive Housing: Evaluating the Evidence for Improving Health Outcomes Among People Experiencing Chronic Homelessness*. Washington, DC: The National Academies Press. doi: https://doi.org/10.17226/25133.

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

The **National Academy of Sciences** was established in 1863 by an Act of Congress, signed by President Lincoln, as a private, nongovernmental institution to advise the nation on issues related to science and technology. Members are elected by their peers for outstanding contributions to research. Dr. Marcia McNutt is president.

The **National Academy of Engineering** was established in 1964 under the charter of the National Academy of Sciences to bring the practices of engineering to advising the nation. Members are elected by their peers for extraordinary contributions to engineering. Dr. C. D. Mote, Jr., is president.

The **National Academy of Medicine** (formerly the Institute of Medicine) was established in 1970 under the charter of the National Academy of Sciences to advise the nation on medical and health issues. Members are elected by their peers for distinguished contributions to medicine and health. Dr. Victor J. Dzau is president.

The three Academies work together as the **National Academies of Sciences, Engineering, and Medicine** to provide independent, objective analysis and advice to the nation and conduct other activities to solve complex problems and inform public policy decisions. The National Academies also encourage education and research, recognize outstanding contributions to knowledge, and increase public understanding in matters of science, engineering, and medicine.

Learn more about the National Academies of Sciences, Engineering, and Medicine at **www.nationalacademies.org**.

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

Consensus Study Reports published by the National Academies of Sciences, Engineering, and Medicine document the evidence-based consensus on the study's statement of task by an authoring committee of experts. Reports typically include findings, conclusions, and recommendations based on information gathered by the committee and the committee's deliberations. Each report has been subjected to a rigorous and independent peer-review process and it represents the position of the National Academies on the statement of task.

Proceedings published by the National Academies of Sciences, Engineering, and Medicine chronicle the presentations and discussions at a workshop, symposium, or other event convened by the National Academies. The statements and opinions contained in proceedings are those of the participants and are not endorsed by other participants, the planning committee, or the National Academies.

For information about other products and activities of the National Academies, please visit www.nationalacademies.org/about/whatwedo.

COMMITTEE ON AN EVAULATION OF PERMANENT SUPPORTIVE HOUSING PROGRAM FOR HOMELESS INDIVIDUALS

Kenneth W. Kizer (NAM) (*Chair*), Distinguished Professor, School of Medicine and Betty Irene Moore School of Nursing, and Director, Institute for Population Health Improvement, University of California, Davis
Barbara Brush, Carol J. and F. Edward Lake Professor in Population Health, Department of Health Behavior and Biological Sciences, University of Michigan School of Nursing
Seiji Hayashi, Director of Medicine, Human Diagnosis Project (Human Dx)
Stephen Hwang, Centre for Urban Health Solutions, St. Michael's Hospital
Mitchell Katz (NAM), President and Chief Executive Officer, NYC Health + Hospitals
Mahasin Mujahid, Associate Professor, Epidemiology, University of California, Berkeley School of Public Health
James O'Connell, President, Boston Health Care for the Homeless Program
Barbara Samuels, Managing Attorney, American Civil Liberties Union of Maryland
Marybeth Shinn, Professor and Cornelius Vanderbilt Chair, Department of Human and Organizational Development, Peabody College of Education and Human Development, Vanderbilt University
Ping Wang, Seigle Family Distinguished Professor of Arts and Sciences, Department of Economics, Washington University in St. Louis
Suzanne Wenzel, Richard and Ann Thor Professor in Urban Social Development, Chair, Department of Adult Mental Health and Wellness Suzanne Dworak-Peck School of Social Work and Department of Psychology, University of Southern California

Science and Technology for Sustainability Program Staff

Michael Dorsey, Senior Program Officer (through December 2017)
Emi Kameyama, Associate Program Officer
Nicole Lehmer, Senior Program Assistant
Jennifer Saunders, Consultant
Vaughan Turekian, Executive Director, Policy and Global Affairs
Jerry Miller, Director (through May 2017)
Carlo Altamirano, Christine Mirzayan Science and Technology Policy Graduate Fellow (January to April 2017)

Board on Population Health and Public Health Practice Staff

Karen M. Anderson, Senior Program Officer
Rose Marie Martinez, Senior Board/Program Director
Anna Martin, Senior Program Assistant

Preface

In 1988, the Institute of Medicine (IOM) published its landmark report *Homelessness, Health, and Human Needs*, which analyzed the scientific evidence regarding the causes and consequences of homelessness and associated health problems. The report noted that "the fundamental problem encountered by homeless people—lack of a stable residence—has a direct and deleterious impact on health. Not only does homelessness cause health problems, it perpetuates and exacerbates poor health by seriously impeding efforts to treat disease and reduce disability" (p. 141). Cited by practitioners and policy makers in the field as being foundational to their work, the report recommended federal action to improve health services, housing, and income to reduce homelessness. Now, 30 years later—and notwithstanding some progress in addressing the problem—homelessness remains a major societal and public policy challenge. Particularly important are people experiencing chronic homelessness. Revisiting the housing and health care needs of this population is especially timely and critical to moving the discussion forward and improving the health outcomes of these persons.

Homelessness is linked to the occurrence of numerous acute health problems and exacerbates many serious health conditions including cardiovascular disease, diabetes, and HIV/AIDS. The prevalence of mental illness and substance use, along with co-occurring chronic medical conditions, is significantly higher for some groups within the population of persons experiencing homelessness. This has important implications for the delivery and cost of health care and other services. For example, individuals who are homeless are more likely to rely on emergency care because they lack health insurance and a regular health care provider. Reliance on emergency services may not result in the ongoing health care that is needed and incurs significant preventable costs for the health care system and public resources.

A wide range of housing and other services have been developed to address the needs of persons experiencing homelessness. Permanent supportive housing (PSH), which provides affordable housing matched with ongoing, appropriate services to tenants, is an important example of the types of services designed to keep individuals experiencing chronic homelessness stably housed. Other similar but less intensive interventions have been developed to address the health and housing needs of families experiencing homelessness or of young adults exiting the foster care system who may be at risk of homelessness. These types of services are growing, and it has become increasingly apparent that there is a need to understand how programs designed to house and provide services to populations experiencing homelessness can affect their health outcomes.

Recognizing the timeliness and importance of this issue, the Conrad N. Hilton Foundation and the Bill & Melinda Gates Foundation funded a National Academies of Sciences, Engineering, and Medicine (National Academies) workshop in November 2014 to explore the impact of the changing U.S. health care system under the Affordable Care Act on individuals experiencing homelessness in urban areas. A meeting summary, published in February 2015, describes the discussions held during the event (available at www.nationalacademies.org/healthequityrt or www.nas.edu/sustainability).

Discussions during the 2014 the National Academies workshop and a subsequent scoping session that included more than 30 experts in homelessness policy and research highlighted gaps in the evidence regarding PSH. In brief, empirical and experiential studies of the effectiveness of housing and other types of interventions address the problem of homelessness, but they substantially vary in terms of rigor, scale, and outcomes measured. Consequently, the aggregate findings are unclear, creating a pressing need to more systematically assess the effectiveness of these interventions, both in terms of improving health-related outcomes and cost-effectiveness.

To more fully evaluate interventions and policy options for addressing homelessness, and especially with regard to PSH, the National Academies convened an expert committee in April 2016 to evaluate a fundamental question: *To what extent have permanent supportive housing programs improved health outcomes and affected health care costs in people experiencing homelessness?* This report presents the findings of the committee's evaluation of the evidence available to answer this question.

This Consensus Study Report was reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise. The purpose of this independent review is to provide candid and critical comments that will assist the National Academies in making each published report as sound as possible and to ensure that it meets the institutional standards for quality, objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

We thank the following individuals for their review of this report: Dennis Culhane, University of Pennsylvania; Kelly Doran, New York University; Irwin Feller, American Association for the Advancement of Science; Lillian Gelberg, University of California, Los Angeles; Benjamin Henwood, University of Southern California; Kim Hopper, Nathan S. Kline Institute for Psychiatric Research; John Lozier, National Health Care for the Homeless Council; Linda McCauley, Emory University; David Meltzer, University of Chicago; Vincent Mor, Brown University; Robert Rosenheck, Yale School of Medicine; Molly Scott, Urban Institute; John Tracy, Optiv Security Inc.; and Carol Wilkins, Independent Consultant.

Although the reviewers listed above provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations of this report nor did they see the final draft before its release. The review of this report was overseen by Joseph Newhouse, Harvard University, and Bobbie Berkowitz, Columbia University. They were responsible for making certain that

an independent examination of this report was carried out in accordance with the standards of the National Academies and that all review comments were carefully considered. Responsibility for the final content rests entirely with the authoring committee and the National Academies.

The report would not have been possible without the sponsors of this study, including Blue Shield of California Foundation, California Health Care Foundation, Elsevier, Bill & Melinda Gates Foundation, the Conrad N. Hilton Foundation, The Kresge Foundation, Melville Charitable Trust, and the U.S. Department of Veterans Affairs.

The committee gratefully acknowledges the following individuals for making presentations to the committee: Rebecca Alvarez, Peacock Commons; Katie Bonamasso, Denver Social Impact Bond Initiative; Matthew Doherty, U.S. Interagency Council on Homelessness; Lorraine Flores, Bill Wilson Center; Ann Gabriel, Elsevier; Alison George, Colorado Department of Local Affairs; Sandra Hernandez, California Health Care Foundation; Brenton Hutson, Volunteers of America, Denver; Andrea Iloulian, Hilton Foundation; Ky Le, Santa Clara County; Shea Leibfreid, The Action Center; Jennifer Loving, Destination Home; Marcella Maguire, Corporation for Supportive Housing; Mandy May, Colorado Coalition for the Homeless; Thomas O'Toole, U.S. Department of Veterans Affairs; Kathy Robinson, Charities Housing Development Corporation; Gary Sanford, Metropolitan Denver Homeless Initiative; Richard Thomason, Blue Shield of California Foundation; Helen Tong-Ishikawa, MidPen Housing; Kristin Toombs, Colorado Department of Local Affairs; Sam Tsemberis, Pathways to Housing; and Mary Wickersham, Social Impact Solutions. The information provided during the presentations is used throughout this report and provided important perspectives that the committee used in its findings and conclusions.

I also would like to thank the staff from the National Academies who guided the committee through the study process. Michael Dorsey and Karen Anderson directed the study, with significant guidance from Rose Marie Martinez. Emi Kameyama and Anna Martin provided research and administrative support. Marilyn Baker and consultant Jennifer Saunders assisted in the final stages of completing the report.

Finally, I especially thank the members of the committee for their tireless efforts throughout the development of this report.

Kenneth W. Kizer, Chair
Committee on an Evaluation of Permanent Supportive Housing Programs for Homeless Individuals

Contents

TABLES

BOXES

Abbreviations and Acronyms

ACA	Affordable Care Act
ACT	Assertive Community Treatment
ADA	American with Disabilities Act
AHAR	Annual Homeless Assessment Report
AIDS	acquired immune deficiency syndrome
AMI	area median income
CABHI	Cooperative Agreements to Benefit Homeless Individuals
CD4	cluster of differentiation 4
CDBG	Community Development Block Grant
CDC	Centers for Disease Control and Prevention
CEA	cost-effectiveness analysis
CI	confidence intervals
CMS	Centers for Medicare & Medicaid Services
CoC	Continuum of Care
CPI	Consumer Price Index
CSH	Corporation for Supportive Housing
DHS	Department of Homeland Security
DOL	Department of Labor
ED	emergency department
EMS	emergency medical services
FCTI	Family Critical Time Intervention
FEMA	Federal Emergency Management Agency
FFP	federal financial participation
FHA	Federal Housing Administration
FQHC	Federally Qualified Health Center
FUP	Family Unification Program
GAO	Government Accountability Office
GBHI-SSH	Grants for the Benefit of Homeless Individuals – Services in Supportive Housing
HCH	Health Care for the Homeless
HCV	Housing Choice Voucher
HF	Housing First
HHS	Department of Health and Human Services
HIV	human immunodeficiency virus
HMIS	Homelessness Management Information System
HOME	HOME Investment Partnership
HOPWA	Housing Opportunities for People with AIDS
HRSA	Health Resources and Services Administration
HUD	Department of Housing and Urban Development

HUD-VASH	HUD-Veterans Affairs Supportive Housing
ICD-10	*International Classification of Diseases, Version 10*
ICM	intensive case management
IOM	Institute of Medicine
JAMA	*Journal of the American Medical Association*
KIDS	Kids Integrated Data System
LGBTQ	lesbian, gay, bisexual, transgender, and questioning
LIHTC	Low-Income Housing Tax Credit
MCAS	Multnomah Community Ability Scale
MFP	Money Follows the Person (initiative)
NED	non-elderly disabled
NIDA	National Institute on Drug Abuse
NIMBY	not-in-my-backyard
ODPHP	Office of Disease Prevention and Health Promotion, HHS
OHQS	Observer-Rated Housing Quality Scale
PATH	Projects for Assistance in Transition from Homelessness
PBV	Project-Based Voucher
PHA	Public Housing Agency
PIT	point-in-time system
PSH	permanent supportive housing
PTSD	post-traumatic stress disorder
QALY	quality adjusted life year
QofL	quality of life
QoLI	Quality of Life Interview
RCT	randomized controlled trial
RPCEHM	Report of the Panel on Cost-Effectiveness in Health and Medicine
RWJF	Robert Wood Johnson Foundation
SAMHSA	Substance Abuse and Mental Health Services Administration
SHF	Supportive Housing for Families
SIB	Social Impact Bond
SPDAT	Service Prioritization Decision Assistance Tool
SRHHI	Skid Row Homeless Health Care Initiative
SRO	Single room occupancy
SSI	Supplemental Security Income
SSVF	Supportive Services for Veteran Families
TANF	Temporary Assistance for Needy Families
USDA	Department of Agriculture
USICH	Interagency Council on Homelessness
VA	Department of Veterans Affairs
VAGLA	VA Greater Los Angeles
VASH	VA Supportive Housing
VI	Vulnerability Index
WHO	World Health Organization

Summary

Chronic homelessness is a highly complex social problem of national importance. The problem has elicited a variety of societal and public policy responses over the years, concomitant with fluctuations in the economy and changes in the demographics of and attitudes toward poor and disenfranchised citizens. In recent decades, federal agencies, nonprofit organizations, and the philanthropic community have worked hard to develop and implement programs to solve the challenges of homelessness (Farrugia and Gerrard, 2015; Harris, 2016), and progress has been made. However, much more remains to be done. Importantly, the results of various efforts, and especially the efforts to reduce homelessness among veterans in recent years, have shown that the problem of homelessness can be successfully addressed.

The scope of the problem is substantial. In 2017, more than 550,000 people were staying in shelters or in places not intended for human habitation on a single night. That same year 86,962 individuals were considered chronically homeless, nearly 7 in 10 of whom were unsheltered (HUD, 2017b).

The evidence of health-related harm caused by chronic homelessness is substantial. Research indicates that individuals who experience homelessness are at higher risk for infectious diseases (including human immunodeficiency virus [HIV] and hepatitis), serious traumatic injuries, drug overdoses, violence, death due to exposure to extreme heat or cold, and death due to chronic alcoholism. Persons experiencing homelessness are more likely than housed persons to use hospital emergency departments for health care and to be admitted to the hospital because they are less likely to have health insurance and a usual source of health care and because their conditions cannot be appropriately cared for without safe and secure housing. Individuals experiencing homelessness have longer hospitalizations for the same illnesses as housed persons, often because it is simply neither safe nor humane to discharge them to the street when they are still recuperating from the condition that caused them to be hospitalized, even if they are no longer acutely ill (Salit et al., 1998).

Although a number of programs have been developed to meet the needs of persons experiencing homelessness, this report focuses on one particular type of intervention—that is, permanent supportive housing (PSH)—and its impact on health outcomes and costs.

PSH programs have two essential components: (1) the provision of non-time-limited housing, and (2) the provision of an array of voluntary supportive

services. Not all individuals experiencing homelessness require PSH. Although the US Department of Housing and Urban Development (HUD) prioritizes those experiencing chronic homelessness for PSH, eligibility is based on long-term disability status, experiences with homelessness or unstable housing, or experiences of multiple barriers in maintaining housing stability. Although people experiencing chronic homelessness are only one subpopulation of individuals experiencing homelessness who are eligible for PSH, they are the primary population of interest in this report. Other housing models have evolved to serve the needs of other subpopulations.

In addition, the committee acknowledges that while one key goal of PSH is to address homelessness for people experiencing chronic homelessness, because of its specific charge, *this report focuses on the impact of PSH on health care outcomes and its cost-effectiveness*. The report also addresses policy and program barriers that affect the ability to bring the PSH and other housing models to scale to address housing and health care needs.

COMMITTEE'S STATEMENT OF TASK

The Committee on an Evaluation of Permanent Supportive Housing Programs for Homeless Individuals was charged to address a fundamental question: *To what extent have permanent supportive housing programs improved health outcomes and affected health care costs in people experiencing chronic homelessness?* To answer this question, the committee focused on more specific questions, including the following:

- What is the evidence that permanent supportive housing improves health-related utilization and outcomes in homeless persons with serious, chronic, or disabling conditions (e.g., substance use disorders, serious mental illness, physical disabilities, chronic conditions such as diabetes, etc.)?
- How cost-effective is PSH for addressing homelessness and health outcomes compared with usual care[1] and alternative interventions?
- What are individual and other characteristics that may be associated with the health-related outcomes and costs of permanent supportive housing (e.g., age, health conditions, other demographics)?
- What characteristics of permanent supportive housing programs, if any, result in improved health outcomes and evidence of cost-effectiveness?
- How generalizable are the findings from studies evaluating outcomes associated with the use of permanent supportive housing in the chronically

[1]Usual care is defined as services that an individual accesses in the absence of immediate referral to the other interventions.

homeless to other homeless populations (e.g., families with children or disabled persons)?

- Are the outcomes associated with the use of permanent supportive housing translatable to other populations or systems (e.g., what are common characteristics that might translate to an institutionalized population)?
- What are the key policy barriers and research gaps associated with developing programs to address the housing and health needs of homeless populations?

In answering these questions, the committee took a broad approach and interpreted "health" to be more than access to health care for individuals and families experiencing homelessness. The committee conducted its assessment through a population health lens, which means considering factors such as food security, safe and secure housing, reliable and safe transportation, uncontaminated air and water, and freedom from personal violence, among other social determinants of health, to be necessary for good health at both the individual and population levels (NASEM, 2016; WHO, 2017). These social determinants of health are outside of the scope of the traditional health care system and requires that the focus be on "upstream" factors and the prevention, as well as the treatment, of illness (Cohen et al., 2014).

To respond to the last question on "key policy barriers and research gaps associated with developing programs to address the housing and health needs of homeless populations," the committee looked primarily at barriers to the PSH program and what would be needed to bring it to scale to meet the needs of those experiencing chronic homelessness.

Limitations of the Evidence

The committee's deliberations were limited by a less than robust literature and evidentiary base with which to assess the effect of individual and program characteristics on outcomes in PSH. The committee was disappointed to find that the existing literature lacks information on the type, intensity, frequency, or length of the needed services, as well as clear details on what constitutes "usual services" when comparing the efficacy of different models of PSH. The lack of data about these things effectively precluded generalizing who among individuals experiencing homelessness are most likely to benefit from the services and different models of PSH.

The committee also identified inconsistencies in definitions and characteristics of PSH, and limited understanding of key services or minimum standards of PSH. The evidentiary base for screening tools used in allocating housing services assistance is especially limited. These limits create barriers to the collection of data on health outcomes of persons utilizing PSH. Further, data systems are not

currently designed to integrate data on homelessness, health, and other characteristics, which limited the ability of the committee to draw conclusions on these connections.

Regarding its evaluation of the literature on cost-effectiveness of PSH, the committee notes that although many studies that have applied a pre-test/post-test design have shown marked cost reductions, the few carefully conducted randomized controlled trials that have been done have failed to show any significant reduction in costs or improvements in health.

Because of the many evidentiary shortcomings, the committee was able to conclude less than it had expected would be possible when embarking on its work. The committee's conclusions and recommendations below highlight what additional research is needed to determine the effectiveness of PSH in addressing health outcomes and to clarify for whom and in which circumstances it may be most beneficial.

CONCLUSIONS AND RECOMMENDATIONS

Overall, except for some evidence that PSH improves health outcomes among individuals with HIV/AIDS, the committee finds that there is no substantial published evidence as yet to demonstrate that PSH improves health outcomes or reduces health care costs. However, while this was the inescapable finding based on an impartial review of the evidence available at the time of this assessment, the committee believes that housing in general improves health, and notes that PSH is important in increasing the ability of some individuals to become and remain housed. Remaining housed should improve the health of these individuals because housing alleviates a number of negative conditions that detract from their ability to achieve "a state of complete physical, mental and social well-being" (WHO, 1946).

Individuals who live on the street are subject to extremes of the elements (e.g., freezing temperatures, extreme heat, sun exposure, and rain); lack of places to wash, urinate, and defecate; lack of a place to lie without undue pressure on the skin; lack of refrigeration (for food or medicines) or cooking facilities; lack of privacy; lack of a place for social interaction; lack of a stable address for receiving services, receiving mail, or hosting family members or visitors; exposure to violence, victimization, drugs, and injection drug use; and lack of places for intravenous drug users to safely and cleanly inject with resultant increased risk for infections such HIV, hepatitis B virus (HBV), and hepatitis C virus (HCV). Sustained housing provides a platform from which other physical, mental, and social concerns can begin to be addressed.

The committee's conclusions and recommendations described below are divided into three categories: (1) addressing research gaps in understanding the impact of PSH on health and cost-effectiveness of the model; (2) improving our understanding of effects of individual characteristics on outcomes in PSH; and (3)

identifying policy and program barriers to bringing PSH and other housing models to scale. (The recommendation number indicates the chapter in the full report where the specific recommendation can be found.)

Addressing the Research Gaps

PSH and Health

As noted above, on the basis of currently available studies, the committee found no substantial evidence that PSH contributes to improved health outcomes, notwithstanding the intuitive logic that it should do so and limited data showing that it does do so for persons with HIV/AIDS. There are significant limitations with the current research and evidentiary base on this topic. Most studies did not explicitly include people with serious health problems, who are the most likely to benefit from housing. Of the studies that were more rigorous, the committee found that housing increases the well-being of persons experiencing homelessness.

Based on studies conducted over a 1- to 2-year period, PSH effectively maintains housing stability for most people experiencing chronic homelessness. Whether PSH can reduce chronic homelessness for these individuals for longer periods of time will only be known once the results of longer term studies are available. Longer term randomized controlled trials that integrate health and housing data are also needed to fully assess the impact of PSH on health outcomes. The committee acknowledges the importance of housing in improving health in general, but it also believes that some persons experiencing homelessness have health conditions for which failure to provide housing would result in a significant worsening of their health. Said differently, notwithstanding that housing is good for health in general, the committee believes that stable housing has an especially important impact on the course and ability to care for certain specific conditions and, therefore, the health outcomes of persons with those conditions. The committee refers to these conditions as "housing-sensitive conditions" and recommends that high priority be given to conducting research to further explore whether there are health conditions that fall into this category and, if so, what those specific conditions are. The evidence of the impact of housing on HIV/AIDS in individuals experiencing chronic homelessness may serve as a basis for more fully examining this concept.

> **Recommendation 3-1:** Research should be conducted to assess whether there are health conditions whose course and medical management are more significantly influenced than others by having safe and stable housing (i.e., *housing-sensitive conditions*). This research should include prospective longitudinal studies, beyond 2 years in duration, to examine health and housing data that could inform which health conditions, or combinations of conditions, should be considered especially housing-sensitive. Studies also should be undertaken to clarify linkages between the provision of both permanent housing and supportive services and specific health outcomes.

Recommendation 3-2: The Department of Health and Human Services, in collaboration with the Department of Housing and Urban Development, should call for and support a convening of subject-matter experts to assess how research and policy could be used to facilitate access to permanent supportive housing and ensure the availability of needed support services, as well as facilitate access to health care services.

Cost-Effectiveness of PSH

The committee examined studies that attempted to assess the cost-effectiveness of PSH and found that, at present, there is insufficient evidence to demonstrate that the PSH model saves health care costs or is cost-effective. Unfortunately, the literature on cost-effectiveness of PSH is sparse; few randomized controlled studies have been conducted. Most studies in this regard use a quasi-experimental design. Further, the available studies have not been conducted in a manner that is methodologically aligned with generally accepted health care cost-effectiveness research design. In principle, the most robust scientific evidence to answer the question would come from studies using a randomized design and that cover a comprehensive array of cost and effectiveness measures. Ideally, such studies would allow for constructing the cost-effectiveness ratio to compute the net cost required per unit of quality-adjusted life-years or, at a minimum, provide information on the net cost required for increasing one stably housed day. Unfortunately, there were very few randomized studies and among these, cost measures were incomplete and effectiveness measures scarce.

Importantly, a common question embedded in the evaluation of PSH programs and other health interventions is whether these programs result in a monetary return on investment such as cost savings (Keyes and Galea, 2016). However, PSH was designed with the primary goal of preventing and ending chronic homelessness and not for the purpose of accruing cost savings (USICH, 2015d). The committee believes that evaluations of these programs should a priori be expected to show broad benefits of health and well-being, including keeping individuals experiencing homelessness stably housed. The committee does not believe policy makers and others should expect that permanent supportive housing programs would yield net cost savings, although some cost savings could be identified in specific studies such as those that exclusively focus on persons who are persistently high utilizers of emergency medical services systems.

To address these problems, the committee recommends:

Recommendation 4-1: Incorporating current recommendations on cost-effectiveness analysis in health and medicine (Sanders et al., 2016), standardized approaches should be developed to conduct financial analyses of the cost-effectiveness of permanent supportive housing in improving health

outcomes. Such analyses should account for the broad range of societal benefits achieved for the costs, as is customarily done when evaluating other health interventions.

Recommendation 4-2: Additional research should be undertaken to address current research gaps in cost-effectiveness analysis and the health benefits of permanent supportive housing.

Assessing Individual and Program Characteristics of PSH

There is some evidence that individual characteristics of the people using PSH programs have a modest impact on the outcomes achieved with PSH. For example, persons 50 years of age and older may derive somewhat greater mental health benefits from PSH than younger individuals, although the effectiveness of PSH in reducing homelessness is similar across age groups. The evidence is inconclusive as to whether persons who abuse alcohol or drugs derive housing and health benefits from PSH similar to benefits experienced by persons who do not abuse such substances. The committee found no evidence to support the use of current predictive models to identify individuals who are unlikely to achieve housing stability through PSH programs. Likewise, the committee found a lack of evidence to support the use of assessment tools, notwithstanding their widespread use, to identify individuals who are more likely to have improved outcomes if provided with PSH. The committee's recommendations below address the need for future research and standards related to individual and program characteristics of PSH.

Recommendation 5-1: Agencies, organizations, and researchers who conduct research and evaluation on permanent supportive housing should clearly specify and delineate: (1) the characteristics of supportive services, (2) what exactly constitutes "usual services" (when "usual services" is the comparator), (3) which range of services is provided for which group of individuals experiencing homelessness, and (4) the costs associated with those supportive services. Whenever possible, studies should include an examination of different models of permanent supportive housing, which could be used to elucidate important elements of the intervention.

Recommendation 5-2: Based on what is currently known about services and housing approaches in permanent supportive housing (PSH), federal agencies, in particular the Department of Housing and Urban Development, should develop and adopt standards related to best practices in implementing PSH. These standards can be used to improve practice at the program level and guide funding decisions.

In addition, the committee's assessment of the literature indicates that while families who obtain PSH do well—in terms of reducing child behavior problems

and depression and improving parenting competencies (Gewirtz et. al., 2015)—the evidence is not clear that they do better than families who obtain ongoing rental subsidies (Gubits et al., 2015, 2016). Likewise, it is not clear how to target a subgroup that might benefit from case management and additional services linked to housing. There is suggestive evidence that PSH may reduce child placements for some families involved in the child welfare system, but this is also true of subsidies without dedicated services (Gubits et al., 2015). Again, it is not clear how to target this resource (Gewirtz et al., 2015).

Although unaccompanied youth and those who age out of the foster care system are at high risk for adverse health and social outcomes, there is little evidence as to whether PSH might help. PSH has been advocated as an alternative to nursing home care for adults with serious physical needs, but there are no comparative studies. It is plausible that permanent supportive housing would support both housing and health outcomes for high-risk members of all of these populations, but evidence is largely descriptive and ranges from weak to nonexistent. Given this, it is unclear whether other, less intensive interventions might do as well, or how subpopulations who might benefit from PSH should be identified.

Key Policy and Program Barriers

As part of its charge, the committee was asked to identify the "key policy barriers and research gaps associated with developing programs to address the housing and health needs of homeless populations." Based on its position that PSH holds potential for improving the health outcomes of individuals experiencing homelessness, the committee describes below the key policy and program barriers to bringing PSH and other housing models to scale to meet the needs of those experiencing chronic homelessness.

For example, funding streams and policy regulations for PSH are siloed and often impose substantive restrictions on how the funds may be used. This lack of coordination creates complications for combining or blending funds from different sources, and works against efforts to most efficiently use available funding. Accordingly, the committee recommends the following:

> **Recommendation 7-1:** The Department of Housing and Urban Development and the Department of Health and Human Services should undertake a review of their programs and policies for funding permanent supportive housing with the goal of maximizing flexibility and the coordinated use of funding streams for supportive services, health-related care, housing-related services, the capital costs of housing, and operating funds such as Housing Choice Vouchers.

Medicaid is an important funding source for at least a portion of the costs of PSH, particularly in covering the supportive services that people with disabilities or complex health conditions need to achieve housing stability and to access the care necessary to live in community settings.

Prior to the expansion of Medicaid eligibility as part of the Affordable Care Act (ACA), low-income adults were eligible to enroll in Medicaid only if they also met categorical eligibility requirements, meaning that they must be pregnant, a custodial parent of an eligible child, disabled, a senior, or a member of another categorical eligibility group defined by law and state policy. This is still true today in states that have not expanded eligibility as authorized by the ACA. In states that have expanded Medicaid as authorized by the ACA, the primary eligibility criterion is having income lower than 138 percent of the federal poverty line. With this change, a large number of adults who experience homelessness have become eligible for Medicaid based on their incomes, without having to demonstrate that they have qualifying disabilities.

Although federal funds cannot cover rent or the capital costs of constructing or renovating housing, states have options for authorities and programs they can use to include services, including housing-related services, as Medicaid benefits and to obtain federal matching funds for these covered services. States may either request a waiver in order to use Medicaid funds to pay for some housing-related services in PSH and/or use optional state plan benefits to cover these services.

The Centers for Medicare & Medicaid Services has recently acknowledged the important connection between housing and health in an Informational Bulletin on "Coverage of Housing-Related Activities and Services for Individuals with Disabilities" (CMS, 2015). Focusing specifically on individuals experiencing chronic homelessness, individuals with disabilities, and older adults needing long-term support services, the bulletin describes how "certain housing-related activities" can be reimbursed via Medicaid.

States that have pursued optional benefits to facilitate Medicaid reimbursement for services have found these challenging to design and have reported fragmentation in implementation. Obtaining Medicaid waivers to pay for housing-related services has been very challenging for states; some states have had to drop these provisions from waiver proposals or have significantly scaled back or narrowed eligibility for waiver services, among other issues. Other challenges include difficulty in determining how and who can bill for the services provided in supportive housing projects.

In addition, CMS has announced a future expansion of its definition of health-related benefits in its Medicare Advantage plans, which provide extra coverage, such as for vision, hearing, dental, and/or health and wellness programs, to Medicare recipients. In April 2018, CMS released a 2019 Medicare Advantage and Part D Rate Announcement and Call Letter, which announced a reinterpretation of federal statute to expand the scope of the "primarily health-related supplemental benefit" (CMS, 2018). CMS states that under this reinterpretation, the agency would "allow supplemental benefits if they are used to diagnose, prevent, or treat an illness or injury, compensate for physical impairments, act to ameliorate the functional/psychological impact of injuries or health conditions, or reduce avoidable emergency and healthcare utilization." This is further evidence that the agency has moved in the direction of covering a more integrative approach to

addressing health care needs and that services beyond those traditionally held as health-related, including housing, may improve health outcomes.

Leveraging Medicaid may make it possible to bring PSH to greater scale, and to reach homeless and at-risk persons with housing before chronic homelessness takes a greater toll on their health outcomes and the overuse of public services. To accomplish this, streamlining the approval of waivers that seek to use Medicaid to pay for housing-related services is needed.

> **Recommendation 7-2:** The Centers for Medicare & Medicaid Services should clarify the policies and procedures for states to use to request reimbursement for allowable housing-related services, and states should pursue opportunities to expand the use of Medicaid reimbursement for housing-related services to beneficiaries whose medical care cannot be well provided without safe, secure, and stable housing.

As described above, in studies ranging up to 2 years, PSH has been shown to be effective in maintaining housing stability for most people experiencing chronic homelessness. This evidence of the effectiveness of PSH in allowing people to become stably housed indicates that it is possible to reduce chronic homelessness, given sufficient will and a commitment of adequate resources. However, there is a substantial and ongoing unmet need for PSH and a shortfall in the funding used to provide it (Culhane et al., 2002; Sylla et al., 2016). This gap is not filled by the HUD's Continuum of Care and other programs addressing homelessness. In an environment of static or declining discretionary budgets, federal policies should prioritize PSH for persons experiencing chronic homelessness, but not at the expense of downsizing other federal programs that support persons experiencing chronic homelessness. The committee recommends the following:

> **Recommendation 7-3:** The Department of Health and Human Services and the Department of Housing and Urban Development, working with other concerned entities (e.g., nonprofit and philanthropic organizations and state and local governments), should make concerted efforts to increase the supply of permanent supportive housing (PSH) for the purpose of addressing both chronic homelessness and the complex health needs of this population. These efforts should include an assessment of the need for new resources for the components of PSH, such as health care, supportive services, housing-related services, vouchers, and capital for construction.

Finally, the construction of PSH is often hindered by regulatory barriers that make it more difficult and more expensive to address chronic homelessness. The committee reiterates the findings of the Advisory Commission on Regulatory Barriers to Affordable Housing from more than 25 years ago: Local land-use regulations that apply to the siting and construction of new housing present substantive barriers to expanding the availability of affordable housing, including PSH. State and local governments could take action to help reduce unnecessary regulatory

barriers to land use to streamline the development of affordable housing, including single-site PSH. To address another significant barrier to developing additional PSH, HUD could develop model regulations for expediting the siting and construction of single-site PSH. In addition, to eliminate barriers to the use of housing vouchers for scatter-site PSH, federal, state, and local governments could proactively use their anti-discriminatory enforcement authorities and their leverage over the terms of federal grants to incentivize grantees to eliminate barriers that make the programs less effective and efficient.

Overall, based on its assessment, the committee finds that PSH holds potential not only for reducing the number of persons experiencing chronic homelessness but also for improving their health outcomes, although much additional research is needed to determine the effectiveness of PSH and to clarify for whom and in which circumstances it is most beneficial. Chronic homelessness and related health conditions are problems that require an appropriate multidimensional strategy and an ample menu of targeted interventions that are premised on a resolute commitment of resources. More precisely defined and focused research to refine the menu of needed interventions and a materially increased supply of PSH are part of the multidimensional strategy. The committee hopes that this report will stimulate research and federal action to move the field forward and advance efforts to address chronic homelessness and improved health in this country.

1

Introduction

Homelessness is one of the more visible consequences of the nexus of unemployment, poverty, and a lack of affordable housing (Martin, 2015). Homelessness is an issue of national concern, with numerous federal agencies, nonprofit organizations, and the philanthropic community working to develop and implement programs that address this critical political-economic and public policy challenge (Farrugia and Gerrard, 2015; Harris, 2016).

In 1988, the Institute of Medicine (IOM) published *Homelessness, Health, and Human Needs*, which analyzed the scientific evidence regarding the causes and consequences of homelessness and associated health problems. The report noted that "the fundamental problem encountered by homeless people—lack of a stable residence—has a direct and deleterious impact on health. Not only does homelessness cause health problems, it perpetuates and exacerbates poor health by seriously impeding efforts to treat disease and reduce disability" (IOM, 1988, p. 141). Cited by practitioners and policy makers in the field as being foundational to their work, the report outlined federal action to improve health services, housing, and income levels to reduce homelessness (Jones, 2015). Nearly 30 years later, although progress has been made, homelessness continues to be an important challenge, particularly in urban areas. Revisiting the housing and health care needs of individuals experiencing homelessness is critical to moving the discussion forward and improving health outcomes for this population.

RELATIONSHIP BETWEEN HOUSING, HOMELESSNESS, AND HEALTH

The relationship between housing and health is complex. The idea that housing can impact health has been supported by a number of organizations, including the National Academies of Sciences, Engineering, and Medicine (NASEM, 2016), the Robert Wood Johnson Foundation (RWJF, 2015), and the Department of Health and Human Services (HHS). For example, in 2010, the HHS launched Healthy People 2020, a science-based 10-year agenda for "improving the Nation's health." The agenda includes discussion of the five social determinants of health, which include economic stability, education, health and health care, neighborhood and built environment, and social and community context

(HHS, 2018b). It describes housing instability as "a key issue in the Economic Stability domain" and observes that

> housing instability has no standard definition. It encompasses a number of challenges, such as having trouble paying rent, overcrowding, moving frequently, staying with relatives, or spending the bulk of household income on housing. These experiences may negatively affect physical health and make it harder to access health care (HHS, 2018a).

In addition to the 2010 HHS report, the Bipartisan Policy Center issued a report in 2018 on "*HHS Partnerships: A Prescription for Better Health*," which emphasizes the importance of partnerships between HHS and HUD to improve health. According to this report,

> housing needs, left unaddressed, are a strain on our health care system. For example, the top 5 percent of hospital users—overwhelmingly poor and housing insecure—are estimated to consume 50 percent of health care costs. As such, many in the health care sector—including payers, hospitals, and clinicians—are increasingly seeing the potential of the home as a platform for health and wellness services and as an essential tool in chronic care management. We also know now that expenditures to improve access to safe, affordable housing can materially improve population health. Studies have clearly demonstrated the positive health effects of many housing-based interventions, including those, for example, that improve insulation and energy efficiency, provide greater accessibility, reduce mold and dampness, eliminate pest infestations, and abate lead (BPC, 2018, p. 5).

Internationally, the World Health Organization (WHO) defined health broadly in in its 1948 constitution as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity," which implies an affiliation between housing and health.

The lack of housing has been associated with reduced opportunities for education, reduced food security, and reduced public safety (Baggett et al., 2013). Homelessness is linked to and exacerbates serious health conditions, including cardiovascular disease, diabetes, and HIV/AIDS, and adults living on the streets have shorter life expectancies (Baggett et al., 2013; Bowen, 2016). In addition, the prevalence of mental illness and substance use along with co-occurring chronic health conditions is significantly higher for some homeless populations, which has implications for the delivery and cost of services (Martin, 2015). Health problems can also cause homelessness; for example, mental illness, substance use, and chronic illness, have been cited as causative of homelessness (IOM, 1988). Furthermore, individuals who experience homelessness are more likely to rely on emergency health care services, experience a lack of health coverage, and experience a lack of access to ambulatory clinics that are able to meet their needs. This

is a pattern that poses a significant cost to the health care system and publicly funded services (Kushel et al., 2002; Bowen, 2016).

In 1988, it was estimated that 735,000 people experienced homelessness on any given night, although estimates ranged from 250,000 up to 2.2 million (IOM, 1988). In 2017, although the estimate remained high, the numbers had decreased to just more than 550,000 people staying in shelters or in places not intended for human habitation on a single night (HUD, 2017b). Many more people experience homelessness over longer periods, such as 1 year or more. In 2016 (the last data available), 1.42 million people stayed in a homeless shelter or a transitional housing program (HUD, 2017a).

Although the numbers have improved since 2010, homelessness remains a significant problem for those who experience it (HUD, 2017a). Consequently, a wide range of housing and other services has been developed to address the needs of individuals experiencing homelessness. Permanent supportive housing (PSH), defined in the Statement of Task for this study as "decent, safe, and affordable community-based housing that provides residents the rights of tenancy under state and local landlord-tenant laws,"[1] is an example of a specific type of program designed to keep individuals experiencing chronic homelessness stably housed (Baker and Evans, 2016). In this type of housing, tenants have a private and secure place to make their home with the same rights and responsibilities as other community members. Tenants have access to the support services that they need and want to use, and they can remain in their homes as long as they meet the basic obligations of tenancy, such as paying reduced or subsidized rent.

Not all individuals experiencing homelessness need PSH. Although HUD prioritizes those with chronic homelessness for PSH (HUD, 2016a), generally, eligibility is based on long-term disability status, experiences with homelessness or unstable housing, or experiences of multiple barriers in maintaining housing stability. Program eligibility is in part dependent on the available funding stream (e.g., U.S. Department of Veterans Affairs funds can only be used to provide PSH to veterans and their families). To facilitate eligibility for receiving this housing, HUD has developed a definition of chronic homelessness (HUD, 2015c):[2]

- A "chronically homeless" individual is defined to mean an individual experiencing homelessness with a disability who lives either in a place not meant for human habitation, a safe haven, or in an emergency shelter, or in an institutional care facility if the individual has been living in the facility for fewer than 90 days and had been living in a place not meant for human habitation, a safe haven, or in an emergency shelter immediately before entering the institutional care facility. To meet the "chronically homeless" definition, the individual also must have been living as described above continuously for at least 12 months, or on at least four

[1]The committee agreed upon a slightly different definition from that in the Statement of Task.

[2]The HUD definition above was the definition used by the committee.

separate occasions in the last 3 years, where the combined occasions total a length of time of at least 12 months. Each period separating the occasions must include at least 7 nights of living in a situation other than a place not meant for human habitation, in an emergency shelter, or in a safe haven.

- Chronically homeless families are families with adult heads of household who meet the definition of a chronically homeless individual. If there is no adult in the family, the family would still be considered chronically homeless if a minor head of household meets all the criteria of a chronically homeless individual. A chronically homeless family includes those whose composition has fluctuated while the head of household has been homeless.
- An individual experiencing homelessness who is (a) without a home and living in a short-term emergency shelter or somewhere not intended for human habitation (e.g., an abandoned building, on the street, in an automobile); (b) has lived in such a setting continuously for at least a year or on at least four different occasions over a 3 year period; and (c) is or could be diagnosed with any of the following: substance use disorder, post-traumatic stress disorder, traumatic brain injury, chronic illness or disability, developmental disability, or serious mental illness.
- The definition also includes individuals previously residing (for less than 90 days) in an institutional care facility such as a jail, mental health treatment facility, hospital, or similar facility, as long as they meet the criteria in the first bullet prior to entering the facility.
- A family experiencing homelessness with an adult head-of-household who meets the criteria in the first bullet above.

The number of individuals experiencing chronic homelessness is difficult to estimate; however, the 2016 Annual Homeless Assessment Report (AHAR) to Congress estimated that more than 77,000 individuals experiencing homelessness on a specific night in January 2016 were defined as being chronically homeless (HUD, 2016c). Although people experiencing chronic homelessness are but one subpopulation of individuals experiencing homelessness, they are the primary population of interest in this report.

COMMITTEE'S STATEMENT OF TASK

In 2016, a number of foundations and organizations came together to support a study to be conducted by the Science and Technology for Sustainability program, in collaboration with the Board on Population Health of the National Academies of Sciences, Engineering, and Medicine (National Academies) to address a fundamental question: *To what extent have permanent supportive housing*

programs improved health outcomes and affected health care costs in people experiencing homelessness? More specifically, the committee focused on the following questions:

- What is the evidence that permanent supportive housing improves health-related utilization and outcomes in homeless persons with serious, chronic, or disabling conditions (e.g., substance use disorders, serious mental illness, physical disabilities, diabetes, etc.)? How cost-effective is PSH for addressing homelessness and health outcomes compared with usual care and alternative interventions?
- What are individual and other characteristics that may be associated with the health-related outcomes and costs of permanent supportive housing (e.g., age, health conditions, other demographics)?
- What characteristics of permanent supportive housing programs, if any, result in improved health outcomes and evidence of cost-effectiveness?
- How generalizable are the findings from studies evaluating outcomes associated with the use of permanent supportive housing in the chronically homeless to other homeless populations (families with children, disabled persons, etc.)?
- Are the outcomes associated with the use of permanent supportive housing translatable to other populations or systems (e.g., what are common characteristics that might translate to an institutionalized population)?
- What are the key policy barriers and research gaps associated with developing programs to address the housing and health needs of homeless populations?

COMMITTEE'S APPROACH TO THE TASK

To respond to this task, the National Academies convened the Committee on an Evaluation of Permanent Supportive Housing Programs for Homeless Individuals in April 2016 to conduct the study and prepare this report. The committee includes 11 experts with research or expertise in a broad range of areas including homelessness policy, social science, health care, health care administration, population health, health disparities, health care cost-effectiveness, housing policy, urban sustainability, urban poverty, health economics, and statistics. Brief biographies of committee members and the study staff are provided in Appendix A.

In addition to reviewing the relevant literature, the committee held four meetings over an 18-month period, to obtain input from an array of experts and stakeholders. The committee also conducted site visits in Denver, Colorado, and San Jose, California, to see PSH in the community and to obtain direct input from housing providers and nongovernmental organizations. These information-gathering activities informed the committee's discussions and the final report. In conducting its work, the committee grounded its review on three sets of findings:

- The IOM's 1988 finding that the lack of stable housing has a direct and deleterious impact on health (IOM, 1988);
- WHO's broad notion of health, and the role of housing as an influencer of health (WHO, 1994); and
- The National Academies report findings reiterating that housing is a social determinant of health (NASEM, 2016, 2017).

Because PSH is primarily directed to individuals who experience chronic homelessness, this subpopulation of individuals experiencing homelessness is the primary focus of this report.

Limitations of the Evidence

The committee's deliberations were limited by a less than robust literature and evidentiary base to assess the effect of individual and program characteristics on outcomes in permanent supportive housing. The committee was disappointed to find that the existing literature lacks information on the type, intensity, frequency, or length of the needed services, as well as a lack of clear details of what constitutes "usual services" when comparing the efficacy of different models of permanent supportive housing. The lack of data about these things effectively precluded generalizing to who among individuals experiencing homelessness are most likely to benefit from the services and different models of PSH.

The committee also identified inconsistencies in definitions and characteristics of PSH, and limited understanding of key services or minimum standards of PSH. The evidentiary base for screening tools used in allocating housing services assistance is especially limited. These limits create barriers to the collection of data on health outcomes of persons utilizing PSH. Further, data systems are not currently designed to integrate homeless, health, and other data resources, which limited the ability of the committee to draw conclusions on these connections. Regarding its evaluation on the literature of cost-effectiveness of PSH, the committee notes that while many studies that have applied a pre-test/post-test design have shown marked cost reductions, the few carefully conducted randomized controlled trials that have been done have failed to show any significant reduction in costs or improvements in health.

The committee was able to conclude less than it had expected would be possible when embarking on its work, because of the many evidentiary shortcomings. The findings and recommendations highlight what additional research is needed to determine the effectiveness of PSH in addressing health outcomes and to clarify for whom and in which circumstances it may be most beneficial.

ORGANIZATION OF THE REPORT

This chapter provides a brief overview of the committee's approach. Chapter 2 describes the extent and burden of homelessness and elaborates on the programs and approaches used to address it. Chapter 3 evaluates evidence on the efficacy of permanent supportive housing on health. Chapter 4 examines the cost-effectiveness of permanent supportive housing on health. Chapter 5 describes the effect of individual and program characteristics on the outcomes of permanent supportive housing. Chapter 6 explores the impact of these programs on families and youth. Chapter 7 details program and policy barriers to establishing and financing PSH programs. Chapter 8 addresses research gaps. Finally, Chapter 9 offers the committee's concluding observations and recommendations.

2

Addressing Homelessness in the United States

Homelessness in the United States is a highly complex and dynamic condition that has evolved over time. The demographic characteristics of persons experiencing homelessness have changed due to, among other things, fluctuations in the strength and nature of the economy, broad population shifts, and changes in societal attitudes toward poor, excluded, and disenfranchised persons. While our understanding about the causes of homeless and what interventions are most effective has improved, there is still much more we need to learn about this complex issue.

This chapter briefly describes what we know about who experiences homelessness, how homelessness can impact health and other outcomes, and current housing interventions and the populations these are intended to serve, including permanent supportive housing. For a brief history of homelessness in the United States, please see Appendix B.

CURRENT STATE OF HOMELESSNESS IN THE UNITED STATES: DATA AND TRENDS

While the numbers have generally been decreasing since 2010, in 2017, more than 550,000 people in the United States were staying in shelters or in places not intended for human habitation on a single night (HUD, 2017a,b). Many more people experience homelessness over longer periods, such as 1 year or more. In 2016, 1.42 million people at some point stayed in a homeless shelter or a transitional housing program (HUD, 2017a). How homelessness is defined, as described below, impacts how these data are collected, and what we know about who is experiencing homelessness, and informs what services are needed.

Defining Homelessness

The definition of "homelessness" has changed over time, and even today, relevant federal agencies define the term differently. Differences in the characterization of homelessness allow agencies to tailor definitions to represent the needs of their unique subpopulations (e.g., homeless unmarried adults, homeless children, or homeless families) and the goals of the agency's programs and policies. However, having varying definitions can make it more challenging for people to identify and access the appropriate services (Watson, 1984; SAMHSA, 2017). For example, children experiencing homelessness are eligible for services through their local educational agency with funding from the Department of Education,

which uses a definition of homelessness that is broader than that used by the Department of Housing and Urban Development (HUD). In addition, different definitions create challenges in counting individuals experiencing homelessness, tracking the use of homelessness services, and documenting unmet needs (HUD, 2008; Burt et al., 2010).

While it is tempting to make recommendations that a single definition be developed for use across federal agencies and other relevant organizations, this notion was recently abandoned by the U.S. Interagency Council on Homelessness (USICH). In 2010, USICH convened a meeting of experts and stakeholders to discuss the feasibility of adopting standard definitions and a standardized vocabulary as mandated by the Homeless Emergency Assistance and Rapid Transition to Housing Act of 2009. Substantial concerns were voiced that creating a single definition would be too resource intensive for state and local governments to handle and could lead to a loss of resources for local agencies serving unique subpopulations that might not meet the criteria of a standardized definition. Thus, instead of creating a standardized definition, the recommendation was to create a common vocabulary and common data standards that would allow agencies to distinguish the needs of various subpopulations.

A common vocabulary would ensure that a standard terminology would be used in how local agencies define different manifestations of homelessness but still allow for these different manifestations to be defined as homelessness based on a preestablished set of eligibility criteria. This would also increase the ability of local agencies to capture the diversity within their homeless population. A common data standard would also help to ensure that a standard set of information is collected by reporting entities and would facilitate interorganizational data pooling and linkages to characterize the state of the homelessness by pooling data across agencies.

Some progress has been made on common data standards, with one example being efforts to integrate data sources between the Homelessness Management Information System (HMIS)[1] and the Runaway and Homeless Youth Management Information System (USICH, 2015b). In addition, the European Typology of Homelessness and Housing Exclusion (ETHOS) has been developed as "a means of improving understanding and measurement of homelessness in Europe"

[1]HUD describes the purpose of HMIS "to produce an unduplicated count of homeless persons, understand patterns of service use, and measure the effectiveness of homeless programs. Data on homeless persons [are] collected and maintained at the local level." HMIS provides sample policies and procedures, training modules, templates and tools, and manuals to support a variety of homelessness services, including the Continuums of Care (CoC) program, HUD-Veterans Affairs Supportive Housing (HUD-VASH) program, and Veterans Homelessness Prevention Demonstration (VHPD) program. For further information see HUD (U.S. Department of Housing and Urban Development). 2018. HMIS Requirements. Available at: https://www.hudexchange.info/programs/hmis/hmis-requirements. Accessed on April 21, 2018; HUD. 2018. HMIS Guides and Tools. Avail-able at https://www.hudexchange.info/programs/hmis/hmis-guides/#coc-resources. Accessed May 17, 2018.

(FEANTSA, 2018). However, there remain many more examples of a lack of data linkages that need to be resolved at the federal, state, and local levels. While it is difficult to precisely quantify the size of the homeless population, HUD has developed several methods for collecting these data, including HMIS and a single point-in-time (PIT) counting system. The best estimate of counting the number of individuals experiencing homelessness is described in Appendix C.

Subpopulations of Individuals Experiencing Homelessness

An assessment of recent data indicates that overall, more men than women experience homelessness. African Americans are significantly overrepresented among persons experiencing homelessness, accounting for 41 percent of the homeless population while constituting only 13 percent of the U.S. population (HUD, 2017b). Nearly 22 percent of the individuals in the PIT count[2] were Hispanic/Latino. The numbers of individuals experiencing homelessness among other racial/ethnic minorities is much lower (1.2 percent Asian, 3 percent Native American, 1.5 percent Pacific Islander, and 6.5 percent mixed race). A 2018 study by the Center for Social Innovation's Supporting Partnerships for Anti-Racist Communities of five communities found significant racial disparities in rates of homelessness. In fact, the study found that "Black residents accounted for nearly 65 percent of people experiencing homelessness in the five communities, even though they accounted for only 18 percent of the communities' overall population. Nationwide, black people account for 12 percent of the population, but 43 percent of the homeless population" (National Low Income Housing Coalition, 2018).

Of particular interest to the committee is the number of persons who are defined as chronically homeless: that is, individuals or families (which include at least one adult and one child) with disabilities who have either been continuously homeless for 1 year or more or who have experienced at least four episodes of homelessness in the past 3 years (HUD, 2016c). People experiencing chronic homelessness are one of the primary populations that permanent supportive housing (PSH) programs are designed to serve.

In 2017, data from the PIT count indicated that almost three-quarters of the individuals experiencing homelessness on a single night were not chronically homeless (HUD, 2017b) and thus are not the primary focus of this report. In 2017, those who were experiencing chronic homelessness as measured on a single night included 86,962 individuals, nearly 7 in 10 of whom were unsheltered. Half of all people experiencing homelessness on a single night who are living in unsheltered locations live in one of five states having more temperate climates—California, Nevada, Oregon, Hawaii, and Mississippi (HUD, 2017b).

Veterans represent another subpopulation of particular interest. In 2017, 40,056 veterans were experiencing homelessness, accounting for 9 percent of the

[2]The PIT count is a count of sheltered and unsheltered persons experiencing homelessness on a single night in January.

population of adults experiencing homelessness. (HUD, 2017b). This number represents an increase from 2016, and is due to an increase in veterans experiencing homelessness and staying in unsheltered locations. Box 2-1 describes additional information about veteran homelessness and housing.

BOX 2-1
Veterans Experiencing Homelessness

In 2009, President Obama called for increased funding for serving veterans experiencing homelessness in order to end veteran homelessness. Major strides have been made since 2009 to move veterans from sleeping on the streets to permanent supportive housing (PSH). In 2014, First Lady Michelle Obama announced the Mayor's Challenge to End Veteran Homelessness. Mayors, governors, and local government officials worked to end veteran homelessness in their communities. Today, according to the U.S. Department of Veterans Affairs (VA), veteran homelessness has declined by nearly half since 2010. The VA, in collaboration with the U.S. Interagency Council on Homelessness (USICH), has adopted a set of criteria and benchmarks for achieving the goal of ending veteran homelessness (USICH, 2017).

The dramatic decrease in the number of veterans experiencing homelessness was achieved in part with PSH. It serves as a reminder that with a clear focus and adequate resources, homelessness can be markedly reduced or even eliminated. According to the National Alliance to End Homelessness, late-Vietnam- and post-Vietnam-era veterans are at the greatest risk of experiencing homelessness. Veterans returning from the Middle East from 2000 to 2010, many of whom acquired physical disabilities and struggles with mental illness, are also at risk of experiencing homelessness because individuals with physical disabilities or mental illness are at greater risk for experiencing homelessness.

President Obama's goal of ending veteran homelessness led to the creation of a number of new programs, including the National Center on Homelessness Among Veterans. Central among these programs is the HUD-VA Supportive Housing program (HUD-VASH), a collaboration between the U.S. Department of Housing and Urban Development (HUD) and the VA. HUD provides rental subsidies in the form of vouchers, while the VA provides supportive services to veterans and their families. The program operates from a Housing First philosophy, meaning that (a) the housing is non-time-limited, and (b) although a range of supportive services are available, they are voluntary. As of April 2017, the HUD-VASH Exit Study (Montgomery and Cusac, 2017) indicates that 87,864 vouchers have been distributed through HUD-VASH, which contributed to the 47 percent decline in the number of veterans experiencing homeless since 2010.

(Continued)

BOX 2-1 Continued

Bridge housing is transitional housing that serves as "rapid connections to permanent housing" (VA, 2016). It is meant to be short-term housing. Funded by the VA's Homeless Providers Grant and Per Diem (GPD) program, the bridge housing model provides beds for those veterans who have been accepted into the Supportive Services for Veteran Families program, HUD-VASH, and programs provided by local Housing Coalitions/Continuums of Care (CoC), while access to other housing is still being arranged. It is typically provided for no longer than 90 days (VA, 2016). Services provided are linked to the impending move to PSH. In addition to the bridge housing, the GPD's suggested transitional housing models include the service-intensive transitional housing and transition-in-place that address veterans experiencing homelessness (VA, 2016).

References

Montgomery, A. E., and M. Cusac. 2017. HUD-VASH Exit Study: Final Report. Prepared for U.S. Department of Housing and Urban Development. Available at https://www.huduser.gov/portal/sites/default/files/pdf/HUD-VASH-Exit-Stu dy.pdf. Accessed May 7, 2018.

USICH (U.S. Interagency Commission on Homelessness). 2017. Investing in the End of Homelessness: The President's 2017 Budget. Available at https://www.usich.gov/resources/uploads/asset_library/2017_Budget_USIC H_Homelessness_Fact_Sheet_final.pdf. Accessed September 29, 2017.

VA (U.S. Department of Veterans Affairs). 2016. Bridge Housing: An Approach to Ending Veteran Homelessness. Available at https://www.va.gov/HOME LESS/docs/GPD/providers/GPD_bridge_housing_presentation_GPD_grantees_3-17-16.pdf. Accessed May 7, 2018.

Unaccompanied homeless children and youth on a single night totaled 40,799 in 2017 (HUD, 2017b). They are youth under age 25, with the majority between ages 18 and 24. The number of youth experiencing homelessness is particularly difficult to determine with PIT counts. HUD has targeted this group for more focused efforts to produce better PIT numbers. (For more information about a program serving youth experiencing homelessness in San Jose, see Appendix D.) Auerswald et al. (2016) noted that African American youth can be particularly difficult to find, as they are less likely to access services for youth experiencing homelessness.

One group of youth who are at particularly high risk for homelessness are lesbian, gay, bisexual, transgender, and questioning (LGBTQ) youth. Durso and Gates (2012), in surveying service providers for youth experiencing homelessness, estimated that 40 percent of the youth experiencing homelessness that they worked with were LGBTQ. More information about families and youth can be found in Chapter 6.

Homeless families with children numbered 184,661 people in the single-night January 2017 PIT count, accounting for a third of the total population of

people experiencing homelessness (HUD, 2017b). Most families with children experiencing homelessness were sheltered (more than 90 percent).

A recent subpopulation that has grown to be of concern is homeless older adults. The number of persons older than age 65—the aging Baby Boomers—increases daily (Ortman et al., 2014), and some portion of these older persons will experience homelessness. Hahn et al. (2006) examined 14-year trends in the population of individuals experiencing homelessness in San Francisco (n = 3,534) and concluded that the homeless population is aging by about two-thirds of a year every calendar year, consistent with trends in several other cities. Ng et al. (2013) described the added effects of being both elderly and homeless, noting that "with homelessness, the unsafe and unsanitary living conditions aggravate elderly people's acute and chronic health conditions" (p. 1). Based on the examination of adults age 50 and older in Oakland, California, in 2013–2014 (n = 350), Lee et al. (2016) found that pre-homeless social support appears to protect this group against street homelessness after losing rental housing. A unique aging trend among the homeless population is further discussed in Chapter 5.

Although all individuals experiencing homelessness face health risks, women have a unique array of medical needs, including a range of reproductive health issues. For example, women experiencing homelessness have higher rates of unintended pregnancies when compared to housed women (Crawford et al., 2011; American College of Obstetricians and Gynecologists, 2013). The experience of pregnancy during a period of homelessness is not difficult only for women. Infants born to mothers experiencing homelessness, when compared to infants born to housed women, are more likely to be low or very low birthweight (Merrill et al., 2011; Richards et al., 2011).

HEALTH OF INDIVIDUALS EXPERIENCING HOMELESSNESS

The experience of homelessness can lead to a variety of negative health outcomes. The Institute of Medicine report on homelessness and health (IOM, 1988) described three types of interactions between homelessness and health. There are health problems that precede homelessness and are likely causal factors for homelessness; health outcomes that occur in response to experiencing homelessness; and health problems including chronic illnesses whose treatment is complicated by the experience of being homeless. Each of these is considered in turn. While numerous studies have documented health problems associated with the experience of either spending time in a homeless shelter, or being homeless and living on the street, the committee acknowledges that there may be additional methodological challenges in assessing the health outcomes in this population which are not described here.

Individuals experiencing homelessness also face overwhelming barriers and obstacles to receiving high-quality, continuous, and coordinated health care. Hospitals, clinics, and reimbursement systems are not designed to cope with the special needs of individuals who spend much of their time on the streets and are exposed to extremes of weather, violence, and a lack of safe, secure, stable housing.

Individuals living in shelters and on the streets have a high burden of medical and psychiatric illnesses, often complicated by chronic substance use disorders. They utilize hospital emergency departments for much of their health care and, in general, require more frequent acute care hospitalizations. These frequent hospitalizations are characterized by longer stays while hospitalized (Kushel et al., 2002; Ku et al., 2010; Cheung et al., 2015; Lin et al., 2015). In addition, there are high rates of trauma/victimization, numerous studies documenting evidence of the accumulation of adverse childhood experiences and toxic stress that contribute to serious chronic medical conditions and poor health, including changes in metabolism, immune systems, and executive functioning and cognitive impairment (Cutuli et al., 2015; Lee et al., 2017). These issues, including a new paradigm to better understand the impact of permanent supportive housing on health for those with chronic conditions is further discussed in Chapter 3.

Health Problems Preceding Homelessness

As described below, research indicates that substance use and mental health are both a cause and a consequence of homelessness (e.g., homelessness is related to worsening severity of mental illness and higher-risk behaviors in the case of substance use) (Johnson and Chamberlain, 2008). However, mental illness is a common antecedent to homelessness. The Office of National Drug Control Policy estimates that 30 percent of the population of individuals experiencing chronic homelessness are living with a serious mental illness (SMI) (ONDCP, 2014; SAMHSA, 2017). There is a high prevalence of specific mental illnesses in the population of single individuals experiencing homelessness relative to the general population, including depression (20-25 percent prevalence across studies, as compared to 0.35 percent of the general population) and schizophrenia (5-15 percent prevalence across studies, as compared to 0.35 percent of the general population) (Martens, 2001; Perälä et al., 2007; Toro, 2007). There are systematic reviews that explicitly excluded studies of families because they were so rare that they deemed them a "special population" (Fazel et al., 2008, 2014).

Substance use disorders, especially alcoholism, are also a major problem for individuals experiencing homelessness, as well as an increasingly common cause of death (NIDA, 2013). Baggett et al. (2010) analyzed data from the 2003 Health Care for the Homeless study ($n = 966$) and found that both drug and alcohol use together was a major predisposing factor for experiencing homelessness. The combination of SMI and substance abuse is common in the population of individuals experiencing homelessness (Salit et al., 1998).

Health Outcomes Due to Homelessness

Spending time in a homeless shelter can also lead to negative health outcomes for individuals experiencing homelessness. Kelly (1985) found that homelessness increases the risk of developing health problems, including diseases of the extremities and skin disorders and increases the possibility of trauma, especially as a result of physical assault or rape. In addition, the Centers for Disease Control and Prevention reported outbreaks of tuberculosis in two homeless shelters, one in Duval County, Florida (CDC, 2012a), and one in Kane County, Illinois (CDC, 2012b). In 1990, McAdam et al. (1990) investigated the prevalence of tuberculosis in a men's homeless shelter in New York City. Over a 73-month period, the authors screened more than 1,800 men and found an infection rate (positive PPD test, history of a positive PPD test, or active tuberculosis) of nearly 43 percent.

Chak et al. (2011) noted that individuals experiencing homelessness have higher prevalence rates of hepatitis C (HCV), particularly those who are infected with HIV. There are shared routes of transmission for the two viruses, and the authors noted that HCV prevalence rates ranged from 19 percent to 69 percent in patients experiencing homelessness.

Dirmyer (2015) investigated hospital readmission rates for persons experiencing homelessness in Albuquerque, New Mexico. One-third of these patients experienced a 30-day readmission to the hospital over the course of a 3-year period, with the most prevalent cause of readmission being neuropsychiatric disorders. The hospital readmission rate for patients experiencing homelessness was higher than national readmission rates and higher than the rate for Bernalillo County, where Albuquerque is located.

Overall, spending time in either a homeless shelter or being homeless and living "on the street" has diverse untoward health consequences.

Chronic Health Conditions

One of the first comprehensive assessments on the health status of persons experiencing homelessness was in the mid-1980s by the Social and Demographic Research Institute of the University of Massachusetts, Amherst. Data from 19 National Health Care for the Homeless Initiative demonstration projects were reviewed (Wright, 1990; Zlotnick et al., 2013). The prevalence of health conditions in the adult homeless population was compared to that of adults in the general U.S. adult population. Findings indicated that the prevalence of chronic conditions such as asthma, HIV/AIDS, tuberculosis, hypertension, diabetes, and chronic obstructive pulmonary disease was higher in the homeless group than in the general U.S. population (Zlotnick and Zerger, 2009).

Health and the Experience of Homelessness

Several studies have examined the prevalence of cardiovascular disease risk factors and adverse outcomes among persons experiencing homelessness compared to the general population. In 2002, Szerlip and Szerlip compared the medical charts of 100 patients in a homeless clinic in New Orleans, Louisiana, to those of 200 nonhomeless patients who attended another inner-city primary care clinic. They found that individuals experiencing homelessness had a higher prevalence of hypertension and smoking, but there was no difference in diabetes and total cholesterol compared to the general population. Other studies have confirmed the higher prevalence of smoking among homeless populations, but have not found a higher prevalence of hypertension or a difference in diabetes and total cholesterol (Lee et al., 2005). It has been suggested that for many risk factors, it is not their prevalence but the treatment and management of these conditions that is worse among those individuals experiencing homelessness (Jones et al., 2009; Bernstein et al., 2015).

Studies have shown that the prevalence of uncontrolled diabetes is higher among populations experiencing homelessness compared to the general population (Hwang and Bugeja, 2000; Lee et al., 2005). More recent evidence also suggests that the burden of cardiovascular disease is greater among subsets of the homeless population, especially those with mental illness. Among this subset, the 30-year risk of coronary heart disease, including (a) being diagnosed with coronary heart disease, (b) having a myocardial infarction, and (c) having a fatal or nonfatal stroke, is higher among individuals experiencing homelessness who also have a mental illness when compared to the general population. This higher risk was greater in men who were also substance users (Gozdzik et al., 2015).

Individuals experiencing homelessness have higher rates of cancer risk factors (e.g., higher rates of tobacco use), but are less likely to undergo cancer screenings. A study of homeless adults in Los Angeles (Chau et al., 2002) investigated cancer knowledge and screening. Although most of the study population demonstrated understanding of cancer screening, their actual screening rates were lower than for Californians broadly.

Asgary et al. (2014) examined colorectal cancer screening rates, predictors, and barriers in two New York City shelter-based clinics. The authors found that the majority of patients were African American or Hispanic, 76 percent were male, and 60.7 percent were homeless. In addition, "domiciled patients were more likely than homeless patients to be screened (41.3 percent versus 19.7 percent; $P < .001$). Homeless and domiciled patients received equal provider counseling, but more homeless patients declined screening ($P < .001$)" (Asgary et al., 2014).

It is not surprising that the experience of homelessness complicates the treatment of health conditions such as diabetes (the need for daily insulin shots) or needed mental health care (due to a lack of community- or shelter-based care delivery).

Mortality Among Individuals Experiencing Homelessness

Individuals experiencing chronic homelessness live shorter lives and, as a group, suffer significant excess mortality. Early studies in this area documented higher premature death rates (three to four times higher) in geographic zones that had a higher prevalence of persons experiencing homelessness, shelters, soup kitchens, and substandard housing compared to the general population (O'Connell, 2005). A recent observational study examined causes of mortality among formerly homeless men in Housing First programs, homeless individuals not in Housing First programs, and the general population (Henwood et al., 2015a). The study found that the causes of death differed between the Housing First group and the homeless individuals who were not in the program.[3] Seventy-two percent of the men in Housing First programs died of natural causes, compared to 49 percent of the homeless group. Only 14 percent of Housing First men died due to an accident, compared to 40 percent in the homeless group. Infectious diseases caused 2 percent of deaths in the Housing First group, compared to 13 percent in the homeless group. Death due to hypothermia occurred in 6 percent of deaths in the homeless population, but was not a cause of death for men in the Housing First program.

The findings of more recent studies are consistent with earlier studies. According to data from a study by Baggett et al. (2013), the most common causes of death for individuals who had experienced homelessness in the Boston area were drug overdoses, cancer, and heart disease.[4] Individuals in the Baggett et al. (2013) study were observed until either the date of death or until December 31, 2008. Among those who died due to drug overdose, over 80 percent of deaths were due to opioid overdoses, a trend mirrored in society at large (Doe-Simkins et al., 2014).

Studies outside of the United States have helped to establish homelessness as an independent risk factor for mortality. As an example, a study in Glasgow (Morrison, 2009) compared mortality data retrospectively over a 5-year period from 6,757 persons experiencing homelessness in the calendar year 2000 with 13,514 age- and sex-matched controls from the general population. The proportion of those dying in the homeless population was 7.2 percent compared to 1.7 percent in the general population. This four-times-higher rate of dying was independent of age, sex, and prior hospitalization. Cause-specific mortality due to drug-related deaths was seven times higher for those experiencing homelessness.

[3]However, the two groups were not matched. Housing First clients are selected for the most disabled adults experiencing chronic homelessness. This is a selection bias in that the group with the worst possible health and psychiatric problems is not equivalent to the general population of individuals experiencing homelessness.

[4]The authors note that data limitations made it impossible to determine who was currently homeless and formerly homeless at time of death.

In addition to health-related outcomes described above, studies have examined other outcomes related to the homeless experience, including unemployment, involvement in the criminal justice system, and poor educational outcomes.

FEATURES AND LEVELS OF HOUSING FOR INDIVIDUALS EXPERIENCING HOMELESSNESS

A number of programs have been developed to meet the needs of individuals experiencing homelessness. These programs are funded from diverse sources and by a range of mechanisms. Below is a brief summary of housing options that may be available to individuals experiencing episodic to chronic homelessness, with the primary focus on PSH models. A brief discussion of the financial mechanisms that might be used to support PSH is also provided.

Temporary Housing Models

Individuals and families experiencing temporary or situational homelessness due to job loss, economic hardship, domestic violence, or other short-term emergencies have very different housing needs from individuals experiencing chronic homelessness. There are several interim housing models for persons who experience situational and temporary homelessness.

Emergency Shelters

Emergency shelter programs are for individuals or families who are in need of short-term shelter (Locke et al., 2007). These programs are designed to provide an immediate alternative to sleeping out of doors or in a location not meant for habitation and can include safe places for survivors of domestic violence and their children. This is the most temporary type of housing available and is meant to be a short-term safety net. Emergency shelters offer shelter overnight but often do not provide daytime access to the facility. Emergency shelters can secure funds through HUD to provide their clients with a range of essential support services, including mental health services, child care, case management, and outpatient health services, among others (HUD, 2013a).

Transitional Housing

Transitional housing provides up to 24 months of housing in supervised settings along with social services to help individuals and families prepare for permanent housing. It can be project based, so that residents move out when they exit the program or transition-in-place by assuming the lease at the end of the program. Transitional housing has been a mainstay of the homeless service system for families and individuals who are not deemed to need or who cannot find places in PSH.

Medical Respite Programs

Medical respite care is for individuals experiencing homelessness who are not yet well enough to be on their own. At the same time, they are not sick enough to continue a hospital stay. Without access to medical respite care, individuals experiencing homelessness are unlikely to successfully manage their post-hospital medical regimen. According to Kertesz et al. (2009), nearly 50 communities in the United States and Canada have created medical respite programs for individuals leaving the hospital while also experiencing homelessness. More recent qualitative data indicate that medical respite programs are useful because they provide linkages to outpatient care (Zur et al., 2016). Doran et al. (2013) systematically reviewed 13 articles in order to investigate the effectiveness of medical respite programs. The lack of evaluations of medical respite programs led the authors to encourage the creation of academic/university partnerships in order to better evaluate these programs.

Permanent Housing Approaches

HUD defines permanent housing approaches to addressing homelessness "as community-based housing without a designated length of stay in which formerly homeless individuals and families live as independently as possible" (HUD, 2018). There are two types of permanent housing: permanent supportive housing (PSH) for persons with disabilities and rapid re-housing. These program models follow the Housing First approach. In some communities, people experiencing homelessness also get priority access to long-term rental assistance in public housing or the private market, with the latter provided primarily by Housing Choice Vouchers. However, these programs typically have waiting lists, so are rarely available to people at the time they experience homelessness. These subsidies do not generally have any associated services.

Housing First

The early PSH services and programs for individuals experiencing chronic homelessness were "treatment first" (Tsemberis et al., 2004). In this traditional model, individuals experiencing chronic homelessness and substance abuse and/or mental illness were required to be treated for their substance abuse or mental health issues prior to being eligible for permanent housing. This required individuals experiencing homelessness to demonstrate "housing readiness" in order to receive housing. Tsemberis et al. (2004, p. 651) noted that for those individuals experiencing chronic homelessness and desiring housing, the treatment-first approach presents "a series of hurdles" that the individual may not be able to overcome or may be unwilling to overcome to be eligible for housing.

To clarify, Housing First is treated in this report as an intervention where housing is provided to individuals experiencing homelessness with no requirement

for participation in services. Pathways Housing First, described below, is a particular model of HF; all HF programs are not Pathways Housing First. Pathways Housing First is described below, with the more general HF described afterward.

Pathways Housing First

The Pathways Housing First model was created in 1992 in New York City by Pathways to Housing (Tsemberis et al., 2004). At its core, founder Sam Tsemberis believes that housing is a basic human right, and therefore, individuals experiencing homelessness should have immediate access to housing. Unlike previous housing programs for individuals experiencing homelessness, Pathways' Housing First model did not require efforts toward sobriety or treatment for mental illness prior to accessing housing. The fact that tenants were not required to participate in substance abuse or mental health services has remained an essential feature of PSH programs. Although comprehensive supportive services provided by interdisciplinary "assertive community treatment" teams or intensive case management are available, participation is voluntary. Pathways Housing First focuses on the housing needs of the homeless individual and views housing needs as "paramount" (Pearson et al., 2009). Currently, Pathways to Housing has programs in the District of Columbia, Vermont, and the Philadelphia area along with Canada and a number of European countries.[5] The program philosophy is based on several tenets, including and primarily, that housing is a human right and individuals experiencing homelessness are given immediate access to housing, with no preconditions (Tsemberis, 2010).

Housing First Approach

The term "Housing First" is now commonly used in a generic sense, both for PSH programs with low barriers and for other programs much less intensive than PSH, such as rapid re-housing. Martinez and Burt (2006) refer to this as a "low demand" model because housing is made available but abstinence from drugs/alcohol is not a requirement. In 2016, California enacted a new law that encourages state programs to adopt a Housing First model in all programs for housing individuals experiencing homelessness. A statement from the U.S. Interagency Council on Homelessness (USICH, 2017a) says,

> Housing First is a proven approach in which people experiencing homelessness are offered permanent housing with few to no preconditions, behavioral contingencies, or barriers. . . . Housing First is an approach that can be adapted by housing programs, organizations, and across the housing crisis response system. The approach applies in both short-term situations, like

[5]The New York City program has since closed. For details on the Pathways Housing First program, see https://www.pathwayshousingfirst.org.

> rapid re-housing, and long-term interventions, like supportive housing. For crisis services like emergency shelter and outreach, the Housing First approach means referring and helping people to attain permanent housing.

In other words, the Housing First term has been expanded and broadened. In some cases, this dual use of the term "Housing First" has led to confusion.

According to Pleace and Beverton (2013), "from a strategic and policy implementation perspective, it has to be clear what is meant by "Housing First" (p. 23). Housing First might be best viewed as a philosophy of how PSH should be carried out rather than a specific type of housing. Similarly, HUD refers to Housing First as an "approach" (2014, p. 3), and states that "this approach may not be applicable for all program designs" (HUD, 2014, p. 4).

Tsai and Rosenheck (2012) noted that the services component of Housing First needs to address factors other than successful housing outcomes. Because social isolation is a major risk after housing, particularly for those in scattered-site housing, recent research has focused on adding peer support groups for veterans who have formerly experienced homelessness living in supported housing (Tsai et al., 2014) and on the inclusion of trauma treatment for homeless female veterans (Tsai et al., 2012).

Rapid Re-Housing

Rapid re-housing is a program model that follows the Housing First approach in providing short-term rental assistance and services to families and individuals experiencing homelessness.[6] The program also provides housing for individuals and families with other immediate problems such as domestic violence and substance abuse. Individuals experiencing chronic homelessness who are in need of PSH are not a target population for this program.

Some supportive services are provided as part of rapid re-housing programs, the most critical being assistance with identification of housing options (USICH, 2015b). Other services include rent and move-in assistance and case management services. The focus of the services provided in rapid re-housing is to help individuals and families resolve their immediate crises, which are most often financial in nature. HUD describes funding for rapid re-housing as short-term or medium-term, with the focus on the provision of assistance including financial assistance, housing search assistance, and targeted services for a period of 6 months (HUD, 2014). The Department of Veterans Affairs also operates a large rapid re-housing program referred to as the Supportive Services for Veteran Families program (see Box 2-1).

[6]See Appendix D for an example of a rapid re-housing program in Denver.

Permanent Supportive Housing

Permanent supportive housing is an umbrella term for the provision of ongoing, long-term housing coupled with supportive services for individuals and families experiencing chronic homelessness, the unstably housed, individuals living with a long-term disability, and individuals and families who face multiple barriers to accessing and maintaining housing. For the purposes of this report, the committee used the following definition: **Permanent supportive housing (PSH) is defined as non-time-limited affordable housing matched with ongoing supportive services appropriate to the needs of the tenants.** Note that this definition varies slightly from the formal definition of HUD, but this is the definition that the committee agreed on.

The critical components of PSH are the provision of long-term housing and voluntary supportive services for the residents, including access to mental health care and medical services. By providing housing as described above, PSH is designed to provide individuals experiencing chronic homelessness with a place to avoid the extremes of the elements and a stable place for addressing their health needs. The service piece of PSH is in part designed to address health needs by providing ongoing clinical support. PSH is designed to provide stable housing for very-low-income people who would not be able to sustain housing without supportive services. HUD argues that this is the population that needs to be served first in PSH, rather than on a first-come, first-served approach. A notice from HUD states that "PSH needs to be targeted to serve persons with the highest needs and greatest barriers towards obtaining and maintaining housing on their own—persons experiencing chronic homelessness" (2014, p. 2).

There is no set of agreed-upon supportive services that are core to the PSH model. The Corporation for Supportive Housing (Post, 2008) identifies services that PSH typically provides: case management, substance use treatment and mental health counseling, access to health care, support groups, life skills training; community social activities, and assistance with job hunting services. Participation in services, although encouraged, is not mandatory. Three primary approaches for operating PSH include:

- Congregate or "[p]urpose-built or single-site housing: Apartment buildings designed to primarily serve tenants who are formerly homeless or who have service needs, with the support services typically available on site."
- "Scattered-site housing: People who are no longer experiencing homelessness lease apartments in private market or general affordable housing apartment buildings using rental subsidies. They can receive services from staff who can visit them in their homes as well as provide services in other settings."
- "Unit set-asides: Affordable housing owners agree to lease a designated number or set of apartments to tenants who have exited homelessness or

> who have service needs, and partner with supportive services providers to offer assistance to tenants" (USICH, 2017b).

Given the importance of housing as a social determinant of health, it is critical to find, create, and implement housing for individuals experiencing chronic homelessness. The World Health Organization (WHO) defines social determinant of health as "the circumstances, in which people are born, grow up, live, work and age, and the systems put in place to deal with illness" (NHCHC, 2016). People experiencing homelessness have been significantly impacted by a social determinant of health, leading to chronic health conditions, substance use, mental illness, and increased mortality. This realization led to the development of PSH, as defined above. Specific elements of PSH, as outlined in a Substance Abuse and Mental Health Services Administration (SAMHSA, 2011) evidence-based toolkit on creating and managing PSH programs, include the following:

- Tenants have a lease for their housing and have full rights of tenancy under landlord-tenant law.
- Leases for those individuals with psychiatric conditions are no different from the leases for individuals not having psychiatric conditions.
- Participation in supportive services, such as mental health treatment or substance abuse treatment, is voluntary, albeit encouraged.
- House rules are applied equally for all tenants, regardless of mental health status.
- There is no time limit on the housing, as long as the landlord and the tenant are in agreement about renewing the lease.
- Ideally, tenants are asked for their preferences regarding housing, with options that match the options available to individuals not experiencing homelessness at the same income level. If the housing is single site, however, there may not be other housing options.
- Housing is affordable, with tenants paying no more than 30 percent of their income for rent and utilities.
- The use of supportive services may change over time, depending on the needs of the tenant.
- Tenants choose which supportive services they take advantage of. Different supportive services are provided for different tenants, depending upon their needs.
- Supportive services are designed to promote long-term recovery and sustained access to housing.
- The provision of housing and the provision of supportive services are distinct and are managed by separate agencies.

SAMHSA also promotes "integrated housing," meaning that PSH tenants should have opportunities to interact with neighbors who are not experiencing

substance abuse and/or mental illness. However, in single-site housing, this is difficult to achieve. (See the section on scattered-site versus single-site housing in Chapter 5.)

FUNDING SOURCES FOR PSH

Funding for PSH is complex and often requires innovative approaches to guaranteeing financing, including braiding together a number of different funding streams. This section reviews the predominant sources of funding used to pay for housing.

Federal Funding

Continuum of Care Program

HUD's Continuums of Care (CoC) program is a potential federal funding mechanism for PSH. CoC refers to a local planning group that coordinates and allocates HUD funding to agencies serving people experiencing homelessness (HUD, 2012b). CoC's most recent funding competition encouraged the reallocation of existing funds to PSH and rapid re-housing (HUD, 2015d) and provided funding for new PSH projects.

HUD Section 8 Housing Choice Vouchers

Housing Choice Vouchers, more commonly referred to simply as Section 8 vouchers or subsidies, are HUD's primary means of assisting low-income individuals and families to pay for safe and secure housing. These subsidies are long term and considered permanent housing (Technical Assistance Collaborative, Inc., 2012). Section 8 vouchers have also been used to address the needs of priority populations. The HUD-Veterans Affairs Supportive Housing (HUD-VASH) program, for example, is specifically designed to help meet the needs of veterans who are chronically homeless. The program blends HUD Section 8 vouchers and VA case management and clinical services. The program began in 1992 and funds are administered through local PHAs.

Additional Funding Sources

There are a number of additional federal funding sources that can be leveraged for PSH, including Supplemental Security Income (SSI), Low-Income Housing Tax Credits, and HOME Investment Partnerships. Other federal funding sources, including the Ryan White HIV/AIDS Program Services and SAMHSA grants, are described below. Other innovative non-federal funding sources include Social Impact Bond/Pay for Success models. Under the Social Impact Bond model, investors provide upfront funding to implement a social service project;

the government or a philanthropic organization then contracts to pay back the investors with a small premium if the project achieves its goals.

Ryan White HIV/AIDS Program Services

Several funding opportunities provide housing for low-income individuals experiencing homelessness who are HIV-positive. The Ryan White HIV/AIDS Program provides short-term housing assistance (2 years maximum) and some support services (HRSA, 2016). Funding is given to local communities and state agencies for projects that benefit low-income individuals living with HIV/AIDS.

The Housing Opportunities for Persons with AIDS (HOPWA), managed by HUD's HIV/AIDS Bureau, has two grant funding streams for PSH for this population. The HOPWA Competitive Grant program and the HOPWA formula grant program provide funding for housing to eligible cities and states (HUD, 2016d). HOPWA assistance may also include support for substance abuse, mental health, nutrition, job training and placement, and assistance with daily living (HUD, 2016d).

Because of the correlation between HIV status and homelessness (Aidala et al., 2007), the provision of housing is an important strategy for improving HIV management, reducing high-risk behaviors, and lowering the possibility of transmission to others (Buchanan et al., 2009). This program also has been important in addressing the disparate impact of HIV/AIDS on racial and ethnic minority groups. African Americans with HIV/AIDS make up 52 percent of those served by HOPWA funding (HUD, 2016d).

SAMHSA

SAMHSA provides funds through several grant programs for services for individuals experiencing homelessness, including the Grants for the Benefit of Homeless Individuals–Services in Supportive Housing, a competitive grant program that provides communities with funding for services relating to substance abuse, co-occurring mental health and substance abuse disorders, and other support services. The Cooperative Agreements to Benefit Homeless Individuals is also a competitive grant program that allows communities to provide services within PSH approach. Finally, the Projects for Assistance in Transition from Homelessness (PATH) program is a state block grant program that offers similar supportive services.

SUMMARY

Views and perceptions about, definitions of, and the approaches to research and amelioration of homelessness have materially changed over time. Similarly, different types of housing for individuals experiencing homelessness have developed to serve different populations. Individuals or families experiencing short-

term homelessness have different needs than those individuals or families experiencing chronic homelessness. There are a number of forms of housing for individuals and families experiencing homelessness, with varying time limitations and differing levels of service provision.

PSH is designed to provide housing for individuals and families experiencing chronic homelessness, the unstably housed, individuals living with a long-term disability, and individuals and families who face multiple barriers to accessing and maintaining housing. PSH programs have two essential components: the provision of non-time-limited housing, and the provision of an array of voluntary supportive services. Pathways Housing First was an early model created to provide PSH focused on client choice, although the term "housing first" is now used more broadly as a general approach rather than a particular program.

Additionally, a number of federal financing mechanisms support the building and operations of PSH programs; many of these are state Medicaid options for which waivers may be required. A more recent model for funding PSH programs is the Social Impact Bond/Pay for Success, in which a program receives upfront funding from investors, typically a philanthropic organization, who then is paid back by a government agency when and if the program achieves its goals.

3

Evidence of Effect of Permanent Supportive Housing on Health

The evidence of the harm caused by homelessness indicates that individuals who experience chronic homelessness are at higher risk for infections (including human immunodeficiency virus [HIV]), traumatic injuries, drug overdoses, violence, death due to exposure to extreme heat or cold, and death due to chronic alcoholism. These individuals are more likely than housed persons to use the emergency department for health care needs and to be admitted to the hospital; they are also less likely to have a usual source of health care. Individuals experiencing homelessness have longer hospitalizations for the same illnesses as housed persons, often because it is simply not safe (or humane) to discharge them to the street when they are still recuperating from the condition that brought them to the hospital, even if they are no longer acutely ill (Salit et al., 1998). Additionally, individuals experiencing chronic homelessness have markedly shorter life spans. Whereas the average U.S. life expectancy is 78.8 years (Kochanek et al., 2016), individual adults who used homeless shelters in Boston, New York City, and Philadelphia were found to have an average life expectancy of between 42 and 52 years (Hwang et al., 1997).[1]

A myriad of reasons contribute to premature death among persons experiencing homelessness, including illnesses and injuries. According to the Centers for Disease Control and Prevention (CDC), the top five leading causes of death in the United States are heart disease, cancer, chronic lower respiratory diseases, unintentional injuries, and stroke (CDC, 2016). The leading causes of death for individuals experiencing homelessness are drug overdoses, HIV, and common chronic diseases such as heart disease and cancer, as was found in retrospective data from more than 28,000 adults experiencing homelessness in Boston (Baggett et al., 2013).[2] Aside from a higher mortality rate, persons experiencing homelessness are three to six times more likely to become ill than housed persons (Zlotnick and Zerger, 2009). Diseases that are common among the homeless population include heart disease, cancer, liver disease, kidney disease, serious skin infections,

[1]Because mortality rates were used, it is not specified whether the individual adults had experienced chronic or episodic homelessness.

[2]See footnote 1.

HIV/AIDS, pneumonia, and tuberculosis (O'Connell, 2005). According to O'Connell (2005):

> Few studies have been able to assess mortality in the sub-group of homeless individuals who live on the streets. These elusive "rough sleepers," vulnerable to the extremes of weather and violence, may have higher mortality rates than homeless persons who utilize shelters. Despite intense media scrutiny and high public visibility, little is known of the health and health care outcomes of this group of chronically homeless individuals. (p. 12)

Among older homeless adults in Oakland, the prevalence of common geriatric conditions was higher than for housed adults 20 years older (Brown et al., 2017). In addition to health problems, individuals experiencing homelessness are also more likely to be arrested and incarcerated.

Permanent supportive housing (PSH) is designed to reduce chronic homelessness. Hopper and Barrow (2003) have assessed two distinct genealogies of supported housing, including from (1) within the mental health field that advocates less-structured housing alternatives to clinically managed residential programs for persons with severe mental illness ("housing as housing"); and (2) from the movement to arrest homelessness by preserving and increasing the supply of low-income housing ("integrated housing development"). As noted earlier, many people experiencing chronic homelessness have problems that make it difficult for them to live in housing unassisted. They may be unable to find an apartment, arrange for food and utilities, or pay rent without a money manager. They may need mental health or substance abuse counseling, or simply need help getting along with their neighbors. A large body of research makes the case that in the absence of supportive services, those with chronic problems may not be able to sustain their housing even if the housing is initially provided, although this proposition has not yet been put to an experimental test (Lipton et al., 2000; Caton et al., 2007; Byrne et al., 2014; Rog et al., 2014). The "permanent" aspect of PSH addresses the problem that many people who have been homeless will not be able to enter the regular housing market in the future and are therefore not well served by time-limited transitional housing models because at the end of the transition time, they will not be able to sustain housing and will cycle back to homelessness.

In this chapter the health benefits of PSH are discussed. In reviewing the published and gray literature,[3] the committee was guided by the World Health Organization (WHO) definition of health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1946). Thus, evidence is presented on the degree to which PSH increases the likelihood of individuals experiencing chronic homelessness remaining housed; increases or decreases health care utilization; and affects physical health, mental

[3]Gray literature is "the unpublished, non-commercial, hard-to-find information that organizations such as professional associations, research institutes, think tanks, and government departments produce" (University of Michigan Library, 2018).

health, substance abuse well-being, and incarceration. The studies below are summarized as presented in the literature. However, the committee acknowledges that many of these studies have follow-up periods that are often limited to 1 to 2 years, and in some settings may offer individuals in the control groups housing. Finally, the committee proposes a new paradigm to better understand the impact of permanent supportive housing on health, which includes the specification of "housing-sensitive conditions." An overview of the selected studies on the effectiveness of permanent supportive housing is provided in Appendix E.

EVIDENCE OF THE IMPACT OF PERMANENT SUPPORTIVE HOUSING FOR HEALTH OUTCOMES

Sustained Housing

Permanent supportive housing can decrease the harms of homelessness only to the extent that people stay housed. Several studies have demonstrated that individuals experiencing homelessness who are also chronically ill who are randomized to PSH spend significantly fewer days homeless than those who receive usual care. For example, in the Canadian At Home/Chez Soi study, homeless adults were randomized to receive scattered-site housing with intensive case management (following the Pathways Housing First model) versus usual care in five cities (Stergiopoulos et al., 2015). In all five cities, those randomized to scattered-site housing with intensive case management spent more days stably housed than those receiving usual care, with the adjusted mean difference in days stably housed ranging from 33.0 percent to 49.5 percent over a 24-month period. Similar findings were seen in a study conducted in Chicago that randomized chronically ill homeless individuals after recovery from hospitalization to stable housing plus case management compared to usual care. Those in the intervention group had an annualized 62 more days in stable housing than those in the usual-care group (Basu et al., 2012).

While it may seem obvious that persons who receive housing would be more likely to be housed, prior to the dissemination of the results of several successful supportive housing programs, there was a common belief that individuals experiencing chronic homelessness would be unable to maintain themselves in housing because of problems stemming from mental illness and/or substance use. Those holding this belief favored a model, often referred to as "treatment first," whereby persons experiencing homelessness suffering from mental illness and/or substance use would first receive treatment, and when they achieved sobriety they would then move to housing. However, when the Pathways Housing First (permanent supportive housing) model was compared to a treatment-first model among persons experiencing homelessness with a dual mental health and substance abuse diagnosis in New York City, the Housing First model proved superior; those randomized to PSH were housed sooner and spent more days in stable housing than those randomized to housing contingent on first achieving sobriety (Tsemberis et al., 2004; Gulcur et al., 2007).

Consistent with the results of randomized trials, observational studies of retention of persons experiencing homelessness in supportive housing showed that most programs had high annual retention rates, indicating that PSH is able to keep persons who have formerly experienced homelessness off the streets for significant periods of time. For example, Collins et al. (2013) found that in a nonrandomized controlled trial in Seattle, only 23 percent of the participants returned to homelessness over a 2-year period. Tsemberis (1999) found a retention rate of 84 percent over a 30-month period in New York City, although some participants did occasionally leave for short periods of time to receive other treatments. Aidala et al (2013) revealed that 86 percent of a Frequent Users Services Enhancement (FUSE) group was still housed after 24 months, through the FUSE initiative in New York City that provided supportive housing to roughly 200 individuals who were frequently cycling in and out of jails and homeless shelters. Finally, Wong et al. (2006) found that in a study of 943 PSH residents in Philadelphia, almost 60 percent were tracked as being "stayers."

Except for some evidence that PSH improves health outcomes among individuals with HIV/AIDS, the committee finds that there is no substantial published evidence as yet to demonstrate that PSH improves health outcomes. However, although this was the inescapable finding based on an impartial review of the evidence available at the time of this assessment, the committee believes that housing in general improves health, and that PSH is important in increasing the ability of some individuals to become and remain housed. Remaining housed should improve the health of these individuals because housing alleviates a number of negative conditions that detract from their ability to achieve "a state of complete physical, mental and social well-being" (WHO, 1946).

Individuals who live on the street are subject to extremes of the elements (e.g., freezing temperatures, extreme heat, sun exposure, and rain); lack of places to wash, urinate, and defecate; lack of a place to lie without undue pressure on the skin; lack of refrigeration (for food or medicines) or cooking facilities; lack of privacy; lack of place for social interaction; lack of stable address for receiving services, receiving mail, or hosting family members or visitors; exposure to violence, victimization, drugs, and injection drug use; and lack of places for intravenous drug users to safely and cleanly inject with resultant increased risk for infections such as HIV, hepatitis B virus (HBV), and hepatitis C virus (HCV). Sustained housing provides a platform from which other physical, mental, and social concerns can begin to be addressed.

Health Care Utilization

Individuals experiencing chronic homelessness are often frequent users of health care services, including high-cost services. They may have longer hospital stays or be infrequent users of primary care services (Martin, 2015; Bowen, 2016). The literature provides some insights on the extent to which PSH can affect the utilization of health care services.

In a randomized study of a Housing First[4] program, including case management and housing, versus usual care for individuals experiencing homelessness in Chicago, the investigators found both positive and negative results: those in the intervention group incurred 2.6 fewer hospital days, 1.2 fewer emergency room visits, 7.5 fewer days in residential substance abuse treatment, 9.8 fewer nursing home days, and 3.8 more outpatient visits each year (Basu et al., 2012) when compared to the usual-care group. However, as expected by the authors, the intervention group had higher costs in outpatient visits, housing, and case management when compared to the control group.

In the original experimental evaluation of the Pathways Housing First program in New York, 225 individuals experiencing both chronic homelessness and mental illnesses were randomized to Housing First or to usual care. Over the next 24 months, the Housing Frist group spent significantly less time in psychiatric institutions and less time homeless than the usual care group, leading to cost savings across all residential locations. Reductions in hospitalization were largest for a subsample recruited from psychiatric hospitals (who met homelessness criteria prior to admission); reductions in homelessness were largest for the subsample recruited from the street (Gulcur et al., 2003).

In a pre-test/post-test study with a control condition, a Housing-First (HF) approach program and a comparison group not provided with housing were followed over 18 months. The HF group had significantly greater reduction in emergency department visits and sobering center use than comparison group members. There was also a trend toward greater reductions in hospital admissions (Srebnik et al., 2013). However, the sample size for this study was extremely small, including 29 participants and 31 comparison group members, making it difficult to extrapolate from these findings.

In the randomized At Home/Chez Soi experiment conducted in five Canadian cities, an intervention group that received scattered-site HF[5] housing and services was compared to a treatment-as-usual group (Aubry et al., 2016). In year 1, HF participants showed greater improvement in community functioning than the control group participants; by year 2, however, improvement was seen in both conditions. The authors noted that community functioning as a variable had not been examined in earlier research on this topic (Aubry et al., 2016). Interestingly, however, there were no significant differences between the two groups on a number of secondary variables, including mental health symptoms, substance use-related problems, number of arrests, and so on.

Another health care utilization study conducted in Seattle by Mackelprang and colleagues (2014) examined emergency medical services (EMS) utilization before and after entering a single-site Housing First program. The 91 program participants had severe alcohol problems. The study did not monitor health out-

[4]Not a Pathways Housing First program.

[5]The authors describe the HF program intervention in this study as being "based on the Pathways Housing First model" (Aubry et al., 2016, p. 276).

comes, but examined and categorized the reasons for EMS calls through examination of administrative data, both for 2 years prior to enrollment in PSH and 2 years following enrollment in PSH. The variables of interest were trauma/injury, substance use, psychiatric difficulties, medical illness, and other. The study found a 54 percent reduction in EMS calls for those who entered supportive housing. Additionally, it concluded that each additional month in supportive housing reduced the likelihood of EMS contact by 3 percent. The authors noted that substance use problems and psychiatric difficulties were the most common use of EMS services for this sample.

Some studies have examined PSH and health service utilization and hospital admissions as indicators of health. For example, Gabrielian and colleagues (2016) analyzed the ambulatory care use of 3,631 veterans treated at the VA Greater Los Angeles facility between October 2010 and September 2011. The findings were compared between individuals who were housed and provided case management through VA Supported Housing (VASH veterans) ($n = 1{,}904$) and those who were currently experiencing homelessness ($n = 1{,}727$). Adjusting for demographics and need characteristics, VASH veterans were more likely ($p < .05$) than veterans experiencing homelessness to receive treatment for chronic physical illness, acute physical illness, mental illness, and substance use disorders. Among veterans treated for chronic illnesses, VASH veterans versus those veterans experiencing homelessness were more likely to have two or more visits for chronic physical illnesses, mental illnesses, and substance use disorder, indicating better follow-up medical treatment.

Rieke and colleagues (2015) examined the effect of PSH on mental and physical health emergency department use among 23 adults (12 males and 11 females) before and 1 year after housing placement in the Omaha, Nebraska, area. Findings indicated that the number of emergency department admissions decreased while the number of outpatient visits increased. Males showed greater improvement in emergency department visit decline (from 84 admissions in the year prior to placement to 40 after PSH) but had higher levels of emergency department use over females in the pre-housing period. Most emergency department visits for both males and females were related to behavioral health diagnoses. The authors concluded that supportive housing may encourage more use of health care services. Clearly, however, given the small number of participants studied, as well as the overall weakness of a pre/post study design, it is difficult to draw conclusions from this study.

A pilot study conducted in Portland, Oregon, examined the effects of single-site supportive housing on health care costs, health care utilization, and health outcomes for 98 "highly medically vulnerable" individuals experiencing homelessness (Wright et al., 2016, p. 21). This study, using retrospective survey responses and Medicaid administrative claims data, showed that placing individuals experiencing homelessness and high medical costs into supportive housing significantly reduced Medicaid expenditures for inpatient hospital and emergency department services for physical health issues, with an average annual reduction

of $8,724 in the year after moving in (Syrop, 2016). The self-reported data also showed a reduction in hospital stays and emergency department visits, indicating a shift toward using primary care services rather than acute care services. Although these results are promising, the absence of a comparison group and the use of retrospective self-reported data limit interpretations of this study.

In summary, the committee finds that providing PSH to individuals with high medical needs who are also experiencing homelessness decreases emergency department use and hospital stays. The degree to which the use of these services decreases will likely depend on the extent to which they were used prior to individuals being housed and extent to which the experience of being homeless is contributing to a worsening of conditions that results in illness (see section below on housing-sensitive conditions).

Impact on Physical Health Outcomes

Reductions in the use of ambulance transport, emergency department use, and hospitalization are important but imprecise process indicators of the impact of PSH on the health of individuals experiencing chronic homelessness. These indicators provide only indirect evidence of the physical health benefits from housing. For example, it is difficult to ascertain what portion of the reductions (e.g., emergency department visits) are related to health improvement after being housed versus the portion that is due to decreased social need to be hospitalized to escape the conditions on the street and gain safety, warmth, food, and other services. A by Rodriguez et al. (2009) found that 29 percent of homeless patients stated that hunger, safety concerns, and lack of shelter were reasons they came to the emergency department. Additionally, some portion of the decrease in hospitalizations due to the provision of housing may relate to doctors being more willing to discharge housed patients (rather than patients living on the street) from the emergency department. However, there is not yet much research to support the statement that doctors are more willing to discharge housed versus homeless patients. One qualitative study examined this issue and concluded that additional research is needed to understand practices for screening for homelessness in the emergency department and admission practices for patients who are homeless. The authors concluded that these are important areas for future research with "implications for health care costs and patient outcomes" (Doran et al., 2013).

The committee identified a number of randomized controlled trials (RCTs) and observational studies examining the impact of PSH on physical health outcomes for individuals experiencing homelessness. The majority of these studies focused on individuals living with HIV/AIDS. For example, Aidala and colleagues (2016) conducted a systematic review of studies examining the association between housing status, medical care, and health outcomes among people living with HIV/AIDS. Of the 152 studies included in their review, only two were RCTs (Buchanan et al., 2009; Wolitski et al., 2010); most studies (71 percent) did not specifically address the role of housing status in outcomes or lacked sufficient power to show statistical significance. The authors noted, however, that "worse

housing status was independently associated with worse outcomes" across virtually all studies included in the review (Aidala et al., 2016, p. e1).

The RCT by Wolitski et al. (2010) for the Housing and Health Study Team in the Centers for Disease Control and Prevention compared health outcomes and risk behaviors of 630 people experiencing homelessness and living with HIV/AIDS who were randomly assigned to immediate Housing Opportunities for People with AIDS (HOPWA) rental assistance (treatment group)[6] and those assigned to traditional care (control group), which included making a plan with service providers to obtain housing. Self-reported physical and mental health data, CD4 counts,[7] and HIV viral load were collected at baseline and at 6, 12, and 18 months. Results showed that although homelessness decreased in both groups, there was significantly greater improvement occurring in the treatment group. At 18 months, 51 percent of the comparison group had their own housing, thus limiting the study's statistical power. Intent-to-treat analyses demonstrated significant reductions in medical care utilization and improvements in self-reported physical and mental health, again for both intervention and comparison groups; significant differential change benefiting the treatment group was observed for depression and perceived stress, although these results were strongest in the early phase of the study. By 18 months, there were no significant differences between the two groups.

Similarly, there were no significant differences for CD4 counts or HIV viral loads between the intervention and comparison groups. The authors concluded that HOPWA rental assistance improved housing status and demonstrated modest improvements in mental health outcomes for the intervention group.

In the second RCT, Buchanan and colleagues (2009) focused more specifically on the health benefits of PSH (a mix of single site and scattered site) on individuals experiencing homelessness and living with HIV/AIDS in Chicago. In this study, which is a subsample of the larger Chicago Housing for Health Partnership (CHHP) study described by Basu et al. (2012) in Chapter 4, 105 HIV-positive homeless hospital inpatients were randomized to usual care (discharge planning and information about short-term shelters) or permanent housing with intensive case management. The primary outcome of interest was survival with intact immunity (CD4 count greater than or equal to 200 and a viral load less than 100,000). The secondary outcomes of interest were viral load and CD4 counts. Because of to death and attrition, secondary outcomes were available for only 94 of the 105 initial participants (90 percent). At 1 year, significantly more individuals in the intervention group were alive and had intact immunity (55 percent) compared to 34 percent of the usual-care group ($p = .04$). In terms of viral load, 17 intervention group members (36 percent) and 9 usual-care group members (19 percent) had undetectable viral loads ($p = .05$). No significant differences were

[6]Scattered-site housing similar to that used with Housing Choice Vouchers.

[7]A laboratory test that measures the number of CD4 T lymphocytes (CD4 cells) in a sample of blood. See: https://aidsinfo.nih.gov/understanding-hiv-aids/glossary/822/cd4-count.

found for CD4 counts. The study authors concluded that supportive housing improves health outcomes for people living with HIV and experiencing homelessness, based on improved health measures related to mortality, immunity, and viral load.

Although RCTs are the gold standard for assessing cause and effect, observational studies with key health outcomes data can also be informative. For example, a study by Schwarcz and colleagues (2009) using data from the San Francisco AIDS registry showed that individuals experiencing homelessness and living with AIDS who obtained supportive housing had a lower risk of death compared to individuals experiencing homelessness. Intravenous drug use was also more common in the unhoused group, and independently predicted mortality for all individuals.

In a subsample of 676 individuals living with HIV who were also experiencing homelessness, 49 case-controlled pairs were analyzed. Of the individuals experiencing homelessness, 67 percent survived 5 years compared with 81 percent of those who received supportive housing.

Outside of the studies that focused on the HIV population, the committee found it difficult to identify high-quality data documenting the impact of housing on other aspects of physical health status. The few studies identified focused on subjective general assessments of physical health via self-reports. As described earlier, a pilot study of supportive housing in Oregon showed that the percentage of study participants who responded that they "had an unmet physical health need" dropped from 79 percent to 48 percent after moving into housing. Additionally, the proportion of respondents who marked "physical health was fair or poor" dropped from 80 percent to 54 percent after moving into supportive housing (CORE, 2013; Wright et al., 2016).

However, in the randomized At Home/Chez Soi study, there was no change in self-rated physical health (Stergiopoulos et al., 2015) over a 2-year follow-up period, nor were there significant differences between the intervention group (scattered-site housing with intensive case management) and the usual-care group. An earlier randomized study of a scatter-site supportive housing group compared to a usual-care group and a case-management-only group among veterans produced similar results of no significant change over a 3-year period for Medical Index[8] scores (Rosenheck et al., 2003). There were also no significant differences between the three groups for Medical Index scores.

In summary, outside of HIV/AIDS, the research to date has not comprehensively assessed the benefits of PSH on physical health outcomes (see Table 3-1). RCTs considering a general measure of health status found no improvement in health status with a move into housing. A demonstration of the health benefits of housing would require the enrollment of patients who have health problems likely to be affected by housing status and more comprehensive assessments of health beyond self-reported scales. Self-reported assessments of health are accepted

[8]The Medical Index is a component of the Addiction Severity Index. It is designed to measure physical health outcomes related to substance use.

measures in assessing quality in patient-centered outcomes. Additional details are described in Chapter 8.

TABLE 3-1 Key Findings of Randomized Controlled Trials and Observational Studies

Study	Year	Randomized Controlled Trials	Key Findings
Aidala et al.	2016	Systematic review of studies examining the association between housing status, medical care, and health outcomes among people living with HIV/AIDS.	Of the 152 studies included in their review, most studies (71 percent) did not specifically address the role of housing status on outcomes or lacked sufficient power to show statistical significance.
Wolitski et al.	2010	Compared health outcomes and risk behaviors of 630 people experiencing homelessness and living with HIV/AIDS who were randomly assigned to immediate Housing Opportunities for People with AIDS (HOPWA) rental assistance (treatment group) and those assigned to traditional care (control group), which included making a plan with service providers to obtain housing.	The authors concluded that HOPWA rental assistance improved housing status and demonstrated modest improvements in mental health outcomes for the intervention group.
Buchanan et al.	2009	Focused on the health benefits of permanent supportive housing (a mix of single site and scattered site) to individuals experiencing homelessness and living with HIV/AIDS in Chicago.	The authors concluded that supportive housing improves health outcomes for people living with HIV and experiencing homelessness, based on improved health measures related to mortality, immunity, and viral load.
Schwarcz et al.	2009	Used data from the San Francisco AIDS registry.	Individuals experiencing homelessness and living with AIDS who obtained supportive housing had a lower risk of death compared to individuals experiencing homelessness.

Stergiopoulos et al.	2015	An intervention group that received scattered-site Housing First housing and services was compared to a treatment-as-usual group	There was no change in self-rated physical health over a 2-year follow-up period, nor were there significant differences between the intervention group (scattered-site housing with intensive case management) and the usual-care group on a number of secondary variables.

Impact on Mental Health Outcomes and Substance Abuse

Multiple surveys of people experiencing chronic homelessness indicate that the prevalence of serious mental health conditions is much higher than in the general population (Aubry et al., 2015). Conversely, the stress of being homeless is known to worsen mental illness (Fazel et al., 2014). It is therefore not surprising that housing would be promoted as a health benefit for persons who are mentally ill (e.g., Aubry et al., 2016), although this is not necessarily supported by the available data.

However, even though supportive housing models have been found to decrease the number of days spent homeless (Rosenheck et al., 2003; Cheng et al., 2007; Stergiopoulos et al., 2015; Aubry et al., 2016) or in psychiatric hospitals (Gulcur et al., 2003) for individuals with serious mental illness and/or substance use, this has not translated to significant improvements in mental health status in most studies. For example, as part of the At Home/Chez Soi RCT, Stergiopoulos and colleagues (2015) compared individuals assigned to a Housing First model using scattered-site housing with intensive case management to a comparison group of usual care. Over a 24-month period, individuals in the Housing First program were housed between 33 percent and 50 percent more days than the usual-care group (the range of differences reflects the results from four different sites). However, there were no differences between the Housing First group and the usual-care group at 24 months on measures of severity of mental health symptoms, self-rated mental health status, community integration, or degree of recovery.

An earlier randomized study of veterans assigned to supportive housing versus two comparison groups (case management-only group and usual-care group) showed no significant differences for mental health measures between the three groups during a 3-year follow-up (Rosenheck et al., 2003). Again, although the group receiving the housing voucher spent 16 percent more days housed than the case management group, and 25 percent more housed days than the standard-care group, there were no significant differences on measures of psychiatric status or substance use.

In a previously described study in New York City, mentally ill, substance-using individuals experiencing homelessness were assigned to two conditions, a Pathways Housing First[9] program and an approach where receipt of housing was contingent on treatment and sobriety (Tsemberis et al., 2004). Although individuals assigned to the Housing First program spent more days housed and fewer days in psychiatric hospitals (Gulcur et al., 2003), there were no significant differences between the two groups for substance use or psychiatric symptoms.

Several possible conclusions can be drawn from these three randomized studies investigating the association between supportive housing and mental illness. One possibility is that because mental illness is a serious, chronic disease, housing itself will not improve mental health. A second possibility is that the benefits of housing are difficult to tease out in these studies because the control group, in each case, received services that may not be available to individuals experiencing homelessness in other situations. For example, in the case of the Canadian At Home/Chez Soi study (Stergiopoulos et al., 2015), the usual-care control group also had access to existing housing and supportive services through their communities, as well as access to a more comprehensive system for sheltering individuals experiencing homelessness than exists in most parts of the United States (Stergiopolous et al., 2015).

For the study investigating the effects of housing for veterans experiencing homelessness, all of the participants across all three study conditions had access to VA services (Rosenheck et al., 2003). In the New York City study (Tsemberis et al., 2004), the comparison group received mental health and substance abuse services. In all three of these studies, the participants themselves were able to consent and agree to participate in a longitudinal study. Whether it is possible that housing decreases mental health symptoms among more severely affected individuals compared to persons continuing to live on the street without any supports is uncertain.

Mirroring the results for the findings on the association between Housing First and mental health status, all three randomized trials discussed above found no significant differences in substance use between the Housing First group and the control group. The lack of differences suggests that substance use was not enabled by living in permanent supportive housing without requirements for treatment.

[9]The Pathways Housing First model provides only scattered-site housing.

In summary, the committee finds that supportive housing improves the housing status of individuals suffering from homelessness, mental illness, and substance abuse. The studies reviewed did not demonstrate improvements in psychiatric symptomatology or substance use behavior, perhaps due to homogeneity in the mental health and substance abuse services received by the intervention and control groups. More research will be needed to elucidate the role of permanent supportive housing on mental health and substance abuse outcomes.

Impact on General Well-Being

Along with physical and mental health, social well-being is a component of the WHO (1946) definition of health. The constructs of "social well-being" and, more generally, "well-being" have been defined in a number of different ways in the literature. Social science theories have described well-being in terms of a sense of belonging and identification with societal groups (Durkheim, 1997; Runquist and Reed, 2007). Well-being has also been described as "the positive aspects of a person's life, such as positive emotions and life satisfaction" (ODPHP, 2016), and in terms of the quality of relationships, realization of individual potential, and overall life satisfaction (Diener and Seligman, 2004; Diener, 2009; CDC, 2016). Consideration of well-being as an outcome for residents in PSH is consistent with recent policy discussions in the community development and public health fields (Pastor and Morello-Frosch, 2014) and the recent approach of the U.S. Department of Housing and Urban Development (HUD) to utilize housing as a "platform for improving quality of life" (Fukuzawa and Karnas, 2015, p. 86). The merit in considering the specific construct of social well-being in particular is supported by its associations with morbidity and mortality in the general population (Yang et al., 2015).

Recognizing that there are both commonalities across descriptions of well-being and variability in specific research definitions and measurements, the committee initiated its review of evidence using an expansive approach. Few exclusion criteria were used except that physical and mental health conditions were not included because they are more appropriately placed within the realm of physical and mental health outcomes. Investigations of health outcomes for persons in PSH have primarily focused on indicators of physical and mental health and utilization of services. It is notable that recent systematic reviews of the literature evaluating the evidence for PSH do not include discussion of well-being indicators (Fitzpatrick-Lewis et al., 2011; Rog et al., 2014), whether due to the exclusion of such indicators in the original studies or because the studies that addressed these indicators had design limitations that precluded conclusions about effectiveness of PSH for well-being outcomes.

RCTs provide some evidence for the effect of PSH on well-being. Most of this research has focused on quality of life. A controlled trial conducted in the five Canadian cities At Home/Chez Soi study comparing participants randomized to either scattered-site Housing First, receipt of Assertive Community Treatment (ACT), or a treatment-as-usual control group found significantly improved quality

of life and community functioning at 12 months post-enrollment among the Housing First participants (Aubry et al., 2015), where quality of life was assessed with the Quality of Life Interview (QOLI) (Uttaro and Lehman, 1999) and community functioning was measured with the Multnomah Community Ability Scale (MCAS) (Barker et al., 1994; Dickerson et al., 2003). In terms of absolute gain, increases in quality of life for Housing First participants were greater for the QOLI total score and for the subscales that assessed living situation and, to a lesser extent, personal safety and leisure activities (Aubry et al., 2015). Also in terms of absolute gain, community functioning was greater among Housing First participants for social skills (i.e., social effectiveness, social network size, participation in meaningful activity) and behavior (i.e., cooperation with treatment providers, substance use, impulse control) (Aubry et al., 2015).

Social Integration and Quality of Life

In a study of Pathways Housing First in New York City, chronically homeless participants randomly assigned to either scattered-site Pathways Housing First or a control condition in which shelters and other temporary living arrangements were available completed a battery of measures representing social integration and similar constructs (Gulcur et al., 2007). Adjusted analyses indicated that residence in scattered-site Pathways Housing First locations as opposed to other places significantly predicted greater social integration at 48 months post-baseline in regression analyses. Social integration was a factor derived from measures of social support and the number of social ties from one's neighborhood. Data from randomized controlled trials of the Pathways Housing First model therefore provide some evidence of improvements in social integration and several specific domains of quality of life.

Quasi-experimental and correlational studies have also yielded evidence of PSH impact on well-being, although results from such studies must be evaluated in light of the limited internal validity inherent in these designs. A cohort of individuals in Phoenix, Arizona, enrolled in a Housing First program (n = 47) that incorporated a peer support model, showed significantly improved quality of life from time of enrollment through 12 months (Bean et al., 2013). Quality of life was measured in that study with the WHO Quality of Life Scale (WHOQOL Group, 1998). The sample size for this study was small, however, and there was no control group.

Hwang et al. (2011) studied single adult residents, many of whom were mentally ill, who were enrolled in a supportive housing program in Canada and were followed for 18 months after entry into housing. The comparison group was potential residents who were wait-listed. Both groups were administered assessments of social functioning as part of the MOS 36-Item Short-Form Health Survey (McHorney et al., 1994) and quality of life with the EuroQol (Rabin and de Charro, 2001) and the Lehman Brief Quality of Life Interview (Uttaro and Lehman, 1999). The quality-of-life measures assessed constructs including but not

limited to social and family relations, safety issues, living situation, life satisfaction, and satisfaction with living situation. Residents demonstrated significantly increased well-being as reflected only in satisfaction with their living situation.

An observational study examined individuals experiencing chronic homelessness also with serious mental illness who received permanent supportive housing across 11 U.S. sites. Residents completed assessments on work and volunteer activities, social support, community participation, and civic activity at baseline and through 12 months in housing (Tsai et al., 2012).[10] There were no significant changes over time in these dimensions after controlling for clinical symptoms. These quasi-experimental studies therefore yielded limited evidence of increased well-being for persons in housing.

Qualitative analyses of the experiences of persons living in PSH provide important insight on well-being in Canada. Research among HIV-positive individuals housed in Canada suggests risk of self-imposed social exclusion and social isolation within housing due to the ongoing stigma associated with having HIV (Chambers et al., 2014). A qualitative study involving residents of a single-site Housing First program for persons experiencing chronic homelessness with severe alcohol problems suggested the importance of meaningful and interesting social activities organized by staff for residents (Clifasefi et al., 2016). Another qualitative investigation suggests improved quality of life in Housing First programs for residents who have formerly experienced homelessness because they were able to move out of the "survival mode" that is necessary on the streets (Barr, 2004), with one respondent explaining, "You get a little bit of the criteria of what people expect from normal people: A fairly decent place to live, your own money, a job. From there, people can do just about anything they want" (Barr, 2004, p. 154).

Similarly, a qualitative study of 39 individuals who were initially part of the Tsemberis et al. (2004) randomized New York Housing Study participated in a follow-up interview study. Individuals experiencing both homelessness and mental illness were assigned to either a treatment-as-usual group (treatment-first approach) or to receive immediate housing through Pathways Housing First (Padgett, 2007). Padgett's interviews focused on validating the concept of "ontological security," the notion that constancy, day-to-day routines, freedom from surveillance, and the opportunity for identity construction are outcomes of the housing-first philosophy. These interview data show clear support for the components of ontological security for the individuals in the Housing First program. Participants in a pilot study of individuals moving into a single-site Housing First program in Los Angeles reported challenges in their social networks (i.e., increase in sexual relationships) after 3 months in housing (Henwood et al., 2017), with disconnecting from old relationships a major emphasis for interviewees.

Perspectives of PSH providers suggest the importance of examining social well-being as an outcome for individuals previously experiencing homelessness.

[10]Article does not state if the PSH provided was single-site or scattered site housing.

According to one provider agency during the committee site visits, achieving "social integration" is considered a priority for every client in PSH, where social integration was defined broadly by this program to include well-being, getting along with neighbors in the buildings, attention to nutrition, and job skills development. These providers also perceived differences between congregate (or single-site) and scattered-site housing approaches, where congregate settings are thought to more easily facilitate getting together. Peer mentors were also seen as key to social integration attempts in scattered-site settings.

Although not a direct measure of well-being, sufficient sleep is known to be essential for well-being. Because of the difficulty of sleeping while on the street, persons experiencing homelessness have shorter sleep times than the general population, are more likely to suffer from insomnia, are more likely to take a drug to help them sleep, and are more likely to have daytime fatigue than the general population (Leger et al., 2016). Supportive housing would be expected to improve sleeping time because of the greater safety and comfort of sleep in one's own home, although evidence on this is lacking.

In summary, despite the challenges in assessing outcomes related to well-being described above, the committee finds that there is evidence that housing, in general, improves the well-being of persons experiencing homelessness. This has been demonstrated using multiple different measures and study designs, including randomized controlled studies.

A NEW PARADIGM FOR CONSIDERING THE IMPACT OF PERMANENT SUPPORTIVE HOUSING

The committee deliberated on the question of why clinicians they heard from during their meetings felt certain that providing PSH to individuals experiencing chronic homelessness improved their health. Randomized and nonrandomized studies of individuals living with HIV/AIDS found benefits associated with housing. Yet randomized studies of individuals experiencing homelessness along with mental illness and/or substance abuse did not show statistically significant health benefits between the housed group and the usual-care group, except in the area of well-being. To better understand how and why providers believed PSH was a factor in improving health in this population, the committee examined the concept of medical necessity. Medical necessity is currently used by some states as a factor to determine eligibility for specific Medicaid-reimbursed services. Individuals who are experiencing chronic homelessness may qualify for services because they may suffer from specific conditions such as substance use disorders, mental illness, chronic medical conditions, or disabilities (HHS, 2014).

According to the American College of Medical Quality (2010), medical necessity is defined as "accepted health care services and supplies provided by health care entities, appropriate to the evaluation and treatment of a disease, condition, illness or injury and consistent with the applicable standard of care." A class-action court case providing national settlement language further clarified

that medical necessity decisions must be individualized, and also noted that consideration of cost or comparative effectiveness was acceptable (Kaminiski, 2007). The associated definition agreed upon by major insurance companies and 900,000 physicians and used across the board in private market practice is as follows:

> "Medically Necessary" or "Medical Necessity" shall mean health care services that a physician, exercising prudent clinical judgment, would provide to a patient for the purpose of preventing, evaluating, diagnosing or treating an illness, injury, disease or its symptoms, and that are: a) in accordance with generally accepted standards of medical practice; b) clinically appropriate, in terms of type, frequency, extent, site and duration, and considered effective for the patient's illness, injury or disease; and c) not primarily for the convenience of the patient, physician or other health care provider, and not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that patient's illness, injury or disease. For these purposes, "generally accepted standards of medical practice" means standards that are based on credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community or otherwise consistent with the standards set forth in policy issues involving clinical judgment (IOM, 2012, p. 228).

The Centers for Medicare & Medicaid Services (CMS) does not provide financial support for housing per se. However, in 2015, CMS released the *Informational Bulletin on Coverage of Housing-Related Activities and Services for Individuals with Disabilities* to provide guidance to states on certain housing-related activities and services (CMS, 2015; HUD, 2015b). A number of states have used this guidance to pay for housing-related services for transitioning to housing and sustaining housing for eligible individuals (CMS, 2015).

In addition, CMS has announced a future expansion of its definition of health-related benefits in its Medicare Advantage plans, which provide extra coverage, such as for vision, hearing, dental, and/or health and wellness programs, to Medicare recipients. In April 2018, CMS released a 2019 Medicare Advantage and Part D Rate Announcement and Call Letter, which announced a reinterpretation of federal statute to expand the scope of the "primarily health-related supplemental benefit" (CMS, 2018). CMS states that under this reinterpretation, the agency would "allow supplemental benefits if they are used to diagnose, prevent, or treat an illness or injury, compensate for physical impairments, act to ameliorate the functional/psychological impact of injuries or health conditions, or reduce avoidable emergency and healthcare utilization." This expansion of benefits signals a move in the agency's thinking toward a more integrative approach to covering services beyond those traditionally held as health-related, which could include housing.

The committee discussed a variety of scenarios where a patient's illness would make housing a medical necessity. The scenarios included patients who

require medicines that must be refrigerated; who must receive frequent wound dressing changes; who must elevate their legs; or who are on medications known to cause extreme drowsiness, vomiting, or diarrhea (such as chemotherapy regimens). Health care providers for individuals experiencing homelessness have often used the concept of medical necessity broadly and creatively, to include, for example, the provision of housing as a medical necessity for their patients experiencing homelessness (Wilkins et al., 2014).

Beyond these acute illnesses, there may be people for whom housing prevents the onset of more serious illness. The concept of "ambulatory care-sensitive conditions" or its subset, "primary care-sensitive conditions" (Oster and Bindman, 2003; Caminal et al., 2004; Gibbons et al., 2012) refers to conditions for which primary care can exert an influence to alter the course of the condition. For example, asthma and congestive heart failure are both considered primary care-sensitive conditions by the Agency for Healthcare Research and Quality because many hospitalizations could be prevented or reduced by appropriate primary care (Fingar et al., 2015).

The committee believes that these concepts converge when considering the impact of PSH on the health of individuals experiencing chronic homelessness. HIV/AIDS, in the early years of the epidemic, is a good example of the intersection of health-related care and permanent supportive housing. HIV/AIDS was considered to worsen or at a minimum fail to improve without housing. In fact, Congress established the HOPWA program because "existing housing resources at the time were reportedly not meeting the needs of people with AIDS, who often had difficulty obtaining suitable housing because of the need for supportive services, discrimination, or other problems" (GAO, 1997, p. 1).

Similarly, HIV infection in the early years of the epidemic may have qualified as an ambulatory care-sensitive condition because the medication regimens were so complex that adherence for infected individuals experiencing homelessness was at best suboptimal. Some of the medications required refrigeration. Some had to be taken on an empty stomach, others on a full stomach. Multiple daily doses were required. Side effects such as nausea, vomiting, and diarrhea were common. Frequent clinical visits and blood draws were needed to assess efficacy. In this setting, it is not surprising that studies showed that persons who remained living on the streets had worse outcomes than those who were housed. An important and complicated next question is, which other conditions are made worse by homelessness and improved by housing?

In the committee's judgment, homelessness worsens health through exposure to unhealthful environments and by making it difficult to care for oneself or for others to provide care. This is echoed by the Corporation for Supportive Housing (CSH, 2014a):

> supportive housing provides physical safety, protection and access to basic needs. A clean, dry, safe home reduces exposure to harsh weather, communicable diseases, infections, injury, harassment and violence; it provides

a secure place to sleep and store food, clothing and medications; and it is essential to promoting personal hygiene and recuperation from illness.

A number of common health problems could be prevented or improved by stable housing. For example, specific features that are part of housing can result in better outcomes, even simple benefits such as access to a bathroom, a refrigerator/freezer, and electricity to run medical equipment. Although it is likely that housing contributes to improvements in overall health, there are not currently enough data to link stable housing to improvements in substance use or serious mental illness. Nonetheless, the committee feels that there is a moral imperative to house individuals with serious mental illness or substance use problems; as a society, there is a consensus that these individuals should not be left living on the streets.

Conversely, a lack of stable housing increases the risk of contracting tuberculosis due to potential exposure to others with a high risk for TB on the streets and in shelters. Other health issues that are exacerbated by a lack of stable housing include hypothermia and hyperthermia, skin infections, and an increased risk of assault. Chronic illness such as heart disease, cancer, and HIV/AIDS can be exacerbated because adherence to treatment is difficult without stable housing.

The concept of "housing-sensitive conditions" does not negate the fact that everyone would be healthier housed than homeless. But there is a group of chronically homeless patients for whom failure to provide housing will result in significant worsening of their conditions. Future studies are needed to understand whether there are health conditions that are more sensitive to housing.

CONCLUSIONS

In summary, on the basis of currently available studies, the committee found no substantial evidence that PSH contributes to improved health outcomes, notwithstanding the intuitive logic that it should do so and limited data showing that it does do so for persons with HIV/AIDS. There are significant limitations to the current research and evidentiary base on this topic.

The committee acknowledges the importance of housing in improving health in general, but it also believes that some persons experiencing homelessness have health conditions for which failure to provide housing would result in a significant worsening of their health. Said differently, notwithstanding that housing is good for health in general, the committee believes that stable housing has an especially important impact on the course and ability to care for certain specific conditions and therefore the health outcomes of persons with those conditions. The committee refers to these conditions as "housing-sensitive conditions" and recommends that high priority be given to conducting research to further explore whether there are health conditions that fall into this category and, if so, what those specific conditions are. The evidence of the impact of housing on HIV/AIDS in individuals experiencing chronic homelessness may serve as a basis for more fully examining this concept.

Research on housing-sensitive conditions could improve our understanding about how best to manage care for individuals experiencing homelessness who have conditions that fall into this category. It would also provide evidence for federal- and state-level health care policy and financing decisions related to the need for housing for those who have conditions considered housing sensitive, as well as possibly facilitate processes used for prioritizing housing for persons experiencing homelessness. Finally, this research could strengthen the connection between currently siloed health and housing systems by documenting the need for integrated data collection and decision making.

Recommendation 3-1: Research should be conducted to assess whether there are health conditions whose course and medical management are more significantly influenced than others by having safe and stable housing (i.e., *housing-sensitive conditions*). This research should include prospective longitudinal studies, beyond 2 years in duration, to examine health and housing data that could inform which health conditions, or combinations of conditions, should be considered especially housing-sensitive. Studies also should be undertaken to clarify linkages between the provision of both permanent housing and supportive services and specific health outcomes.

Recommendation 3-2: The Department of Health and Human Services, in collaboration with the Department of Housing and Urban Development, should call for and support a convening of subject-matter experts to assess how research and policy could be used to facilitate access to permanent supportive housing and ensure the availability of needed support services, as well as facilitate access to health care services.

Information provided by such research would be helpful in setting policies around reimbursement for housing when it is considered health-related care required to address a housing-sensitive condition.

4

Cost-Effectiveness of Permanent Supportive Housing

Questions have been raised regarding the cost-effectiveness associated with permanent supportive housing (PSH). This chapter addresses this issue. In particular, this chapter responds to the question posed in the statement of task: Is permanent supportive housing cost-effective to those institutions and agencies providing funding for PSH programs? In addressing this question, the committee provides a brief overview of cost-effectiveness analysis (CEA) principles, outlines a framework for conducting CEA of PSH, reviews the available literature on the cost and effectiveness of PSH, and synthesizes the findings from the literature. It must be noted, however, that many researchers studying the potential effectiveness of PSH argue that "the cost-savings argument is problematic and that it would be better to reframe the discussion to focus primarily on the best way to meet this population's needs" (Kertesz et al., 2016, p. 2115). The committee agrees with Kertesz and colleagues but still thought it important to investigate the cost-effectiveness question.

GENERAL COST-EFFECTIVENESS PRINCIPLES

CEA is an important tool used for evaluating various medical and health care practices and intervention polices involving resource allocation. A series of articles published in the *Journal of the American Medical Association* (JAMA) two decades ago provided widely accepted guidelines for conducting and reporting CEA based on the Report of the Panel on Cost-Effectiveness in Health and Medicine (RPCEHM) (Russell et al., 1996; Siegel et al., 1996; Weinstein et al., 1996). The RPCEHM considered cost-effectiveness from a societal benefit perspective and considered 13 factors, including community compassion and equity, with the overall goal to show the relative value of different health interventions.

More than 20 years later, a new set of standards for CEA was published (Sanders et al., 2016), with the overall goal of improving the quality of cost analyses. As stated by the authors, "the landscape and the set of challenges to cost-effectiveness analysis have changed since 1996" (p. 1095). The new standards include the addition of two "reference cases" that should be used in all CEAs, one

based on a health care sector perspective and the other based on a societal perspective. These reference analyses are a set of standard methodological practices that should be followed in the use of a CEA. The new recommendations also include the use of an "impact inventory," which provides a structure for the outcomes of the two reference case analyses.

When considering the cost-effectiveness of PSH, it is reasonable to include housing, health care, and other relevant costs in the numerator of the cost-effectiveness (C/E) ratio and improvements in health, socioeconomic status, and other outcomes related to benefits in the denominator. While the former is basically monetary, the latter may include nonmonetary measures that may contain items in the quality-of-life index (e.g., the Lehman 7-scale composite index of various subjective and objective indicators) (Lehman, 1983) or the prototypical quality-adjusted life-years (QALYs) commonly used in the literature of medicine and health (Klarman et al., 1968; Sanders et al., 2016), or nonmonetary measures that can be converted to dollar values (following the concept of consumption equivalence in welfare analysis) as in the economics literature. It is informative to summarize several important principles highlighted by the new recommendations (Sanders et al., 2016):

- Reporting of CEAs must include sharing the results of both the health care reference case and the societal reference case.
- CEAs are not the only measure that should be considered when making decisions about the efficacy of a program or cost.
- QALYs are recommended for use in measuring health effects. All CEAs should include the impact inventory, which is designed to make certain that all consequences; particularly those outside the formal health care sector—are appropriately considered.[1]
- Transparency and sensitivity are paramount.
- The health care reference case should include both out-of-pocket expenses paid by the patient as well as reimbursements by third-party payers.
- The social reference case should include medical costs as described in the bullet above, time costs for unpaid caregivers, transportation costs, effects on future productivity, and other costs outside the health care sector.
- Analysis of the social reference case should include efforts to quantify nonhealth consequences.
- Other principles to be considered include the cost-effectiveness framework measures described below because they have sometimes been overlooked by researchers evaluating PSH outcomes. Double counting of an aspect of a program or intervention in both the estimation of costs and effects should be avoided.

[1]The QALY concept has been criticized on technical and ethical grounds (Prieto and Sacristan, 2003). Nonetheless, it is still a primary measure of the value of a health intervention.

- Societal costs and benefits generated through externalities must be considered. Benefits generated at different times should be adjusted by a time discount.
- Costs incurred in different years should be adjusted for inflation, that is, measured in constant dollars.
- The concept of opportunity costs should be observed, which may be measured based on market prices properly adjusted by market distortions.

In developing a framework for assessing the CEA literature for PSH, the committee first considered relevant cost analysis and effectiveness measures associated with PSH. These measures are discussed below.

Identification of the Costs in PSH

Cost analysis in PSH can be categorized into two broad components: (1) incurred program cost and (2) all induced cost changes as a result of the program intervention. In the discussion below, various program costs were recategorized in a more systematic manner.

Program Costs

Program costs include, among others, rent subsidies, case management service costs, financing (or capital) cost for development of the housing project, and other operative or administrative costs. Capital costs are usually accrued over several years, and so these costs should be properly adjusted by year-specific interest rates and adjusted for inflation (i.e., imputed based on the real interest rates).

Induced Cost Changes

An intervention program may induce changes in many personal, governmental, and societal costs. The most important induced cost changes that the committee considered are changes in health care costs. Three primary cost changes that are typically observed are due to differences in the utilization of emergency services (including hospital emergency department and prehospital emergency medical services/ambulance costs), hospitalization and other inpatient costs, and ambulatory care and other outpatient service costs. Generally, actual costs accrued are not available. Thus, these costs are imputed from changes in ambulance calls, emergency department visits, hospitalization days, and outpatient visits, in conjunction with their respective unit costs. These unit costs vary across different hospitals and clinics, and hospitalization per-night costs sometimes are lower for longer stays.

There are two additional induced cost changes under the health care category. One concerns changes in residential treatment costs associated with substance abuse, which are particularly important to the subpopulation of individuals experiencing homelessness having high substance use rates. Another concerns

changes in prescribed drug costs, which are important to those individuals experiencing homelessness who have severe mental illness and other chronic health conditions. Whereas the former can be easily imputed based on number of treatments and the unit costs, the latter is more difficult to impute without detailed medical data.

The next set of induced cost changes, specific to PSH studies, concerns changes in shelter stay cost. They include cost changes resulting from using nursing homes (costs that are covered by Medicaid), shelters, and other housing. These costs may be imputed using data based on adding the number of changes in days spent at various places together with their respective unit costs.

Similar to many socioeconomic and health care programs, PSH interventions also lead to changes in legal and community support costs. With regard to legal-cost changes, analyses should include changes in law enforcement contacts and incarceration (including legal proceedings and court costs and jail and prison costs). Again, these costs may be imputed based on changes in police contacts, number of convictions and days in jail and prison, and the associated unit costs.

Identification of Effectiveness Measures

Effectiveness measures include those to be aggregated into the individual quality of life index or the QALYs measures and those at the societal level through externalities.[2]

Individual Quality-of-Life or QALY Measures

Individual benefits included in the overall quality-of-life or QALY measures are from increases in stable housing days and/or reductions in homeless days and objective or subjective measures based on improvements in health. Useful measures such as healthcare utilization and various physical and mental health outcomes, including reductions in sickdays and substance dependence, may help measure quality of life. Subjective measures may alsobe used to produce quality-of-life scores. Notably, reductions in sick days and substance dependence may be used directly, but health care utilization should not be used. Health care utilization figuresshould be regarded as "inputs" (or explanatory variables) that can be used to estimate the "outputs" (or dependent variables, such as number of days housed that serve as a proxy for health quality.

Another benefit is accrued from gains in productivity, which may be measured by increases in work days or earned income. Improvements in social skills and community functioning (including network size and social contacts) should also be considered as a part of the social case reference.

[2]Externalities are defined as the indirect effects of economic production and consumption. There are both positive externalities and negative externalities. In this case, externalities refer to program costs that can have an indirect positive effect on society and the community.

To avoid double counting, monetary outcome change measures included in cost analysis should not be included in the effectiveness measure. By contrast, relevant time cost reduction or leisure benefit should be incorporated. As noted above, benefits generated at different times should be adjusted by a time discount, whereas QALYs will differ based on different subgroups of people or people at different stages in life.

Net Societal Benefits from Externalities

Analogous to many socioeconomic and health care programs, PSH interventions may generate societal benefits through positive externality spillovers such as reduced arrests and less time spent in jail or prison. Such positive externalities (indirect effects from a program or intervention) may arise in public health outcomes or community safety issues. They may also be due to improvements in neighborhood environments. The values of these externalities are usually obtained based on regression estimation. As described earlier, these positive externalities must be included in the social reference case. Additionally, this argument is made by Kertesz et al. (2016) regarding the framing of the cost-effectiveness argument. The committee believes that the net societal benefits, or positive externalities, of housing even some individuals experiencing homelessness are in fact benefits that should not be overlooked. Although these benefits may not be completely tangible, they are real and in fact likely contribute to overall community harmony.

A COST-EFFECTIVENESS FRAMEWORK FOR PSH

Combining the cost analysis and effectiveness measures discussed above, the committee developed a general framework for what should be included in a cost-effectiveness analysis of PSH for persons experiencing chronic homelessness who are exiting homelessness. The framework and measures are outlined below.

I. Cost analysis: Based on comparison of average cost per person per year
    a. Program costs
        i. Financing/capital cost for development of the housing project
        ii. Rent subsidies
        iii. Case management service costs
        iv. Other operative and administrative costs
    b. Induced cost changes
        i. Changes in health care costs:
            1. Cost changes in emergency services, including emergency department and ambulance costs
            2. Cost changes in inpatient services
            3. Cost changes in outpatient services
            4. Changes in residential treatment costs associated with substance abuse
            5. Changes in prescription costs

ii. Changes in shelter stay cost, including nursing home, shelter, and other housing options (doubling up; transitional housing)
iii. Changes in law enforcement and incarceration costs
1. Changes in police contact costs
2. Changes in correction/incarceration costs, including legal proceedings, jail, or prison time
iv. Changes in community support cost for avoiding law enforcement and incarceration costs

II. Effectiveness measures
a. Aggregate measure of individual benefits based on improvements in the overall quality-of-life index or QALYs inclusive of measurable benefits such as
i. Increases in stable housing days
ii. Improvements in health (health care utilization and broader measures of health outcomes including reductions in sick days and substance dependence and subjective health quality measures may all be used to generate health benefit)
iii. Gains in productivity (increases in workdays and earned income)
iv. Improvements in social skills and community functioning
b. Other societal benefits generated by positive externalities inclusive of those in:
i. Public health
ii. Criminal justice system
iii. Neighborhood environments

To facilitate better understanding of the CEA results, the following supporting information is also included:

- Location(s) in which the intervention program is conducted;
- PSH program details, indicating whether there is on-site case management support and on-site clinics, whether housing is scattered site or single site, and whether there is an outreach team;
- Sample size (experimental versus control and attrition at various stages) and types of participants (general, people with severe mental illness, or substance abuse, or dually diagnosed, Medicaid users, VA clients, etc.); this information is particularly important because the costs, outcomes, and possible exit from homelessness all depend on the characteristics of the participants;
- Time of study length and months followed up after intervention;
- Number of days spent homeless;
- Other supporting data, including unit cost data for health care and detailed demographics.

The committee used this framework as it identified and assessed studies that might be informative to responding to the question at hand.

ASSESSMENT OF EXISTING STUDIES

The literature is sparse on the cost effectiveness of PSH (Ly and Latimer, 2015). In locating the appropriate studies to consider for this review, the committee conducted an extensive search of relevant databases, including Embase, the Cochrane Database of Systematic Reviews, Lexis, Lexis Law Reviews, Medline/PubMed, Web of Science, WorldCat, and PsycINFO. The committee also identified 13 published or advance online publications that address, to some extent, CEA of PSH.

Among these studies, five used a randomized design (Gulcur et al., 2003; Rosenheck et al., 2003; Basu et al., 2012; Aubry et al., 2015; Stergiopoulos et al., 2015). However, three of these studies did not provide sufficient information to be used for the committee's assessment: Aubry et al. (2015) has no monetary cost measures, Stergiopoulos et al. (2015) reported program cost but not induced cost changes, and Gulcur et al. (2003) provided health care cost reductions but no program cost. As a result, only Rosenheck et al. (2003) and Basu et al. (2012) are informative for the purposes of this CEA.

Although less robust than randomized studies, a total of eight quasi-experimental, pre/post studies were identified.[3] Among these, only five included an intervention and comparison group (Culhane et al., 2002; Martinez and Burt, 2006; Gilmer et al., 2009; Larimer et al., 2009; Srebnik et al., 2013). These studies compare pre/post placement changes in the experimental group with the comparable changes in the control group, providing an array of "difference-in-difference" measures in cost and effectiveness outcomes. Such measures need to be adjusted if the characteristics between the experimental and the control group are different before the treatment. Despite potential statistical or econometric biases, these figures can be directly compared to those obtained under randomized design. The study by Martinez and Burt (2006) was excluded because the program cost was not precisely measured and the cost offset was limited to emergency and inpatient care only.

Three additional quasi-experimental, pre/post studies that did not include a comparison group were identified from the literature (Mares and Rosenheck, 2010; McLaughlin, 2011; Greenberg et al., 2013). Two of these studies (Mares and Rosenheck, 2010; Greenberg et al., 2013) were excluded because they did not include program cost measures. Only the McLaughlin (2011) study contained a comprehensive set of induced cost changes and could be used for the committee's

[3]While the committee recognizes that there have been many pre/post studies of PSH, these eight quasi-experimental, pre/post studies were identified. There are numerous other pre/post studies not included in this report, including the following: Henwood et al. (2015b), Massachusetts Housing and Shelter Alliance (2015), and New York State Department of Health (2017).

assessment. Nonetheless, the results of this study should not be compared to those studies with comparison groups (either randomized or quasi-experimental) for which a "difference-in-difference" estimate can be calculated, because of the lack of a comparison group.

In summary, seven studies contributed to the committee's analysis of the CEA of PSH: two randomized design studies (Rosenheck et al., 2003; Basu et al., 2012); four quasi-experimental, pre/post analysis studies using a comparison group (Culhane et al., 2002; Gilmer et al., 2009; Larimer et al., 2009; Srebnik et al., 2013); and one quasi-experimental, pre/post analysis study without a comparison group (McLaughlin, 2011). Table 4-1 summarizes the basic program information for each study.

Findings

To facilitate comparisons among the studies, the committee took a number of steps to harmonize the data (see Annex 4-1 for additional information about this process). The measures from the different studies were converted to and reported on a per-person per-year cost basis. All cost measures are reported in U.S. dollars. The net cost measures after accounting for cost offsets are presented in 2015 constant dollars. For studies with comparison groups, the committee calculated the differences between the intervention and the control group, showing the net effects of intervention polices (difference-in-difference), and reports these results. Moreover, to align with the framework for conducting CEA for PSH, the committee recategorized various effectiveness and cost measures from those studies to be consistent with the framework outlined above.[4] The details in transforming various data and numerical results from those reported in the cited studies are provided in Annex 4-1.

Tables 4-2 and 4-3a,b, c show effectiveness and cost measures, respectively, based on the general cost-effectiveness framework outlined above. In most of the studies reviewed, cost measures were incomplete and effectiveness measures scarce. As a result, Table 4-2 includes only two studies and Table 4-3a, b, c contain many empty cells, reflecting the lack of available data to complete these tables.

Effectiveness

As summarized in Table 4-2, only two of the seven studies (Rosenheck et al., 2003; Basu et al., 2012) provide measures of effectiveness that may be incorporated

[4]Examples of recategorization include reporting legal costs and incarcerated days separately, and categorizing stable housing days separately from homeless days.

TABLE 4-1 Summary of Select Studies Examining Cost-Effectiveness of PSH

Study	Location	Housing Program	Study Size	Subjects	Comparison Group	Time of Study	Months Followed After Treatment	% with Mental Disorder/ Substance Abuse		
								Mental	Substance Abuse	Dual Diagnosis
Randomized Controlled Trials										
Basu et al. (2012)	Chicago	HF	407	General	Usual care	09/2003-12/2007	18	>80	<15	
Rosenheck et al. (2003)	San Francisco, San Diego, New Orleans, Cleveland	HUD-VASH	460	Mental	Standard VA care	06/1992-12/1995	36	100	50.4	35.2
Quasi-Experimental Pre-Post Analyses with Comparison Group										
Culhane et al. (2002)	New York City	NY/NY Housing; non-Medicaid, Medicaid, VA	3,338 matched (total); 457 (Medicaid); 294 (VA)	Mental	Yes	1989-1997	24	100		
Gilmer et al. (2009)	San Diego	REACH	338	General	Hospital with matched propensity scores	01/2002-06/2005	24	<50		
Larimer et al. (2009)	Seattle	HF, 1811 Eastlake with on-site medical care	134	Alcoholic	Wait-list for housing, 6-month follow-up	11/2005-03/2007	6		100	
Srebnk et al. (2013)	Seattle	HF, Begin at Home with on-site medical care	60	Dual	Yes	06/2006-11/2008	12	100	100	100

(Continued)

TABLE 4-1 Continued

Study	Location	Housing Program	Study Size	Subjects	Comparison Group	Time of Study	Months Followed After Treatment	% with Mental Disorder/ Substance Abuse		
Quasi-Experimental Pre-Post Analyses Without Comparison Group										
McLaughlin (2011)	14 of 16 counties in Maine	PSH	268	Mental	No		24	100		

NOTE: HF = Housing First; HUD-VASH = U.S. Department of Housing and Urban Development-U.S. Department of Veterans Affairs Supportive Housing program; PSH = permanent supportive housing.

TABLE 4-2 Measures of Effectiveness for Incorporating into Individual Quality of Life Index (QLI)

Measure	Basu et al. (2012)	Rosenheck et al. (2003)[a]
1. Stable housing days		47.16[b]
Days homeless	−62.30	−29.60[c]
2. Health quality		insignificant
3. Productivity		
Workdays		
Earned income		−$126[d]
4. Social skills/community functioning		1.5[e]
Overall changes in individual QLI		insignificant[f]

[a-f] See Annex 4-1 for further explanation of computational details used in transforming data from cited studies.

into the individual quality-of-life index. Five studies were excluded because of double-counting (related to changes in emergency department visits, outpatient visits, hospitalized days, and incarcerated days) in the effectiveness measure.

One important quality-of-life measure is the reduction in days spent homeless. Basu et al. (2012) found that homeless chronically ill individuals who were randomly assigned to participate in the Housing First program in Chicago experienced an average reduction of 62.3 days per year spent homeless compared to individuals in the usual-care control group (the usual-care group received only discharge planning services with no follow-up ($p < .05$). The study conducted by Rosenheck et al. (2003) also found a reduction in average homeless days, albeit a more modest one. Veterans with major psychiatric disorders and/or substance use disorders who were randomized to HUD-VA Supportive Housing (HUD-VASH) compared to standard VA care in San Francisco, San Diego, New Orleans, and Cleveland had an average reduction of 29.6 homeless days per year ($p < .001$).

The study by Rosenheck et al. (2003) also reported additional effectiveness measures in health scores and quality-of-life scores. No significant differences between the two groups were seen in the health scores along the dimensions of mental health, physical health, and substance abuse. However, the social network size of the treatment group (the HUD-VASH–housed individuals) was significantly greater than the network sizes of the usual-care group and the case management group.

The authors also reported a statistically insignificant reduction in earned income of $126 per person per year in the cost measures, which should be regarded as a reduction in the effectiveness. It may be noted that while health quality is expected to improve under the supportive housing intervention, this statistically insignificant finding may be due to potential problems in measurement of health outcomes, as noted in earlier chapters.

TABLE 4-3a Summary of Program Costs Reported in Key Studies of Cost-Effectiveness of PSH

Study	Program Costs	Financing/ Capital Cost	Rental Subsidies	Case Management Cost	Other Administrative Costs	Subtotal (A)
Randomized Controlled Trials						
Basu et al. (2012)[a]			$3,154	$183		$3,337
Rosenheck et al. (2003)[b]					$318[c]	$318[c]
Quasi-Experimental Pre/Post Analyses with Comparison Group						
Culhane et al. (2002) (*Total*)			$4,900	$4,600		$17,277
Gilmer et al. (2009)[d]				$3,201[e]		$3,201[e]
Larimer et al. (2009)						$13,440
Srebnik et al. (2013)						$18,600
Quasi-Experimental Pre-Post Analyses without Comparison Group						
McLaughlin (2011)[f]						$2,945[g]

[a-g]See Annex 4-1 for further explanation of computational details used in transforming data from cited studies.
NOTE: Program costs include difference between experimental and control (per person, per year). Figures are before inflation adjustments.

TABLE 4-3b Summary of Average and Induced Cost Changes in Key Studies of Cost-Effectiveness of PSH

	Inpatient + ED Services				Outpatient Services				Shelter Stay			Legal Services			
Study	***ED Cost***	***ER Visit***	***Inpatient Costs***	***Hospitalized Days***	***Costs***	***Visits***	**Residential Substance Abuse Treatment Cost**	**Prescription Drug Cost**	***Cost***	***Days in Shelter/ Other Housing***	***Nursing Home Days***	***Cost***	***Incarceration Days (Jail + Prison***	***Community Support Costs***	**Subtotal**
Randomized Controlled Trials															
Basu et al. (2012)[a]	$704	−1.27	−$6,786	−2.64	$689	3.84	−$897		−$895		−9.77	−$1,051	−3.67		−$9,644
Rosen-heck et al. (2003)[b]			$286[c]		$2,748[d]		−$671[e]		−$800[f]		−$17.56[g]	$101[h]			$1,665
Quasi-Experimental Pre/Post Analyses with Comparison Group															
Culhane et al. (2002)[i]															
Total				−$15.84[j]		38.85[k]				−$77.35[l]		−$747[m]	−6.00[n]		−$16,281
Medicaid			−$3,787[o]	−8.3[p]	$2,658[q]	38.85[r]									
VA				−8.2[s]											
Gilmer et al. (2009)[t]			−$3,051[u]		$344[v]							−$287[w]			−$2,994
Larimer et al. (2009)[x]															−$42,828
Srebnik et al. (2013)[y]	−4.39[z]		−7.06[aa]		−672[bb]	−14.01[cc]						−$1,304[dd]	−10.37[ee]		−$36,579
Quasi-Experimental Pre/Post Analyses Without Comparison Group															
McLaughlin (2011)[ff]	−$478[gg]							$341[hh]	−$1,382[ii]			$229[jj]		$135[kk]	-$5,128

[a-kk]Costs were calculated as the difference between experimental and control (per person per year). See Annex 4-1 for further explanation of computational details used in transforming data from cited studies.

NOTE: ED = emergency department; ES = emergency services.

Unfortunately, none of the seven identified studies took into account benefits over the life course or aggregated benefits to individuals based on their individual characteristics (such as age, gender, race, education, and employment status) to produce an appropriate average measure. Furthermore, none of the studies considered incorporated net societal benefits resulting from externalities in public health, legal, and neighborhood environmental perspectives. It is most likely that the reported measures of effectiveness are biased downward due to these omissions.

Induced Cost Changes

All studies except Larimer et al. (2009) reported average cost changes (Larimer et al., 2009, reported median). Most studies focused on induced changes in hospital costs and legal costs. As shown in Table 4-3b, Basu et al. (2012) considered changes in alternative nursing home and/or shelter stay costs (compared to costs of days spent in permanent supportive housing) and found a nearly $900 cost saving per person per year in the intervention group compared to the control group. This cost offset was somewhat higher in McLaughlin (2011), but as noted earlier, this study did not have a comparison group. Rosenheck et al. (2003) and Basu et al. (2012) also reported a cost saving of comparable magnitude ($897 and $671, respectively) for residential treatment of substance abuse, while McLaughlin (2011) found small increases in prescription drug costs and community support costs (although its magnitude cannot be compared to the other two studies because of the lack of a comparison group).

Almost all studies showed a reduction in legal costs. For example, a reduction of more than $700 was seen in New York (Culhane et al., 2002), Chicago (Basu et al., 2012), and Seattle (Larimer et al., 2009; Srebnik et al., 2013). The cost offset is smaller in San Diego (less than $300 as shown by Gilmer et al., 2009). However, a small legal cost increase of $101 was reported by Rosenheck et al. (2003) in the HUD-VASH study.

The most important component of induced cost changes—hospital costs in the form of outpatient, inpatient, and emergency department services—was also examined. In all but one study (Rosenheck et al., 2003), there were sizable cost offsets, ranging from $2,708 (Gilmer et al., 2009) to $42,828 (Larimer et al., 2009). The larger offset figures may be due to selection bias associated with quasi-experimental designs or with the high health care utilization of some study subjects (such as the Chicago Housing First study). The cost offsets are particularly large in the two Seattle programs (Larimer et al., 2009; Srebnik et al., 2013) with on-site medical care. However, these findings may not be generalizable to typical supportive housing programs. In the studies with hospital cost offsets, there is an across-the-board cost reduction in emergency department visits and inpatient services, ranging from $3,051 (Gilmer et al., 2009) to $34,603 (Srebnik et al., 2013). Outpatient costs rose in all but one study (Srebnik et al., 2013), where there was a clinic on-site. The increase in outpatient costs is to be expected, however, given the reduction in emergency room and inpatient costs.

In the case of the HUD-VASH study (Rosenheck et al., 2003), the inpatient costs rose by almost $300 (with non-VA hospital service costs adjusted based on VA cost shares). As a result, the overall inpatient hospital services costs in this study rose by about $3,000. In addition, emergency services costs were not included in this study, which is likely to underestimate the possible cost offset. To test whether the VA subpopulation was different from the full sample, the hospital cost offset of the VA subsample was compared with the average hospital cost offset of the full sample in the NY/NY study by Culhane et al. (2002). This comparison shows that the hospital cost offset for the VA subsample is dramatically lower than the full sample in Culhane et al. (2002) (an offset of $595 compared to $15,534).

In summary, some studies suggest that PSH interventions may induce cost offsets or yield modest net cost increases for those with persistent patterns of homelessness and serious mental illness. The offsets result primarily from reductions in emergency department and inpatient services costs and from reductions in alternative nursing home and/or shelter stay costs.

Net Costs

The program cost minus the induced cost offsets yields a measure of the net cost. Table 4-3c shows the raw net cost figures along with their inflation-adjusted counterparts in 2015 constant dollars. The Basu et al. (2012) study was the only one to specify unit cost measures in 2010 dollars, and Culhane et al. (2002) documented their measures in 1999 dollars. For those studies specifying the last year of the follow-up of the study, the end year of study was used as the base of the dollar measures. In the study conducted by McLaughlin (2011), such information is not provided, so a Consumer Price Index (CPI) of 2006 (5 years prior to the publication date) was used as the base of the dollar measures. The CPI ratios of the respective base years to 2015 are reported in Table 4-3c.

In the six studies with a comparison group, three show large net cost savings, ranging from $6,875 (Basu et al., 2012) to $33,502 (Larimer et al., 2009) per person per year in 2015 constant dollars. The remaining three studies suggest net cost increases of $250 (Gilmer et al., 2009), $1,414 (Culhane et al., 2002), and $3,093 (Rosenheck et al., 2003). While the small net cost figure in the first case could be viewed as negligible, the net cost in the other two studies may require more context. The increased net cost obtained in the NY/NY Housing program studied by Culhane et al. (2002) could be viewed as comparatively modest, especially because the program is in a location with a high cost of living. The high net cost obtained in the HUD-VASH study by Rosenheck et al. (2003) is likely specific to the veteran subpopulation with major psychiatric disorders or substance abuse disorders, as discussed above.

TABLE 4-3c Raw Net Costs for Select Studies of Cost-Effectiveness of PSH

Study	Cost Analysis		
	Net Cost per Person per Year (A− B)	**CPT Adjustor: Study Year/2015**	**Net Cost per person per year in 2015 $ (C1 * C2)**
Randomized Controlled Trials			
Basu et al. (2012)	−$6,307	1.09	−$6,875
Rosenheck et al. (2003)	$1,983	1.56	$3,093
Quasi-Experimental Pre/Post Analyses with Comparison Group			
Culhane et al. (2002) (Total)	$996	1.42	$1,414
Gilmer et al. (2002)	$207	1.21	$250
Larimer et al. (2009)	−$29,388	1.14	−$33,502
Srebnik et al. (2013)	−$17,979	1.10	−$19,777
Quasi-Experimental Pre/Post Analyses Without Comparison Group			
McLaughlin (2011)	−$2,182	1.18	−$2,575

NOTE: Program cost minus induced cost offsets yield a measure of net cost.

CONCLUSIONS

The committee examined studies that purported to assess the cost-effectiveness of PSH and found that, at present, there is insufficient evidence to demonstrate that the PSH model saves health care costs or is cost-effective. Unfortunately, the literature on cost effectiveness of PSH is sparse; few randomized controlled studies have been conducted. Most studies in this regard use a quasi-experimental design. Further, the available studies have not been conducted in a manner that is methodologically aligned with generally accepted health care cost-effectiveness research design. In principle, the most robust scientific evidence to answer the question would come from studies using a randomized design and that cover a comprehensive array of cost and effectiveness measures. Ideally such studies would allow for constructing the cost-effectiveness ratio to compute the net cost required per unit of QALYs or, at a minimum, provide information on the net cost required for increasing one stably housed day. Unfortunately, there were very few randomized studies, and among these, cost measures were incomplete and effectiveness measures scarce.

The committee found mixed results on the cost-effectiveness of PSH from the two randomized studies it identified. There was a sizable cost saving of $6,875 in the Chicago study (Basu et al., 2012) of homeless adults with chronic medical conditions, but a net cost increase of about $3,000 in the HUD-VASH program (Rosenheck et al., 2003). In the latter study, however, the net cost led to an increase of more than 1.5 months of stable housing. These studies also did not incorporate net societal benefits resulting from externalities in public health, legal, and neighborhood environmental perspectives, so it is likely that these studies

underestimated the cost-effectiveness. Future CEAs should make a stronger effort to include societal benefits, as outlined by the 2016 recommended standards (Sanders et al., 2016).

The committee also considered studies using quasi-experimental, pre/post study designs. Generally, these studies suggest that most PSH programs would induce cost offsets that either exceeded the program cost or yielded relatively modest net costs on balance, although this cannot be assumed. Primary cost offsets arise from reductions in emergency department and inpatient services and reductions in alternative nursing home and/or shelter stays. As described in this chapter, McLaughlin's (2011) results indicated a 57 percent cost savings due to a decline in mental health costs from before housing to after housing. In other words, as the author stated, "aggregate data demonstrate that permanent supportive housing both saves money and provides homeless people with mental illness significantly more efficient and appropriate housing and service delivery" (McLaughlin, 2011, p. 409).[5] Although the evidence is not strong, in the aggregate, it suggests that PSH is cost-effective for those with persistent patterns of homelessness and serious mental illness.

The committee notes that a common question embedded in the evaluation of PSH programs and other health interventions is whether these programs result in a monetary return on investment such as cost savings (Keyes and Galea, 2016). However, PSH was designed with the primary goal of preventing and ending chronic homelessness and not for the purpose of accruing cost savings (USICH, 2015). The committee believes that evaluations of these programs should a priori be expected to show broad benefits of health and well-being, including keeping individuals experiencing homelessness stably housed. The committee does not believe policy makers and others should expect that PSH programs would yield net cost savings, although some cost savings could be identified in specific studies such as those that exclusively focus on persons who are persistently high utilizers of emergency medical services systems.

Overall, the committee found few studies evaluating the cost-effectiveness of PSH programs, and the studies that have been done provide incomplete data that do not fully capture the health benefits of PSH. To address these problems, the committee recommends:

> **Recommendation 4-1: Incorporating current recommendations on cost-effectiveness analysis in health and medicine (Sanders et al., 2016), standardized approaches should be developed to conduct financial analyses of the cost-effectiveness of permanent supportive housing in**

[5]The recent RAND evaluation of the Housing for Health (HFH) program providing PSH in Los Angeles County (Hunter et al., 2017) considered whether HFH participants used fewer public services after receiving housing than before and whether these changes in service utilization resulted in cost savings for the county. The RAND study was not included in the present study because it was published after the committee completed its analysis of the research.

improving health outcomes. Such analyses should account for the broad range of societal benefits achieved for the costs, as is customarily done when evaluating other health interventions.

Recommendation 4-2: Additional research should be undertaken to address current research gaps on cost-effectiveness analysis and the health benefits of permanent supportive housing.

ANNEX 4-1: COMPUTATIONAL DETAILS

In this Annex, the committee provides further explanation of computational details used in transforming data from cited studies in Tables 4-2, 4-3a, and 4-3b.

Table 4-2: Effectiveness Measures (notes a-f)

a. For Rosenheck et al. (2003), figures were recomputed based on difference between experimental and control and adjusted to 1 year.

b. **47.16 = (59.39 − 47.6) * 4** Stable housing days for the HUD-VASH group on a 1-year period compared to the control group receiving only standard VA care. Data reported in Rosenheck et al. (2003) correspond to a 90-day period; thus here, it is adjusted for a 1-year period (i.e., 4 times 90 days).

c. **−29.60 = (13.05 −20.45) * 4** Days being homeless on a 1-year period for the HUD-VASH group is compared to the control group receiving only standard VA care. Data reported in Rosenheck et al. (2003) are for a 90-day period; thus here it is adjusted for a 1-year period (i.e., 4 times 90 days).

d. **−126 = (3,917 − 4,296)/3** Earned income in a 1-year period for the HUD-VASH group compared to the control group receiving only standard VA care. Data reported in Rosenheck et al. are for the 3-year follow-up study; thus here it is adjusted for a 1-year period (i.e., divided by 3).

e. **1.5 = (11.6 − 10.1)** Social skills or community functioning measured in terms of social network size for the HUD-VASH group compared to the control group receiving only standard VA care.

f. **0.13 = 4.31 − 4.18** Overall QOL score for the HUD-VASH group compared to the control group receiving only standard VA care.

Table 4-3a: Program Costs

a. For Basu et al. (2012), all figures are taken directly from the paper except the change in incarcerated days, −3.67 = 4.06 − 7.73.

b. For Rosenheck et al. (2003), figures were recomputed based on difference between experimental and control, recategorized by cost weight and adjusted to 1 year.

c. **318 = (380 − 389 + 967 − 4)/3** Annual administrative costs of transfer payments and of Section 8 vouchers for the HUD-VASH group (380 + 967) minus the costs for the control standard-care group (389 + 4). Data reported in Rosenheck et al. (2003) are for the 3-year follow-up study; thus here it is adjusted for a 1-year period (i.e., divided by 3).

d. For Gilmer et al. (2009), figures were recomputed based on difference-in-difference (experimental minus control, post-intervention minus pre-intervention) and adjusted to 1 year.

e. **3,201 = [(7,423 − 412) − (1,038 − 429)]/2** Case management cost difference between post- and pre-intervention, and between experimental and control groups, were divided by 2 because the data reported in Gilmer et al. (2009) correspond to a 2-year period.

f. For McLaughlin (2011), values were recomputed in post-intervention minus pre-intervention, recategorized, and adjusted to per person.

g. **2,945 = (1,349,355 − 560,045)/268** Cost comparison is per person for shelter night use ($1,349,355) and housing program ($560,045).

Table 4-3b: Induced Cost Changes (notes a-kk)

a. For Basu et al. (2012), all figures are taken directly from the paper except the change in incarcerated days, −3.67 = 4.06 − 7.73.

b. For Rosenheck et al. (2003), values were recomputed based on difference between experimental and control, recategorized by cost weight, and adjusted to 1 year.

c. **286 = {[(12,023 + 4,043) * (46,249/36,524)] − [(9,318 + 4,824)*(39,287/28,515)]}/3** Annual inpatient and residential care costs (mental health care [$12,023] plus medical-surgical care [$4,043]) are multiplied by the weight of VA health costs for the HUD-VASH group minus the same cost calculations associated with the control standard-care group. Data reported in Rosenheck et al. (2003) are for the 3-year follow-

up study; thus here data are adjusted for a 1-year period (i.e., divided by 3).

d. **2,748 = [(17,267 * (46,249/36,524)] − [9,886 * (39,287/28,515)]}/3** Annual outpatient care costs including mental health care, medical-surgical care, and homeless case management ($17,267) are multiplied by the weight of VA health costs for the HUD-VASH group minus the same cost calculations associated with the control standard-care group. Data reported in Rosenheck et al. (2003) are for the 3-year follow-up study; thus here data are adjusted for a 1-year period (i.e., divided by 3).

e. **−671 = [(3,291 * (46,249/36,524)] − [4,486 * (39,287/28,515)]}/3** Annual inpatient residential care treatment cost ($3,291) is multiplied by the weight of VA health costs for the HUD-VASH group minus the same cost calculations associated with the control standard-care group. Data reported in Rosenheck et al. (2003) are for the 3-year follow-up study; thus here they are adjusted for a 1-year period (i.e., divided by 3).

f. **−800 = (2,375 − 4,774)/3** Annual shelter stay cost for the HUD-VASH group ($2,375) is minus the cost for the control standard-care group ($4,774). Data reported in Rosenheck et al. (2003) are for the 3-year follow-up study; thus here they are adjusted for a 1-year period (i.e., divided by 3).

g. **−17.56 = (17.25 − 21.64) * 4** Number of days spent in nursing home per year for the HUD-VASH group is minus days spent for the control standard-care group. Data provided in Rosenheck et al. (2003) correspond to a 90-day period, and so here they are multiplied by 4 to get the annual calculation.

h. **101 = (1,062 − 758)/3** Annual legal/incarceration costs for the HUD-VASH group is minus the same cost associated with the control standard-care group. Data reported in Rosenheck et al. (2003) are for the 3-year follow-up study; thus here they are adjusted for a 1-year period (i.e., divided by 3).

i. For Culhane et al. (2002), values were recomputed based on difference-in-difference (experimental minus control, post minus pre), population weighted, recategorized by cost weight, and adjusted to per person per year.

j. **−15.84 = {[(59 − 137.3) − (131.4 − 138.5)] * 570 + [(7.5 −34.2) − (15.6 − 33.4)] * 791 + [(26 − 52.1) − (41.8 − 51.5)] * 294}/[(570 + 791 + 294)/2]** Annual hospitalized days are calculated as follows: Total mean days in OMH hospital (relative difference between post- and pre-intervention, and

between experimental and control groups, over the total service users) plus same calculation corresponding to HHC hospital (non-Medicaid) plus the one corresponding to the VA inpatient days, divided by the grand total of users (570 + 791 + 294), and then divided by 2 because the data reported in Culhane et al. (2002) correspond to a 2-year period.

k. **38.85 = [(177.1 − 93.3) − (87.8 − 81.7)]/2** Mean outpatient visit difference between post- and pre-intervention and between experimental and control groups are divided by 2 because the data reported in Culhane et al. (2002) correspond to a 2-year period.

l. **−77.35 = [(27.5 − 190.6) − (122.5 − 130.9)]/2** Mean shelter days difference used by persons between post- and pre-intervention, and between experimental and control groups, is divided by 2 because the data reported in Culhane et al. (2002) correspond to a 2-year period.

m. **−747 = − (624 + 490)/2 * (16,281/12,145)** Estimated cost reductions from reduction in the Department of Corrections at the state ($624) and city ($490) levels are adjusted by the cost weight (ratio between total cost reductions per housing unit [$16,281] and the total cost reductions per placement [$12,145]), and divided by 2 to get the annual cost.

n. **−6.00 = {[(3 − 11.2) − (11.5 − 11)] + [(6.6 − 11) − (11.5 − 12.6)]}/2** Annual incarcerated days are calculated as the difference between days per total persons incarcerated between post- and pre-intervention, and between experimental and control groups, and divided by 2 because the data reported in Culhane et al.(2002) correspond to a 2-year period.

o. **−3,787 = −5,650/2 * (16,281/12,145)** Cost reduction for Medicaid inpatients is adjusted by the cost weight (ratio between total cost reductions per housing unit [$16,281] and the total cost reductions per placement [$12,145]) and divided by 2 to get the annual cost.

p. **−8.3 = [(29.6 − 46.3) − (41.9 − 42)]/2** Mean hospitalized days reimbursed by Medicaid is calculated as the difference per person between post- and pre-intervention and between experimental and control groups and is divided by 2 because the data reported in Culhane et al. (2002) correspond to a 2-year period.

q. **2,658 = 3,965/2 * (16,281/12,145)** Cost reduction for Medicaid outpatient visits is adjusted by the cost weight (ratio between total cost reductions per housing unit [$16,281] and the total cost reductions per placement [$12,145]) and is divided by 2 to get the annual cost.

r. **38.85 = [(177.1 − 93.3) − (87.8 − 81.7)]/2** Mean Medicaid outpatient visits are calculated as the difference between post- and pre-intervention and between experimental and control groups are divided by 2 because the data reported in Culhane et al. (2002) correspond to a 2-year period.

s. **−8.2 = [(26 − 52.1) − (41.8 − 51.5)]/2** Mean hospitalized days for VA inpatients are calculated as the difference per person between post- and pre-intervention and between experimental and control groups and are divided by 2 because the data reported in Culhane et al. (2002) correspond to a 2-year period.

t. For Gilmer et al. (2009), values were recomputed based on difference-in-difference (experimental minus control, post-intervention minus pre-intervention) and adjusted to 1 year. Costs for emergency department, inpatient, and outpatient services totaled $2,708.

u. **−3,051 = [(7,249 − 12,291) − (13,756 − 12,696)]/2** Inpatient and emergency costs were calculated as the difference between post- and pre-intervention and between experimental and control groups are divided by 2 because the data reported in Gilmer et al. (2009) correspond to a 2-year period.

v. **344 = [(5,430 − 1,917) − (4,488 − 1662)]/2** Outpatient cost was calculated as the difference between post- and pre-intervention and between experimental and control groups and divided by 2 because the data reported in Gilmer et al. (2009) correspond to a 2-year period.

w. **−287 = [(137 − 713) − (428 − 431))/2** Legal/criminal justice system cost was calculated as the difference between post- and pre-intervention and between experimental and control groups and divided by 2 because the data reported in Gilmer et al. (2009) correspond to a 2-year period.

x. For Larimer et al. (2009), values are adjusted from month to year (multiplied by 12).

y. For Srebnik et al. (2013), values were recomputed based on difference-in-difference (experimental minus control, post intervention minus pre-intervention), recategorized and adjusted to per person. Costs for emergency department and inpatient services totaled $34,603.

z. **−4.39 = [(60 − 234)/29] − [(139 − 189)/31]** Difference is between number of visits to the ER before and after the intervention, between the experimental and control groups, per person.

aa. **−7.06 = [(123 − 441)/29] − [(110 − 231)/31]** Difference is between number of days hospitalized before and after the intervention, between the experimental and control groups, per person.

bb. **–672 = −(23,856/29) + 4,656/31** Total cost reduction per person is calculated from outpatient costs for experimental and control groups.

cc. **−14.01 = [(36 − 533)/29] − [(272 − 369)/31]** Decrease in outpatient visits for substance treatment is calculated as the difference before and after the intervention, between the experimental and control groups, per person.

dd. **–1,304 = −10,228/29 − 29,495/31** Decrease in legal costs for participants is calculated as the difference before and after the intervention, between the experimental and control groups, per person.

ee. **−10.37 = [(126 − 206)/29] − [(444 − 208)/31]** Decrease in days incarcerated is calculated for participants as the difference before and after the intervention, between the experimental and control groups, per person.

ff. For McLaughlin (2011), values were recomputed in post-intervention minus pre-intervention, recategorized, and adjusted to per person.

gg. **–478=((198466-299092)+(34582-62071))/268** Emergency department and ambulance use cost difference before and after intervention, per person.

hh. **341 = (397,769 − 306,448)/268** Cost comparison per person for prescription drug use is calculated for before and after intervention, per person.

ii. **−1,382 = (2,764 − 373,243)/268** Cost comparison per person for shelter night stay cost is calculated for before and after intervention, per person.

jj. **−229 = [(17,189 − 72,085) + (10,043 − 16,511))/268** Legal/jail night stay cost was calculated as difference before and after intervention, per person.

kk. **135 = (581,694 − 545,633)/268** Cost comparison per person for community support was calculated as difference before and after intervention, per person.

5

Effect of Individual and Program Characteristics on Outcomes in Permanent Supportive Housing

This chapter reviews the evidence that addresses two distinct and important questions related to the effectiveness of permanent supportive housing (PSH). First, are there subgroups of individuals who are experiencing homelessness who have better outcomes when housed under a PSH model compared to usual care? Second, are there certain characteristics of PSH programs that are associated with better housing and health outcomes among clients of these programs?

INDIVIDUAL CHARACTERISTICS AND OUTCOMES

When exploring the relationship between individual characteristics of PSH and housing and health outcomes, data may be obtained through subgroup analyses in which study participants are classified after the fact into subgroups (e.g., younger versus older individuals) and outcomes are compared within or between the various subgroups. Alternatively, regression analyses can be used to identify individual characteristics associated with better outcomes. Individual characteristics that have been examined using these techniques include age and substance use.

In addition to subgroup analyses described in the previous paragraph, another possible source of data that may be obtained on the association between individual characteristics and outcomes is the assessment tool used to collect a wide range of information on the characteristics and needs of individuals experiencing homelessness when they first come into contact with a service provider (HUD, 2015a). These assessment tools can be used to facilitate engagement with persons experiencing homelessness in the community or to ascertain their eligibility for various programs. Most importantly, assessment tools can be used to identify individuals who are believed to have the greatest need for housing. This usage is based on the assumption that assessment tools can identify individuals who are at highest risk of poor health outcomes and that these individuals will derive the greatest benefit from receipt of PSH. Thus, information from assessment tools, if linked with outcome data, would be expected to provide insights

into the relationship between individual characteristics and outcomes. The committee found one study that explicitly considered nine different subpopulations and their success in PSH (Seligson et al., 2013). The New York/New York III Supportive Housing Agreement brought together state and local government agencies to provide 9,000 units of new PSH to serve these nine subpopulations. Individuals receiving PSH were compared to eligible individuals not placed in PSH. Although there are only interim evaluation data on cost and utilization measures, the results combined across all subpopulations look promising. Seligson et al. (2013) conclude that "tenants had savings in jail, shelter, state psychiatric facilities, and Medicaid utilization and costs relative to people eligible but not placed in the program" (p. 24). In terms of individual characteristics, "specific costs varied in the types of public service for which they had savings, as well as their net costs" (p. 24).

Age

An important question is whether younger or older individuals are more likely to experience benefits from PSH. Data from the At Home/Chez Soi study, conducted in five cities in Canada, randomized persons with serious mental illness experiencing homelessness to receive usual care or permanent supportive housing using the Housing First model (Stergiopoulos et al., 2015).[1] A subgroup analysis of data from this study examined housing outcomes among homeless young adults (18–24 years old)[2] with mental illness who were randomized to receive PSH using a Housing First model (n = 87) or treatment as usual (housing and mental health services routinely available in the community, apart from the study) (n = 69) (Kozloff et al., 2016). The percentage of time stably housed in these young adult groups over 24 months was significantly higher in the intervention group than the control group (65 percent and 31 percent, respectively, with an adjusted mean difference of +34 percent). However, there were no overall differences between the intervention and control groups in terms of quality of life, physical and mental health status, psychiatric symptoms, emergency department visits, or arrests.

Chung et al. (2018) in the At Home/Chez Soi study compared the outcomes of older (50 years and older, n = 470) and younger (18–49 years old, n = 1,678) homeless adults with mental illness. The Housing First intervention increased the percentage of time stably housed among both older and younger homeless adults

[1]In 2008 the Mental Health Commission of Canada (MHCC) undertook a 4-year research demonstration project on mental health and homelessness in Moncton, Montreal, Toronto, Vancouver, and Winnipeg. It is known as the "At Home/Chez Soi study."

[2]According to the National Institutes of Health (NIH), young adults are identified as between the ages of 18 and 24. This is also the age group that the Department of Housing and Urban Development (HUD) describes as "youth." This definition of youth may not apply to the age definition of youth used in older studies and studies conducted in other countries. Note that Kozloff and colleagues' (2016) analysis did not compare the findings to different age groups.

compared to those receiving treatment as usual (mean differences of +43 percent and +40 percent, respectively). Older adults, however, experienced greater improvements in quality of life, psychiatric symptoms, and mental health status under the Housing First intervention compared to adults 18–49 years old.

According to the Corporation for Supportive Housing (CSH, 2016b), homelessness is also on the rise among older adults (individuals over age 50). Over the past three decades, the median age of single homeless adults in San Francisco increased from 37 in 1990 to 46 in 2003 (Hahn et al., 2006). Across the United States, the modal age of single adults experiencing homelessness increased from 34–36 years in 1990 to 49–51 years in 2010, with people in the last half of the Baby Boom cohort at highest risk. By contrast, the modal age of adults in homeless families remained 21–23 years throughout this period (Culhane et al., 2013). The percentage of sheltered homeless single adults over 50 years increased from 16.5 percent in 2007 to 21.4 percent in 2015[3] (HUD, 2016a, Part 2).

Compared to their younger peers, older homeless adults have higher rates of chronic illnesses, may suffer from multiple physical and psychological comorbidities (Garibaldi et al., 2005), and are more likely to die from chronic conditions including cardiovascular disease and cancer (Baggett et al., 2013). Homeless adults over age 50 also have been shown to have rates of chronic illness comparable to or higher than community-dwelling adults 15–20 years their senior, including conditions more commonly linked to much older individuals, such as memory loss and difficulty performing activities of daily living (Brown et al., 2012, 2017). The combination of issues typically associated with homelessness such as mental health and substance abuse with those related to aging such as reduced mobility and a need for assistance with daily activities is challenging providers who serve this population to develop creative solutions.

Different communities have developed PSH programs to address the housing and health needs of older adults experiencing homelessness (Brown et al., 2013; Henwood et al., 2015c). CSH suggests that these may be more cost-effective than nursing homes for addressing the needs of this population (CSH, 2011). Although some argue that older adults facing chronic health problems would benefit from PSH, most studies show no evidence of differential health outcomes in older adults across residential settings (Bamberger and Dobbins, 2015; Kogan et al., 2016), in contrast to the results presented on the previous page from the At Home/Chez Soi study (Chung et al., 2018).

[3]This study is also discussed in Chapter 2.

Substance Use

The provision of PSH is usually not contingent on abstinence from alcohol and drug use. In fact, evidence from the Housing First model suggests that requiring abstinence from substance use prior to PSH provision is likely to prolong the duration of chronic homelessness (see below for further details). However, it is reasonable to question whether high levels of substance use are associated with less positive outcomes after the provision of housing. In an evaluation of the Collaborative Initiative on Chronic Homelessness, which provided PSH and mental health services in 11 communities, participants were classified as high-frequency substance users (>15 days alcohol use or illicit drug use [including marijuana] in the past 30 days, n = 120) or nonusers (no days of use in the past 30 days, n = 290) (Edens et al., 2011). Participants with intermediate levels of substance use were excluded from this analysis. Over a 24-month follow-up period, high-frequency substance users and nonusers experienced comparable levels of improvement in days housed, days of inpatient hospitalization, and days in prison or jail. High-frequency substance users continued to have higher levels of substance use than nonusers, but their frequency of substance use declined over time. There was no evidence of deterioration in mental health outcomes among high-frequency users compared to nonusers.

Collins et al. (2013) examined individual characteristics associated with housing outcomes among individuals experiencing chronic homelessness who entered the single-site Eastlake Housing First program (in Seattle, Washington). Among 111 individuals with outcome data at 2 years, 23 percent returned to homelessness during the follow-up period. Age, sex, race/ethnicity, homelessness history, substance use, medical comorbidities, or psychiatric symptoms were not significant predictors of a return to homelessness. When examining the outcome of cumulative time housed over the follow-up period, any alcohol use in the past 30 days at baseline was associated with increased time housed, whereas any drug use in the past 30 days at baseline and psychotic symptoms at baseline were associated with decreased time housed. This finding suggests that among substance-using individuals experiencing homelessness in PSH, housing stability is more easily attained for persons whose substance of choice is alcohol rather than drugs, but it is not clear whether the same finding would hold for individuals who did not receive PSH. Overall, it is not clear whether PSH is differentially effective for people who use different substances.

Other Individual Characteristics

The At Home/Chez Soi study also provides information regarding the outcomes of a number of other subgroups participating in the study (Stergiopoulos et al., 2015). One subgroup study by Volk et al. (2016) found that during the first 12 months after randomization, 86.5 percent of participants assigned to the Housing First intervention achieved housing stability (defined as being housed more than 50 percent of the time during months 3–12 and/or being housed 100 percent of

the time during months 9–12), whereas 13.5 percent of participants did not achieve housing stability. All participants had a diagnosis of mental illness. Individual characteristics associated with lack of housing stability in the first 12 months were longer cumulative lifetime duration of homelessness, proportion of time spent in jail during the 3 months prior to randomization, and lower community psychological integration. A diagnosis of post-traumatic stress disorder (PTSD) or panic disorder—in contrast to the most common psychiatric diagnoses among participants, major depression and psychotic disorders—was a predictor of housing stability. However, predictive models correctly identified only 3.8 percent of individuals who failed to achieve housing stability.

Assessment Tools

A number of assessment tools are available to guide the allocation of housing assistance, and Continuum of Care programs funded by HUD are required to use a standardized assessment tool with clients (HUD, 2015a). An expert panel recently convened by HUD concluded, however, that it is unknown whether any assessment tool identifies individuals whose housing or health outcomes are more likely to be improved by the provision of PSH (HUD, 2015a). No peer-reviewed studies have examined this question. Despite their widespread use, assessment tools cannot be assumed to be accurate predictors of an individual's responsiveness to PSH, particularly as there is no evidence that individuals who screen in or out with these tools are qualitatively different from each other. It may be possible, however, to have a measure based on housing-sensitive conditions (Recommendation 3-2) that would provide a stronger basis for allocation of resources.

PROGRAM CHARACTERISTICS AND OUTCOMES

There is substantial diversity among existing models of PSH (see Chapter 2). It is therefore important to consider whether certain characteristics of PSH programs are associated with better outcomes for the clients of these programs. Equally important is the question of whether similarly positive outcomes can be achieved with models of PSH that are easier or require fewer resources to implement. The three main PSH dimensions to be considered are (1) characteristics of the housing, (2) characteristics of the supportive services, and (3) the level of resources available for housing and supportive services.

Ideally, the assessment of the effect of program characteristics on outcomes would be based on data from controlled trials in which individuals experiencing homelessness were randomized to different PSH programs. Given limitations in the published literature, findings were also considered from quasi-experimental studies in which individuals experiencing homelessness were assigned to different models of PSH on a nonrandom basis, as well as data from observational studies that examined the association between various program characteristics and individual-level outcomes. No attempt was made to compare outcome data from stud-

ies examining different models of PSH if these studies were conducted and reported independently of one another. Such comparisons would have a very high risk of bias due to differences in study populations and study designs.

Characteristics of Housing

Single-Site Versus Scattered-Site Models

A critical differentiating characteristic between PSH models is the use of the single-site versus scattered-site model, as described in Chapter 2. In the single-site model, housing is provided at a dedicated building with support services attached to the site. This model is sometimes referred to as congregate housing or project-based housing. In the scattered-site model, housing is provided in existing private market rental units dispersed throughout the community. These models have significant implications for how additional PSH is created, as the single-site model requires new construction or the identification of entire buildings that are available to lease, whereas the scattered-site model requires availability of rental units in the private housing market. Other differentiating features related to costs, availability, housing environment, and support services are detailed in Table 5-1. An important outcome consideration is the impact of the single-site and scattered-site models on the social integration of clients; however, research findings on this question have been mixed (Quilgars and Pleace, 2016).

TABLE 5-1 Features of Single-Site Versus Scattered-Site PSH

	Single Site	Scattered Site
Model	Housing at a single dedicated site (through new purpose-built construction, purchase of existing building, or master lease of existing building)	Housing in existing private-market rental units dispersed throughout the community
Costs	High cost of land and construction (for a new building) or property acquisition (for purchase of an existing building)	Cost of staff to identify and secure market rental units for clients
	Regulatory barriers (building codes, zoning restrictions)	No regulatory barriers
	Financing arrangements for building may be complex	No financing required
	Ongoing housing costs include property operating costs and maintenance	Ongoing housing costs include rent vouchers or rent supplements
Availability	Availability of units is dependent on creation of new supportive housing sites or turnover of residents at existing supportive housing sites	Availability of units is dependent on the private rental market and will be affected by vacancy rates, the willingness of landlords to rent to program clients, the availability of rent vouchers or

		rent supplements, and changes in market rents
	Long lead time/delay before units become available (many years if new construction)	**Units may become available rapidly (depending on rental market conditions)**
	Neighborhood opposition ("NIMBY") phenomenon can pose barrier to site selection and construction permits	Neighborhood opposition usually not a factor
	Can create new affordable housing stock in the community	Does not create new affordable housing stock in the community
Housing environment	Units at the housing site include persons with a history of homelessness, mental illness, and/or substance use	Proportion of residents at the housing site with a history of homelessness, mental illness, and/or substance use reflects that of the general population in the community
	Program can create common spaces for clients within building	Building may or may not provide common spaces for residents
	Building rules and eviction decisions are under control of supportive housing provider	Building rules and eviction decisions are under control of private market landlord
Support services	Support services are usually attached to the housing site (located in the same building or in close proximity)	Support services are provided by mobile case managers or teams
	Support services cannot follow client in the event of a housing relocation	Support services can follow client in the event of a housing relocation
	More time-efficient for support providers, who can see multiple clients at a single location	Less time-efficient for support providers, who must travel to see individual clients at various sites
	Ability to provide special services on-site (e.g., nursing care, medical clinic, food program)	Usually no ability to provide special services on-site

With respect to costs, a report by the General Accounting Office (GAO) estimated that the average total 30-year costs for one-bedroom units in the same general location are 8–19 percent higher for programs that produce housing (such as the construction of a single-site supportive housing building) compared to housing vouchers (which are used in scattered-site supportive housing programs) (GAO, 2002).

As noted earlier, with scattered-site housing, the individual/family receives a rental subsidy in the form of a Section 8 voucher. Tenants are required to pay 30 percent of their monthly income toward rent and utilities; the remaining funds

are provided via the voucher to the landlord. The major advantage of scattered-site housing is that it allows for renting units on the private housing market, rather than constructing new housing units or identifying empty apartment buildings that are available to lease. As noted earlier, under the Pathways Housing First model, individuals choose their own residence.

Scattered-site housing typically involves working with individual landlords to secure agreements to rent to individuals experiencing chronic homelessness, which may not be easy. A disadvantage of scattered-site housing is that supportive services must be accessed via mobile support or travel to the services site. For example, Barnes (2012) described barriers to service delivery for scattered-site housing in Toronto that included the time and costs of providers traveling from one location to the next. However, Hogan (1996) cited several surveys indicating that residents prefer scattered-site housing to single-site housing.

Single-site housing means that the units are clustered in the same building, block, or neighborhood. One advantage of single-site programs is that it is far more likely that supportive services are part of the building or in its immediate proximity, which likely plays a role in encouraging residents to access these services (e.g., Collins et al., 2013). Residents also report increased feelings of security (Parsell et al., 2015). Improved social integration at single-site housing is considered an advantage, but neighborhood opposition and resident concerns about declining property values, often described as "not in my backyard" (NIMBY), can be a disadvantage (Hogan, 1996). More recent research, however, appears to indicate that NIMBY concerns are minimal (Palmer, 2016) (as discussed in Chapter 7).

"Mixed housing" developments provide PSH alongside housing to low-income tenants not participating in PSH in the same community or development (Wilkins et al., 2011, 2014). Supportive services may be delivered either on- or off-site. Examples of mixed-housing models include the New Haven Project in New Haven, Connecticut, where a percentage of units are set aside for individuals experiencing homelessness (Wilkins and Burt, 2012). The New Haven project is administered by the state Department of Mental Health and Addiction Services.

A number of studies have examined the effect of single-site versus scattered-site models on housing and health outcomes. For example, in a randomized controlled trial (RCT) conducted in Boston, 118 homeless adults with major mental illness were randomly assigned to group housing with staff support and gradually increasing self-governance versus placement in independent apartments (Dickey et al., 1996; Goldfinger et al., 1999). Both groups received case management support. There was no significant difference between the two groups in terms of housing status at the end of 18 months, although individuals assigned to group housing had fewer days of homelessness over the course of the follow-up period. The use of inpatient and outpatient mental health services was similar in both groups. Neuropsychological functioning was not significantly different between the two groups on 10 of 11 measures (Seidman et al., 2003).

McHugo and colleagues (2004) conducted a study in which adults with severe mental illness who were homeless or at high risk of homelessness were randomized to receive scattered-site housing with Assertive Community Treatment (ACT) services versus single-site congregate housing with integrated case management. However, there was a large degree of crossover in housing types between the two groups, with the percentage of participants living in their own apartment at 18 months being 53 percent and 47 percent, respectively. As a result, it is not possible to draw conclusions from this study regarding outcomes in scattered-site versus congregate-site housing. In an assessment of 125 individuals experiencing chronic homelessness with mental illness in a PSH program that provided a modified ACT services and primary care to meet health needs, Henwood et al. (2011) found that through collaborative primary care partnerships, ACT can serve as a medical home for individuals with psychiatric disabilities and co-occurring serious health problems. With ongoing effort to measure outcomes, this program can help inform the development of a comprehensive model of integrated care.

A quasi-experimental study conducted in New York City compared outcomes among 157 individuals with severe mental illness and a history of homelessness who were entering either "supported housing" (residential hotels or scattered-site apartments) or single-site "community residences" for persons with mental illness with on-site dining and intensive support services (Siegel et al., 2006).[4] Using propensity scoring methods to adjust for differences between the two groups, the proportion of individuals who remained housed over the 18-month observation period did not differ significantly between the two programs. Scattered-site residents reported significantly greater housing satisfaction in terms of autonomy and use of discretionary funds, but they also tended to report greater feelings of isolation. The authors noted that the supported housing sites were substantially less costly to operate than the single-site community residences.

At the Vancouver site of the At Home/Chez Soi study, participants who received the PSH intervention were assigned on a nonrandom basis to either scattered-site units in market housing (n = 90) or units at a single-site congregate housing building reserved for study participants (n = 107) (Somers et al., 2017). During the 24-month follow-up period, the proportion of time spent in stable housing was similar among participants in scattered-site versus single-site congregate housing (74.5 percent versus 74.3 percent). However, differences were observed on certain secondary outcome measures. Individuals in congregate housing had greater improvements in community functioning, psychological community integration, and mental health recovery than individuals in scattered-site units. There were no significant differences in terms of changes in physical community integration, psychiatric symptoms, quality of life, or substance use problems. In addition, there were no differences in daily substance use, as assessed by the Maudsley Addiction Profile (Somers et al., 2015).

[4]This study is based on a non-PSH model.

Housing Quality

The At Home/Chez Soi study examined whether housing quality is associated with housing stability (Adair et al., 2016). Housing quality was assessed using a newly developed multidimensional standardized Observer-Rated Housing Quality Scale (OHQS) that involved in-person assessment of housing units and buildings by trained research assistants, based on unit (safety/security, utilities, etc.), building (staff, inside and outside conditions, etc.), and neighborhood (location, transportation access, etc.) scales. OHQS scores were obtained for 204 individuals randomized to scattered-site housing and 228 individuals randomized to usual care but who nonetheless obtained housing. OHQS scores ranged from 13.5 (lowest possible quality) to 135 (highest possible quality). Housing quality scores were positively associated with housing stability: 73.4 (95 percent confidence interval [CI] = 68.3–78.5) for those housed none of the time; 91.1 (95 percent CI = 89.2–93.0) for those housed some of the time; and 93.1 (95 percent CI = 91.4–94.9) for those housed all of the time. In regression models, housing quality was significantly associated with housing stability at 24 months of follow-up, even after adjustment for city, housing characteristics, participant ethnicity, community functioning, and social support. The study demonstrates that average individuals considered the unit condition to be most important, then the neighborhood, then the building; however, additional research is needed to assess the impact of the environment on housing retention, including individual choice as well as family and community circumstances (Adair et al., 2016).

Characteristics of Supportive Services

Housing First Versus Treatment First

In a landmark RCT, Tsemberis and colleagues (2004) compared two approaches to providing PSH for chronically homeless adults with serious mental illness. (See also Chapter 2 for more about the two approaches.) In the treatment-first approach, individuals experiencing homelessness are transitioned from living on the street to shelters, from shelters to transitional housing, and from transitional housing to permanent housing when the individual is deemed "housing ready." Compliance with psychiatric treatment and abstinence from substance use are expected to achieve "housing readiness."

In contrast, the Housing First approach offers immediate housing in an independent apartment, without any requirement that the individual comply with psychiatric treatment or abstain from substance use. Individuals experiencing homelessness are offered support and treatment by an ACT team and encouraged to define their own recovery-oriented goals. Participants randomized to the scattered-site Housing First program (n = 87) achieved housing much more rapidly than those assigned to treatment first (n = 119), with the proportion of time stably housed over the first 6 months approximately 65 percent versus 15 percent, respectively. This significant difference in housing stability was sustained over 24

months. Housing First participants spent less time in the hospital, but there were no significant differences between the two groups in psychiatric symptoms, alcohol use, or drug use.

Several studies have examined how the programs' adherence to the Pathways to Housing model of PSH relates to outcomes. Gilmer et al. (2014) examined housing outcomes across 96 "full-service partnership programs" in California. The programs provided subsidized permanent housing and multidisciplinary team-based services focused on rehabilitation and recovery. Programs with higher fidelity, especially on dimensions of separation of housing and services and participant rights to choose and reject services had better housing outcomes. The Canadian At Home/Chez Soi study examined fidelity to the Pathways Housing First model across 12 PSH programs. Those with greater fidelity had greater improvements in housing stability and also in community functioning as rated by observers and quality of life as rated by participants (Goering et al., 2016). Davidson et al. (2014) examined fidelity to the Pathways Housing First program across nine PSH programs in New York City. Clients in programs with higher fidelity on consumer participation (service plans driven by clients with no requirements for substance abuse treatment) had better housing retention and were less likely to report using opiates and stimulants.

Intensity of Services and Concordance with Need

Common sense suggests that the intensity and type of supportive services provided to persons experiencing homelessness should be tailored to the severity of the individual's illnesses, level of need, and personal preferences. Supportive housing programs that serve individuals with higher levels of physical and mental comorbidities or more severe behavioral issues will generally need to provide more intensive and therefore more costly services to appropriately support their clients. However, no studies have directly compared the provision of supportive services of different intensities to a group of individuals experiencing homelessness with a defined level of need to assess for differences in effects on housing and health outcomes.

In the At Home/Chez Soi study, individuals experiencing homelessness with a current mental health disorder were classified as having either high needs or moderate needs for treatment using a complex algorithm based on psychiatric and substance use diagnoses, community functioning score, and previous pattern of hospitalizations or incarceration (Stergiopoulos, 2015). Over a 2-year period, participants with high or moderate needs who were either experiencing homelessness or were "precariously housed" were randomized to a Pathways Housing First model of primarily scattered-site permanent supportive housing with ACT versus usual care (Aubry et al., 2016). Housing First participants spent more time being stably housed, reported having a higher quality of life, and had better community functioning. However, at the end of the second year, the two groups both "improved substantially" (Aubry et al., 2016, p. 278).

Level of Resources for Housing and Supportive Services

No studies have specifically examined the relationship between higher versus lower levels of funding for housing and supportive services and client outcomes. Given the association between housing quality and housing stability noted above, the committee expects that program funding levels that enable individuals experiencing homelessness to be housed in relatively higher-quality units may increase the likelihood of successful housing outcomes.

CONCLUSIONS

There is some evidence that individual characteristics of the people using PSH have a modest impact on the outcomes achieved with PSH. According to Chung et al. (2018), in the At Home/Chez Soi study, persons 50 years and older may derive somewhat greater mental health benefits from PSH than younger individuals, although reductions in homelessness are similar across age groups. The evidence is inconclusive as to whether persons who abuse alcohol and/or drugs derive generally comparable housing and health benefits from PSH, compared to persons who do not abuse substances. There is no evidence to support the use of current predictive models to identify individuals who are unlikely to achieve housing stability through PSH programs. As Toros and Flaming (2017) suggest, "additional predictive tools are needed to effectively target segments of the population experiencing homelessness that are appropriate for earlier interventions" (p. 27). As described above, assessment tools are widely used to collect information on the characteristics and needs of people experiencing homelessness. Most importantly, they are used to identify individuals who are believed to have the greatest need for housing. Despite their widespread use, there is a lack of evidence regarding the use of these tools to identify individuals who are more likely to have improved outcomes if provided with PSH.

With respect to program characteristics, there is good evidence from multiple studies that single-site and scattered-site supportive housing programs result in comparable levels of housing stability over follow-up periods of up to 2 years. There is less conclusive evidence with respect to health and other outcomes. One study found that scattered-site models resulted in greater housing satisfaction but also possibly higher rates of feelings of isolation. Another study found that a single-site model was associated with improved community functioning, psychological community integration, and recovery, but that scattered-site housing resulted in significantly fewer criminal sentences. Based on the available data, definitive claims cannot be made regarding the relative effectiveness of single-site versus scattered-site PSH with respect to outcomes other than housing stability.

There is evidence that the Housing First model of immediate housing in scattered-site units with ACT support results in better housing outcomes and possibly fewer days in hospital compared to a treatment-first approach that uses transitional housing and treatment for psychiatric illness and substance use to help

individuals achieve "housing readiness." Further, fidelity to the Pathways Housing First model, with emphasis on client choice over services, leads to better housing outcomes and, in some studies, better quality of life, better community functioning, and reduced substance use. Apart from this, there is a notable lack of studies comparing the effect of different characteristics of supportive services on housing, health, or health care utilization outcomes.

The positive association between housing quality and housing stability suggests the need to ensure good housing quality in the selection of scattered-site buildings and the construction and management of single-site buildings. Careful attention is needed to ensure that PSH programs receive funding that is sufficient to achieve this goal.

In its assessment of existing studies, the committee was hampered by a less than robust literature to assess the effect of individual and program characteristics on outcomes in PSH. The PSH models, for example, are required to include the appropriate supportive services for the individuals being served. However, the existing literature lacks information on the type, intensity, frequency, or length of these services, nor are there clear details of what constitutes "usual services" when comparing the efficacy of different models. As such, it remains difficult to generalize who among individuals experiencing homelessness are most likely to benefit from them. Furthermore, there is no agreement on what the best supportive service models are for the different groups of individuals that are housed. To address these gaps, the committee makes the following recommendation:

> **Recommendation 5-1: Agencies, organizations, and researchers who conduct research and evaluation on permanent supportive housing should clearly specify and delineate (1) the characteristics of supportive services, (2) what exactly constitutes "usual services" (when "usual services" is the comparator), (3) which range of services is provided for which group of individuals experiencing homelessness, and (4) the costs associated with those supportive services. Whenever possible, studies should include an examination of different models of permanent supportive housing, which could be used to elucidate important elements of the intervention.**

Recommendation 5-2: Based on what is currently known about services and housing approaches in permanent supportive housing, federal agencies, in particular the Department of Housing and Urban Development, should develop and adopt standards related to best practices in implementing permanent supportive housing. These standards can be used to improve practice at the program level and guide funding decisions.

6

Impact of Permanent Supportive Housing on Families and Youth

Previous chapters have described the effects of permanent supportive housing (PSH) for individuals with mental illnesses and substance abuse problems and described the potential benefits of housing for individuals with housing-sensitive health conditions. There is much less evidence about the extent to which PSH is a useful intervention for families, youth, and older adults experiencing homelessness. The limited evidence addressing where PSH has been used for other populations who have not experienced chronic homelessness is noted. Described below, and consistent with findings from Chapter 4, little evidence was found on addressing how PSH affects health for families, youth, and older adults. Most studies are descriptive, and few include health outcomes.

FAMILIES

PSH for families is widely used, but little studied. According to the Annual Homeless Assessment Report (AHAR) by the Department of Housing and Urban Development (HUD, 2016b) to Congress, there are nearly 123,000 PSH beds for people in families in the United States, 36 percent of the total PSH stock available across populations, and 30 percent of the total bed count in homeless programs serving families. It remains unclear to what extent this model is superior to others for serving families, and whether there are subgroups of families who might benefit more than others.

A literature review of housing and services for families by Bassuk and Geller (2006) found observational studies with no comparison groups that suggested that families who received housing subsidies with case management, including some deemed to be high risk by different criteria, were likely to be stably housed over follow-up periods of 1 to 2 years. In two studies in the same city, families who received housing subsidies without associated services were also more likely than those who did not receive subsidies to attain housing stability. In the one comparison-group study providing evidence that subsidized housing with intensive case management was superior to subsidized housing without intensive services, housing type was confounded with intensity of services. There were no randomized controlled studies found and few studies that looked at outcomes beyond housing stability. A follow-up systematic review by Bassuk and colleagues (2014) examined evidence of the effectiveness of housing interventions on ending family homelessness between 2007 and 2013. They found one randomized controlled trial (RCT), described below, and six observational studies, some with

multiple follow-up points. Of those six studies, only one addressed health outcomes associated with PSH (Building Changes, 2011). In the program's first 6-month evaluation, it was noted that families had fewer service needs than at baseline and were more likely to have a routine source of care (93 percent of household heads and 100 percent of children, up from 78 percent and 93 percent at study entry). Adults were less likely to have moderate or severe levels of anxiety (38 percent, down from 63 percent at baseline), perhaps because 75 percent of families received mental health services, and school absences among children decreased. In analyzing the results of the systematic review more broadly, Bassuk and colleagues concluded that as it pertains to families experiencing homelessness, "research aimed at the intersection between housing and health care is especially needed" (2014, p. 472).

More recent work has largely continued the tradition of descriptive studies of families using supportive housing or suggests good outcomes for those who successfully complete programs without considering those who drop out or are excluded. Studies rarely examine the extent to which all family members (including children) might benefit. A systematic review by Speirs et al. (2013) aimed to identify interventions to improve (psychological and physical) health outcomes in homeless women in the United States and across the globe. The authors found that most interventions comprised education sessions in group settings that aimed to improve individuals' knowledge about risk-taking sexual behavior and ways to mitigate physical abuse within domestic violence situations. Of the six studies reviewed, none focused specifically on the linkage between PSH and physical or mental health.[1]

Studies that include children in families or that address the impact of PSH on health in youth are often limited by small sample size or lack child- and/or youth-specific performance measures to adequately monitor health outcomes. Others, such as the qualitative study of supportive housing in the health of 10 HIV-positive mothers and their children (Quinn et al., 2015), focus primarily on parental health and social needs without necessarily connecting these to child outcomes. Gewirtz and colleagues (2008) described the psychosocial risks and health status of 454 children living with their families in 17 supportive housing communities in the Minneapolis/St. Paul, Minnesota, metropolitan area. They suggest that insofar as supportive housing gives families residential stability and case management services, access to routine, basic, physical health services should be facilitated. In this study, child service staff in the facilities were asked to complete a 37-item child needs assessment survey, asking for parental involvement only if they were unsure of the answers. Results showed that more than 95 percent of children had health insurance, yearly physical exams, and up-to-date immunizations, although a causal link between supportive housing and these results could not be established. Over 75 percent had regular access to dental care, vision, hear-

[1]For the list of the six studies cited, see Speirs et al. (2013, pp. 1085–1086).

ing, and lead-level evaluation. Asthma rates were higher than the general population but lower than comparable low-income populations. The greatest concern was in children's mental health, where significant numbers of children were reported to be depressed or anxious, have behavioral issues, or have a diagnosed learning disability. These issues increased significantly in children age 12–19 compared to those age 1–11 years, and children with a mentally ill parent were 1.8 times more likely to have a diagnosed or undiagnosed emotional or behavioral problem. Complicating the mental health challenges noted among children was the general absence of available mental health services (Gewirtz et al., 2008).

There is also some question as to whether permanent housing subsidies without dedicated services attached to them are sufficient for most families. The Family Options Study is a 12-site RCT that examined different housing and service programs for families recruited after a stay of 7 days in a homeless shelter (Gubits et al., 2015, 2016). The 2,282 families were randomized to offers of (1) permanent housing subsidies (usually in the form of a Housing Choice Voucher that limits housing costs to 30 percent of income) without additional services; (2) temporary rapid re-housing subsidies with low-intensity case management (averaging 36 families per case manager) focused on housing and self-sufficiency; (3) transitional housing with higher-intensity case management (averaging 20 families per case manager) and extensive psychosocial services; or (4) usual care, starting with the shelter at which they were recruited. All families were free to seek additional services in their communities. Analyses were on an intent-to-treat basis, including all families offered a particular intervention, irrespective of the type of housing they actually took up. Offers of housing subsidies dramatically reduced homelessness and doubling up with other households because the family could not find or afford a place of their own at both the 20-month and the 37-month follow-up points; offers of transitional housing decreased homelessness more modestly during the period when some families remained in transitional housing programs; and offers of rapid re-housing led families to leave shelter more quickly but had no other effect on housing outcomes. With respect to health outcomes, offers of housing subsidies reduced adult psychological distress at both points and alcohol dependence or drug abuse by a quarter (4.5 percentage points) at 20 months only, and children's behavioral problems as reported by mothers at 37 months only. Housing subsidies reduced recent intimate partner violence by over half (6.8 percentage points) at 20 months and over one-third (4 percentage points) at 37 months. Neither of the other interventions affected these outcomes at either time point, and no intervention affected global reports of adult or child health. Thus, permanent housing subsidies alone had more impact on the psychosocial problems that can sometimes cause homelessness than did psychosocial services in time-limited transitional housing programs.

Gubits and colleagues (2015, 2016) also examined whether the interventions were differentially effective for two subgroups of families: those with more psychosocial challenges (a count of 9 issues such as intimate partner violence, poor health, psychological distress, and substance problems reported at the study outset), and those with more housing barriers (a count of 15 issues such as lack of

money to pay rent, lack of employment, poor credit, or past evictions). Although statistical power for these tests was limited, the patterns of scattered differences across outcomes did not exceed what would be expected by chance. Over the 37-month period, families in the permanent housing subsidy group cost only 9 percent more than usual care, because costs of the subsidies were offset by greater costs for shelter and transitional housing programs in the usual-care group.

One criticism of the study is that, because of low program take-up among families offered transitional housing (53 percent) and rapid re-housing (59 percent) compared to those offered permanent subsidies (88 percent considering all forms of subsidy), the experimental contrast was weaker in these comparisons. Crossover from usual care to the assigned intervention was largely equivalent for the three active interventions (largest, at 38 percent for the permanent subsidy group). However, at 37 months there were no significant differences in homelessness and doubling up among families assigned to rapid re-housing or transitional housing by whether or not they took up the intervention. Among families assigned to permanent housing subsidies, those who took up the intervention were significantly less likely to be homeless or doubled up (Gubits et al., 2016).

The study did not examine PSH, and thus provides no evidence about the extent to which psychosocial services in addition to permanent subsidies might enhance their effects. An observational study in Philadelphia suggests that some families may need such services. Culhane et al. (2011) found that both inpatient behavioral health services and foster care placements among families, which were reduced during the period that families were in shelter, rebounded afterward, regardless of whether families were discharged to permanent housing subsidies. The rebound was smaller, but not significantly smaller, for the relatively small group of families who received permanent subsidized housing placements. The authors suggest screening for behavioral health and foster care needs while families are engaged with shelters or transitional housing and linkages to community services afterward.

One RCT compared two housing and service models for families in which the mother had a diagnosable mental health or substance abuse condition. One was a Family Critical Time Intervention (FCTI) in which families received more intensive case management (maximum ratio 12 families to 1 caseworker) from a single worker for a 9-month period as they moved from shelter to housing. This structured program of linking families to community services was compared to treatment as usual, which involved less intensive casework with different workers in shelter (ratio 24:1) and community (ratio 50:1). Families in both groups received affordable housing, but those in the FCTI group received it about 3 months faster without meeting criteria for "housing readiness." Psychiatric symptoms improved substantially over time in both groups, and there was no difference between them. The authors pointed out that among families selected for high levels of distress, distress may decrease over time regardless of services received (Samuels et al., 2015). Children in the FCTI group showed modest improvements

in behavior problems at home and at school relative to children in the treatment-as-usual group (Shinn et al., 2015), but again, all children improved over time.

FAMILIES INVOLVED IN THE CHILD WELFARE SYSTEM

The considerable overlap among families who experience homelessness and families who are involved in the child welfare system (Culhane et al., 2003; Harburger and White, 2004; Park et al., 2004; Rodriguez and Shinn, 2016) has led to calls for supportive housing for this group. Most studies remain descriptive. For example, Farrell and colleagues (2010) assessed 1,720 families with 3,779 children (52 percent male, 48 percent female; mean age = 10.1 years) involved in child welfare who participated in Connecticut's Supportive Housing for Families (SHF) Program between 1999 and 2008. The SHF provided access to scattered-site PSH, coordination of mental health, parenting interventions, and access to child welfare resources. The authors found improvements from intake to discharge in obtaining permanent housing, employment, and access to health care. Reports of substance abuse outcomes were deemed unreliable and child welfare outcomes were not tracked. While child well-being scores were reported to have improved, there were no specific health outcomes included in the analysis. Length of stay in the program was significantly associated with success at discharge, which could reflect the impact of longer exposure or could reflect sorting of clients who may have left or been asked to leave due to "dissatisfaction, or non-compliance with program requirements, arrest, etc." (Farrell et al., 2010, p. 150). One quasi-experimental study examined reunifications with children among high-needs families given supportive housing and two matched comparison groups. Of the 189 supportive housing families, 20 percent had experienced a separation and 11 percent had been reunified a year later. The proportion of reunifications was significantly higher than for a matched sample who entered shelter, but not significantly higher than for a matched sample who entered public housing (Rog et al., 2016). Health outcomes were not reported.

The Family Unification Program (FUP) is a federally funded partnership between Public Housing Authorities and Child Welfare Agencies that offers subsidized housing, in the form of Housing Choice Vouchers, to families whose inadequate housing threatens out-of-home placement or impedes reunification. Youth ages 18 to 21 who left foster care after age 15 are also eligible. A small experiment in Chicago randomized families who were enrolled in a Housing and Cash Assistance Program designed to prevent family separation due solely to living circumstances to additionally receive FUP vouchers or not (Fowler and Chavira, 2014). After 10 months, receipt of FUP vouchers reduced both homelessness and rates of out-of-home placement, albeit with a p-value of .11 for the latter outcome. The small sample size (n = 31 families in the FUP group at follow-up) meant statistical power to detect effects was low, but the result is promising. A larger quasi-experimental study in two sites examined FUP relative to a waiting-list control for both family preservation and family reunification cases (Pergamit et al., 2017). The authors found small reductions in repeat reports and

substantiated reports of abuse or neglect and faster case closings in both sites for families in preservation cases, but no difference in removals of children from families. There was also an increase in the likelihood of reunification and probability of case closure for reunification cases in one of the sites, with mixed findings on repeat reports. The low levels of child placements and high levels of reunification for the waiting list controls suggest that the program may not have been targeted to families at high risk. Neither study reported on other aspects of physical or mental health. A five-site RCT of PSH for families involved in the child welfare system with some measures of adult and child health and psychosocial functioning is under way at the Urban Institute (Cunningham et al., 2014).

In the much larger Family Options Study, where families were not selected for child welfare risk, offers of permanent housing subsidies, without additional services, reduced child separations at the 20-month follow-up from 16.9 percent in the usual-care group to 9.8 percent in the group receiving subsidies and more than halved foster care placements (5.0 percent versus 1.9 percent). Transitional housing and temporary rapid re-housing had no effect on these outcomes, and differences in the permanent housing subsidy group were no longer detectable at the 37-month follow-up point (Gubits et al., 2015, 2016).

UNACCOMPANIED HOMELESS CHILDREN AND YOUTH

Using HUD's definition, in January 2016, there were 3,800 unaccompanied children under 18 years of age and 35,686 youth, that is, young adults under age 25 experiencing homelessness, across the United States (HUD, 2016b). Unaccompanied children and youth who are not part of a family or a multichild household make up approximately 10 percent of people who experience homelessness as individuals; that is, they are not accompanied by family member (s) or other individual(s) on a single night (HUD, 2016c).

An accurate prevalence of youth homelessness is difficult to determine, however, due to a number of factors, including the lack of a consistent definition of youth homelessness with respect to both age and housing condition, as well as the population's transient nature and the impermanence of their homeless status. For example, there were 89,000 unaccompanied homeless youth (and 1.3 million total homeless youth) enrolled in school (preschool to grade 12) in 2013–2014 by the broader U.S. Department of Education definition, which includes "children and youth who are sharing the housing of other persons due to loss of housing, economic hardship, or similar reason; are living in motels, hotels, trailer parks, or camping grounds due to lack of alternative adequate accommodations; are living in emergency or transitional shelters; are abandoned in hospitals; or are awaiting foster care placements" (Public Health Service Act, 42 U.S.C. § 11434a(2), 2001) in addition to the categories recognized by HUD. Over three-quarters of these children, most of whom are homeless with their families, are living in "doubled-up" situations with other households (Endres and Cidade, 2015).

The term "homeless youth" is used to describe a host of individuals including *runaways* (i.e., youth who have spent more than one night away from home without parental permission), youth forced to leave their homes, *street youth* (i.e., youth living in locations such as under bridges and in abandoned buildings), and *systems youth* (i.e., youth who have previously been involved in foster care or juvenile justice) (Edidin et al., 2012).

The Runaway and Homeless Youth Act, which authorizes funding through the Family and Youth Services Bureau of the U.S. Department of Health and Human Services (HHS), defines a homeless youth as one who is "not more than 21 years of age . . . for whom it is not possible to live in a safe environment with a relative and who has no other safe alternative living arrangement" (42 U.S.C. § 5732a). The regulations implementing this act define a runaway as someone "under 18 years of age who absents himself or herself from home or place of legal residence without the permission of parents or legal guardians" (45 CFR § 1351.1(l)). HUD defines youth as ages 18-24 (HUD, 2016b,c). The McKinney-Vento Homeless Education Assistance Improvements Act of 2001 applies to students eligible for public education services under state and federal law and defines unaccompanied youth as "those who are not in the physical custody of a parent or guardian" (42 U.S.C. §§ 11431 et seq.). This can include "runaways living in runaway shelters, abandoned buildings, cars, on the streets, or in other inadequate housing; children and youth denied housing by their families; and school-age unwed mothers living in homes for unwed mothers because they have no other housing available" (Popp et al., 2007, p. 11).

Factors contributing to youth homelessness include family conflict, interpersonal violence and trauma, socioeconomic factors, and mental health and substance use disorders, among others (Mallett et al., 2005; Ferguson, 2009; Coates and McKenzie-Mohr, 2010; Edidin et al., 2012). Lesbian, gay, bisexual, transgender, and questioning youth are thought to represent 20–40 percent of youth experiencing homelessness (National Alliance to End Homelessness, 2012; Ray, 2006).

Numerous studies identify the risks of youth homelessness for various health and social outcomes and the short-term benefits of some approaches in ameliorating them (Ferguson and Maccio, 2016; Slesnick et al., 2009). In their systematic review of effective interventions for youth experiencing homelessness, however, Altena et al. (2010) found no compelling evidence that specific interventions are beneficial for improving quality of life among youth experiencing homelessness, due to moderate study quality, and no evidence of the health impacts of PSH for youth experiencing homelessness.

In one small study, Kisely and colleagues (2008) examined the association between supportive housing and health among fifteen 16- to 25-year-old youth in Halifax, Nova Scotia, comparing them with 30 youth experiencing homelessness using a drop-in center in the same agency. Youth in both groups had access to identical services but controls lived in shelters (57 percent) or independent apartments (27 percent) or couch-surfed with family or friends (13 percent). Using a survey design, youth in supportive housing reported higher levels of health and

lower rates of substance abuse compared to controls; 40 percent of youth in supportive housing rated their health as "excellent" while none in the control group did so. There were no measurable indicators of what "health" constituted in the study.

More recently, Gilmer (2016) estimated the health service costs associated with PSH enrollment among 2,609 youth (ages 18–24) with serious mental illness (defined as schizophrenia, bipolar disorder, or major depressive disorder) receiving public mental health services in California between 2004 and 2010.

Gilmer (2016) compared health service costs among youth in PSH and youth with serious mental illness receiving public mental health services in California from January 1, 2004, through June 30, 2010. The primary variables of interest in the models comparing PSH participants with the propensity score–matched control group were participation in the PSH program for the post-period and for the interaction between the PSH and the post-period. The author included age, gender, race/ethnicity, clinical diagnosis, comorbid substance use disorders, and Medi-Cal coverage as additional control covariates. Results indicated that youth in PSH programs had increased inpatient, crisis residential, and mental health outpatient costs, suggesting that PSH programs and connected services may be inadequately designed or implemented to meet the needs of this population.

A subanalysis of the At Home/Chez Soi RCT conducted across five Canadian cities (Kozloff et al., 2016) evaluated the effect of housing stability among 156 young adults age 18–24 who were randomly assigned to receive Housing First (housing combined with ACT or intensive case management) or treatment as usual (not defined) for 24 months. The study's primary outcome was housing stability, defined as the percentage of days one remained housed as a proportion of days for which residence data were available. While youth in the Housing First group were, on average, stably housed at a higher percentage over youth in usual treatment (65 percent compared to 31 percent), there were no statistically significant differences in quality of life or self-rated physical or mental health symptoms between the groups.

Non-PSH Interventions: Youth in Foster Care

Youth in the foster care system sometimes have experience with homelessness. Focus group and interview data collected by the Family and Youth Services Bureau Street Outreach Program (2016) showed that nearly 5 percent of youth experiencing homelessness had been in foster care prior to their first homeless episode. Study participants who reported being in foster care also had significantly longer periods of time being homeless when compared to their non-foster care peers. Youth aging out of the foster care system have a high probability of becoming homeless (between 31 percent and 46 percent by age 26 in a study in three midwestern states), and having symptoms of mental health disorders places youth at higher risk. Extended foster care delays but does not prevent the onset of

homelessness, suggesting that a more robust housing intervention may be necessary (Dworsky et al., 2013). A literature review indicates that foster youth aging out of the system often face housing instability and homelessness due to lack of education, lack of preparation for entering the labor force, and lack of financial support needed for renting a unit during their transition into adulthood (Dworsky et al., 2012).

CONCLUSIONS

A convening of experts by the HUD concluded that "considerable research supports targeting permanent supportive housing to those who experience chronic homelessness," (HUD, 2015a, p. 5) which, by HUD's definition, requires an ongoing disability. Beyond that, however, "little evidence exists to support targeting interventions to specific families or individuals" and "existing assessment tools do not have a strong evidence base" (HUD, 2015a, p. 5). The committee's assessment of the literature indicates that while families who obtain PSH do well—in terms of reducing child behavioral problems and depression and improving parenting competencies (Gewirtz et al., 2015)—the evidence is not clear that they do better than families who obtain ongoing rental subsidies (Gubits et al., 2015, 2016). Likewise, it is not clear how to target a subgroup that might benefit from case management and additional services linked to housing. There is also suggestive evidence that PSH may reduce child placements for some families involved in the child welfare system, but again it is not clear how to target this resource (Gewirtz et al., 2015). Although unaccompanied youth and those who age out of the foster care system are at high risk for adverse health and social outcomes, there is little evidence as to whether PSH might be a useful intervention for them. It is plausible that permanent supportive housing would support both housing and health outcomes for high-risk members of all of these populations, but evidence is largely descriptive and ranges from weak to nonexistent. Given this, it is unclear whether other, less-intensive interventions might do as well, or how subpopulations who might benefit from PSH should be identified.

7

Program and Policy Barriers to Permanent Supportive Housing

Permanent supportive housing (PSH) is designed to serve the nation's most vulnerable and disadvantaged people, including those experiencing chronic homelessness, who are living on the fringes of mainstream society. Most of these individuals and families are challenged by chronic health conditions, social isolation, and deep poverty. Many are people with disabilities and members of racial or ethnic groups that have historically experienced discrimination and exclusion.

As reaffirmed by the U.S. Supreme Court, neither prejudice nor expediency permits the isolation of such vulnerable people as "incapable or unworthy of participating in community life." The Court's 1999 *Olmstead* decision found the unjustified segregation of people with disabilities in institutions, rather than community settings, to be a form of unlawful discrimination.[1] The Court's 2015 decision in the *Inclusive Communities Project* case reaffirmed the integration mandate at the center of the Fair Housing Act.[2] Yet, the levers of government are not always aligned to facilitate the integration of marginalized people into communities. Increasing the availability of PSH and rapidly connecting individuals to available units is a key piece of the strategy of the U.S. Interagency Council on Homelessness (USICH) to end chronic homelessness by 2017 (Burt et al., 2014; USICH, 2017a). However, the committee heard and saw evidence that the inherently difficult and complex mission that PSH providers serve is rendered more challenging by a series of program and policy barriers. These barriers undermine

[1] *Olmstead v. L.C.,* 527 U.S. 581 (1999). In the landmark *Olmstead* decision, the Court interpreted the Americans with Disabilities Act (ADA) and a regulation issued by the U.S. Department of Justice requiring public entities to "administer services, programs, and activities in the most integrated setting appropriate to the needs of qualified individuals with disabilities." 28 C.F.R. § 35.130(d).

[2] *Inclusive Communities Project v. Texas Department of Housing and Community Affairs*, 576 U.S. ___, 135 S. Ct. 2507. The *ICP* decision upheld disparate impact liability under the Fair Housing Act, 42 U.S.C. § 3604, in a case alleging the segregative siting of Low Income Housing Tax Credit properties in minority areas of the Dallas region, and the exclusion of these affordable housing properties from predominantly white neighborhoods.

the efforts of providers and policy makers to bring PSH to the scale that would be necessary to reduce chronic homelessness or make it "brief and rare."

At its core, PSH is an affordable housing program and faces barriers common to affordable housing that leave millions of the nation's poor unhoused or unstably housed in units that are unaffordable, substandard, or both (Steffen et al., 2015, Section 1). The distinguishing feature of PSH is that it offers residents an array of services intended to promote housing retention while also meeting other social and health needs. As a result, PSH providers face the challenge of working across silos in a fragmented policy environment.

As part of its charge, the committee was asked to identify the "key policy barriers and research gaps associated with developing programs to address the housing and health needs of homeless populations." As discussed in previous chapters, the committee found that there is no substantial published evidence that PSH improves health. Nonetheless, PSH increases an individual's ability to remain housed, and that plausibly alleviates a number of conditions that negatively impact health, such as exposure to extreme elements or lack of refrigeration for medications, etc. The committee describes below the key policy and program barriers to bringing PSH and other housing models to scale to meet the needs of those experiencing chronic homelessness.

FRAGMENTED AND UNCOORDINATED FUNDING SOURCES, POLICIES, AND PRIORITIES

PSH is a multidisciplinary approach that cuts across the traditionally disparate and disconnected systems involved in providing housing and health care-related services. There is no single funding source or set of policies for PSH. Providers often must pool or braid together funding from multiple federal agencies, including at least two different offices within the Department of Housing and Urban Development (HUD), the Department of Health and Human Services (HHS) and its Center for Medicare & Medicaid Services (CMS), and the Low Income Housing Tax Credit (LIHTC) program operated by the Treasury Department. The Department of Veterans Affairs (VA) is also involved if veterans experiencing homelessness are the target population.

Providers must also often navigate at least three levels of government: federal, state, and local. Even at ground level, providers must obtain funding, approvals, and various forms of cooperation from multiple local agencies such as the local Continuum of Care consortium that allocates HUD funding for homeless services, county health and social service departments, local public housing authorities (PHAs), and zoning and permitting authorities.[3] Some of these local

[3]According to HUD: Some states use "authority," some use "agency," and some use "commission." Regardless of the term, a PHA is the body that administers public housing. HUD refers to a public housing "agency" as any entity in a state, county, that is "authorized to engage or assist in the development or operation of low-income housing under the US Housing act of 1937." See: https://www.huduser.gov/portal/glossary/glossary_p.html.

agencies operate at a city level, others at a county or regional level. States are also involved as their housing finance agencies allocate LIHTC, the primary source of capital funding for affordable housing.

All of these agencies operate within silos and policy frameworks that are not aligned and often speak a different policy language. Each is governed by different, and sometimes conflicting, statutes and regulations. Even their databases are incompatible. Many of the other challenges and barriers described more specifically below are exacerbated as providers, who are often underfunded nonprofit agencies, attempt to navigate this complex and fragmented landscape. To illustrate, Box 7-1 considers a simplified hypothetical situation.

BOX 7-1
A Hypothetical Illustration

A local Coalition for the Homeless wishes to develop a single-site permanent supportive housing (PSH) program. On the housing side, the coalition needs capital funding to acquire property and build the housing. Most likely, it will go to the local city or county seeking HUD Community Development Block Grants (CDBG) or local funds to acquire land. It will be trying to find land that is relative low cost and already zoned for multifamily housing. If not properly zoned, the coalition will need to obtain approval from the local city or county council to rezone the land, a process that exposes the project to potential not-in-my-backyard (NIMBY) opposition. Once site control and zoning are ensured, the coalition will seek capital for construction and permanent financing. This will often require a partnership with an experienced developer or consultant. It may take a dozen or more funding sources, and multiple funding rounds, to cover the cost of project development (Community Strategies Institute, 2016; CSH, 2016).[a] The primary source of equity will usually be LIHTC allocated by the state housing finance agency. To close a financing gap, the coalition may need to supplement the LIHTC with a deferred loan of federal HOME Investment Partnerships Program funds (see Chapter 2), a grant of local general funds, or philanthropic grants.

Once successful in garnering these capital sources to build the housing, the coalition in this hypothetical example must obtain a source of operating subsidy. LIHTC projects are targeted toward households at 60 percent or 50 percent of area median income (AMI), whereas individuals experiencing homelessness will have an income well below 30 percent of AMI, if they have an income at all. The coalition cannot operate the housing based solely on the rents that their intended residents can afford to pay. HUD Housing Choice Vouchers are the primary source for operating subsidy. The coalition will likely try to secure a contract with its local public housing authority (PHA) to provide vouchers and seek HUD approval to attach or "project-base" the vouchers to the units that will be occupied by residents and other extremely low-income tenants. Project-based vouchers (PBVs) are a component of a PHA's Housing Choice voucher program. A PHA can attach up to 20 percent of its voucher assistance to specific housing units if the owner agrees to either rehabilitate or construct the units, or the owner agrees to set aside a portion of the units in an existing development. However, the PHA is an independent agency with an already long waiting list of households with worst-case housing needs. Even if a PSH project is a priority for the city government, the PHA may not have adopted a priority for individuals experiencing homelessness or PSH providers. It may or may not have experience with use of project-based vouchers for PSH.

If all goes well, and necessary funds for the construction and ongoing operation of the housing are secured, the coalition will next have to identify and obtain funding for the services that will be provided to the residents. Funds for supportive services must similarly be patched together from a variety of sources (Dohler et al., 2016). Assembly of resources to cover the cost of services may be even more challenging. Unlike the one-time capital or long-term subsidy commitments on the housing side, funding for services must be assembled each year.

(Continued)

BOX 7-1 Continued

The locality's Continuum of Care consortium, an entity separate from the local housing agency, may be able to allocate HUD funds for services to the PSH project's residents. The coalition may apply for grants from local philanthropies to cover a portion of the costs. If the coalition operates a health clinic, it may receive funding as a Federally Qualified Health Center for health care services provided to the PSH residents. If the state has obtained the necessary Medicaid waivers from the Centers for Medicare & Medicaid Services, or if the state Medicaid plan includes optional benefits that cover case management, rehabilitation, or other health-related services that can be delivered outside of clinics or treatment facilities, and the project will serve a population included in the waiver or eligibility criteria associated with these optional benefits, the coalition may also be able to receive Medicaid reimbursement for some of the housing-related services it provides to eligible residents, such as those necessary to help residents transition to the new housing, or those that restore functioning impaired by disability, to help the residents sustain their housing. But the coalition needs to be a certified Medicaid provider, and fairly adept at Medicaid billing, documentation, and compliance.

Once the PSH facility is built and occupied, the coalition must ensure that it captures the data, complies with the regulatory requirements, and submits the necessary paperwork for each of these funding sources year in and out. All of these activities are in addition to the direct work to meet the often-challenging needs of the residents experiencing homelessness.

For the development of a scattered-site PSH program, there are other challenges in addition to those described above. As discussed previously, there are far more eligible households than available Section 8 vouchers, and overall HUD funding has declined. It can also be challenging to find a landlord willing to rent to an individual or family using a voucher. The provision of support services involves either traveling to the service provider's site or the service provider traveling to the home.

In some states and localities, agencies are partnering and collaborating across silos to jointly issue requests for proposals and to otherwise facilitate development of PSH. But this alignment remains more the exception than the rule.

References

Community Strategies Institute. 2016. Boulder County Permanent Supportive Housing Study. Prepared for Boulder County Consortium of Cities. Available at http://www.bouldercounty.org/doc/bocc/consortiumpshfinalreportjune%202016.pdf. Accessed February 23, 2017.

CSH (Corporation for Supportive Housing). 2016. Guide to Service Funding in Supportive Housing. Available at http://www.csh.org/wp-content/uploads/2016/11/Guide-to-Service-Funding-in-Supportive-Housing_11.2016-CSH-FINAL.pdf. Accessed February 23, 2017.

Dohler, E., P. Bailey, D. Rice, and H. Katch. 2016. Supportive Housing Helps Vulnerable People Live and Thrive in the Community. Center on Budget and Policy Priorities. Available at http://www.cbpp.org/research/housing/supportive-housing-helps-vulnerable-people-live-and-thrive-in-the-community. Accessed February 23, 2017.

(Continued)

BOX 7-1 Continued

[a]For example, a PSH development for families visited by the committee in Sunnyvale, California, lists the following funding sources: City of Sunnyvale, County of Santa Clara, Housing Authority of the County of Santa Clara, Santa Clara County Department of Behavioral Health, VA Palo Alto Health Care System, and HUD-VASH Program, California.

Inadequate and Unreliable Funding Streams for PSH

The fragmented nature of the funding for PSH is magnified by the fact that the amount of available funding is generally inadequate to meet the demand and need. Except for Medicaid, these funding sources are discretionary appropriations of the federal budget or the budgets of states and local governments and are therefore subject to strict budget constraints (such as sequestration) and significant fluctuations from year to year. As a result, many of the programs allocate funds through highly competitive application processes, making it difficult to plan through reliance on specific sources. Funding allocations, when awarded, often fall short of the true cost of delivering services, especially in light of the acute needs of clients and the complexity of service delivery.

While the federal government has traditionally been the primary source of funding for affordable housing, appropriations have declined since 1980. As measured in inflation-adjusted dollars, the federal government spent $2.9 billion less for housing assistance in 2015 than it did in 2004 (Mazzara et al., 2016). Only one in four households eligible for federal housing assistance receives that assistance. Thus, PSH providers operate in an affordable housing environment of scarce resources and competition for inadequate funding.

In recent years, both Congress and federal agencies have made the end of chronic homelessness and homelessness among veterans a national priority. New federal funding for additional housing vouchers has often been limited to special-needs programs that require partnerships with service providers, including the HUD-VASH program for homeless veterans, Housing Choice Vouchers for Non-Elderly Disabled,[4] and the Family Unification Program for families involved in the child welfare system (Wilkins and Burt, 2012).[5] However, according to the

[4]As of April 1, 2010, the Notice of Funding Availability for Rental Assistance for Non-Elderly Persons with Disabilities was revised and delineated into two categories. Category 1 vouchers enable non-elderly persons or families with disabilities to access affordable housing on the private market. Category 2 vouchers enable non-elderly persons with disabilities currently residing in nursing homes or other health care institutions to transition into the community.

[5]"The Family Unification Program (FUP) is a program under which Housing Choice Vouchers (HCVs) are provided to two different populations: (1) Families for whom the lack of adequate housing is a primary factor in: (a) The imminent placement of the family's child or children in out-of-home care, or (b) The delay in the discharge of the child or

USICH, "[t]argeted homelessness resources alone are not adequate for ending homelessness" (USICH, 2015c, p. 14).

As a result, USICH is attempting to "leverage" funds from what it calls "mainstream programs" for ending homelessness. This includes HUD's assisted programs (e.g., Housing Choice Vouchers, Public Housing, and Federal Housing Administration multifamily subsidized housing), as well as Medicaid (USICH, 2015c, p. 14; 2015b, p. 2). Without a substantial increase in appropriations for these federal housing programs, existing resources can be directed to one population only by disadvantaging other populations that policy makers and the public may view as having similarly compelling needs.

Nearly all PHAs face significant competing demands for a limited supply of housing vouchers. Some have thousands of people on waiting lists, and many have closed their waiting lists to potential applicants. When many low-income families, seniors, and people with disabilities have been waiting for years for housing assistance, some PHAs are reluctant to target their resources to PSH projects or to prioritize people who are homeless (Wilkins and Burt, 2012).

The think tank, Center on Budget and Policy Priorities reports that the number and share of families with children receiving federal rental assistance has fallen by more than 250,000 (13 percent) since 2004, and is at its lowest point in more than a decade, a result that it attributes, at least in part, to the shift in in federal priorities toward serving veterans and individuals with disabilities experiencing homelessness (Mazzara et al., 2016; USICH, 2015c). Shifting policy priorities may be counterproductive if they cause undesirable downstream impacts, such as increased homelessness and poor health or education outcomes among other populations. The USICH also has a goal of ending family homelessness by 2020. People in families are 34 percent of the sheltered homeless population (USICH, 2015c; Gubits et al., 2016; HUD, 2016c).

Homelessness among school-age children reached a record high of more than 1.3 million students in the 2013–2014 school year, falling slightly to 1.26 million in 2014–2015 (Gee, 2016; Mazzara et al., 2016; Doherty, 2017).[6] Research highlighting the growing incidence and impact of housing instability and homelessness among families with children is receiving unprecedented attention (Desmond, 2016). However, it is critical to take into account the fact that the Department of Education has a broader definition of "homeless children and youth" (U.S. Department of Education, 2016) that leads to its higher number of homeless

children to the family from out-of-home care; or (2) For a period not to exceed 36 months, otherwise eligible youths who have attained at least 18 years and not more than 24 years of age and who have left foster care, or will leave foster care within 90 days, and are homeless or [are] at risk of becoming homeless at age 16 or older." For details, see https://www.hud.gov/program_offices/public_indian_housing/programs/hcv/family.

[6]For a profile of homelessness among school children in one of the communities visited by the committee, see Gee, 2016.

children and youth. The broader Department of Education definition includes children in families that are sharing residences or "couch surfing" in its count of homeless students.

Given these kinds of trade-offs, it may be fiscally or politically difficult to increase the scale of PSH initiatives unless there is a substantially larger commitment of federal housing resources or state and local governments fill the gap. The Bipartisan Policy Center's Housing Commission made such a proposal in 2013. The commission recommended that the United States transition to a system, similar to those of western European countries, in which households with extremely low incomes (at or below 30 percent of AMI) receive a housing allowance through a reformed Housing Choice Voucher program (BPC, 2013). The commission estimated the additional cost of its proposal at $22.5 billion (in 2012 dollars), noting that this estimate does not "take into account any potential savings resulting from fewer families becoming homeless or reduced health care costs" (BPC, 2013, p. 90). This recommendation for universal housing vouchers for the nation's most vulnerable households received renewed attention after it was echoed in Harvard sociologist Matthew Desmond's 2016 best-selling book and groundbreaking study of housing instability, *Evicted: Property and Profit in the American City*, in which he finds eviction to be a cause and not just a condition of poverty (Desmond, 2016). Eviction has become commonplace in low-income communities largely due to rising housing costs, stagnant or falling incomes, and a lack of federal housing assistance (Desmond, 2015). Given the complexity of the problem, a comprehensive solution to homelessness would require a much broader effort to reduce poverty.

The "Wrong Pockets" Problem

The various federal agencies and levels of government do not necessarily share the same incentives to expand PSH. The "business case" that has been made for scaling up PSH is an argument that net cost savings or offsets will accrue to the health care finance system, correctional system, and other sectors of the economy when high utilizers are provided with stable housing and the services they need to remain housed (Kertesz et al., 2016).[7] For example, Kertesz et al. (2016) state that Housing First programs (see also Chapter 3) often cost $8,000 to $18,000 per year of housing, but produce returns on investment including partial offsets in the use of emergency medical and judicial services and the creation of a more welcoming community for commercial development. Assuming the anticipated savings are realized, however, the fragmented nature of the governmental funding for PSH also presents a classic "wrong pockets" problem that impedes policy solutions. A wrong-pockets problem occurs when an entity, typically a government agency but sometimes another interested actor such as a health care

[7]Some commentators have questioned this framing of the case for PSH. See Kertesz et al. (2016).

provider, opts not to invest in a cost-saving program because it will not directly benefit from such an investment.

HUD and the Treasury Department shoulder the costs on the housing side of the PSH ledger. But HUD and Treasury do not share in the cost savings if PSH results in reduced emergency department use or jail stays for the high utilizers among people experiencing chronic homelessness. HUD's budget is subject to the caps on the discretionary side of the federal budget and cannot easily be expanded to scale up PSH.

Much of the anticipated savings to the federal government resulting from PSH would accrue to Medicaid, an entitlement program with a budget that can more readily expand to accommodate eligible recipients and covered costs. Those cost savings might be reinvested in the development of PSH, where they might result in additional cost savings and return on investment. But Medicaid does not fund the construction or operation of housing facilities (Wachino, 2015). At the same time, if a housing facility offers significant services that are nursing, medical, or psychiatric in nature, and is limited to residents with mental or physical disabilities, it risks being deemed a hospital, nursing home, sanitarium, life care facility, or intermediate care facility. Therefore, it may be disqualified from receiving LIHTC to pay for the capital costs of the housing (IRS, 2025, 2016; Tegeler et al., 2015).

Medicaid Funding and PSH

Medicaid is a potentially important funding source for at least a portion of the costs of PSH, particularly in covering the supportive services that people with disabilities or complex health conditions need to achieve housing stability and access the care they need to live in community settings. As described below, although federal funds cannot cover rent or the capital costs of constructing or renovating housing, states have options of authorities and programs they can use to include services, including housing-related services, as Medicaid benefits and to obtain federal matching funds for these covered services. It is important to note that there is a great degree of variability in terms of the types of services offered by each state; certain services provided to clients in one state may not be covered in another state.

Prior to the expansion of Medicaid eligibility as part of the Patient Protection and Affordable Care Act (ACA), many people experiencing homelessness, including people with complex health conditions who often had co-occurring substance use disorders, found it very difficult to establish eligibility for Medicaid. Low-income adults were eligible to enroll in Medicaid only if they also met categorical eligibility requirements, meaning that they must be pregnant, a custodial parent of an eligible child, disabled, a senior, or a member of another categorical eligibility group defined by law and state policy. This is still true today in states that have not expanded eligibility as authorized by the ACA. It should be noted that having a substance use disorder is not considered a disability for purposes of establishing categorical eligibility for Medicaid.

In states that have expanded Medicaid as authorized by ACA, eligibility is no longer based on meeting categorical eligibility, such as having a documented disability, being pregnant, or being a senior. Instead the primary eligibility criterion is having income lower than 138 percent of the federal poverty line. With this change, a large number of adults who experience homelessness have become eligible for Medicaid based on their incomes, without having to demonstrate that they have qualifying disabilities.

The Supreme Court *Olmstead* decision (see earlier in this chapter) has been described as both an opportunity and a challenge (Burt et al., 2014). Since the 1999 decision, CMS and state Medicaid officials have focused more attention and resources on efforts to expand the availability of home and community-based services linked to housing for people with disabilities who have been living in institutional settings (Burt et al., 2014). Those efforts align with the goals of reducing homelessness, as some individuals with disabilities are chronically homeless and at risk of institutionalization, but it can also intensify competing demands for scarce resources (Burt et al., 2014; HUD, 2013b). However, CMS has taken the position that federal Medicaid funds cannot be used to provide "federal financial participation (FFP) for room and board in home and community based services," a bar that precludes the use of Medicaid to fund rental assistance or the capital costs of housing construction or rehabilitation (Bamberger, 2016; HUD, 2013b).[8] State-share Medicaid funds, however, can be used to pay for housing. The state of New York, for example, is using state-share Medicaid funds for an ambitious project to invest in permanent supportive housing (Doran et al., 2013).

More recently, CMS released an information bulletin outlining "Coverage of Housing-Related Activities and Services for Individuals with Disabilities" (Wachino, 2015). Focusing specifically on individuals experiencing chronic homelessness, individuals with disabilities, and older adults needing long-term support services, the bulletin describes how "certain housing-related activities" can be reimbursed via Medicaid. These activities include housing transition services, housing- and tenancy-sustaining services, and state-level housing-related collaborative activities. The purpose of the bulletin is to assist states in identifying housing-related activities and services that can be built into a state Medicaid plan as an optional benefit (states may also request a waiver to cover the provision of these services). The bulletin states that consistent with statute, "CMS does not provide Federal Financial Participation (FFP) for room and board in home and community based services, but can assist states with coverage of certain housing-related activities and services."

Several states have used Medicaid funds creatively—either through a CMS demonstration program or through the Medicaid waiver authority—to provide housing-related services and activities. Washington State, for example, uses

[8]In a recent JAMA opinion piece, Bamberger (2016) questioned the assertion that paying for housing is outside of CMS's authority, stating "I have been unable to find any regulations or laws to support this claim."

demonstration program funding from the Money Follows the Person demonstration toward housing-related transition and sustaining services. Waivers have been used by Iowa, Michigan, North Carolina, Wisconsin, Nebraska, Ohio, and Louisiana to cover housing transitions and housing stabilization.

States are taking action through their waiver requests to expand coverage for a portion of the costs of PSH by paying for housing-related services. For example, New York State's 2012 Medicaid 1115 waiver request that originally included the creation of a Medicaid Supportive Housing Expansion Program.[9] Over a 5-year period, the state proposed reinvesting $150 million in anticipated Medicaid savings each year to finance "an integrated solution for both housing and health care needs" that would be cost-effective and further the Americans with Disabilities Act (ADA) and the Supreme Court's *Olmstead* mandate. Of this amount, $75 million per year would be dedicated for capital funding to increase access to supportive housing, an amount that the state estimated would create 600 new units per year and 3,000 units over the 5-year period of the waiver. In addition, the state would dedicate $75 million per year of "state-only" Medicaid dollars, some of which would fund rental subsidies. The supportive housing would be targeted to high users of Medicaid services among populations that include adults experiencing chronic homelessness who are physically disabled, suffer from mental illness and/or substance abuse, or are living with HIV/AIDS. In support of this request, the state cited potential savings of $16,281–$31,291 in annual Medicaid costs for every individual served, or $142 million–$273 million annually (New York State Department of Health, 2012). This proposal was not, however, included in the waiver request approved by CMS in 2014, leaving New York to reinvest state-only Medicaid funds into supportive housing for high-cost Medicaid beneficiaries (CSH, 2014b).

States may request a waiver in order to use Medicaid funds to pay for some housing-related services in PSH and/or use optional state plan benefits to cover these services. These services, which are described in CMS's 2015 informational bulletin, can be broadly defined to include a host of "Individual Housing Transition Services" and "Individual Housing & Tenancy Sustaining Services" that support the individual in being a successful tenant in his or her housing (CSH, 2016a; Wachino, 2015). It includes pre-occupancy services, such as performance of a client needs assessment, assisting with the housing search and application process, identifying resources to cover a security deposit, moving expense and other costs, at the front end of the tenancy. Post-occupancy, it includes services that can resolve or mitigate problems that might threaten the client's housing stability, such as intervention to prevent eviction, assistance resolving disputes with landlords or neighbors, linkage to community resources, help with annual income recertification, and continuing training in landlord-tenant rights and responsibilities.

States that have pursued optional benefits to facilitate Medicaid reimbursement for services have found these challenging to design. For example, they have

[9]https://www.health.ny.gov/health_care/medicaid/redesign/supportive_housing_initiatives.htm. Accessed September 29, 2017.

reported fragmentation in terms of implementation or indicated that services may be more limited for those programs that are client centered, including PSH programs. As a result of these challenges, states may seek Medicaid waivers in an effort to have more flexibility to use Medicaid financing for housing-related services. Obtaining Medicaid waivers to pay for housing-related services has also been very challenging for states; some states have had to drop these provisions from waiver proposals or significantly scale back or narrow eligibility for waiver services, among other issues. As described previously, CMS notes that states that pursue waivers or optional benefits cannot receive FFP for room and board, except in limited cases, and as such are not eligible for federal matching dollars spent on housing.

Other challenges include difficulty in determining how and who can bill for the services provided in supportive housing projects. States have significant latitude to define the types and qualifications of providers that can participate in their Medicaid programs as well as where care may be delivered (HHS, 2014). This can pose a challenge because PSH service providers may meet their state's qualifications for certain covered services, but not others, or they may not be qualified to deliver Medicaid-reimbursed services. Many states have additional policies regarding benefits and provider qualifications for services to address a variety of medical, mental health, and substance use needs, which may contribute to fragmentation and challenges in Medicaid-reimbursing PSH programs.

Even if the services are reimbursable, having an appropriate administrative structure to bill, as well as the appropriately licensed staff, can be a challenge. Many PSH providers started as affordable housing or human services organizations and are not licensed or qualified to deliver Medicaid services (Thiele, 2014), or they may not meet the requirements established by their state or by managed care organizations to obtain Medicaid reimbursement for the services they deliver (Buitrago, 2016).[10] Medicaid payment rates for PSH services are not always adequate to cover the costs of the care plus the added administrative burden. In a survey of PSH programs in Illinois, providers reported that it was not cost-effective to take on the administrative costs entailed in billing Medicaid for housing-related services unless the PSH also offered clinical mental and behavioral health services in-house (Buitrago, 2016).

Despite these challenges, leveraging Medicaid may make it possible to bring PSH to greater scale, and to reach homeless and at-risk persons with housing

[10]Buitrago's (2016) study, a survey of Illinois PSH providers, found that 50 percent of PSH providers were currently Medicaid billers, and 35 percent had considered becoming a Medicaid biller or partnering with one. But many of the PSH providers surveyed, especially the smaller organizations, lacked "the organizational capacities, such as administrative and clinical staff, electronic medical records and billing software and requisite policies and procedures to handle the burdens of administering Medicaid billable services." In addition, providers had to become certified to provide services in two areas, mental health and substance abuse, and to bill Medicaid separately in these two areas, in order to make the full range of services available to their clients. Providers may also have to contract with the managed care organizations in which their residents are members.

before chronic homelessness takes a greater toll on their health outcomes and the overuse of public services. To accomplish this, it appears necessary to streamline the approval of waivers that seek to use Medicaid to pay for housing-related services.

Market and Regulatory Barriers That Impede Scalability of PSH

Affordable housing efforts, PSH included, face a formidable array of barriers aside from the challenges of assembling financing. The two primary models for providing PSH units—scattered-site and single-site multifamily buildings—both face barriers (Community Strategies Institute, 2016).

Market Barriers to PSH

In many housing markets, the high cost of acquiring land or property for the development of PSH aggravates the impact of already limited affordable housing resources and limits the ability of providers and government agencies to scale up the response to homelessness. Even when suitable properties are available at a feasible cost, developers of PSH may not be able to assemble the complex financing required quickly enough to compete with other potential buyers in overheated real estate markets. As might be expected, cities with robust job growth and real estate prices also tend to have the largest number of individuals and families experiencing homelessness: New York, Los Angeles, Seattle/King County, San Diego, the District of Columbia, San Francisco, San Jose/Santa Clara County, Boston, Las Vegas, and Philadelphia (HUD, 2016c).

Local Regulatory Barriers to PSH

The availability and cost of development is also determined by the policy decisions of government. PSH projects are challenged to work within an array of local zoning and development regulations that disproportionately limit affordable housing and drive up its costs. These local policies can include beneficial environmental protections or health and safety measures, but as recognized by presidential administrations from George H. W. Bush to Barack Obama, "[i]n community after community across the country, local governments employ zoning and subdivision ordinances, building codes, and permitting procedures to prevent development of affordable housing" (Advisory Commission on Regulatory Barriers to Affordable Housing, 1991; White House, 2016).

Twenty-five years ago, HUD Secretary Jack Kemp and President George H. W. Bush's Advisory Commission on Regulatory Barriers to Affordable Housing estimated that "exclusionary, discriminatory, and unnecessary regulations constitute formidable barriers to affordable housing, raising costs by 20–35 percent in some communities" (Advisory Commission on Regulatory Barriers to Affordable Housing, 1991). More recently, President Obama noted that local barriers to housing development intensified from 1970 to the present, particularly in high-growth

metropolitan areas (White House, 2016). It is widely recognized by economists and federal officials across the political spectrum that local barriers to new housing development slow the permitting process, artificially increase the cost of developable land, and limit the efficacy of government housing assistance programs (Advisory Commission on Regulatory Barriers to Affordable Housing, 1991; BPC, 2013; White House, 2016).

The regulatory barriers are steepest for new construction of PSH and affordable housing in the form of multiunit apartments on a single site. Exclusionary zoning policies commonly restrict multifamily housing to a small number of locations within a jurisdiction, often requiring approval of elected officials. These policies result in an artificial shortage of land zoned to permit affordable housing, including PSH (American Planning Association, 2003). As described by the American Planning Association (2003), PSH may be further restricted by covenants and special permitting requirements: "Such permitting requirements restrict the type and frequency of services provided on site, the proximity of the supportive housing to other similar projects, and impose[s] additional special limitations on density or number of units that exceed those of the zoning district classification" (American Planning Association, 2003).

Regulatory barriers to PSH and other forms of affordable housing may violate the Fair Housing Act if they have the intent of excluding persons from a locality or neighborhood because of their membership in a protected class, or if they have that effect without a legally sufficient justification. As examples of policies that may have a discriminatory effect, the U.S. Department of Justice (DOJ) and HUD cite local laws prohibiting low-income or multifamily housing and minimum floor space or lot size requirements that increase the size and cost of housing, absent a legally sufficient justification (HUD and DOJ, 2016).

Despite the official recognition of the discriminatory nature of many exclusionary zoning and other land-use regulations, these barriers are part of the landscape with which PSH providers must commonly contend (HUD and DOJ, 2016). For example, a PSH study in Boulder, Colorado, comprehensively surveyed zoning classifications maintained by local municipalities and concluded: "The zoning and land use classifications used in the communities reviewed present some constraints for those who would try to develop new PSH units in the communities. In most cases, the limitations on the placement of multifamily properties, coupled with scarcity of land ready for this type of development, will continue to make it challenging to find feasible sites in most communities" (Community Strategies Institute, 2016, p. 26).[11]

Providing additional funding may not be enough to scale up PSH unless state and local governments, especially those in overheated markets, reduce unnecessary regulatory barriers and otherwise make available developable properties. In 1991, President Bush's Commission on Regulatory Barriers to Affordable

[11]In its site visits to Denver, Colorado, and Santa Clara County, California, the committee also heard reports from providers about protracted delays in obtaining sites and necessary local approvals.

Housing put forward a package of 31 recommendations for federal, state, and local governments and private action for regulatory reform, including zoning reform, streamlined permitting processes, legal review of regulatory barriers, conditioning receipt of federal funds on implementation of barrier removal strategies, and enforcement of anti-discrimination laws (Advisory Commission on Regulatory Barriers to Affordable Housing, 1991, pp. 9–17). These recommendations, few of which were implemented, remain relevant today and provide a starting point for action by all levels of government. In fact, many of the same principles echo throughout the 10 calls for action set out in the 2016 Toolkit for Housing Development (White House, 2016).

NIMBY (Not-in-My-Backyard) Opposition to PSH

As discussed in greater detail elsewhere in this report, community opposition to the development of affordable housing for low- and moderate-income households is commonly referred to as the NIMBY syndrome (Iglesias, 2002). This local opposition is an underlying motivation in many cases for the imposition of regulatory barriers (Advisory Commission on Regulatory Barriers to Affordable Housing, 1991). The American Planning Association notes that housing providers typically encounter "intense neighborhood opposition" even when they reuse existing housing stock and agree to make payments in lieu of taxes to support local infrastructure. Many developers view local opposition as the second most important barrier to the development of affordable housing after insufficient subsidy (Iglesias, 2002, p. 79).

Discrimination Against Persons Using HUD Housing Choice Vouchers

Housing Vouchers have become a critical tool for meeting the goal of ending veteran, chronic, and family homelessness (White House, 2016). Many localities are helping individuals experiencing homelessness to identify suitable units on the private market if they have a federal housing voucher. Some localities are master-leasing units and placing tenants in them. In either situation, services are provided to the occupants living in these private units.

The advantage of using the private market is that no development time or capital funding is needed. The units are rented at their market cost, sometimes below market when a large number of units in the same building are rented for a prolonged period of time by a responsible party, such as a nonprofit service provider or a government entity. To the extent that units exist on the private market to rent, they can be quickly accessed to provide supportive housing.

With advantages come disadvantages. The private housing market exposes people experiencing chronic homelessness using vouchers to housing discrimination. Landlord refusal to accept vouchers is prevalent nationwide, especially where strong real estate markets and regulatory barriers constrain the supply of rental housing and increase competition among renters. In this environment, persons experiencing homelessness and PSH providers find it extremely difficult to

use vouchers to secure housing on the rental market (Community Strategies Institute, 2016, p. 18). Homeless service providers in Boulder, Colorado, describe "frustration with finding units for their clients," because landlords increasingly refuse to take the vouchers. As a result, "many households who are able to secure a Housing First or transitional housing rental assistance voucher often have to turn them back because they are unable to find a unit to live in" (Community Strategies Institute, 2016, p. 18). Many cities and 12 states have laws that prohibit discrimination against voucher holders, but these laws are the exception rather than the rule (PRRAC, 2016).

Increased reliance on the Housing Choice Voucher program to make progress in ending or preventing homelessness may not be feasible without making this protection more uniform and universal. Similarly, the effectiveness of emerging models that aim to better integrate social needs and clinical care, such as the CMS Accountable Health Communities model, are compromised when services identified by providers are not available in the community or are not able to operate effectively to improve health.[12] Laws barring discrimination against voucher holders are among a series of policy solutions that could enable vouchers to be used more effectively and efficiently (Miles et al., 2017).

Geographic Mismatch and Lack of Local Accountability

Local governments are on the front lines of the housing and homelessness crisis. Even when federal funding is involved, the delivery systems that support affordable housing programs, such as HUD Continuum of Care services for people experiencing homelessness and public health, are generally carried out at the municipal or county government levels. Often communities attribute homelessness in their midst to "outsiders," when in fact most of the homeless population is local (see Parker and Dykema, 2013, for evidence that individuals experiencing homelessness are actually less mobile than the general state population). Thus, there is an underlying mismatch between the geographic scope of homelessness and the fragmented delivery system, with a resulting lack of accountability. Each locality may have its own priorities, making coordination across municipalities more difficult.

While some communities devote substantial resources to eliminating homelessness, other localities may be reluctant to cooperate in sharing responsibility for addressing affordable housing and homeless service needs in their jurisdiction, effectively forcing neighboring jurisdictions to bear more of the responsibility. Some localities have responded to homelessness by making it illegal to camp in public places or by clearing homeless encampments, effectively pushing out the people experiencing homelessness to other jurisdictions or consolidating them in lower-income or minority neighborhoods (USICH, 2012, 2015a; DOJ, 2015).

[12]For details see: https://innovation.cms.gov/initiatives/ahcm.

USICH notes that local laws criminalizing homelessness have proliferated in recent years.[13]

During its site visits, the committee heard anecdotal examples of the ways in which the lack of local accountability for meeting housing needs can present barriers to PSH and raise potential fair housing concerns. For example, in one region, the committee heard that some suburban municipalities were reluctant to zone to permit PSH to be constructed within their borders. It was reported that scattered-site PSH inventory tended to be located in neighborhoods with higher levels of crime and drug trafficking, hindering the process of recovery for PSH residents. One PSH facility had agreed to target admission to homeless "residents" of a particular section of the county in order to gain acceptance by the affluent surrounding community, paving the way for official approval of the project. Implementation of HUD's Affirmatively Further Fair Housing rule may help to increase the accountability of local jurisdictions that receive HUD funds for meeting the needs of persons experiencing homelessness, who disproportionately are members of groups protected by the Fair Housing Act.[14]

Noting that states are in a unique position to address this mismatch, President Bush's Commission on Regulatory Barriers more than two decades ago put much of the onus on states to ensure local accountability:

> Foremost among State responsibilities is recognizing affordable housing as a State goal and public purpose for which the police power is delegated to localities. As such, the State has the responsibility to ensure that all localities, as well as the State itself, have comprehensive programs of barrier-removal and zoning reform. (Advisory Commission on Regulatory Barriers to Affordable Housing, 1991, p. 14)

CHALLENGES OF PROVIDING SERVICES TO RESIDENTS IN PSH

During its site visits the committee heard about the challenges of providing services to residents living in supportive housing. For supportive services to be successful, it is important to identify and train individuals willing to do this kind of work and to embrace the challenges of helping people who have many needs. Unlike most outpatient service providers, service providers to supportive housing programs need to be prepared to respond to problems that occur 24 hours a day, 7 days a week. In fact, key to placing persons who have formerly experienced homelessness in private-market or low-income housing is committing to the landlord that the service needs of the clients will be met. Working with landlords is essential, including helping landlord-tenant relationships, selecting landlords who are

[13]For a description of those laws and alternatives, see https://www.usich.gov/tools-for-action/searching-out-solutions; https://www.usich.gov/tools-for-action/ending-homelessness-for-people-in-encampments.

[14]For details, see https://www.huduser.gov/portal/affht_pt.html.

trained to work with homeless populations, and providing support to those landlords to bridge those relationships.

Most nonprofit housing developers do not have the necessary expertise to meet the service needs of persons experiencing homelessness, and so need to partner with a service provider. The involvement of two different organizations (the housing agency and the service provider) helps to distinguish supportive housing, which is a form of independent housing, from residential treatment facilities. In independent housing, people can procure the services they need to stay safe in their homes, including nursing services. However, when the same agency provides both the bricks-and-mortar housing and the services, there is a potential risk that the roles of service provider and landlord charged with lease enforcement become confounded or that the program operates like a residential treatment facility, which may violate the PSH approach, especially with regard to rule enforcement. Thus, many organizations have structures (e.g., separate housing and services divisions), policies, and practices to prevent these problems. As a further consideration, the program may require an appropriate operating license. (Independent housing does not require a license). Thus, while having two different agencies involved in a supportive housing project distinguishes roles and guarantees appropriate expertise, it can cause problems with coordination, such as when a client is disrupting the lives of other tenants because of his or her substance use.

Coordination and logistical problems are greatest where the service provider is based in one location and the housing in another location or in multiple scattered locations. Market housing does not necessarily have the amenities that help retain persons in supportive housing, such as common rooms for activities, computer labs, and children's areas. It can be harder to provide service in a private building especially if only a small number of units in the building are for persons who were formally homeless.

Even when services and housing are colocated in the same building, the voluntary nature of the services or the acute needs of some residents mean that individualized staff must work to engage tenants and motivate participation in services that support recovery and stability. For example, one program that had a medical clinic on the bottom floor spoke of having to go to clients' apartments to accompany them to the clinic because they would not go on their own.

THE ROLE OF INNOVATION TO ACHIEVE PSH SCALABILITY

From the presentations that the committee heard, the answer to whether current models of supportive housing can be scaled up to meet the national goals of ending chronic homelessness is negative—not with the resources currently available and not unless substantial progress is made in reducing regulatory barriers and increasing coordination across agencies and levels of government. On the capital side, it takes too long and is too expensive to construct sufficient units of PSH given the usual development process and the housing market in most localities. Renting units on the private market, while the more viable strategy for achieving scale, is limited by the shortage of units available at affordable prices

and open to people with vouchers. It can also be costlier and complicated to provide supportive housing services in scattered-site environments, although this can be counterbalanced by the lower cost of housing (GAO, 2002).

Given this reality, the committee considered the need for new models of creating supportive housing if PSH is to be scaled to meet the national goal of ending chronic homelessness. Cities, such as Los Angeles, faced with an acute need to rapidly house large numbers of persons experiencing chronic homelessness have considered an array of innovative approaches. For example, the construction of PSH projects using prefabrication units has provided hundreds of units through a few notable projects, including the Star Apartments in Los Angeles.[15] The implications of creating large numbers of such units clustered in a limited number of neighborhoods are unclear and illustrate the limitations of relying on innovation as a "work-around" in lieu of addressing the underlying barriers.

On one hand, this Los Angeles model recognizes the sense of urgency, as in a natural disaster, to house people quickly. Clustering would allow an efficient service design in which clinics or other service providers could provide needed services in an easily accessible place. If these units were placed on vacant land, there is also the potential advantage of placing them away from urban areas where drug use is extremely concentrated.

On the other hand, congregating large numbers of very-low-income persons, many of whom have mental health issues, drug addiction, and involvement in the justice system, in one particular location may lead to problems. In addition, it is far from the *Olmstead* mandate for community integration for people served and the commonly accepted goal of economically integrated neighborhoods. To the extent that this model could create a residential enclave segregated by race, ethnicity, gender, family status, disability status, or economic status, it would run afoul of the Fair Housing Act.

CONCLUSIONS

As described above, the committee's assessment of the literature and other efforts indicate that there is no substantial evidence that PSH improves the health of people experiencing chronic homelessness. Accordingly, we have identified a number of barriers—including financing, policy, and regulations—that hamper the ability to scale up PSH and other housing models to meet the needs of individuals experiencing chronic homelessness. Funding streams and policy regulations for PSH are siloed and often impose substantive restrictions on how the funds may be used. This lack of coordination creates complications for combining or blending funds from different sources, and works against efforts to most efficiently use available funding. Although it is possible to combine funding streams, the restrictions on how different funding streams can be used can make the process quite complex. Accordingly, the committee recommends:

[15]See: http://skidrow.org/buildings/star-apartments.

Recommendation 7-1: The Department of Housing and Urban Development and the Department of Health and Human Services should undertake a review of their programs and policies for funding permanent supportive housing with the goal of maximizing flexibility and the coordinated use of funding streams for supportive services, health-related care, housing-related services, the capital costs of housing, and operating funds such as Housing Choice Vouchers.

As discussed above, leveraging Medicaid may make it possible to bring PSH to greater scale, and to reach homeless and at-risk persons with housing before chronic homelessness takes a greater toll on their health outcomes and the overuse of public services. To accomplish this, it appears necessary to streamline the approval of waivers that seek to use Medicaid to pay for housing-related services.

Recommendation 7-2: The Centers for Medicare & Medicaid Services should clarify the policies and procedures for states to use to request reimbursement for allowable housing-related services, and states should pursue opportunities to expand the use of Medicaid reimbursement for housing-related services to beneficiaries whose medical care cannot be well provided without safe, secure, and stable housing.

In studies ranging up to 2 years, PSH has been shown to be effective in maintaining housing stability for most people experiencing chronic homelessness. Although the committee found no substantial published evidence that PSH improves health, PSH increases an individual's ability to remain housed, and that plausibly alleviates a number of conditions that negatively impact health. However, there is a substantial and ongoing unmet need for PSH and a shortfall in the funding used to provide it (Culhane et al., 2002; Sylla et al., 2016). This gap is not filled by Continuum of Care and other programs addressing homelessness. Despite progress towards the goal of eliminating chronic homelessness, persons experiencing chronic homelessness made up 22 percent of the homeless population in January 2016 by HUD's conservative point-in-time count. Thus, in an environment of static or declining discretionary budgets, federal policies should prioritize persons experiencing chronic homelessness for the limited supply of PSH, but not at the expense of downsizing other federal programs that support persons experiencing homelessness or at risk of homelessness. The committee recommends:

Recommendation 7-3: The Department of Health and Human Services and Department of Housing and Urban Development, working with other concerned entities (e.g., nonprofit and philanthropic organizations and state and local governments), should make concerted efforts to increase the supply of permanent supportive housing (PSH) for the purpose of addressing both chronic homelessness and the complex

health needs of this population. These efforts should include an assessment of the need for new resources for the components of PSH, such as health care, supportive services, housing-related services, vouchers, and capital for construction.

Finally, the construction of PSH is often hindered by regulatory barriers that make it more difficult and more expensive to address chronic homelessness. The committee reiterates the findings of the Advisory Commission on Regulatory Barriers to Affordable Housing from more than 25 year ago: Local land-use regulations that apply to the siting and construction of new housing present substantive barriers to expanding the availability of affordable housing, including PSH. State and local governments could take action to help to reduce unnecessary regulatory barriers to land use to streamline the development of affordable housing, including single-site PSH. To address another significant barrier to developing additional PSH, HUD could develop model regulations for expediting the siting and construction of single-site PSH. In addition, to eliminate barriers to the use of housing vouchers for scattered-site PSH, federal, state, and local governments could proactively use their anti-discriminatory enforcement authorities and their leverage over the terms of federal grants to incentivize grantees to eliminate barriers that make the programs less effective and efficient.

8

Research Gaps

In its investigations, the committee found no substantial published evidence that permanent supportive housing (PSH) improves the health of people experiencing chronic homelessness. As described previously, most studies did not explicitly include people with serious health problems who are the most likely to benefit from housing. Of the studies that were more rigorous, the committee found that housing increases the well-being of persons experiencing homelessness. In its review of studies examining cost-effectiveness of PSH, the committee found that the literature is limited with few randomized controlled studies available, a majority using a quasi-experimental design. Further, the available studies have not been conducted in a manner that is methodologically aligned with generally accepted health care cost-effectiveness research design. In principle, the most robust scientific evidence to answer the question would come from studies using a randomized design and that cover a comprehensive array of costs and effectiveness measures. Overall, the committee found few studies evaluating the cost-effectiveness of PSH programs and the studies that have been done provide incomplete data that do not fully capture the health benefits of PSH.

This chapter addresses the major research gaps associated with developing programs to address the housing and health needs of individuals experiencing homelessness. Among the gaps identified by the committee:

- Inconsistencies in definitions and characteristics of PSH in the existing research literature and limited description of key services or minimum standards of PSH;
- Limited evidence base for screening tools used in allocating housing services assistance;
- Barriers to collection of data on health outcomes of PSH;
- Need for additional randomized controlled trials (RCTs) or strong quasi-experimental data, which may bolster and refine evidence of the impact of PSH and other forms of permanent housing on health outcomes and health care costs;
- Limited university-agency partnerships that represent lost opportunities to evaluate and monitor health outcomes and costs;

- Insufficient application of "big data" science to integrated health data systems, homeless management information systems, and other data resources;
- Need for testing innovations in payment models to support housing and services; and
- Research focused on societal barriers to promote acceptance of persons who have experienced homelessness as neighbors in communities.

HARMONIZATION OF PSH DEFINITIONS AND PROGRAM CHARACTERISTICS

Research has assessed fidelity to the Pathways Housing First approach within PSH (Gilmer et al., 2014) and shown better fidelity to be associated with housing stability, substance abuse reduction, community integration, and quality of life (Davidson et al., 2014; Goering et al., 2016). Assessments of fidelity have not routinely accompanied evaluations of impact on patient health, however, raising a possibility that PSH models that have been compared to treatment-as-usual control conditions were "diluted" versions of those ideal models. To the extent that PSH has not been implemented in accordance with some minimum standard, service differences between PSH and treatment-as-usual clients might be diminished, thus providing at least partial explanation for no-difference findings in health outcomes. What PSH and control conditions consist of in each study must be understood to evaluate study findings.

Case management is fundamental in linking PSH clients to supportive services and in providing a point of contact and support for clients (Hannigan and Wagner, 2003). The array of other services that a client may access should be flexible, voluntary, and tailored in accordance with individual needs (SAMHSA, 2010; Tsemberis, 2015), and thus no minimum or required set of services has been specified, except case management. Since PSH typically targets individuals with physical and behavioral health problems experiencing chronic homelessness, however, identification of a minimum set of services to be made available on a voluntary basis and specification of key ingredients would seem reasonable, including types of services provided and effective versus ineffective client-to-staffing ratios needed to foster housing retention and housing outcomes. Such standardization would facilitate efforts to understand effectiveness in influencing health outcomes and could aid in further development of quality and performance guidelines for PSH. Frequency and intensity of services may also vary within service type, depending on provider training and other resource considerations, along with resident preferences, thus further complicating interpretation of impact on health outcomes.

Furthermore, studies thus far have not "isolated" the effect of housing on health outcomes as a distinct ingredient separate from the services provided through enrollment in PSH. As noted in Chapter 5, any direct health benefits of

housing are difficult to isolate because clients in treatment-as-usual study conditions may have received services comparable to those in the treatment group. Practically, this is a not a research gap that can be easily addressed, but it deserves attention in a discussion of essential ingredients of PSH. Because findings on direct physical and behavioral health outcomes of PSH have been less than robust, future studies must carefully document characteristics of all services accessed by persons in PSH and other study conditions. See Chapter 5 for recommendations on the need to conduct research on PSH to specify and delineate certain characteristics of supportive services in PSH.

UNDERSTANDING WHO BENEFITS MOST FROM PSH

The need for housing that is available to individuals experiencing homelessness continues to outpace supply (Steffen et al., 2015). Additionally, there are differences among those experiencing homelessness in terms of length of time spent homeless and number and severity of their morbidities. Because of a limited housing supply and the costs associated with hospitalization and other public system contacts, federal, state, and local entities have typically prioritized the allocation of PSH resources to "high-need, high-cost" individuals (Levitt, 2015). This focus has necessitated a systematic means of sorting individuals along dimensions of need in order to make decisions about who benefits from housing and accompanying services. The U.S. Department of Housing and Urban Development (HUD) has required that governmental and nongovernmental agencies receiving federal funding to serve individuals experiencing homelessness use standardized assessments of need to aid in allocation decisions (HUD, 2012a; Levitt, 2015).

Because assessment tools used in determining housing eligibility emerged from urgency in response to HUD policy, rather than from a series of carefully conducted studies over time, and because the tools are relatively new and not yet subjected to careful research to examine reliability and validity, the base of scientific evidence for existing assessment tools is scant (Levitt, 2015). The Service Prioritization Decision Assistance Tool (SPDAT) and the Vulnerability Index Service Prioritization Decision Assistance Tool (VI-SPDAT)[1] are two such tools employed nationally in determining the allocation of housing and services to homeless single adults (OrgCode Consulting, 2015). The 10th Decile Tool was developed specifically to prioritize people experiencing homelessness with high levels of health risk in Los Angeles County (CSH, 2015). See Chapter 6 for a discussion of assessment tools.

There is consensus among experts regarding the gap in research to understand reliability and validity of assessment tools but no consensus on the outcomes that the tools should predict (Levitt, 2015). Screening to determine eligibility for PSH can pose challenges for providers, as reported during the committee's site visits. Providers may struggle in turning away people who are screened but who fall short of a standardized (yet what seems arbitrary to providers) cut point for

[1]Available through OrgCode Consulting Inc. and Community Solutions.

receiving service despite displaying some level of need. As articulated by a provider during a committee site visit, how should one extend some level of hope for housing to a person in need who receives a score that falls just short of service eligibility? Providers also raised concerns about the availability and adequacy of standardized training on the SPDAT and VI-SPDAT assessment tools to ensure fidelity of implementation within and across evaluators.

Another point regarding validity of the assessment tools used in determining access to housing and services is that they were developed for use with adults experiencing chronic homelessness, the population that has received the most focus in efforts thus far to address homelessness through PSH. Such tools cannot be assumed to be valid for other populations for whom PSH might also be a viable solution to homelessness and a vehicle for improved health outcomes. The tools also cannot be assumed to have validity for determining access to other forms of permanent housing.

IMPROVING THE QUALITY OF EVIDENCE EXAMINING PSH AND HEALTH

RCTs are the gold standard in demonstrating intervention effects. When an RCT is well executed, it effectively controls for selection bias and other threats to internal validity. Some quasi-experimental comparison group designs (e.g., utilizing propensity score matching or regression discontinuity designs) are good choices when randomization is not feasible. To the extent that evidence rests on weaker quasi-experimental designs or other observational data, confidence in the causal effect of PSH on health outcomes is reduced.

The clinical trial process is lengthy and resource intensive. However, because trials to understand the effect of PSH have thus far shown inconsistencies and limited direct impact across most clinical health and behavioral health outcomes, and few studies have rigorously assessed cost-effectiveness, additional research using carefully executed designs could serve to bolster and refine understanding of health and cost outcomes. (See Chapter 4 for a discussion of research needed on cost-effectiveness of PSH.)

Several considerations should be made in planning and conducting future RCTs to ensure their thoroughness and rigor, and thus interpretability and value to decision making. Some researchers have argued the importance of process evaluations in understanding the implementation of interventions in the context of large social experiments (Epstein and Klerman, 2016) and have noted the importance of using more complex experimental designs to better understand how and whether specific components of complex interventions work (Bell and Peck, 2016). Generally, additional, high-quality research and RCTs would aid in achieving a comprehensive understanding of how, why, when, and specifically for whom PSH works and for what health outcomes.

As already noted, future trials should strive to implement a "standardized" or "minimum required" model of PSH as much as that is feasible, assess fidelity

to that model, and carefully assess the characteristics of services and housing received in all study conditions to facilitate interpretation of findings. Qualitative data should also be routinely collected and analyzed as part of future trials to enhance understanding of housing and services and the experiences of providers and clients in delivering and accessing services. Such data will assist in defining services and in elucidating "key ingredients" of PSH.

Additionally, as the review of experimental literature on health outcomes made clear in Chapter 3, reporting on health outcomes has been limited and focused primarily on utilization of services and selected chronic conditions. Future trials should perhaps focus on a broader range of mutable health outcomes and assess whether there are health conditions whose course and medical management are more significantly influenced than others by having safe and stable housing (i.e., "housing-sensitive" conditions). For example, as noted in Chapter 3, residents with HIV/AIDS in PSH have shown greater rates of survival with intact immunity (Buchanan et al., 2009), and resident well-being has also shown improvement over time (e.g., Aubry et al., 2015). Self-reported assessments of health, including perceived pain, are accepted measures in assessing quality in patient-centered care and may play a role in strengthening the evidence for the impact of PSH on health outcomes (Gordon et al., 2005; IOM, 2001). Self-reported assessments could include those that can be directly translated into the quality-adjusted life-years (QALYs), if there is a desire for better understanding of the cost-effectiveness analysis (CEA) principles. Chapter 3 includes recommendations related to the need for additional research on conditions that could be considered housing sensitive.

Additional consideration of populations and individual differences is warranted in efforts to understand the effect of PSH on health and costs of health care. Very little is known about the health impacts of PSH for populations such as youth and families, or about other permanent housing models, including for the majority of persons who experience homelessness but who are not chronically homeless. Health care should aim to reduce disparities in quality and access based on race, ethnicity, age, gender, and other characteristics, and should promote health equity (IOM, 2001; HHS, 2017). While the importance of considering individual differences in health and social needs is acknowledged in PSH models, differences based on characteristics such as race, ethnicity, culture, gender, and sexual orientation have not received as much attention (Waegemakers Schiff and Rook, 2012). In a review of U.S. Housing First studies, Waegemakers Schiff and Rook (2012) noted that none of the investigations had addressed issues of diversity and ethnicity, and that all of the investigations were conducted in major metropolitan areas and were focused on single adults, most of whom had a mental illness. The Canadian At Home/Chez Soi study included a small city, and modifications tailored to indigenous communities in one site. There is a need for integration of social determinants of health into disease-focused research.

Attention to culturally sensitive delivery of services might affect a resident's experience with housing and services and ultimately her or his health out-

comes (Netto, 2006; Hoeft et al., 2016; Diaz et al., 2017). Attention to characteristics that have been linked to health disparities is therefore important. Analysis of these characteristics as "effect modifiers" or moderating variables may facilitate refinement and tailoring of services, and aid in the interpretation of health outcomes reported within PSH studies. By systematically investigating the question, "What works best for whom?," quality of care and improved health outcomes might be better facilitated for all residents. Studies to address this question will require large sample sizes.

An additional consideration for future research and experimental studies is that variations in housing types and models, as well as service mix within studies, complicate interpretation of evidence. An inherent complexity in interpreting the impact of PSH on health outcomes lies in the variation across studies in housing characteristics and services associated with housing. As an example, some studies have evaluated Pathways Housing First programs while others have focused on other PSH approaches. Although there are similarities between the two, Pathways Housing First,[2] as strictly defined, refers to a specific model that embraces the elements of consumer choice and harm reduction, and utilizes the Assertive Community Treatment (ACT) model of psychiatric case management and service delivery (Tsemberis, 2015). A small amount of research has suggested that fidelity is not always maintained in implementation of the HF model (Gilmer et al., 2014). Other PSH approaches may further vary in level of adherence to elements of the specific Housing First model (Rog et al., 2014). The ACT model may not be needed by all PSH clients and more-flexible, less-intensive models should be developed and evaluated. For example, the Canadian At Home/Chez Soi study offered intensive case management rather than ACT teams to participants judged to have moderate needs.

An additional difference that may arise among PSH (and Housing First programs) is whether the housing provided to homeless clients is scattered site or single site. Future studies should account for housing types, models, and service mix to improve understanding of housing impact on health outcomes including for patients with chronic disease, and to ensure that "key ingredients" of PSH can be identified and included in scale-up efforts. When possible, studies should compare the effectiveness of different PSH models.

Built environment and neighborhood characteristics may also explain health outcomes. Individuals in PSH are nested within buildings and neighborhoods, where each of these levels may influence factors pertinent to health. Guidelines embraced by the Corporation for Supportive Housing state that physical aspects of housing should ensure a safe and attractive environment that promotes health of tenants (CSH, 2014b). Whether scattered site or single site, the quality and attributes of PSH and the characteristics of neighborhoods in which that housing is located may affect health outcomes and should be examined to understand the influence of PSH on health outcomes. Previous studies have found associations

[2]The language can be confusing. Although Pathways Housing First is a specific model, as defined above, it is sometimes referred to in the literature as Housing First.

between the characteristics of housing and risk of disease, injury, and mental health and well-being (Krieger and Higgins, 2002; Hwang et al., 2003; Osman et al., 2008; Ram et al., 2016). Characteristics of the neighborhood could either promote or hinder behaviors such as walking and healthy eating, which in turn affect health, yet studies have given scarce consideration to such factors in efforts to understand the association between PSH and health outcomes (Henwood et al., 2013). Research has not yet determined whether or to what extent characteristics of the built environment or neighborhood may moderate an effect of PSH on health outcomes. See Chapter 3 for recommendations related to the need for additional research on PSH and health.

APPLYING NEW TOOLS TO INTEGRATE AND LEARN FROM DATA SYSTEMS

As described in Chapter 7, siloed databases and data collection systems stand as barriers to decision making and policies that affect persons experiencing homelessness and the continuity of services they receive.

For many years, HUD's Homeless Management Information System (HMIS) has been the primary tool for collecting data at both the aggregate and the individual and family level. Grantees receiving HUD funds are required to input data into an HMIS. HUD created standards for local HMIS databases with its mission and priorities in the forefront. Thus, HMIS captures data into an HMIS database on housing-related outcomes, but only very minimal data on health outcomes or cost savings to other agencies. In turn, the data systems used in the health care field have not been designed to capture data on patients' housing status. However, HMIS data systems are local choices from many different vendors; these systems are not integrated from county to county, much less integrated at the national level. The metrics and databases used by these different systems are generally not compatible.

The U.S. Interagency Council on Homelessness (USICH) is leading an effort to improve and integrate data collection across federal agencies (USICH, 2015c). USICH reports that this includes efforts to increase the role of mainstream federal programs to assess and track housing status and homelessness, and to provide information to Medicaid agencies, health care providers, and hospitals on assessing homelessness and housing status, such as use of the Z59.0 homelessness diagnostic code in ICD-10 (USICH, 2015c).

Despite this progress, much work remains to be done to develop a common federal vocabulary and data standards regarding housing status across agencies and programs and then to link those data with outcomes in health and other domains.

In recent years, however, sophisticated efforts to utilize diverse administrative and archival data resources to diagnose, monitor, and enhance service systems and policies have increased. Abundant opportunities remain to apply "big data"

science in research to understand and address homelessness, particularly in enhancing understanding of the associations among PSH, health, health care, and costs.

According to the 2018 Bipartisan Policy Center report, "between the various programs operated by HUD and HHS, an immense amount of data is being collected on the housing and health conditions of the U.S. population. Matching and utilizing [those] data across programs is crucial to better aligning health and housing services and ensuring that federal investments are efficiently targeted to achieve the best results." The report goes on to recommend that "a formal data collaboration initiative between HUD and HHS could expand previous efforts, and better evaluate both local and federal opportunities to match datasets that overlap the health and housing nexus" (BPC, 2018).

In addition, the 21st Century Cures Act, signed into law in December 2016, may serve to further data integration and analysis efforts through its stipulations on the interoperability of health care data technology systems, including U.S. Department of Veterans Affairs (VA) and non-VA health and housing data, private and public claims data, criminal justice data, mortality data, etc. This, in turn, should facilitate better research.

BUILDING UNIVERSITY-AGENCY PARTNERSHIPS FOR BETTER DATA AND ANALYSIS

Individual agencies providing housing and supportive services to people who are currently experiencing homelessness or have formerly experienced homelessness typically lack sufficient resources for ongoing in-house performance monitoring and evaluation of client outcomes. Systematic, longitudinal studies following clients as they reside in permanent housing and access health and other services, for example, are rare outside of externally funded efforts initiated by researchers. Agency-initiated evaluations utilizing comparison groups are rarer still. Even the externally funded, researcher-initiated longitudinal control group designs that could prove valuable, for example, in understanding the effectiveness of PSH in addressing housing-sensitive symptoms and conditions (suggested in Chapter 3) are time limited by the grant award period. Additionally, an emphasis on scientific innovation in federally sponsored research, while critical for advancing science, may lead to an untoward consequence of hindering replication attempts and time extensions in longitudinal studies. These caveats argue for innovation and cultivation of alternative approaches in funding and conducting PSH research to enable longer-term, regular monitoring of health outcomes, programming, and costs.

University-agency partnerships may prove useful as an alternative or supplemental approach in monitoring the impact of PSH. Universities, as centers of diverse intellectual resources and other capital, are uniquely equipped to partner with and enhance the communities in which they are located. Indeed, some observers have argued that universities have a moral responsibility to serve their communities (Watson et al., 2011), and place-based community interventions in

partnership with universities have received increased support (Gewirtz, 2007; Bellamy et al., 2008). Models for building and maintaining university-agency partnerships exist in the field of child welfare for purposes of research, training, and promotion of effective policy (Zlotnick, 2010; Drabble et al., 2013). Such examples may prove helpful in developing partnerships for evaluation and policy surrounding PSH; providers in the committee's site visits voiced strong interest in such partnerships. Community-based participatory approaches are also relevant in that, when carefully followed, they promote equitable and beneficial experiences for community-based collaborators (Wallerstein and Duran, 2010).

TESTING INNOVATIONS IN PAYMENT MODELS TO SUPPORT HOUSING AND SERVICES

The Patient Protection and Affordable Care Act (ACA) has enhanced innovation and experimentation in using Medicaid dollars to improve health and contain health care costs among Medicaid recipients. Notably relevant to serving individuals experiencing homelessness through state-level managed care organizations is the flexibility in using Medicaid dollars for housing-related costs and "health homes," which support provision of integrated and coordinated primary and behavioral health care for disabled persons experiencing homelessness and other Medicaid recipients. A panel of experts convened through the Center for Health Care Strategies (Moses et al., 2016) issued a series of recommendations for enhancing access to housing and services for persons who are chronically homeless and Medicaid eligible. Their recommendations for further innovation in health care financing included testing the impact of different incentive arrangements in state managed care organizations on availability and access to coverage, and the effectiveness of extending coverage for housing-related services delivered in conjunction with health care.

PSH providers interviewed in site visits additionally noted the need for research to determine the most efficient means of ensuring continuity of integrated care and funding for care when clients transition from homelessness to one or more different PSH or other care settings over the years. Ensuring ongoing care across sites, systems, and the adult lifespan is increasingly important as homeless and formerly homeless populations grow older and require more medical services (Henwood et al., 2013; Brown et al., 2017).

Although future opportunities to pursue and test innovation in delivery of health care and Medicaid-reimbursable housing-related services for individuals experiencing homelessness through ACA and Medicaid expansion are unclear, research to demonstrate efficacy and effectiveness of efforts to increase quality and reduce costs of care for vulnerable populations in health plans will continue to be important. Determining effective and efficient "sharing" or braiding of Medicaid dollars and other funds is critical to the ongoing efforts to scale up PSH throughout the United States.

Research to enhance other means of cooperation and coordination across providers and systems of care to promote cost savings and quality is also critical

to the ongoing efforts to scale up PSH throughout the United States. As a case in point, the VA's experience in expanding supportive housing to veterans experiencing homelessness across different U.S. regions illustrates not only successes, but also specific and major challenges including increased staffing demands, need for greater coordination across systems, and rental market limitations (Austin et al., 2014). Research in public health and health care improvement initiatives has documented both the opportunities and challenges inherent in widespread implementation of programs (Spoth et al., 2013; Barker et al., 2016). Challenges argue for careful organizational and implementation research to understand and facilitate ongoing scale-up efforts for PSH. See Chapter 7 for recommendations related to how federal agencies can examine their policies and programs with the goal of maximizing flexibility and the coordinated use of funding streams for supportive services and health- and housing-related care and services.

CONCLUSIONS

PSH holds potential for reducing the number of persons experiencing chronic homelessness, although much additional research is needed to determine the effectiveness of PSH in improving health and to clarify for whom and in which circumstances it is most beneficial. There have been relatively few well-designed, high-quality research studies about the effectiveness of PSH for health, and the evidentiary base upon which conclusions in this regard can be drawn is incomplete and suffers from a paucity of health outcomes data, inconsistencies in the definition of terms, and limited descriptions of the characteristics of different PSH models. The evidence is limited in its ability to delineate key services and minimum standards of PSH and in predicting who is most likely to benefit from it. Additional randomized controlled trials, when ethically appropriate to undertake, could bolster and refine the evidence of the impact of PSH on health outcomes and health care costs. More partnerships between universities and PSH providers to perform evaluation and monitoring of health outcomes and costs, test innovative financing models for housing and services, and mine health data and homeless management information systems could fill in many of the research and data gaps.

9

Conclusions and Recommendations

Homelessness, and especially chronic homelessness, is a highly complex problem that communities across the country are struggling to address. Despite the diligent efforts of federal agencies and nonprofit and philanthropic organizations to develop and implement programs to address the challenges of homelessness, the large number of Americans who continue to experience homelessness makes clear that much remains to be done to solve this pressing societal problem.

Permanent supportive housing (PSH) is a housing model designed to primarily serve individuals and families experiencing chronic homelessness, a population having different needs from those individuals and families who experience acute episodic or temporary homelessness. This committee was charged to examine the connection between PSH and improved health outcomes, addressing the primary question, *"To what extent have permanent supportive housing programs improved health outcomes and affected health care costs in people experiencing chronic homelessness?"* This chapter offers the committee's overall conclusions about the evidence on the effect of PSH on health outcomes, as well as research and policy recommendations.

CONCLUSIONS

Evaluating the Impact of PSH on Health: Assessment and Limitations of the Evidence

During the course of the study, the committee examined the published and unpublished literature and conducted a variety of other data-gathering efforts, including site visits. The committee found that interpreting the research relevant to PSH and health outcomes was challenging because, as discussed in the report, common terms have different meanings within and between homelessness lexicons used by various agencies, nongovernmental organizations, researchers, and advocates (USICH, 2011). The lack of precise definitions of the housing models

reported upon and the paucity of detail about the exact nature and extent of supportive services provided in different housing models and in control or comparison groups further complicated the interpretation of reported findings.

In addition, data about PSH programs are generally siloed, uncoordinated, and fragmented. There are multiple barriers to collecting and sharing these data across agencies or programs, and there is a need for much greater interoperability of the data. The paucity of comparable data available across agencies makes it difficult to assess a variety of outcomes, and complicates efforts to provide the array of housing and social services that may be needed by individuals experiencing homelessness (Culhane, 2016). See Chapter 8 for an in-depth discussion of related research gaps.

On the basis of currently available studies, the committee found no substantial evidence that PSH contributes to improved health outcomes, notwithstanding the intuitive logic that it should do so and limited data showing that it does do so for persons with HIV/AIDS. There are significant limitations in the current research and evidentiary base on this topic. Most studies did not explicitly include people with serious health problems, who are the most likely to benefit from housing. Of the studies that were more rigorous, the committee found that, in general, housing increases the well-being of persons experiencing homelessness.

The committee found no substantial published evidence that PSH improves health; however, PSH increases an individual's ability to remain housed and plausibly alleviates a number of conditions that negatively impact health. However, few randomized controlled trials or other methodologically rigorous studies have evaluated the role of PSH in producing improved health outcomes. Consistent data in this regard are presently lacking. While the committee recognizes that there are moral and ethical reasons that make it problematic to carry out randomized controlled trials with this population, an overarching finding of this study is that more rigorous research is needed to determine how health outcomes per se are influenced by PSH. Different types of studies might pose fewer ethical concerns, such as stepped-wedge study designs, which are increasingly being used in the evaluation of health care research (Simmons et al., 2017).

Housing has long been acknowledged as a key social determinant of health, and extensive literature has accumulated over the past two centuries showing that housing is foundational for good health. The United Nations adopted the Universal Declaration of Human Rights in Paris in 1948 in response to the devastation of World War II, declaring that the right to housing was among the rights to which all humans should be entitled. The United States was among the 48 signatories of this declaration. More recently, safe housing was noted as fundamental to the health of populations by the World Health Organization's Commission on Social Determinants of Health (CSDH, 2008).

While safe, secure, and stable housing contributes to good health, there is extensive literature also showing it is not sufficient. The quality and location of housing make a difference. Robust public health studies have shown the untoward health consequences of inadequate housing, including asthma, the spread of communicable diseases, exposure to toxins such as lead and radon, injuries, childhood

malnutrition, mental health conditions, violence, and the harmful effects of air pollution. Population studies have also shown that a person's neighborhood matters a great deal with regard to health outcomes, with safe streets, safe schools, and economic opportunity essential for good health and well-being.

The committee acknowledges the importance of housing in improving health in general, but it also believes that some persons experiencing homelessness have health conditions for which failure to provide housing would result in a significant worsening of their health. Said differently, notwithstanding that housing is good for health in general, the committee believes that stable housing has an especially important impact on the course and ability to care for certain specific conditions and, therefore, the health outcomes of persons with those conditions. The committee refers to these conditions as "housing-sensitive" conditions and recommends that high priority be given to conducting research to further explore whether there are health conditions that fall into this category and, if so, what those specific conditions are. The evidence of the impact of housing on HIV/AIDS in individuals experiencing chronic homelessness may serve as a basis for more fully examining this concept. Chapter 3 describes the current research and the concept of housing-sensitive conditions in more detail.

Scaling Up PSH: Policy and Program Barriers

As part of its charge, the committee was asked to identify the "key policy barriers and research gaps associated with developing programs to address the housing and health needs of homeless populations." While the committee found no substantial published evidence that PSH improves health, the intervention increases an individual's ability to remain housed and that plausibly alleviates a number of conditions that negatively impact health. Based on its position that PSH holds potential for reducing the number of persons experiencing chronic homelessness and for improving their health outcomes, the committee describes the key policy and program barriers to bringing PSH and other housing models to scale to meet the needs of those experiencing chronic homelessness (discussed in greater detail in Chapter 7).

There are many barriers to bringing PSH to scale to meet the current level of need. As is often the case with housing and social service providers generally, PSH programs operate in an environment of scarcity with often inadequate and unreliable funding. The siloed nature of the programs and funding streams for PSH is an important barrier to scaling up. PSH providers working at the ground level to fulfill an already challenging mission are further challenged by the need to pool or braid together funding from multiple agencies and levels of government, each with its own requirements.

Multiple barriers also exist at the local level in meeting the need for PSH. As highlighted in the committee's site visits in Denver and San Jose (see Appendix D), operationalizing PSH programs is a very complicated and lengthy process, often taking many years to complete single-site projects. The high capital costs

and long development process are a substantive barrier to the replicability of successful programs. In the case of single-site PSH developments, myriad local land-use, permitting, and other regulatory barriers, which may be undergirded by prejudicial stereotypes and neighborhood opposition, makes land unavailable, leads to protracted delays, drives up development costs by as much as 20-35 percent, and generally impairs the efficiency of government assistance programs (see, e.g., van den Berk-Clark, 2016). Experts and government officials across the political spectrum have long recognized these barriers, but few of the many recommendations over the years for eliminating unnecessary regulatory barriers, streamlining processes, and more vigorously enforcing anti-discrimination laws have been implemented. Until such recommendations are effectively implemented, single-site PSH will not be a sufficient answer to address the need.

Scattered-site approaches, which generally make use of Housing Choice Vouchers (HCV) to lease existing housing stock, avoid some of the barriers relevant to single-site PSH and appear to offer promise for scaling up PSH in a shorter time. But scattered-site programs also face challenges when operating in high-priced housing markets and markets where state and local laws allow property owners to refuse to accept vouchers. It also can be more difficult for residents to access supportive services when not directly available on-site. Moreover, federal funding for the HCV program has been at best stable and at worse declining, forcing PSH providers and clients to compete with others on long waiting lists for vouchers.

RECOMMENDATIONS

The committee developed the following recommendations based on its assessment of the evidence that it hopes will guide research and federal action on this issue. The recommendations flow from the specific questions posed to the committee in the statement of task, including research needs related to assessing PSH and health outcomes, the cost-effectiveness of PSH, and key policy and program barriers to bringing PSH and other housing models to scale to meet the needs of those experiencing chronic homelessness.

Recommendation 3-1: Research should be conducted to assess whether there are health conditions whose course and medical management are more significantly influenced than others by having safe and stable housing (i.e., *housing-sensitive conditions*). This research should include prospective longitudinal studies, beyond 2 years in duration, to examine health and housing data that could inform which health conditions, or combinations of conditions, should be considered especially housing sensitive. Studies also should be undertaken to clarify linkages between the provision of both permanent housing and supportive services and specific health outcomes. **(See Chapter 3.)**

Recommendation 3-2: The Department of Health and Human Services, in collaboration with the Department of Housing and Urban Development, should call

for and support a convening of subject matter experts to assess how research and policy could be used to facilitate access to permanent supportive housing and ensure the availability of needed support services, as well as facilitate access to health care services. **(See Chapter 3.)**

Recommendation 4-1: Incorporating current recommendations on cost-effectiveness analysis in health and medicine (Sanders et al., 2016), standardized approaches should be developed to conduct financial analyses of the cost-effectiveness of permanent supportive housing in improving health outcomes. Such analyses should account for the broad range of societal benefits achieved for the costs, as is customarily done when evaluating other health interventions. **(See Chapter 4.)**

Recommendation 4-2: Additional research should be undertaken to address current research gaps in cost-effectiveness analysis and the health benefits of permanent supportive housing. **(See Chapter 4.)**

Recommendation 5-1: Agencies, organizations, and researchers who conduct research and evaluation on permanent supportive housing should clearly specify and delineate: (1) the characteristics of supportive services, (2) what exactly constitutes "usual services" (when "usual services" is the comparator), (3) which range of services is provided for which groups of individuals experiencing homelessness, and (4) the costs associated with those supportive services. Whenever possible, studies should include an examination of different models of permanent supportive housing, which could be used to elucidate important elements of the intervention. **(See Chapter 5.)**

Recommendation 5-2: Based on what is currently known about services and housing approaches in permanent supportive housing (PSH), federal agencies, in particular the Department of Housing and Urban Development, should develop and adopt standards related to best practices in implementing PSH. These standards can be used to improve practice at the program level and guide funding decisions. **(See Chapter 5.)**

Recommendation 7-1: The Department of Housing and Urban Development and the Department of Health and Human Services should undertake a review of their programs and policies for funding permanent supportive housing with the goal of maximizing flexibility and the coordinated use of funding streams for supportive services, health-related care, housing-related services, the capital costs of housing, and operating funds such as Housing Choice Vouchers. **(See Chapter 7.)**

Recommendation 7-2: The Centers for Medicare & Medicaid Services should clarify the policies and procedures for states to use to request reimbursement for allowable housing-related services, and states should pursue opportunities to ex-

pand the use of Medicaid reimbursement for housing-related services to beneficiaries whose medical care cannot be well provided without safe, secure, and stable housing. **(See Chapter 7.)**

Recommendation 7-3: The Department of Health and Human Services and the Department of Housing and Urban Development, working with other concerned entities (e.g., nonprofit and philanthropic organizations and state and local governments) should make concerted efforts to increase the supply of PSH for the purpose of addressing both chronic homelessness and the complex health needs of this population. These efforts should include an assessment of the need for new resources for the components of PSH, such as health care, supportive services, housing-related services, vouchers, and capital for construction. **(See Chapter 7.)**

Chronic homelessness and related health conditions are problems that require an appropriate multidimensional strategy and an ample menu of targeted interventions that are premised on a resolute commitment of resources. More precisely defined and focused research to refine the menu of needed interventions, and a materially increased supply of PSH are part of the multidimensional strategy. The committee hopes that this report will help to stimulate research and federal action to move the field forward and further efforts to address chronic homelessness and improved health in this country.

References

ACL (Administration for Community Living, U.S. Department of Health and Human Services). 2014. Guidance to HHS Agencies for Implementing Principles of Section 2402(a) of the Affordable Care Act: Standards for Person-Centered Planning and Self-Direction in Home and Community-Based Services Programs. Available at https://www.acl.gov/sites/default/files/about-acl/2017-04/2402-a-Guidance.pdf. Accessed March 30, 2018.

Adair, C. E., B. Kopp, J. Distasio, S. W. Hwang, J. Lavoie, S. Veldhuizen, J. Voronka, A. F. Kaufman, J. M. Somers, S. R. LeBlanc, S. Cote, S. Addorisio, D. Matte, and P. Goering. 2016. Housing quality in a randomized controlled trial of Housing First for homeless individuals with mental illness: Correlates and associations with outcomes. *Journal of Urban Health* 93(4):682-697.

Advisory Commission on Regulatory Barriers to Affordable Housing. 1991. *Not in My Back Yard: Removing Barriers to Affordable Housing.* Report to President Bush and Secretary Kemp. Washington, DC: U.S. Department of Housing and Urban Development. Available at https://www.huduser.gov/Publications/pdf/NotInMyBackyard.pdf. Accessed February 27, 2017.

Aidala, A. A., L. Gunjeong, D. M. Abramson, P. Messeri, and A. Siegler. 2007. Housing need, housing assistance, and connection to HIV medical care. *AIDS and Behavior* 11(6):101-115.

Aidala, A. A., W. McAllister, M. Yomogida, and V. Shubert. 2003. *Frequent Users Service Enhancement "Fuse" Initiative: New York City Fuse II Evaluation Report.* New York: Columbia University Mailman School of Public Health.

Aidala, A. A., M. G Wilson, V. Shubert, D. Gogolishvili, J. Globerman, S. Rueda, A. K. Bozack, M. Caban, and S. B. Rourke. 2016. Housing status, medical care, and health outcomes among people living with HIV/AIDS: A systematic review. *American Journal of Public Health* 106:e1-e23.

Altena, A. M., S. N. Brilleslijper-Kater, and J. L. Wolf. 2010. Effective interventions for homeless youth: A systematic review. *American Journal of Preventive Medicine* 38(6):637-645.

American College of Medical Quality. 2010. Policy 8: Definition and Application of Medical Necessity. Available at http://www.acmq.org/policies/policy8.pdf. Accessed May 23, 2017.

American College of Obstetricians and Gynecologists. 2013. Health Care for Homeless Women. Committee Opinion 576. Available at https://www.acog.org/-/media/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/co576.pdf?dmc=1&ts=20180424T1835042016. Accessed April 24, 2018.

American Planning Association. 2003. APA Policy Guide on Homelessness. Available at https://planning.org/policy/guides/adopted/homelessness.htm. Accessed February 27, 2017.

Asgary, R., V. Garland, A. Jakubowski, and B. Sckell. 2014. Colorectal cancer screening among the homeless population of New York City shelter-based clinics. *American Journal of Public Health* 104(7):1307-1313.

Aubry, T., S. Tsemberis, C. E. Adair, S. Veldhuizen, S. D. Streiner, E. Latimer, J. Sareen, M. Patterson, K. McGarvey, B. Kopp, and C. Hume. 2015. One-year outcomes of a randomized controlled trial of Housing First with ACT in five Canadian cities. *Psychiatric Services* 66(5):463-469.

Aubry, T., P. Goering, S. Veldhuizen, C. E. Adair, J. Bourque, J. Distasio, E. Latimer, V. Stergiopoulos, J. Somers, D. L. Streiner, and S. Tsemberis. 2016. A multiple-city RCT of Housing First with Assertive Community Treatment for homeless Canadians with serious mental illness. *Psychiatric Services* 67(3):275-281.

Auerswald, C. L., J. S. Lin, and A. Parriott. 2016. Six-year mortality in a street-recruited cohort of homeless youth in San Francisco, California. *Peer J* 4:e1909; doi:10.7717/peerj.1909.

Austin, E. L., D. E. Pollio, S. Holmes, J. Schumacher, B. White, C. V. Lukas, and S. Kertesz. 2014. VA's expansion of supportive housing: Successes and challenges on the path toward Housing First. *Psychiatric Services* 65(5):641-647.

Baggett, T. P., J. J. O'Connell, D. E. Singer, and N. A. Rigotti. 2010. The unmet health care needs of homeless adults: A national study. *American Journal of Public Health* 100(7):1326-1333.

Baggett, T. P., S. W. Hwang, J. J. O'Connell, B. C. Porneala, E. J. Stringfellow, E. J. Orav, D. E. Singer, and N. A. Rigotti. 2013. Mortality among homeless adults in Boston: Shifts in causes of death over a 15-year period. *JAMA Internal Medicine* 173(3):189-195.

Baker, T., and J. Evans. 2016. "Housing First" and the changing terrains of homeless governance. *Geography Compass* 10(1):25-41.

Bamberger, J. 2016. Reducing homelessness by embracing housing as a Medicaid benefit. *JAMA Internal Medicine* 176(8):1051-1052.

Bamberger, J. D., and S. K. Dobbins. 2015. A research note: Long-term cost effectiveness of placing homeless seniors in permanent supportive housing. *Cityscape* 17(2):269-277.

Barker, P. M., A. Reid, and M. W. Schall. 2016. A framework for scaling up health interventions: Lessons from large-scale improvement initiatives in Africa. *Implementation Science* 11(12):1-11.

Barker, S., N. Barron, B. H. McFarland, D. A. Bigelow, and T. Carnahan. 1994. A community ability scale for chronically mentally ill consumers: Part II. Applications. *Community Mental Health Journal* 30(5):459-472.

Barnes, S. 2012. *Review of Trends, Policies, Practices and Implications of Scattered Site Housing*. Toronto, Canada: Wellesley Institute.

Barr, A. 2004. Evaluation Research: A. A qualitative evaluation of a supported housing program for homeless persons with severe mental illness. Pp. 147-156 in *The Qualitative Research Experience,* D. K. Padgett, ed. Belmont, CA: Thomson Learning.

Basu, A., R. Kee, D. Buchanan, and L. S. Sadowski. 2012. Comparative cost analysis of housing and case management program for chronically ill homeless adults compared to usual care. *Health Services Research* 47(1, Part 2):523-543

Bassuk, E. L., and S. Geller. 2006. The role of housing and services in ending family homelessness. *Housing Policy Debate* 17(4):781-806.

Bassuk, E. L., A. DeCandia, A. Tsertsvadze, and M. K. Richard. 2014. The effective of housing interventions and housing and service interventions on ending family homelessness: A systematic review. *American Journal of Orthopsychiatry* 84(5):457-474.

Bean, K. F., M. S. Shafer, and M. Glennon. 2013. The impact of housing first and peer support on people who are medically vulnerable and homeless. *Psychiatric Rehabilitation Journal* 36(1):48-50.

Bell, S. H., and L. R. Peck. 2016. On the "how" of social experiments: Experimental designs for getting inside the black box. *New Directions for Evaluation* 152:97-107.

Bellamy, J. L., S. E. Bledsoe, E. J. Mullen, L. Fang, and J. I. Manuel. 2008. Agency–university partnership for evidence-based practice in social work. *Journal of Social Work Education* 44:55-76.

Bernstein, R. S., L. M. Meurer, E. J. Plumb, and J. L. Jackson. 2015. Diabetes and hypertension prevalence in homeless adults in the United States: A systematic review and meta-analysis. *American Journal of Public Health* 105(2):e46-e60.

Bowen, E. A. 2016. A multilevel ecological model of HIV risk for people who are homeless or unstably housed and who use drugs in the urban United States. *Social Work in Public Health* 31(4):264-275.

BPC (Bipartisan Policy Center). 2013. *Housing America's Future: New Directions for National Policy*. Available at http://bipartisanpolicy.org/wp-content/uploads/sites/default/files/BPC_Housing%20Report_web_0.pdf. Accessed February 27, 2017.

BPC. 2018. *HUD-HHS Partnerships: A Prescription for Better Health*. Available at https://bipartisanpolicy.org/library/hud-hhs-partnerships-a-prescription-for-better-health. Accessed June 7, 2018.

Brown, R. T., D. K. Kiely, M. Bharel, and S. L. Mitchell. 2012. Geriatric syndromes in older homeless adults. *Journal of General Internal Medicine* 27(1):16-22.

Brown, R. T., M. L. Thomas, D. F. Cutler, and M. Hinderlie. 2013. Meeting the housing and care needs of older homeless adults: A permanent supportive housing program targeting homeless elders. *Seniors Housing & Care Journal* 21(1):126-135.

Brown, R. T., K. Hemati, E. D. Riley, C. T. Lee, C. Ponath, L. Tieu, D. Guzman, and M. B. Kushel. 2017. Geriatric conditions in a population-based sample of older homeless adults. *The Gerontologist* 57(4):757-766.

Buchanan, D., R. Kee, L. S Sadowski, and D. Garcia. 2009. The health impact of supportive housing for HIV-positive homeless patients: A randomized controlled trial. *American Journal of Public Health* 99(Suppl 3):S675-S680.

Building Changes. 2011. Washington Families Fund High-Needs Family Program: Six Month Evaluation Findings. Available at http://buildingchanges.org/images/documents/library/2011%20WFF%20High-Needs%20Family%206-Mo%20Eval%20Findings.pdf. Accessed November 23, 2016.

Buitrago, K. 2016. *Supporting a Health Home: An Analysis of Opportunities and Barriers to Medicaid for Permanent Supportive Housing Providers in Illinois.* Chicago: Social IMPACT Research Center. Available at http://www.issuelab.org/resource/supporting_a_healthy_home_an_analysis_of_opportunities_and_barriers_to_medicaid_for_permanent_supportive_housing_providers_in_illinois. Accessed February 27, 2017.

Burt, M. R., J. Carpenter, S. G. Hall, K. A. Henderson, D. J. Rog, J. A. Hornik, A. V. Denton, and G. E. Moran. 2010. *Strategies for Improving Homeless People's Access to Mainstream Benefits and Services.* Washington, DC: U.S. Department of Housing and Urban Development Office of Policy Development and Research.

Burt, M., C. Wilkins, and G. Locke. 2014. *Medicaid and Permanent Supportive Housing for Chronically Homeless Individuals: Emerging Practices from the Field.* Prepared by Abt Associates for Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, Washington, DC. Available at https://aspe.hhs.gov/system/files/pdf/77116/EmergPrac.pdf. Accessed February 23, 2017.

Byrne, T., J. Fargo, A. E. Montgomery, E. Munley, and D. P. Culhane. 2014. The relationship between community investment in permanent supportive housing and chronic homelessness. *Social Service Review* 88(2):234-263.

Caminal, J., B. Starfield, E. Sánchez, C. Casanova, and M. Morales. 2004. The role of primary care in preventing ambulatory care sensitive conditions. *European Journal of Public Health* 14:246-251.

Caton, C. L. M., C. Wilkins, and J. Andersen. 2007. People who experience long-term homelessness. Chapter 4 in *Toward Understanding Homelessness: The 2007 National Symposium on Homelessness Research,* D. Dennis, G. Locke, and J. Khadduri, eds. Department of Health and Human Services and U.S. Department of Housing and Urban Development. Available at https://aspe.hhs.gov/execsum/toward-understanding-homelessness-2007-national-symposium-homelessness-research. Accessed September 28, 2017.

CDC (Centers for Disease Control and Prevention). 2012a. Notes from the field: Tuberculosis cluster associated with homelessness—Duval County, Florida, 2004-2012. *Morbidity and Mortality Weekly Report* 61(28):539-540.

CDC. 2012b. Tuberculosis outbreak associated with homeless shelter—Kane County, Illinois, 2007-2011. *Morbidity and Mortality Weekly Report* 61(11):186-189.

CDC. 2016. Well-Being Concepts. Available at http://www.cdc.gov/hrqol/well-being.htm. Accessed December 5, 2016.

Chak, E., A. H. Talal, K. E. Sherman, E. R. Schiff, and S. Saab. 2011. Hepatitis C virus infection in USA: An estimate of true prevalence. *Liver International* 31(8):1090-1101.

Chambers, L. A., S. Greene, J. Watson, S. B. Rourke, R. Tucker, J. Koornstra, M. Sobota, S. Hwang, K. Hambly, and D. O'Brien-Teengs. 2014. Not just "a roof over your head": The meaning of healthy housing for people living with HIV. *Housing, Theory and Society* 31(3):310-333.

Chau, S., M. Chin, J. Chang, A. Luecha, E. Cheng, J. Schlesinger, V. Rao, D. Huang, A. E. Maxwell, R. Usatine, R. Bastani, and L. Gelberg. 2002. Cancer risk behaviors and screening rates among homeless adults in Los Angeles County. *Cancer Epidemiology, Biomarkers & Prevention* 11(5):431-438.

Cheng, A. L., H. Q. Lin, W. Kasprow, and R. A. Rosenheck. 2007. Impact of supported housing on clinical outcomes: Analysis of a randomized trial using multiple imputation technique. *Journal of Nervous and Mental Disease* 195(1):83-88.

Cheung A., J. M. Somers, A. Moniruzzaman, M. Patterson, C. J. Frankish, M. Krausz, and A. Palepu. 2015. Emergency department use and hospitalizations among homeless adults with substance dependence and mental disorders. *Addiction Science & Clinical Practice* 10(17).

Chung, T. E., A. Gozdzik, L. I. Palma Lazgare, M. J. To, T. Aubry, J. Frankish, S. W. Hwang, and V. Stergiopoulos. 2018. Housing First for older homeless adults with mental illness: A subgroup analysis of the At Home/Chez Soi randomized controlled trial. *International Journal of Geriatric Psychiatry* 33:85-95.

Clifasefi, S. L., S. E. Collins, N. I. Torres, V. S. Grazioli, and J. L. Mackelprang. 2016. Housing First, but what comes second? A qualitative study of resident, staff, and management perspectives on single-site Housing First program enhancement. *Journal of Community Psychology* 44(7):845-855.

CMS (Centers for Medicare & Medicaid Services). 2015. Coverage of Housing-Related Activities and Services for Individuals with Disabilities. CMCS Informational Bulletin. Available at https://www.medicaid.gov/federal-policy-guidance/downloads/CIB-06-26-2015.pdf. Accessed April 27, 2017.

CMS. 2018. 2019 Medicare Advantage and Part D Rate Announcement and Call Letter. Available at https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2018-Fact-sheets-items/2018-04-02-2.html. Accessed April 28, 2018.

Coates, J., and S. McKenzie-Mohr. 2010. Out of the frying pan, into the fire: Trauma in the lives of homeless youth prior to and during homelessness. *Journal of Sociology & Social Welfare* 37:65-96.

Cohen, D., T. Huynh, A. Sebold, J. Harvey, C. Neudorf, and A. Brown. 2014. The population health approach: A qualitative study of conceptual and operational definitions for leaders in Canadian healthcare. *SAGE Open Medicine* 2; doi: 10.1177/2050312114522618.

Collins, S. E., D. K. Malone, and S. L. Clifasefi. 2013. Housing retention in single-site Housing First for chronically homeless individuals with severe alcohol problems. *American Journal of Public Health* 103(2):S269-S274.

Community Strategies Institute. 2016. *Boulder County Permanent Supportive Housing Study.* Prepared for the Boulder County Consortium of Cities. Available at http://www.bouldercounty.org/doc/bocc/consortiumpshfinalreportjune%202016.pdf. Accessed February 23, 2017.

CORE (Center for Outcomes Research and Education). 2013. *Integrating Housing & Health: A Health-Focused Evaluation of the Apartments at Bud Clark.* Portland, OR: Providence Health & Services.

Crawford, D. M., E. C. Trotter, K. J. Sittner Hartshorn, and L. B. Whitbeck. 2011. Pregnancy and mental health of young homeless women. *American Journal of Orthopsychiatry* 81(2):173-183.

CSDH (Commission on Social Determinants of Health). 2008. *Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health. Final Report.* Geneva, Switzerland: World Health Organization.

CSH (Corporation for Supportive Housing). 2011. *Ending Homelessness Among Older Adults and Elders Through Permanent Supportive Housing.* Revised Policy Paper prepared for the National Leadership Initiative to End Elder Homelessness, December 2011. Available at http://www.csh.org/wp-content/uploads/2012/01/Report_EndingHomelessnessAmongOlderAdultsandSeniorsThroughSupportiveHousing_112.pdf. Accessed December 16, 2016.

CSH. 2014a. Housing is the Best Medicine: Supportive Housing and the Social Determinants of Health. Available at http://www.csh.org/wp-content/uploads/2014/07/SocialDeterminantsofHealth_2014.pdf. Accessed May 23, 2017.

CSH. 2014b. New York State and CMS Finalize $8B Medicaid Waiver. Available at http://www.csh.org/2014/04/new-york-state-cms-finalize-8b-medicaid-waiver. Accessed February 27, 2017.

CSH. 2015. *10th Decile Project, Los Angeles, CA.* Available at http://www.csh.org/wp-content/uploads/2015/10/Frequent-User-Initiative-Profile-Booklet-10th-Decile-Project-Final.pdf. Accessed April 4, 2018.

CSH. 2016a. *Guide to Service Funding in Supportive Housing.* Available at http://www.csh.org/wp-content/uploads/2016/11/Guide-to-Service-Funding-in-Supportive-Housing_11.2016-CSH-FINAL.pdf. Accessed February 23, 2017.

CSH. 2016b. Older Adults and the Elderly. Available at http://www.csh.org/csh-solutions/serving-vulnerable%20populations/older-adults. Accessed December 1, 2016.

Culhane, D. P. 2016. The potential of linked administrative data for advancing homelessness research and policy. *European Journal of Homelessness* 10(3):109-126. Available at http://works.bepress.com/dennis_culhane/209. Accessed May 8, 2018.

Culhane, D. P., S. Metraux, and T. Hadley. 2002. Public service reductions associated with placement of homeless persons with severe mental illness in supportive housing. *Housing Policy Debate* 13(1):107-163.

Culhane, J. F., D. Webb, S. Grim, S. Metraux, and D. Culhane. 2003. Prevalence of child welfare services involvement among homeless and low-income mothers: A five-year birth cohort study. *Journal of Sociology & Social Welfare* 30(3):79-95.

Culhane, D. P., J. M. Park, and S. Metraux. 2011. The patterns and costs of services use among homeless families. *Journal of Community Psychology* 39(7):815-825.

Culhane, D. P., S. Metraux, T. Byrne, M. Stino, and J. Bainbridge. 2013. The age structure of contemporary homelessness: Evidence and implications for public policy. *Analyses of Social Issues and Public Policy* 13:228-244.

Cunningham, M. K., M. Pergait, M. McDaniel, M. E. Gearing, S. Zhang, and B. Howell. 2014. *Supportive Housing for High-Need Families in the Child Welfare System.* The Urban Institute. Available at http://www.urban.org/research/publication/supportive-housing-high-need-families-child-welfare-system/view/full_report. Accessed June 5, 2017.

Cutuli, J. J., A. E. Montgomery, M. Evans-Chase, and D. P. Culhane. 2015. Childhood adversity, adult homelessness and the intergenerational transmission of risk: A population-representative study of individuals in households with children. *Child & Family Social Work* 22(1):116-125.

Davidson, C., C. Neighbors, G. Hall, A. Hogue, R. Cho, B. Kutner, and J. Morgenstern. 2014. Association of Housing First implementation and key outcomes among homeless persons with problematic substance use. *Psychiatric Services* 65(11):1318-1324.

Desmond, M. 2015. Unaffordable America: Poverty, housing, and eviction. *Fast Focus* 22. Available at https://www.irp.wisc.edu/publications/fastfocus/pdfs/FF22-2015.pdf. Accessed March 30, 2018.

Desmond, M. 2016. *Evicted: Poverty and Profit in the American City.* New York: Crown.

Diaz, E., L. Anez, M. Silva, M. Paris, and L. Davidson. 2017. Using the cultural formulation interview to build culturally sensitive services. *Psychiatric Services* 68(2):112-114.

Dickerson, F. B., A. E. Origoni, A. Pater, B. K. Friedman, and W. M. Kordonski. 2003. An expanded version of the Multnomah Community Ability Scale: Anchors and interview probes for the assessment of adults with serious mental illness. *Community Mental Health Journal* 39(2):131-137.

Dickey, B., O. Gonzalez, E. Latimer, K. Powers, R. Schutt, and S. Goldfinger. 1996. Use of mental health services by formerly homeless adults residing in group and independent housing. *Psychiatric Services* 47(2):152-158.

Diener, E., ed. 2009. *Assessing well-being: The collected works of Ed Diener.* New York: Springer.

Diener, E., and M. E. Seligman. 2004. Beyond money. Toward an economy of well-being. *Psychological Science in the Public Interest* 5(1):1-31.

Dirmyer, V. F. 2015. The frequent fliers of New Mexico: Hospital readmissions among the homeless population. *Social Work in Public Health* 31(4):288-289.

Doe-Simkins, M., E. Quinn, Z. Xuan, A. Sorensen-Alawad, H. Hackman, A. Ozonoff, and A.Y. Walley. 2014. Overdose rescues by trained and untrained participants and change in opioid use among substance-using participants in overdose education and naloxone distribution programs: A retrospective cohort study. *BMC Public Health* 14:297.

Doherty, M. 2017. *Setting the Course for the Work Ahead: Findings and Implications from Recent Reports and Data.* Washington, DC: U.S. Interagency Council on Homelessness. Available at https://www.usich.gov/resources/uploads/asset_library/Data_Findings_Implications_012017.pdf. Accessed February 27, 2017.

DOJ (U.S. Department of Justice, Office of Public Affairs). 2015. Justice Department Files Brief to Address the Criminalization of Homelessness. Available at https://www.justice.gov/opa/pr/justice-department-files-brief-address-criminalization-homelessness. Accessed February 27, 2017.

Doran, K. M., A. A. Vashi, S. Platis, L. A. Curry, M. Rowe, M. Gang, and F. E. Vaca. 2013. Navigating the boundaries of emergency department care: Addressing the medical and social needs of patients who are homeless. *American Journal of Public Health* 103(S2):S355-S360.

Drabble, L., K. Lemon, A. D'Andrade, B. Donoviel, and J. Le. 2013. Child welfare partnership for research and training: A Title IV-E university/community collaborative research model. *Journal of Public Child Welfare* 7:411-429.

Durkheim, E. 1997. *Division of Labor in Society.* New York: Free Press.

Durso, L.E., and G. L. Gates. 2012. *Serving Our Youth: Findings from a National Survey of Service Providers Working with Lesbian, Gay, Bisexual, and Transgender Youth Who Are Homeless or at Risk of Becoming Homeless.* Los Angeles: The Williams Institute.

Dworsky, A., K.-N. Dillman, M. R. Dion, B. Coffee-Borden, and M. Rosenau. 2012. *Housing for Youth Aging Out of Foster Care: A Review of the Literature and Program Typology.* Prepared for the U.S. Department of Housing and Urban Development, Office of Policy Development and Research. Washington, DC: Mathematica Policy Research.

Dworsky, A., L. Napolitano, and M. Courtney. 2013. Homelessness during the transition from foster care to adulthood. *American Journal of Public Health* 103(Suppl 2):S318-S323.

Edens, E. L., A. S. Mares, J. Tsai, and R. A. Rosenheck. 2011. Does active substance use at housing entry impair outcomes in supported housing for chronically homeless persons? *Psychiatric Services* 62(2):171-178.

Edidin, J. P., Z. Ganim, S. J. Hunter, and N. S. Karnik. 2012. The mental and physical health of homeless youth: A literature review. *Child Psychiatry and Human Development* 43(3):354-375.

Endres, C., and M. Cidade. 2015. *Federal Data Summary: School Years 2011-12 to 2013-14. Education for Homeless Children and Youth.* Greensboro, NC: National Center for Homeless Education. Available at https://www2.ed.gov/programs/homeless/data-comp-sy13-14.pdf. Accessed June 5, 2017.

Epstein, D., and J. A. Klerman. 2016. On the "when" of social experiments: The tension between program refinement and abandonment. *New Directions for Evaluation* 152:33-45.

Farrell, A., P. A. Britner, M. Guzzardo, and S. Goodrich. 2010. Supportive housing for families in child welfare: Client characteristics and their outcomes at discharge. *Children and Youth Services Review* 32:145-154.

Farrugia, D., and J. Gerrard. 2015. Academic knowledge and contemporary poverty: The politics of homelessness research. *Sociology* 50(2):267-284.

Fazel, S., V. Khosla, H. Doll, and J. Geddes. 2008. The prevalence of mental disorders among the homeless in western countries: Systematic review and meta-regression analysis. *PLoS Medicine* 5(12):1670-1681.

Fazel, S., J. R. Geddes, and M. Kushel. 2014. The health of homeless people in high-income countries: Descriptive epidemiology, health consequences, and clinical and policy recommendations. *The Lancet* 384(9953):1529-1540.

FEANTSA (European Federation of National Organisations Working with the Homeless). 2018. *ETHOS Typology on Homelessness and Housing Exclusion.* Available at http://www.feantsa.org/en/toolkit/2005/04/01/ethos-typology-on-homelessness-and-housing-exclusion. Accessed May 14, 2018.

Ferguson, K. M. 2009. Exploring family environment and multiple abuse experiences among homeless youth. *Journal of Interpersonal Violence* 24:1875-1891.

Ferguson, K. M., and E. M. Maccio. 2016. Promising programs for lesbian, gay, bisexual, transgender, and queer/questioning runaway and homeless youth. *Journal of Social Service Research* 41(5):659-683.

Fingar, K. R., M. L. Barrett, A. Elixhauser, C. Stocks, and C. A. Steiner. 2015. Trends in Potentially Preventable Inpatient Hospital Admissions and Emergency Department Visits. Statistical Brief 195. Rockville, MD: Agency for Healthcare Research and Quality. Available at https://www.hcup-us.ahrq.gov/reports/statbriefs/sb195-Potentially-Preventable-Hospitalizations.jsp.

Fitzpatrick-Lewis, D., R. Ganann, S. Krishnaratne, D. Ciliska, F. Kouyoumdjian, and S. W. Hwang. 2011. Effectiveness of interventions to improve the health and housing status of homeless people: A rapid systematic review. *BMC Public Health* 11:638.

Fowler, P. J., and D. Chavira. 2014. Family Unification Program: Housing services for homeless child welfare-involved families. *Housing Policy Debate* 24(4):802-814.

Fukuzawa, D. D., and F. Karnas. 2015. Reconnecting health and housing: Philanthropy's new opportunity. *Environmental Justice* 8(3):86-94.

Gabrielian, S., A. H. Yuan, R. M. Andersen, and L. Gelberg. 2016. Diagnoses treated in ambulatory care among homeless-experienced veterans: Does supported housing matter? Journal of Primary Care and Community Health 7(4):281-287.

GAO (U.S. General Accounting Office). 1997. Housing for Persons with AIDS. Report to the Subcommittee on VA, HUD and Independent Agencies. Committee on Appropriations, House of Representatives. GAO/RCED-97-62. Washington, DC: GAO.

GAO. 2002. *Federal Housing Assistance: Comparing the Characteristics and Costs of Housing Programs.* Available at http://www.gao.gov/assets/240/233652.pdf. Accessed April 27, 2017.

Garibaldi, B., A. Conde-Martel, and T. P. O'Toole. 2005. Self-reported comorbidities, perceived needs, and sources for usual care for older and younger homeless adults. *Journal of General Internal Medicine* 20(8):726-730.

Gee, A. 2016. More than one-third of schoolchildren are homeless in shadow of Silicon Valley. *The Guardian*. December 28. Available at https://www.theguardian.com/society/2016/dec/28/silicon-valley-homeless-east-palo-alto-california-schools. Accessed February 27, 2017.

Gewirtz, A. H. 2007. Promoting children's mental health in family supportive housing: A community-university partnership for formerly homeless children and families. *Journal of Primary Prevention* 28:359-374.

Gewirtz, A., E. Hart-Shegos, and A. Medhanie. 2008. Psychosocial status of homeless children and youth in family supportive housing. *American Behavioral Scientist* 51(6):810-823.

Gewirtz, A. H., D. S. DeGarmo, S. Lee, N. Morrell, and G. August. 2015. Two-year outcomes of the Early Risers prevention trial with formerly homeless families residing in supportive housing. *Journal of Family Psychology* 29(2):242-252.

Gibbons, D. C., A. B. Bindman, M. A. Soljak, C. Millett, and A. Majeed. 2012. Defining primary care sensitive conditions: A necessity for effective primary care delivery? *Journal of the Royal Society of Medicine* 105(10):422-428.

Gilmer, T. P. 2016. Permanent supportive housing for transition-age youths: Service costs and fidelity to the Housing First model. *Psychiatric Services* 67(6):615-621.

Gilmer, T. P., W. G. Manning, and S. L. Ettner. 2009. A cost analysis of San Diego County's REACH program for homeless persons. *Psychiatric Services* 60(4):445-450.

Gilmer, T. P., A. Stefancic, B. F. Henwood, and S. L. Ettner. 2014. Fidelity to the Housing First model and variation in health service use within permanent supportive housing. *Psychiatric Services* 66(12):1283-1289.

Goering, P., S. Veldhuizen, G. B. Nelson, A. Stefancic, S. Tsemberis, C. E. Adair, J. Distasio, T. Aubry, V. Stergiopoulos, and D. L. Steiner. 2016. Further validation of the Pathways Housing First fidelity scale. *Psychiatric Services* 67:111-114.

Goldfinger, S. M., R. K. Schutt, G. S. Tolomiczenko, L. Seidman, W. E. Penk, W. Turner, and B. Caplan. 1999. Housing placement and subsequent days homeless among formerly homeless adults with mental illness. *Psychiatric Services* 50(5):674-679.

Gordon, D. B., J. L. Dahl, C. Miaskowski, B. McCarberg, K. H. Todd, J. A. Paice, A. G. Lipman, M. Bookbinder, S. H. Sanders, D. C. Turk, and D. B. Carr. 2005. American Pain Society recommendations for improving the quality of acute and cancer pain management: American Pain Society Quality of Care Task Force. *Archives of Internal Medicine* 165(14):1574-1580.

Gozdzik, A., R. Salehi, P. O'Campo, V. Stergiopoulos, and S. W. Hwang. 2015. Cardiovascular risk factors and 30-year cardiovascular risk in homeless adults with mental illness. *BMC Public Health* 15(1):165.

Greenberg, B., S. Korb, K. Cronon, and R. Anderson. 2013 Supportive housing best practices in a mid-sized US urban community. *Housing, Care and Support* 16(1):6-15.

Gubits, D., M. Shinn, S. Bell, M. Wood, S. Dastrup, C. D. Solari, S. R. Brown, S. Brown, L. Dunton, W. Lin, D. McInnis, J. Rodriguez, G. Savidge, and B. E. Spellman. 2015. *Family Options Study: Short-Term Impacts of Housing and Services Interventions for Homeless Families.* Washington, DC: U.S. Department of Housing and Urban Development. Available at http://www.huduser.org/portal//portal/sites/default/files/pdf/FamilyOptionsStudy_final.pdf. Accessed December 6, 2016.

Gubits, D., M. Shinn, M. Wood, S. Bell, S. Dastrup, C. D. Solari, S. R. Brown, D. McInnis, T. McCall, and U. Kattel. 2016. *Family Options Study: 3-Year Impacts of Housing and Services Interventions for Homeless Families.* Prepared by Abt Associates for Office of Policy Development and Research, U.S. Department of Housing and Urban Development. Available at https://www.huduser.gov/portal/sites/default/files/pdf/Family-Options-Study-Full-Report.pdf. Accessed February 27, 2017.

Gulcur, L., A. Stefancic, M. Shinn, S. Tsemberis, and S. N. Fischer. 2003. Housing, hospitalization, and cost outcomes for homeless individuals with psychiatric disabilities participating in Continuum of Care and Housing First programs. *Journal of Community & Applied Social Psychology* 13(2):171-186.

Gulcur, L., S. Tsemberis, A. Stefancic, and R. M. Greenwood. 2007. Community integration of adults with psychiatric disabilities and histories of homelessness. *Community Mental Health Journal* 43(3):211-228.

Hahn, J. A., M. B. Kushel, D. R. Bangsberg, E. Riley, and A. R. Moss. 2006. The aging of the homeless population: Fourteen-year trends in San Francisco. *Journal of General Internal Medicine* 21(7):775-778.

Hannigan, T., and S. Wagner. 2003. *Developing the "Support" in Supportive Housing: A Guide to Providing Services in Housing.* New York: Center for Urban Community Services and Corporation for Supportive Housing. Available at http://www.csh.org/wp-content/uploads/2011/12/Tool_DevelopingSupport_Guide.pdf. Accessed January 11, 2017.

Harburger, D. S., and R. A. White. 2004. Reunifying families, cutting costs: Housing-child welfare partnerships for permanent supportive housing. *Child Welfare* 83(5):493-508.

Harris, T. 2016. Neutralizing homelessness: Federal policy and the depoliticization of poverty. *Urban Geography* 38(3):341-347.

Henwood, B. F., L. C. Weinstein, and S. Tsemberis. 2011. Creating a Medical Home for Homeless Persons With Serious Mental Illness. Psychiatric Services 62(5):561-562.

Henwood, B. F., L. J. Cabassa, M. C. Catherine, and D. K. Padgett. 2013. Permanent supportive housing: Addressing homelessness and health disparities? *American Journal of Public Health* 103(Suppl 2):S188-S192.

Henwood, B. F., T. Byrne, and B. Scriber. 2015a. Examining mortality among formerly homeless adults enrolled in Housing First: An observational study. *BMC Public Health* 15:1209.

Henwood, B. F., H. Dichter, R. Tynan, C. Simiriglia, K. Boermer, and A. Fussaro. 2015b. Service use before and after the provision of scatter-site Housing First for individuals experiencing chronic homelessness with severe alcohol use disorders. *International Journal of Drug Policy* 26(9):883-886.

Henwood, B. F., M. L. Katz, and T. P. Gilmer. 2015c. Aging in place within permanent supportive housing. *International Journal of Geriatric Psychiatry* 30(1):80-87.

Henwood, B. F., H. Rhoades, H.-T. Hsu, J. Couture, E. Rice, and S. L. Wenzel. 2017. Changes in social networks and HIV risk behaviors among homeless adults transitioning into permanent supportive housing: A mixed methods study. *Journal of Mixed Methods Research* 11(1):124-137.

HHS (U.S. Department of Health and Human Services). 2014. *A Primer on Using Medicaid for People Experiencing Chronic Homelessness and Tenants in Permanent Supportive Housing. 6.1. Medical Necessity Criteria: Implications for People Living in Permanent Supportive Housing.* Available at https://aspe.hhs.gov/reports/6-medical-necessity-criteria-who-can-receive-specific-services/61-medical-necessity-criter-0. Accessed September 28, 2017.

HHS. 2017. Healthy People 2020. Available at https://www.healthypeople.gov. Accessed June 7, 2017.

HHS. 2018a. *Healthy People 2020: Social Determinants of Health.* Available at https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health#five. Accessed June 8, 2018.

HHS. 2018b. *Healthy People 2020: Housing Instability.* Available at https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-health/interventions-resources/housing-instability. Accessed June 8, 2018.

Hoeft, T. J., L. Hinton, J. Liu, and J. Unutzer. 2016. Directions for effectiveness research to improve health services for late-life depression in the United States. *American Journal of Geriatric Psychiatry* 24(1):18-30.

Hogan, J. 1996. *Scattered-Site Housing: Characteristics and Consequences.* Washington, DC: U.S. Department of Housing and Urban Development.

Hopper, K., and S. M. Barrow. 2003. Two genealogies of supported housing and their implications for outcome assessment. *Psychiatric Services* 54(1):50-54.

HRSA (Health Resources and Services Administration). 2016. 2016 *Annual Ryan White HIV/AIDS Program Services Report (RSR) Instruction Manual.* Rockville, MD: U.S. Department of Health and Human Services.

HUD (U.S. Department of Housing and Urban Development). 2008. *The Third Annual Assessment of Homelessness Report to Congress.* Washington, DC: HUD Office of Community Planning and Development.

HUD. 2012a. Homeless emergency assistance and rapid transition to housing: Continuum of Care Program. *Federal Register* 77(147):45423, 45425.

HUD. 2012b. *The 2012 Annual Homeless Assessment Report.* Available at https://www.hudexchange.info/resources/documents/2012AHAR_PITestimates.pdf. Accessed on August 16, 2017.

HUD. 2013a. SNAPS-Shots: Assigning Essential Services to the Appropriate Program Component. July 2. Available at https://www.hudexchange.info/news/snaps-shots-assigning-essential-services-to-the-appropriate-program-component. Accessed August 16, 2017.

HUD. 2013b. Statement on the Role of Housing in Accomplishing the Goals of *Olmstead*. Washington, DC. Available at https://portal.hud.gov/hudportal/documents/huddoc?id=OlmsteadGuidnc060413.pdf. Accessed February 27, 2017.

HUD. 2014. Rapid Re-Housing Brief. Available at https://www.hudexchange.info/resource/3891/rapid-re-housing-brief. Accessed August 15, 2017.

HUD. 2015a. *Assessment Tools for Allocating Homelessness Assistance: State of the Evidence: PD&R Expert Convenings Summary Report.* Available at https://www.huduser.gov/publications/pdf/assessment_tools_Convening_Report2015.pdf. Accessed April 27, 2017.

HUD. 2015b. CMS Releases New Informational Bulletin on Coverage of Housing-Related Activities and Services for Individuals with Disabilities. Available at https://www.hudexchange.info/news/cms-releases-new-informational-bulletin-on-coverage-of-housing-related-activities-and-services-for-individuals-with-disabilities/ Accessed April 27, 2017.

HUD. 2015c. Homeless Emergency Assistance and Rapid Transition to Housing (HEARTH): Defining "Chronically Homeless" Final Rule. Available at https://www.hudexchange.info/resource/4847/hearth-defining-chronically-homeless-final-rule. Accessed September 29, 2017.

HUD. 2015d. The 2015 Annual Homeless Assessment Report to Congress. Available at https://www.hudexchange.info/resources/documents/2015-AHAR-Part-1.pdf. Accessed August 16, 2017.

HUD. 2016a. Notice on Prioritizing Persons Experiencing Chronic Homelessness and Other Vulnerable Homeless Persons in Permanent Supportive Housing. Available at https://www.hudexchange.info/resources/documents/notice-cpd-16-11-prioritizing-persons-experiencing-chronic-homelessness-and-other-vulnerable-homeless-persons-in-psh.pdf. Accessed April 24, 2018.

HUD. 2016b. *The 2015 Annual Homeless Assessment Report (AHAR) to Congress, Part 2*. October 2016. Available at https://www.hudexchange.info/onecpd/assets/File/2015-AHAR-Part-2.pdf. Accessed January 5, 2017.

HUD. 2016c. *The 2016 Annual Homeless Assessment Report (AHAR) to Congress. Part 1: Point-in-Time Estimates of Homelessness.* Available at https://www.hudexchange.info/resources/documents/2016-AHAR-Part-1.pdf. Accessed May 8, 2018.

HUD. 2016d. The Office of HIV/AIDS Housing at the United States Conference on AIDS. September 14. Available at https://www.hudexchange.info/news/office-of-hiv-aids-housing-at-the-united-states-conference-on-aids. Accessed August 16, 2017.

HUD. 2017a. *The 2016 Annual Homelessness Assessment Report (AHAR) to Congress. Part 2: Estimates of homelessness in the United States.* Available at https://www.hudexchange.info/resources/documents/2016-AHAR-Part-2.pdf. Accessed April 6, 2018.

HUD. 2017b. *The 2017 Annual Homeless Assessment Report (AHAR) to Congress. Part 1: Point-in-Time Estimates of Homelessness.* Available at https://www.hudexchange.info/resources/documents/2017-AHAR-Part-1.pdf. Accessed April 6, 2018.

HUD. 2018. Continuum of Care (CoC) Program Eligibility Requirements. Available at https://www.hudexchange.info/programs/coc/coc-program-eligibility-requirements. Accessed May 8, 2018.

HUD and DOJ (U.S. Department of Housing and Urban Development and U.S. Department of Justice). 2016. Joint Statement of the Department of Housing and Urban Development and the Department of Justice: State and Local Land Use Laws and Practices and the Application of the Fair Housing Act. Available at https://www.justice.gov/crt/page/file/909956/download. Accessed February 27, 2017.

Hunter, S. B., M. Harvey, B. Briscombe, and M. Cefalu. 2017. *Evaluation of Housing for Health Permanent Supportive Housing Program.* Santa Monica, CA: RAND Corporation. Available at https://www.rand.org/pubs/research_reports/RR1694.html.

Hwang, S. W., E. J. Orav, J. J. O'Connell, J. M. Lebow, and T. A. Brennan. 1997. Causes of death in homeless adults in Boston. *Annals of Internal Medicine* 126(8):625-628.

Hwang, S. W., and A. L. Bugeja. 2000. Barriers to appropriate diabetes management among homeless people in Toronto. *Canadian Medical Association Journal* 163(2):161-165.

Hwang, S. W., R. E. Martin, G. S. Tolomiczenko, and J. D. Hulchanski. 2003. The relationship between housing conditions and health status of rooming house residents in Toronto. *Canadian Journal of Public Health* 94(6):436-440.

Iglesias, T. 2002. Managing local opposition to affordable housing: A new approach to NIMBY. *Journal of Affordable Housing and Community Development* 12(1):78-121.

IOM (Institute of Medicine). 1988. Homelessness, Health, and Human Needs. Washington, DC: National Academies Press.

IOM. 2001. Crossing The Quality Chasm: A New Health System for the 21st Century. Washington, DC: The National Academies Press.

IOM. 2012. Essential Health Benefits: Balancing Coverage and Cost. Washington, DC: The National Academies Press.

IRS (Internal Revenue Service). 2015. Chapter 1: Introduction. Pp. 10-16 in Internal Revenue Code § 42, Low-Income Housing Credit. Available at https://www.irs.gov/pub/irs-utl/IRC_42.pdf. Accessed April 17, 2017.

IRS. 2016. Part I, Section 42—Low-Income Housing Credit. 26 CFR 1.42–14: Allocation Rules for Post-2000 State Housing Credit Ceiling Amount. Revenue Ruling 2016-29. Available at https://www.irs.gov/pub/irs-drop/rr-16-29.pdf. Accessed April 17, 2017.

Johnson, G., and C. Chamberlain. 2008. Homelessness and substance abuse: Which comes first? *Australian Social Work* 61(4):342-356.

Jones, C. A., A. Perera, M. Chow, I. Ho, J. Nguyen, and S. Davachi. 2009. Cardiovascular disease risk among the poor and homeless—what we know so far. *Current Cardiology Reviews* 5(1):69-77.

Jones, M. M. 2015. Creating a science of homelessness during the Reagan era. *Milbank Quarterly* 93(1):139-178.

Kaminiski, J. L. 2007. Defining Medical Necessity. Connecticut General Assembly, Office of Legislative Research. Available at https://www.cga.ct.gov/2007/rpt/2007-r-0055.htm. Accessed May 11, 2017.

Kelly, J. T. 1985. Trauma: With the example of San Francisco's shelter programs. Pp. 77-91 in *Health Care of Homeless People,* P. W. Brickher, L. K. Scharer, B. Conanan, A. Elvy, and M. Savarese, eds. New York: Springer-Verlag.

Kertesz, S. G., K. Crouch, J. B. Milby, R. E. Cusimano, and J. E. Schumacher. 2009. Housing First for homeless persons with active addiction: Are we overreaching? *Milbank Quarterly* 87(2):495-534.

Kertesz, S. G., T. P. Baggett, J. J. O'Connell, D. S. Buck, and M. B. Kushel. 2016. Permanent supportive housing for homeless people—reframing the debate. *New England Journal of Medicine* 375:2115-2117.

Keyes, K. M., and S. Galea. 2016. *Population Health Science.* New York: Oxford University Press.

Kisely, S. R., J. K. Parker, L. A. Campbell, J. Karabanow, J. M. Hughes, and J. Gahagan. 2008. Health impacts of supportive housing for homeless youth: A pilot study. *Public Health* 122(1):1089-1092.

Klarman, H. E., J. Francis, and G. D. Rosenthal. 1968. Cost effectiveness analysis applied to the treatment of chronic renal disease. *Medical Care* 6:48-54.

Kochanek, K. D., S. L Murphy, J. Xu, and B. Tejada-Vera. 2016. Deaths: Final data for 2014. *National Vital Statistics Reports* 65(4): Available at https://www.cdc.gov/nchs/data/nvsr/nvsr65/nvsr65_04.pdf. Accessed June 22, 2018.

Kogan, A. C., K. Wilber, and L. Mosqueda. 2016. Moving toward implementation of person-centered care for older adults in community-based medical and social service settings: "You only get things done when working in concert with clients." *Journal of the American Geriatrics Society* 64(1):e8-e14.

Kozloff, N., C. E. Adair, L. I. Palma Lazgare, D. Poremski, A. H. Cheung, R. Sandu, and V. Stergiopoulos. 2016. "Housing First" for homeless youth with mental illness. *Pediatrics* 138(4):1-10.

Krieger, J., and D. L. Higgins. 2002. Housing and health: Time again for public health action. *American Journal of Public Health* 92(5):758-768.

Ku, B. S., K. C. Scott, S. G. Kertesz, and S. R. Pitts. 2010. Factors associated with use of emergency departments by the U.S. homeless population. *Public Health Reports* 125(3):398-405

Kushel, M. B., S. Perry, D. Bangsberg, R. Clark, and A. R. Moss. 2002. Emergency department use among the homeless and marginally housed: Results from a community-based study. *American Journal of Public Health* 92(5):778-784.

Larimer, M. E., D. K. Malone, M. D. Garner, D. C. Atkins, B. Burlingham, H. S. Lonczak, K. Tanzer, J. Ginzler, S. L. Clifasefi, W. G. Hobson, and G. A. Marlatt. 2009. Health care and public service use and costs before and after provision of housing for chronically homeless persons with severe alcohol problems. *Journal of the American Medical Association* 301(13):1349-1357.

Lee, C. M., C. Mangurian, L. Tieu, C. Ponath, D. Guzman, and M. Kushel. 2017. Childhood adversities associated with poor adult mental health outcomes in older homeless adults: Results from the HOPE HOME Study. *American Journal of Geriatric Psychiatry* 25(2):107-117.

Lee, C. T., D. Guzman, C. Ponath, L. Tieu, E. Riley, and M. Kushel. 2016. Residential patterns in older homeless adults: Results of a cluster analysis. *Social Science & Medicine* 153:131-140.

Lee, T. C., J. G. Hanlon, J. Ben-David, G. L. Booth, W. J. Cantor, P. W. Connelly, and S. W. Hwang. 2005. Risk factors for cardiovascular disease in homeless adults. *Circulation* 111(20):2629-2635.

Leger, D., F. Beck, and J. B. Richard. 2016. Sleep loss in the homeless—an additional factor of precariousness: Survey in a group of homeless people. *JAMA Internal Medicine* 177(2):278-279.

Lehman, A. F. 1983. The well-being of chronic mental patients: Assessing quality of life. *Archives of General Psychiatry* 40:369-373.

Levitt, R. 2015. Assessment Tools for Allocating Homelessness Assistance: State of the Evidence. Available at https://ssrn.com/abstract=2563149 or http://dx.doi.org/10.2139/ssrn.2563149. Accessed December 6, 2016.

Lin, W.-C., M. Bharel, J. Zhang, E. O'Connell, and R. E. Clark. 2015. Frequent emergency department visits and hospitalization among homeless people with Medicaid: Implications for medicaid expansion. *American Journal of Public Health* 105(Suppl 5):S716-S722.

Lipton, F. R., C. Siegel, A. Hannigan, J. Samuels, and S. Baker. 2000. Tenure in supportive housing for homeless persons with severe mental illness. *Psychiatric Services* 51(4):479-486.

Locke, G., J. Khadduri, A. O'Hara, and D. Dennis. 2007. Toward Understanding Homelessness: The 2007 National Symposium on Homelessness Research. Housing Models. Available at http://aspe.hhs.gov/hsp/homelessness/symposium07/locke/index.htm. Accessed August 16, 2017.

Ly, A., and E. Latimer. 2015. Housing First impact on costs and associated cost offsets: A review of the literature. *Canadian Journal of Psychiatry* 60(11): 475-487.

Mackelprang, J. L., S. E Collins, and S. L. Clifasefi. 2014. Housing First is associated with reduced use of emergency medical services. *Prehospital Emergency Care* 18(4):476-482.

Mallett, S., D. Rosenthal, and D. Keys. 2005. Young people, drug use, and family conflict: Pathways into homelessness. *Journal of Adolescence* 28(2):185-199.

Mares, A. S., and R. A. Rosenheck. 2010. Twelve-month client outcomes and service use in a multisite project for chronically homelessness adults. *Journal of Behavioral Health Services and Research* 37(2):167-183.

Martens, W. H. 2001. A review of physical and mental health in homeless persons. *Public Health Reviews* 29:13-33.

Martin, E. J. 2015. Affordable housing, homelessness, and mental health: What heath care policy needs to address. *Journal of Health and Human Services Administration* 38(1):67-89.

Martinez, T. E., and M. R. Burt. 2006. Impact of permanent supportive housing on the use of acute care health services by homeless adults. *Psychiatric Services* 57(7):992-999.

Massachusetts Housing and Shelter Alliance. 2015. *Permanent Supportive Housing: A Solution-Driven Model: January 2015 Home & Healthy for Good Progress Report.* Available at https://www.mhsa.net/sites/default/files/January%202015%20HHG%20Report.pdf. Accessed May 2, 2018.

Mazzara, A., B. Sard, and D. Rice. 2016. Rental Assistance to Families with Children at Lowest Point in Decade. Center on Budget and Policy Priorities. Available at http://www.cbpp.org/sites/default/files/atoms/files/5-24-16hous.pdf. Accessed February 24, 2017.

McAdam, J. M., P. W. Brickner, L. L. Scharer, J. A. Crocco, and A. E. Duff. 1990. The spectrum of tuberculosis in a New York City men's shelter clinic (1982-1988). *Chest* 97(4):798-805.

McHorney, C. A., J. E. Ware, J. F. R. Lu, and C. D. Sherbourne. 1994. The MOS 36-Item Short-Form Health Survey (SF-36): III. Tests of data quality, scaling assumptions, and reliability across diverse patient groups. *Medical Care* 32(1):40-66.

McHugo, G. J., R. R. Bebout, M. Harris, S. Cleghorn, G. Herring, H. Xie, D. Becker, and R. E. Drake. 2004. A randomized controlled trial of integrated versus parallel housing services for homeless adults with severe mental illness. *Schizophrenia Bulletin* 30(4):969-982.

McLaughlin, T. C. 2011. Using common themes: Cost-effectiveness of permanent supported housing for people with mental illness. *Research on Social Work Practice* 21(4):404-411.

Merrill, R. M., R. Richards, and A. Sloan. 2011. Prenatal maternal stress and physical abuse among homeless women and infant health outcomes in the United States. *Epidemiology Research International* 467265. Available at http://dx.doi.org/10.1155/2011/467265. Accessed April 24, 2018.

Miles, D. R., B. Samuels, and C. E. Pollack. 2017. Leveraging housing vouchers to address health disparities. *American Journal of Public Health* 107(2): 238-240.

Morrison, D. S. 2009. Homelessness as an independent risk factor for mortality: Results from a retrospective cohort study. *International Journal of Epidemiology* 38(3):877-883.

Moses, K., A. Hamblin, S. Somers, and D. P. Culhane. 2016. Supportive Housing for Chronically Homeless Medicaid Enrollees: State Strategies. Center for Health Care Strategies. Available at http://www.chcs.org/media/Housing-SGC-Brief-Final-022416.pdf. Accessed January 11, 2017.

NASEM (National Academies of Sciences, Engineering, and Medicine). 2016. *Accounting for Social Risk Factors in Medicare Payment: Identifying Social Risk Factors.* Washington, DC: The National Academies Press.

NASEM. 2017. *Communities in Action: Pathways to Health Equity*. Washington, DC: The National Academies Press.

National Alliance to End Homelessness. 2012. LGBTQ Youth National Policy Statement, April 19. Available at http://www.endhomelessness.org/library/entry/lgbtq-youth-national-policy-statement. Accessed December 22, 2016.

National Low Income Housing Coalition. 2018. Study Finds Significant Racial Disparities in Homelessness Rates. Online. Available at http://nlihc.org/article/study-finds-significant-racial-disparities-homelessness-rates. Accessed June 15, 2018.

Netto, G. 2006. Vulnerability to homelessness, use of services and homelessness prevention in black and minority communities. *Housing Studies* 21(4):581-601.

New York State Department of Health. 2012. New York State Medicaid Redesign Team (MRT) Waiver Amendment: Achieving the Triple Aim. Available at https://www.health.ny.gov/health_care/medicaid/redesign/docs/2012-08-06_waiver_amendment_request.pdf. Accessed February 27, 2017.

New York State Department of Health. 2017. *Medicaid Redesign Team Supportive Housing Evaluation: Utilization Report 1.* Available at https://www.health.ny.gov/health_care/medicaid/redesign/2017/docs/2017-05_utilization_rpt.pdf. Accessed May 2, 2018.

NHCHC (National Health Care for the Homeless Council). 2016. Social Determinants of Health: Predictors of Health Among People Without Homes. Fact Sheet. Available at https://www.nhchc.org/wp-content/uploads/2011/09/fact-sheet_2016_social-determinants-of-health1.pdf. Accessed April 9, 2018.

NIDA (National Institute on Drug Abuse). 2013. Messages from the Director: Overdose Deaths Among Homeless Persons. Available at https://www.drugabuse.gov/about-nida/directors-page/messages-director/2013/01/overdose-deaths-among-homeless-persons. Accessed September 27, 2017.

Ng, S., S. Rizvi, and M. E. Kunik. 2003. Prevalence of homeless older adults and factors causing their homelessness: A review. *Internet Journal of Geriatrics and Gerontology* 8(1):1-8.

O'Connell, J. J. 2005. *Premature Mortality in Homeless Populations: A Review of the Literature.* Nashville, TN: National Health Care for the Homeless Council.

ODPHP (U.S. Office of Disease Prevention and Health Promotion). 2016. *Health-Related Quality of Life and Well-Being.* Available at https://www.healthypeople.gov/2020/about/foundation-health-measures/Health-Related-Quality-of-Life-and-Well-Being. Accessed December 5, 2016.

Olivet, J., M. Dones, M. Richard, C. Wilkey, S. Yampolskaya, M. Beit-Arie, and L. Joseph. 2018. *Supporting Partnerships for Anti-Racist Communities (SPARC): Phase I Study Findings.* Center for Social Innovation. Available at http://center4si.com/wp-content/uploads/2018/03/SPARC-Phase-1-Findings-March-20181.pdf. Accessed May 5, 2018.

ONDCP (Office of National Drug Control Policy). 2014. Integrate treatment for substance use disorders into mainstream health care and expand support for recovery. Chapter 3 in National Drug Control Strategy. Available at https://obamawhitehouse.archives.gov/ondcp/chapter-integrate-treatment-for-substance-use-disorders. Accessed April 9, 2018.

OrgCode Consulting. 2015. *Vulnerability Index—Service Prioritization Decision Assistance Tool (VI-SPDAT): Prescreen Triage Tool for Single Adults.* Available at http://everyonehome.org/wp-content/uploads/2016/02/VI-SPDAT-2.0-Single-Adults.pdf. Accessed December 6, 2016.

Osman, L. M., J. G. Ayres, C. Garden, K. Reglitz, J. Lyon, and J. G. Douglas. 2008. Home warmth and health status of COPD patients. *European Journal of Public Health* 18(4):399-405.

Ortman, J. M., V. A. Velkoff, and H. Hogan. 2014. *An Aging Nation: The Older Population in the United States: Population Estimates and Projections.* Current Population Reports P25-1140. U.S. Census Bureau. Available at https://www.census.gov/prod/2014pubs/p25-1140.pdf.

Oster, A., and A. B. Bindman. 2003. Emergency department visits for ambulatory care sensitive conditions: Insights into preventable hospitalizations. *Medical Care* 41(2):198-207.

Padgett, D. K. 2007. There's no place like (a) home: Ontological security among persons with serious mental illness in the United States. *Social Science & Medicine* 64(9):1925-1936.

Palmer, G. L. 2016. Examining the effects of scattered site supportive housing on the social and economic integration of men who are formerly homeless and primarily black/African American. *Journal of Black Studies* 47(8):846-868.

Park, J. M., S. Metraux, G. Brodbar, and D. P. Culhane. 2004. Child welfare involvement among children in homeless families. *Child Welfare* 83(5):423-436.

Parker, R. D., and S. Dykema. 2013. The reality of homeless mobility and implications for improving care. *Journal of Community Health* 38:685-689.

Parsell, C., O. Moutou, E. Lucio, and S. Parkinson. 2015. *Supportive Housing to Address Homelessness.* AHURI Final Report No. 240. Melbourne: Australian Housing and Urban Research Institute, University of Queensland. Available at https://www.ahuri.edu.au/research/final-reports/240. Accessed June 22, 2018.

Pastor, M., and R. Morello-Frosch. 2014. Integrating public health and community development to tackle neighborhood distress and promote well-being. *Health Affairs* 33(11):1890-1896.

Pearson, C., A. E. Montgomery, and G. Locke. 2009. Housing stability among homeless individuals with serious mental illness participating in Housing First programs. *Journal* of Community Psychology 37(3):404-417.

Perälä, J., J. Suvisaari, S. I. Saarni, K. Kuoppasalmi, E. Isometsä, S. Pirkola, T. Partonen, A. Tuulio-Henriksson, J. Hintikka, T. Kiessepä, T. Härkänen, S. Kaskinen, and J. Lönnquist. 2007. Lifetime prevalence of psychotic and bipolar I disorders in a general population. *Archives of General Psychiatry* 64:19-28.

Pergamit, M., M. Cunningham, and D. Hanson. 2017. The impact of family unification housing vouchers on child welfare outcomes. *American Journal of Community Psychology* 60(1-2):103-113.

Pleace, N., and J. Beverton. 2013. What do we mean by Housing First? Categorising and critically assessing the Housing First movement from a European perspective. Presented at the ENHR 2012 Conference on Housing: Local Welfare and Local Markets in a Globalised World. Available at http://eprints.whiterose.ac.uk/75119/1/ENHR_HF_paper_Nicholas_Pleace.pdf. Accessed September 29, 2017.

Popp, P., J. Hindman, and J. Stronge. 2007. *Local Homeless Education Liaison Toolkit, Revised.* Greensboro, NC: National Center for Homeless Education. Available at https://education.wm.edu/centers/hope/liaison/documents/toolkit2008.pdf. Accessed June 22, 2018.

Post, P. A., 2008. *Defining and Funding the Support in Permanent Supportive Housing.* Washington, DC: Corporation for Supportive Housing.

Prieto, L., and J. A. Sacristan. 2003. Problems and solutions in calculating quality-adjusted life years (QALYs). *Health and Quality of Life Outcomes* 1:80.

PRRAC (Poverty and Race Research Action Council). 2016. State, local, and federal laws barring source-of-income discrimination. Appendix B in *Expanding Choice: Practical Strategies for Building a Successful Housing Mobility Programs.* Available at http://www.prrac.org/pdf/AppendixB.pdf. Accessed February 27, 2017.

Quilgars, D., and N. Pleace. 2016. Housing First and social integration: A realistic aim? *Social Inclusion* 4(4):5-15.

Quinn, K., S. Young, D. Thomas, B. Baldwin, and M. Paul. 2015. The role of supportive housing for HIV-positive mothers and their children. *Journal of Social Service Research* 41(5):642-658.

Rabin, R., and F. de Charro. 2001. EQ-SD: A measure of health status from the EuroQol Group. *Annals of Medicine* 33:337-343.

Ram, B., C. M. Nightingale, A. R. Rudnicka, A. Shankar, M. T. Hudda, A. Ellaway, A. R. Cooper, A. Page, D. Lewis, S. Cummins, B. Giles-Corti, P. H. Whincup, D. G. Cook, and C. G. Owen. 2016. Impact of the built environment on self-rated health and wellbeing and other health behaviours of people in social, intermediate, and market-rent accommodation: Baseline characteristics of ENABLE London Study participants. *The Lancet* 388(S2):S98.

Ray, N. 2006. *Lesbian, Gay, Bisexual and Transgender Youth: An Epidemic of Homelessness.* National Gay and Lesbian Task Force Policy Institute and the National Coalition for the Homeless. Available at http://www.the task force.org/static_html/downloads/HomelessYouth.pdf. Accessed December 22, 2016.

Rieke, K., A. Smolsky, E. Bock, L. P. Erkes, E. Porterfield, and S. Watanabe-Galloway. 2015. Mental and nonmental health hospital admissions among chronically homeless adults before and after supportive housing placement. *Social Work in Public Health* 30:496-503.

Richards, R., R. M. Merrill, and L. Baksh. 2011. Health behaviors and infant health outcomes in homeless pregnant women in the United States. *Pediatrics* 128(3):438-446.

Rodriguez, R. M., J. Fortman, C. Chee, V. Ng, and D. Poon. 2009. Food, shelter and safety needs motivating homeless persons' visits to an urban emergency department. *Annals of Emergency Medicine* 53(5):598-602.

Rodriguez, J. M., and M. Shinn. 2016. Intersections of family homelessness, CPS involvement, and race in Alameda County, California. *Child Abuse and Neglect* 57:41-52.

Rog, D., T. Marshall, R. H. Dougherty, P. George, A. S. Daniels, S. S. Ghose, and M. E. Delphin-Rittmon. 2014. Permanent supportive housing: Assessing the evidence. *Psychiatric Services* 65(3):287-294.

Rog, D. J., K. A. Henderson, and A. L. Greer. 2016. Family stability and child welfare involvement among families served in permanent supportive housing. *Child Welfare* 94(1):189-208.

Rosenheck, R., W. Kasprow, L. Frisman, and W. Liu-Mares. 2003. Cost-effectiveness of supported housing for homeless persons with mental illness. *Archives of General Psychiatry* 60(9):940-951.

Runquist, J. J., and P. G. Reed. 2007. Self-transcendence and well-being in homeless adults. *Journal of Holistic Nursing* 25(1):5-13.

Russell, L. B., M. R. Gold, J. E. Siegel, N. Daniels, and M. C. Weinstein. 1996. The role of cost-effectiveness analysis in health and medicine. *Journal of the American Medical Association* 276(14):1172-1177.

RWJF (Robert Wood Johnson Foundation). 2015. *From Vision to Action: A Framework and Measures to Mobilize a Culture of Health.* Princeton, NJ: RWJF.

Salit, S. A., E. M. Kuhn, A. J. Hartz, J. M. Vu, and A. L Mosso. 1998. Hospitalization costs associated with homelessness in New York City. *New England Journal of Medicine* 338:1734-1740.

SAMHSA (Substance Abuse and Mental Health Services Administration). 2010. *Permanent Supportive Housing Evidence-Based Practices (EBP) Kit.* Rockville, MD: U.S. Department of Health and Human Services. Available at http://store.samhsa.gov/product/Permanent-Supportive-Housing-Evidence-Based-Practices-EBP-KIT/SMA10-4510. Accessed January 11, 2017.

SAMHSA. 2011. *Results from the 2010 National Survey on Drug Use and Health: Summary of National Findings.* NSDUH Series H-41, HHS Publication No. (SMA) 11-4658. Rockville MD: SAMHSA. Available at https://www.samhsa.gov/data/sites/default/files/NSDUHNationalFindingsResults2010-web/2k10ResultsRev/NSDUHresultsRev2010.pdf. Accessed June 22, 2018.

SAMHSA. 2017. Homelessness and Housing. Available at https://www.samhsa.gov/homelessness-housing. Accessed September 29, 2017.

Samuels, J., P. J. Fowler, A. Ault-Brutus, D. Tang, and K. Marcal. 2015. Time-limited case management for homeless mothers with mental health problems: Effects on maternal mental health. *Journal of the Society for Social Work and Research* 6(4):515-539.

Sanders, G. D., P. J. Newmann, A. Basu, D. W. Brock, D. Feeny, M. Krahn, K. M. Kuntz, D. O. Meltzer, D. K. Owens, L. A. Prosser, J. A. Salmon, M. J. Sculper, T. A. Trikalinos, L. B. Russell, J. E. Siegel, and T. G. Ganiats. 2016. Recommendations for conduct, methodological practices, and reporting of cost effect analysis: Second Panel on Cost-Effectiveness in Health and Medicine. *Journal of the American Medical Association* 316(10):1093-1103.

Schwarcz, S. K., L. C. Hsu, E. Vittinghoff, A. Vu, J. D. Bamberger, and M. H. Katz. 2009. Impact of housing on the survival of persons with AIDS. *BMC Public Health* 9:220.

Seidman, L. J., R. K. Schutt, B. Caplan, G. S. Tolomiczenko, W. M. Turner, and S. M. Goldfinger. 2003. The effect of housing interventions on neuropsychological functioning among homeless persons with mental illness. Psychiatric Services 54(6):905-908.

Seligson, L. A, S. Lim, T. Singh, E. Laganis, E. Stazesky, S. Donahue, C. Lanzara, T. G. Harris, T. Marsik, C. M. Greene, F. R. Lipton, R. Myers, and A. M.

Karpa. 2013. *New York/New York III Supportive Housing Evaluation: Interim Utilization and Cost Analysis.* A report from the New York City Department of Health and Mental Hygiene in collaboration with the New York City Human Resources Administration and the New York State Office of Mental Health. Available at https://shnny.org/images/uploads/NY-NY-III-Interim-Report.pdf. Accessed April 27, 2018.

Shinn, M., J. Samuels, S. N. Fischer, A. Thompkins, and P. J. Fowler. 2015. Longitudinal impact of a Family Critical Time Intervention on children in high-risk families experiencing homelessness: A randomized trial. *American Journal of Community Psychology* 56:205-216.

Siegel, J. E., M. C. Weinstein, L. B. Russell, and M. R. Gold. 1996. Recommendations for reporting cost-effectiveness analyses. Panel on Cost-Effectiveness in Health and Medicine. *Journal of the American Medical Association* 276(16):1339-1341.

Siegel, C. E., J. Samuels, D. I. Tang, I. Berg, K. Jones, and K. Hopper. 2006. Tenant outcomes in supported housing and community residences in New York City. *Psychiatric Services* 57(7):982-991

Simmons, M. M., S. Gabrielian, T. Byrne, M. B. McCullough, J. L. Smith, T. J. Taylor, T. P. O'Toole, V. Kane, V. Yakovchenko, D. K. McInnes, and D. A. Smelson. 2017. A Hybrid III stepped wedge cluster randomized trial testing an implementation strategy to facilitate the use of an evidence-based practice in VA Homeless Primary Care Treatment programs. *Implementation Science* 12(46). https://doi.org/10.1186/s13012-017-0563-2.

Slesnick, N., P. Dashora, A. Letcher, G. Erdem, and J. Serovich. 2009. A review of services and interventions for runaway and homeless youth: Moving forward. *Children and Youth Services Review* 31(7):732-742.

Somers, J. M., A. Moniruzzaman, and A. Palepu. 2015. Changes in daily substance use among people experiencing homelessness and mental illness: 24-month outcomes following randomization to Housing First or usual care. *Addiction* 110(10):1605-1614.

Somers, J. M., A. Moniruzzaman, M. Patterson, L. Currie, S. N. Rezansoff, A. Palepu, and K. Fryer. 2017. A randomized trial examining Housing First in congregate and scattered site formats. *PLoS ONE* 12(1):e0168745.

Speirs, V., M. Johnson, and S. Jirojwong. 2013. A systematic review of interventions for homeless women. *Journal of Clinical Nursing* 22(7-8):1080-1093.

Spoth, R., L. A. Rohrbach, M. Greenberg, P. Leaf, C. H. Brown, A. Fagan, R. F. Catalano, M. A. Pentz, Z. Sloboda, and J. D. Hawkins. 2013. Addressing core challenges for the next generation of type 2 research and systems: The Translation Science to Population Impact (TSci Impact) framework. *Prevention Science* 14(4):319-351.

Srebnik, D., T. Connor, and L. Sylla. 2013. A pilot study of the impact of Housing First-supported housing for intensive users of medical hospitalization and sobering services. *American Journal of Public Health* 103(2):316-321.

Steffen, B. L., G. R. Carter, M. Martin, D. Pelletier, D. A. Vanderbroucke, and Y. D. Yao. 2015. *Worst Case Housing Needs: 2015 Report to Congress*.

Prepared for Office of Policy Development and Research, U.S. Department of Housing and Urban Development. Available at https://www.huduser.gov/portal//Publications/pdf/WorstCaseNeeds_2015.pdf. Accessed February 23, 2017.

Stergiopoulos, V., S. W. Hwang, A. Gozdzik, R. Nisenbaum, E. Latimer, D. Rabouin, C. E. Adair, J. Bourque, J. Connelly, J. Frankish, L. Y. Katz, K. Mason, V. Misir, K. O'Brien, J. Sareen, C. G. Schütz, A. Singer, D. L. Streiner, H.-M. Vasiliadis, and P. N. Goering. 2015. Effect of scattered site housing using rent supplements and intensive case management on housing stability among homeless adults with mental illness: A randomized trial. *Journal of the American Medical Association* 313(9):905-915.

Street Outreach Program. 2016. *Administration for Children and Families Family and Youth Services Bureau Street Outreach Program: Data Collection Study Final Report.* Washington, DC: Family and Youth Services Bureau. Available at https://www.acf.hhs.gov/sites/default/files/fysb/data_collection_study_final_report_street_outreach_program.pdf. Accessed July 25, 2017.

Sylla, L., R. Franzen, D. Srebnik, M. Hoffman, and A. Schoenfeld. 2016. Creating a regional model to coordinate and prioritize access to permanent supportive housing. *Journal of Behavioral Health Services & Research* 449(4):564-573.

Syrop, J. 2016. Supportive housing reduces healthcare spending for formerly homeless. *American Journal of Managed Care*. News Release. Available at http://www.ajmc.com/newsroom/supportive-housing-reduces-healthcare-spending-for-formerly-homeless. Accessed March 30, 2018.

Szerlip, M. I., and H. M. Szerlip. 2002. Identification of cardiovascular risk factors in homeless adults. *American Journal of the Medical Sciences* 324(5):243-246.

Technical Assistance Collaborative, Inc. 2012. *Federal Housing Resources Guide.* Available at http://www.tacinc.org/media/27844/Federal%20Housing%20Programs.pdf. Accessed May 4, 2018.

Tegeler, P., M. Haberle, J. Rich, S. L. Smith, W. Henderson, L. Proll, H. O. Shelton, and A. Gordon. 2015. Re: Follow up from November 4, 2015 meeting on LIHTC reform. Letter to Deputy Secretary Sarah Bloom Raskin. Typed correspondence. Washington, DC: U.S. Department of the Treasury. Available at http://www.prrac.org/pdf/LIHTC_followup_letter_to_DS_Raskin_et_al_11-25-15.pdf. Accessed April 17, 2017.

Thiele, D. 2014. *Creating a Medicaid Supportive Housing Services Benefit: A Framework for Washington and Other States.* Prepared by Corporation for Supportive Housing. Available at http://www.csh.org/wp-content/uploads/2014/08/Creating_Medicaid_Supportive_Housing_Servcies_Benefit_WashingtonState.pdf. Accessed February 27, 2017.

Toro, P. A. 2007. Toward an international understanding of homelessness. *Journal of Social Issues* 63:461-481.

Toros, H., and D. Flaming. 2017. *Prioritizing Which Homeless People Get Housing Using Predictive Algorithms: An Evidence-Based Approach to Prioritizing High-Cost and High-Need Homeless Persons for Permanent Supportive Housing.* Economic Roundtable. Available at https://economicrt.org/wp-content/uploads/2017/04/Prioritizing-Which-Homeless-People-Get-Housing-Using-Predictive-Algorithms.pdf. Accessed April 3, 2018.

Tsai, J., and R. A. Rosenheck. 2012. Conceptualizing social integration among formerly homeless adults with severe mental illness. *Journal of Community Psychology* 40(4):456-467.

Tsai, J., A. S. Mares, and R. A. Rosenheck. 2010. A multisite comparison of supported housing for chronically homeless adults: "Housing first" versus "residential treatment first." *Psychological Services* 7(4):219-232.

Tsai, J., R. A. Rosenheck, S. E. Decker, R. A. Desai, and I. Harpaz-Rotem. 2012. Trauma experience among homeless female veterans: Correlates and impact on housing, clinical, and psychosocial outcomes. *Journal of Trauma Stress* 25(6):624-632.

Tsai, J., W. J. Kasprow, and R. A. Rosenheck. 2014. Alcohol and drug use disorders among homeless veterans: Prevalence and association with supported housing outcomes. Addictive Behaviors 39(2):455-460.

Tsemberis, S. 1999. From streets to homes: An innovative approach to supported housing for homeless adults with psychiatric disabilities. *Journal of Community Psychology* 27(2):225-241.

Tsemberis, S. 2010. *Housing First Manual: The Pathways Model to End Homelessness for People with Mental Illness and Addiction.* Center City, MN: Hazelden.

Tsemberis, S. 2015. *Housing First Revised: The Pathways Model to End Homelessness for People with Mental Illness and Addiction.* Center City, MN: Hazeldon.

Tsemberis, S., L. Gulcur, and M. Nakae. 2004. Housing First, consumer choice, and harm reduction for homeless individuals with a dual diagnosis. *American Journal of Public Health* 94(4):651-656.

University of Michigan Library. 2018. Grey Literature. Available at http://guides.lib.umich.edu/greyliterature. Accessed March 30, 2018.

U.S. Department of Education. 2016. *Education for Homeless Children and Youths Program Non-Regulatory Guidance: Title VII-B of the McKinney-Vento Homeless Assistance Act, as amended by the Every Student Succeeds Act.* https://www2.ed.gov/policy/elsec/leg/essa/160240ehcyguidance072716.pdf. Accessed September 29, 2017.

USICH (U.S. Interagency Commission on Homelessness). 2011. *USICH Report to Congress: Community Forum to Discuss GAO Recommendation to Develop a Common Federal Vocabulary on Housing Status.* Available at https://www.usich.gov/resources/uploads/asset_library/USICH_Report_-Common_Housing_Status_Vocabulary.pdf. Accessed May 29, 2017.

USICH. 2012. *Searching Out Solutions: Constructive Alternatives to the Criminalization of Homelessness.* Available at https://www.usich.gov/tools-for-action/searching-out-solutions. Accessed February 27, 2017.

USICH. 2015a. *Ending Homelessness for People Living in Encampments: Advancing the Dialogue.* Washington, DC. Available at https://www.usich.gov/tools-for-action/ending-homelessness-for-people-in-encampments. Accessed February 27, 2017.

USICH. 2015b. Federal Resources That Can Fund Rapid Re-Housing. Available at https://www.usich.gov/resources/uploads/asset_library/Federal_Funding_Sources_RRH.pdf. Accessed June 22, 2018.

USICH. 2015c. *Fiscal Year 2015 Performance and Accountability Report.* Available at https://www.usich.gov/resources/uploads/asset_library/FY2015-USICH-PAR.pdf. Accessed February 27, 2017.

USICH. 2015d. *Opening Doors: Federal Strategic Plan to Prevent and End Homelessness.* Available at https://www.usich.gov/resources/uploads/asset_library/USICH_OpeningDoors_Amendment2015_FINAL.pdf. June 22, 2018.

USICH. 2017a. Investing in the End of Homelessness: The President's 2017 Budget. Fact Sheet. Available at https://www.usich.gov/resources/uploads/asset_library/2017_Budget_USICH_Homelessness_Fact_Sheet_final.pdf.

USICH. 2017b. Supportive Housing. Available at https://www.usich.gov/solutions/housing/supportive-housing. Accessed on May 5, 2018.

Uttaro, T., and A. Lehman. 1999. Graded response modeling of the Quality of Life Interview. *Evaluation and Program Planning* 22(1):41-52.

van den Berk-Clark, C. 2016. The dilemmas of frontline staff working with the homeless: Housing First, discretion, and the task environment. *Housing Policy Debate* 26(1):105-122.

Volk, J. S., T. Aubry, P. Goering, C. E. Adair, J. Distasio, J. Jette, D. Nolin, V. Stergiopoulos, D. L. Streiner, and S. Tsemberis. 2016. Tenants with additional needs: When Housing First does not solve homelessness. *Journal of Mental Health* 25(2):169-175.

Wachino, V. 2015. Coverage of Housing-Related Activities and Services for Individuals with Disabilities. Center for Medicaid & CHIP Services (CMCS) Informational Bulletin. Baltimore, MD: Centers for Medicare & Medicaid Services, U.S. Department of Health and Human Services. Available at https://www.medicaid.gov/federal-policy-guidance/downloads/cib-06-26-2015.pdf. Accessed June 22, 2018.

Waegemakers, S. J., and J. Rook. 2012. *Housing First: Where Is the Evidence?* Toronto, Canada: Homeless Hub. Available at http://www.homelesshub.ca/sites/default/files/HousingFirstReport_final.pdf. Accessed June 22, 2018.

Wallerstein, N., and B. Duran. 2010. Community-based participatory research contributions to intervention research: The intersection of science and practice to improve health equity. *American Journal of Public Health* 100(S1):S40-S46.

Watson, S. 1984. Definitions of homelessness: A feminist perspective. *Critical Social Policy* 4(11):60-73.

Watson, D., R. Hollister, S. E. Stroud, and E. Babcock. 2011. The engaged university: International perspectives on civic engagement. Park Drive, UK: Taylor & Francis.

Weinstein, M. C., J. E. Siegel, M. R. Gold, M. S. Kamlet, and L. B. Russell. 1996. Recommendations of the panel on cost-effectiveness in health and medicine. *Journal of the American Medical Association* 276(15):1253-1258.

White House. 2016. *Housing Development Toolkit.* Available at https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Housing_Development_Toolkit%20f.2.pdf. Accessed February 24, 2017.

WHO (World Health Organization). 1946. World Health Organization Constitution. Available at http://www.who.int/about/mission/en. Accessed May 18, 2017.

WHO. 1994. Constitution of the World Health Organization. Basic Documents, 40th ed. Geneva Switzerland: WHO.

WHO. 2017. Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health. Brochure. Commission on Social Determinants of Health. Available at http://www.who.int/social_determinants/en. Accessed June 1 2017.

WHOQOL Group. 1998. Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychological Medicine* 28(3): 551-558.

Wilkins, C., and M. R. Burt. 2012. Public Housing Agencies and Permanent Supportive Housing for Chronically Homeless People. Prepared by Abt Associates for Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services. Available at https://aspe.hhs.gov/report/public-housing-agencies-and-permanent-supportive-housing-chronically-homeless-people. Accessed June 22, 2018.

Wilkins, C., M. R. Burt, and G. Locke. 2014. A Primer on Using Medicaid for People Experiencing Chronic Homelessness and Tenants in Permanent Supportive Housing. Prepared for Office of Disability, Aging and Long-Term Care Policy, Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services. Available at https://aspe.hhs.gov/system/files/pdf/77121/PSHprimer.pdf. Accessed May 23, 2017.

Wilkins, E., S. W. Hwang, C. Chambers, E. Estrabillo, J. Berends, and A. MacDonald. 2011. Chronic pain among homeless persons: Characteristics, treatment, and barriers to management. *BMC Family Practice* 12:73.

Wolitski, R. J., D. P. Kidder, S. L. Pals, S. Royal, A. Aidala, R. Stall, D. R. Holtgrave, D. Harre, C. Courtenay-Quirk, and Housing and Health Study Team. 2010. Randomized trial of the effects of housing assistance on the health and risk behaviors of homeless and unstably housed people living with HIV. *AIDS and Behavior* 14:493-503.

Wong, Y.-L. I., T. R. Hadley, D. P. Culhane, S. R. Poulin, M. R. Davis, B. A. Cirksey, and J. L. Brown. 2006. *Predicting Staying in or Leaving Permanent Supportive Housing That Serves Homeless People with Serious Mental Illness*. Prepared by M. Davis and Co., Inc., for the U.S. Department of

Housing and Urban Development, Office of Policy Development and Research. Available at https://www.huduser.gov/portal/publications/homeless/permhsgstudy.html. Accessed June 22, 2018.

Wright, J. D. 1990. Poor people, poor health: The health status of the homeless. *Journal of Social Issues* 46(4):40-64.

Wright, B. J., K. B. Vartanian, H.-F. Li, N. Royal, and J. K. Matson. 2016. Formerly homeless people had lower overall health care expenditures after moving into supportive housing, *Health Affairs* 35:20-27.

Yang, C. Y., C. Boen, K. Gerken, T. Li, K. Schorpp, and K. M. Harris. 2015. Social relationships and physiological determinants of longevity across the human life span. *Proceedings of the National Academy of Sciences of the United States of America* 113(3):578-583.

Zlotnick, J. L. 2010. Fostering and sustaining university/agency partnerships. Chapter 11 in *Fostering Accountability: Using Evidence to Guide and Improve Child Welfare Policy,* M. F. Testa and J. Poertner, eds. New York: Oxford University Press.

Zlotnick, C., and S. Zerger. 2008. Survey findings on characteristics and health status of clients treated by the federally funded (US) Health Care for the Homeless Programs. *Health and Social Care in the Community* 17(1):18-26.

Zlotnick C., S. Zerger, and P. B. Wolfe. 2013. Health care for the homeless: What we have learned in the past 30 years and what's next. *American Journal of Public Health* 103(Suppl 2):S199-S205.

Zur, J., S. Linton, and H. Mead. 2016. Medical respite and linkages to outpatient health care providers among individuals experiencing homelessness. *Journal of Community Health* 3(2):81-89.

Appendix A

Committee on an Evaluation of Permanent Supportive Housing Programs for Homeless Individuals: Biographical Information

KENNETH W. KIZER (NAM) (*Chair*) is a distinguished professor in the University of California (UC), Davis, School of Medicine and the Betty Irene Moore School of Nursing, and director of the Institute for Population Health Improvement, UC Davis Health. Among other positions, he also serves as the chief medical Officer, California Department of Managed Health Care; Director, California Cancer Reporting and Epidemiologic Surveillance Program; and chief quality improvement consultant, Medi-Cal Quality Improvement Program, California Department of Health Care Services. Kizer is a highly seasoned physician executive whose professional experience includes positions in the public and private sectors, academia and philanthropy. His previous positions include: founding president and chief executive officer, National Quality Forum, a Washington, DC-based quality improvement and consensus standards setting organization; president, CEO and chairman, Medsphere Systems Corporation, a leading provider of open source health information technology; under secretary for Health, U.S. Department of Veterans Affairs and chief executive officer of the nation's largest health care system; director, California Department of Health Services; and director, California Emergency Medical Services Authority. He has served on the U.S. Preventive Services Task Force and as chairman of the Board, The California Wellness Foundation, as well as on the governing boards of managed care and health IT companies, foundations, professional associations and non-profit organizations. He is an honors graduate of Stanford University and UCLA, the recipient of two honorary doctorates, and a fellow or distinguished fellow of 11 professional societies, including being an elected fellow of the National Academy of Public Administration. He is board certified in six medical specialties and or subspecialties, and has authored over 400 original articles, book chapters and other reports. He has been selected as one of the "100 Most Powerful People in Health care" by *Modern Healthcare* magazine on several occasions, and his work has been featured in *Time*, *BusinessWeek*, *Fortune*, *The Wall Street Journal*, *The New York Times* and numerous other magazines, newspapers and national television

shows. He has served on numerous National Academy of Medicine committees and boards.

BARBARA L. BRUSH is the Carol J. and F. Edward Lake Professor in Population Health, Department of Health Behavior and Biological Sciences, University of Michigan School of Nursing. Her interests include family homelessness, community-based participatory research, health disparity/inequity, international nurse migration, and nurse workforce policy. The author of two books and over sixty peer-reviewed journal articles, Brush has focused her research on promoting health and reducing health inequality among vulnerable and community-based populations. An advanced practice nurse (APN) and proponent of interprofessional primary care practice, she created one of the nation's first clinical practice models utilizing APNs and ministers to care for homeless men. She has also been part of a longstanding team designing APN care delivery models and measuring their outcomes in nursing home settings. Her current research with homeless families in Detroit utilizes a community-based participatory research approach to address the health and social needs of this vulnerable population. A nurse historian with advanced policy training, Brush also examines important issues in nurse workforce development and capacity building. She is a leading expert in nurse migration and has explored the United States' long practice of recruiting internationally educated nurses to fill nurse shortfall in hospitals and nursing homes. This work has informed national and international policies on the ethical recruitment of internationally educated nurses and approaches to measure safety and quality care practices. Brush received her Ph.D. and M.S.N. from University of Pennsylvania and her B.S.N. from Southeastern Massachusetts University.

SEIJI HAYASHI is the director of Medicine at the Human Diagnosis Project (Human Dx), an online system that combines clinician expertise and artificial intelligence to improve diagnostic and treatment accuracy, access and affordability with a special emphasis on vulnerable populations. He is also a board-certified family physician practicing at a community health center in Washington, DC. Hayashi is an experienced leader in quality improvement, practice transformation, and health policy at the local and national levels. As a family physician, he has spent 20 years working in and with community health centers that care for the nation's most vulnerable patients and families. Prior to Human Dx, he was executive vice president for Transformation and Innovation at Unity Health Care, one of the nation's largest community health centers and health care for the homeless programs. Unity provides quality care to more than 106,000 patients in underserved areas of the District of Columbia. Hayashi also served as chief medical officer for the Bureau of Primary Health Care at the Health Resources and Services Administration where he oversaw the clinical quality strategy for the $5.1 billion federal Health Center Program that cares for 24 million individuals across the United States, including 1.3 million individuals experiencing homelessness. Hayashi graduated with honors from Vassar College, received his M.D. with Alpha Omega Alpha distinction from the Albert Einstein College of Medicine, and

an M.P.H. from the Harvard School of Public Health. He completed his residency training in family medicine from the University of California at San Francisco and was a fellow with the Commonwealth Fund/Harvard University Fellowship in Minority Health Policy.

STEPHEN HWANG is the director of the Centre for Urban Health Solutions, St. Michael's Hospital, and a professor of Medicine at the University of Toronto. Hwang holds the chair in Housing, Homelessness, and Health at St. Michael's Hospital and the University of Toronto. He practices general internal medicine at St. Michael's Hospital and at Seaton House (one of Canada's largest homeless shelters). Previously, he was a physician with the Boston Health Care for the Homeless Program from 1992 to 1996. Hwang joined the Faculty of Medicine at the University of Toronto in 1996 and served as the Director of the Division of General Internal Medicine at the University of Toronto from 2005 to 2016. Hwang's research focuses on improving the health of people who are homeless or vulnerably housed and deepening our understanding of housing as a social determinant of health. His current research projects include an observational cohort study of health and housing transitions among homeless and vulnerably housed adults in Toronto, Ottawa, and Vancouver; and the At Home/Chez Soi study, a randomized controlled trial of rent subsidies and mental health supports for individuals who are homeless and have mental health issues. His research has brought attention to the severe health risks faced by people who are homeless and vulnerably housed in Canada. Hwang completed his undergraduate training at Harvard University, his M.D. at the Johns Hopkins University School of Medicine, and a master of public health degree at the Harvard School of Public Health.

MITCHELL KATZ (NAM) is the president and chief executive officer of NYC Health + Hospitals. Previously, Katz was the director of the Los Angeles County Health Agency, an integration of the Departments of Health Services, Mental Health, and Public Health. He oversaw a $7.0 billion annual budget and 28,000 employees, and focused on development of integrated care models for persons with mental illness, substance use, and physical illness. He was appointed director of the Los Angeles County Department of Health Services (DHS) in 2011 and oversaw the transformation of that system from an emergency and episodic based system, to a system focused on longitudinal outpatient care with strong linkages to the four inpatient hospitals. Under his leadership DHS has enpaneled 450,000 persons into patient centered medical homes, created an electronic consultation system to decrease waiting times for specialty care, and housed more than 1,500 chronically homeless persons in supportive housing. Prior to joining DHS, Katz served as director of Health and Health Officer for the San Francisco Department of Public Health (SFDPH) from 1997 to 2010. There, one of his signature accomplishments was creation of the "Healthy San Francisco" initiative that established primary care medical homes for the city's vulnerable residents that improved

health outcomes. Earlier, he served as SFDPH Director of Community Health and Safety from 1996 to 1997 and Director of the AIDS Office from 1992-1997. Dr. Katz received a B.S. degree from Yale University and M.D. from Harvard Medical School. He completed his residency in Primary Care Internal Medicine at the University of California, San Francisco, and is a practicing internist.

MAHASIN MUJAHID is an associate professor of Epidemiology in the School of Public Health at the University of California, Berkeley. As a social epidemiologist, Mujahid employs interdisciplinary and community-based approaches to investigations of racial/ethnic and place-based health disparities. Her primary area of research examines how features of neighborhood environments impact cardiovascular health. Using data from several U.S. based cardiovascular cohorts, Mujahid seeks to improve the measurement of specific features of neighborhood physical and social environments and employs novel statistical methods to estimate neighborhood health effects. Her research has been funded by the National Institutes of Health and the Robert Wood Johnson Foundation, and has been published in leading public health and medical journals. Prior to joining the faculty at UC Berkeley, Mujahid earned a B.S. in Mathematics from Xavier University, New Orleans LA, and an M.S. in Biostatistics and Ph.D. in Epidemiology from the University of Michigan, Ann Arbor. She was also a Robert Wood Johnson Health and Society Scholar at Harvard University.

JAMES O'CONNELL is the president of the Boston Health Care for the Homeless Program. O'Connell graduated summa cum laude from the University of Notre Dame in 1970 and received his master's degree in theology from Cambridge University in 1972. After graduating from Harvard Medical School in 1982, he completed a residency in Internal Medicine at Massachusetts General Hospital (MGH). In 1985, O'Connell began fulltime clinical work with homeless individuals as the founding physician of the Boston Health Care for the Homeless Program (BHCHP), which now serves over 12,000 homeless persons each year in two hospital-based clinics (Boston Medical Center and MGH) and in more than 70 shelters and outreach sites in Boston. With his colleagues, O'Connell established the nation's first medical respite program for homeless persons in September 1985, with 25 beds in the Lemuel Shattuck Shelter. This innovative program now provides acute and sub-acute, pre- and post-operative, and palliative and end-of-life care in BHCHP's free-standing 104-bed Barbara McInnis House. Working with the MGH Laboratory of Computer Science, Dr. O'Connell designed and implemented the nation's first computerized medical record for a homeless program in 1995. From 1989 until 1996, O'Connell served as the National Program Director of the Homeless Families Program of the Robert Wood Johnson Foundation and the U.S. Department of Housing and Urban Development. O'Connell has been featured on ABC's Nightline and in a feature-length documentary entitled "Give Me a Shot of Anything." He has received numerous awards, including the Albert Schweitzer Humanitarian Award in 2012 and The Trustees' Medal at the bicentennial celebration of MGH in 2011. O'Connell's book, *Stories from the*

Shadows: Reflections of a Street Doctor was published in 2015 and was featured on NPR's Fresh Air with Terri Gross. O'Connell is an assistant professor of medicine at Harvard Medical School and staff physician at Massachusetts General Hospital.

BARBARA SAMUELS is the managing attorney of the Fair Housing Project of the American Civil Liberties Union (ACLU) of Maryland. The project's mission is to use policy advocacy and litigation to expand housing choices and the supply of assisted housing in integrated neighborhoods throughout the Baltimore region. Samuels has been the lead ACLU counsel in *Thompson v. HUD*, a public housing desegregation case that is creating housing opportunities for families in low-poverty and racially integrated neighborhoods throughout Baltimore City and the metro region. Before joining the ACLU in 1993, Samuels was a legal services housing attorney in Baltimore and southwest Virginia for 13 years.

MARYBETH SHINN is Cornelius Vanderbilt Professor in the Department of Human and Organizational Development at Vanderbilt University's Peabody College of Education and Human Development. She has research interests in homelessness, community contexts of human welfare, social policy, and social intervention. She is a former President of the Society for Community Research and Action and the Society for the Psychological Study of Social Issues, a fellow of both these organizations and of the Association for Psychological Science. She also chaired Peabody Department of Human and Organizational Department and the Psychology Department at New York University. Professor Shinn has received several awards for her teaching and research, including the Golden Dozen Teaching Award from New York University (2002), Ethnic/Minority Mentoring Award from the Society for Community Research and Action (1997), and the Award for Distinguished Contributions to Theory and Research from the Society for Community Research and Action (1996), and the Social Policy Edited Book Award from the Society for Research on Adolescence (2010). She has also served on two National Institutes of Health study sections (Social Science and Population Studies, Child/Adolescent Risk and Prevention), and twice served as associate editor of the *American Journal of Community Psychology*. Shinn received her B.A. (summa cum laude) in Social Relations from Radcliffe College, Harvard University, as well as her M.A. in Social Psychology and her Ph.D. in Community Psychology, Social Psychology from University of Michigan.

PING WANG is Seigle Family Distinguished Professor of Arts and Sciences at Washington University in St. Louis. His major research areas include growth and development, money and macroeconomics, economic theory, and spatial/health economics. He has published more than 80 research articles in refereed journals. Wang served as department chair at Vanderbilt during 2002-2005 and at Washington University in St. Louis during 2005-2008, vice president of the Chinese Economic Association in North America during 1991-1992, and president of the

Chinese Economic Association in North America in 2001 and president of the Midwest Economic Association in 2014. He is currently co-director of the Midwest Macro Group, vice president for Planning and Development of the East Asian Institute, research associate of the National Bureau of Economic Research (NBER), senior research fellow of the Federal Reserve Bank of St. Louis and Asian Bureau of Finance and Economic Research, academician (National Academy Fellow of Taiwan), editor for *Journal of Macroeconomics*, associate editor for *Economics Bulletin*, *Journal of Public Economic Theory*, and *Regional Science and Urban Economics*. His current research focuses primarily on: microfounded theory in growth and development; intertemporally and spatially redistributive policy; search and match models of labor, family, and technology; agglomeration of productive economic activities; labor market consequences of addiction/substance abuse and health/human capital investment decisions; positive and normative analysis of crime, corruption, casinos and networks; and economic integration, outsourcing, venture capital and institutions. Wang received a Ph.D. degree in economics from the University of Rochester in May 1987, being affiliated with Penn State University from 1987 to 1998 and with Vanderbilt from 1999 to 2005.

SUZANNE WENZEL is Richard and Ann Thor Professor in Urban Social Development and chair of the Department of Adult Mental Health and Wellness in the Suzanne Dworak-Peck School of Social Work and Department of Psychology at University of Southern California (USC). Wenzel has served as the principal investigator on 10 grants from the National Institutes of Health. Her research involving homeless persons has included an investigation of the relationship of trauma to substance use and HIV/AIDS risk among women; examinations of the social context of risk for substance use and HIV/AIDS among women, men and youth; and adaption of evidence-based programs to address post-traumatic stress and to prevent victimization and risky sexual activity among women. She is also investigating the process and outcomes of transitioning to permanent supportive housing among persons experiencing chronic homelessness, and organized a Los Angeles County-wide forum on the topic of integrated care and housing for homeless persons. After completing her doctoral studies in community psychology at University of Texas at Austin, Wenzel was awarded a National Institute of Mental Health post-doctoral fellowship in the Rutgers/Princeton program in mental health research. Prior to her appointment at USC in 2009, she was a senior behavioral scientist at the RAND Corporation in Santa Monica, California. She is an elected fellow in the Association for Psychological Science and a fellow in the Western Psychological Association. She has authored/co-authored more than 100 peer-reviewed journal articles, has performed peer review service for multiple scholarly journals, and has served on review panels for the National Institutes of Health, the National Science Foundation, and other national and international funding agencies.

Appendix B

The History of Homelessness in the United States

HOMELESSNESS THROUGH THE EARLY 20TH CENTURY

When first used in the United States in the 1870s, the term "homelessness" was meant to describe itinerant "tramps" traversing the country in search of work. The primary emphasis at this time was on the loss of character and a perceived emerging moral crisis that threatened long-held ideas of home life, rather than on the lack of a permanent home. One religious group described the problem as "a crisis of men let loose from all the habits of domestic life, wandering without aim or home" (DePastino, 2003, p. 25). The solution to homelessness today is often perceived to be the creation or availability of affordable housing, but during the early 20th century, jobs (rather than housing) were viewed as the solution to the plight of transients wandering the country.

Fewer than 7 percent of Americans lived in cities prior to the 1820s (Kim and Margo, 2003). Growing industrialization in the 19th century brought a steady migration to urban centers such as Boston, New York, and Philadelphia, and vagrancy records suggest a rise in the numbers of those in search of work in these cities. The Industrial Revolution ushered in a shift from the individual living and surviving on farms or working in skilled trades to the wage-earning worker dependent upon wealthy employers. By the 1850s, lodging rooms for vagrants located in police stations served as the major shelter system, and most major cities reported increasing numbers of vagabonds (Kusmer, 2002).

After declining briefly after the Civil War, homelessness first became a national issue in the 1870s. Facilitated by the construction of the national railroad system, urbanization, industrialization, and mobility led to the emergence of tramps "riding the rails" in search of jobs. Jacob Riis, the Danish-born social reformer and muckraker whose later photojournalism depicted the deplorable lives of those in slums and tenements, arrived in America in 1870 at the age of 21 and described his subsequent 3 years as a member of "the great army of tramps" seeking work across the country. This "army" of overwhelmingly young, able-bodied, white men created a culture that blended the search for work with a love of the open road and a disdain for the constraints of workers in industrialized America (DePastino, 2003). Willing to embrace hard work, they constituted a counterculture with rules and habits that often engendered the wrath of mainstream society. Francis Wayland, the dean of Yale Law School, wrote in 1877, "As we utter the word tramp there arises straightway before us the spectacle of a lazy, shiftless, sauntering or swaggering, ill-conditioned, irreclaimable, incorrigible, cowardly, utterly depraved savage" (Wayland, 1877, p. 10).

The word "hobo" first appeared in the 1880s in western America and softened the public's perceptions of tramps. This culture of migrant laborers was often romanticized in American literature, including by writers such as Walt Whitman, Bret Harte, and Sinclair Lewis. Jack London wrote vivid depictions of the "call of the road" as an escape from the oppression and monotony of factory work (Etulain, 1979). The storied hobo culture, popularized in the 1920s as "hobohemia" by Chicago sociologist and former tramp Nels Anderson (Anderson, 1923), faded as companies began to value loyalty and longevity and as seasonal jobs began to be taken by immigrant farm workers.

World War II emerged as an economic engine that put the nation to work. Over the ensuing three decades, the typical individual experiencing homelessness continued to be disproportionately white and male but became increasingly older (usually over 50 years old), disabled, dependent on welfare or social security, and resided in cheap hotels, flophouses, and in single room occupancy hotels (SROs) located in the poorest neighborhoods and Skid Row areas of urban America (Rossi, 1989). Ironically, these people living in SROs and rooming houses during this period would be considered "housed" under HUD's current definition of homelessness. This observation underscores the difficulty in defining and studying homelessness throughout U.S. history.

THE MODERN ERA OF HOMELESSNESS

The early 1980s marked the emergence of what now may be considered the modern era of homelessness. Major forces that changed the complexion of homelessness in the modern era include gentrification of the inner city, deinstitutionalization of the mentally ill, high unemployment rate, the emergence of HIV/AIDS, an inadequate supply of affordable housing options, and deep budget cuts to the U.S. Department of Housing and Urban Development (HUD) and social service agencies in response to what was then the country's worst recession since the Great Depression (Jones, 2015). In some cities, property values increased dramatically in the areas near downtown, and Skid Row areas disappeared as the SROs and rooming houses that were home to thousands of transients were razed or converted into apartments and condominiums. Since the 1980s, rents in metro areas across the country have been increasing while wages have stagnated (Katz, 2006). Recent research indicates that families experiencing homelessness are more likely to continue to face poverty and homelessness in the future (Desmond, 2016).

Deinstitutionalization of the mentally ill has roots in the civil rights and civil liberties movements of the 1960s, which envisioned more fulfilling lives for those who had been languishing in understaffed psychiatric hospitals through new medications and robust community-based services. The number of patients living in state hospitals dropped from 535,000 in 1960 to 137,000 in 1980. California saw a dramatic reduction in state hospital beds from 37,000 in 1955 to 2,500 in 1983 (Flynn, 1985). Funding for the needed housing and community-based services proved inadequate, and, as cheap housing disappeared, vast numbers of previously institutionalized individuals with severe and persistent mental illness or those who

might have gone to institutions in earlier eras drifted onto the streets and into temporary shelters.

The recession of the 1980s resulted in deep cuts to the HUD budget, which decreased from approximately $29 billion in 1976 to approximately $17 billion in 1990, and led directly to reductions in the budget authority for housing assistance (from almost $19 billion in 1976 to about $11 billion in 1990) and in subsidized housing for poor Americans (OMB, 2001). Two changes in policy particularly contributed to the rise in homelessness during that period. First, cuts in Supplemental Security Income (SSI) in the late 1980s, accompanied by a tightening of the disability eligibility process (Social Security Act of 1980), adversely affected mentally ill persons living in rooming houses. The subsequent loss of personal income contributed to homelessness for many of these individuals (Collin and Barry, 1987). The Social Security Disability Benefits Reform Act of 1984 was later enacted to pull back on some of the aspects of the 1980 Social Security Act, which impeded the efforts of some individuals experiencing illness and homelessness to pursue benefits. Second, public inebriation was decriminalized in many cities, and those once jailed for public drunkenness now avoided arrest and often entered shelters or remained on the streets (McCarty et al., 1991).

Homelessness and the HIV/AIDS Epidemic

Another major factor that increased the numbers of individuals experiencing homelessness during the 1980s was the HIV/AIDS epidemic. Culhane and colleagues (2001) presented data from the city of Philadelphia indicating that the two conditions, AIDS and homelessness, "frequently co-occur" (Culhane et al., 2001, p. 515). Those shelter users who were male, substance abusers, and diagnosed with a serious mental illness often had a co-occurring AIDS diagnosis due to risky behaviors such as sharing needles for intravenous (IV) drug use (Culhane et al., 2001). The authors also noted that Philadelphia shelter utilizers had nine times the risk of having AIDS compared to the general population.

Lebow et al. (1995) noted from their retrospective cohort study comparing housed individuals with AIDS and individuals experiencing homelessness with AIDS in Boston that the unhoused men with AIDS were more likely to be African American or Latino and be IV drug users when compared to the housed men. The authors noted that IV drug use was a common risk behavior for the homeless men when compared to the housed men. Further, "given the increasing number of AIDS cases among IV drug users and people of color in general," it was observed that intravenous drug use may be at least partly responsible for the higher number of AIDS cases in the population of individuals experiencing homelessness (Lebow et al., 1995, p. 295).

In response to the co-occurrence of AIDS and homelessness, the Office of HIV/AIDS Housing in HUD was created in 1990 to manage the Housing Opportunities for Persons With AIDS (HOPWA) program under the Cranston-Gonzalez National Affordable Housing Act (P.L. 101-625). The program was created due to inadequate housing resources for low-income people living with AIDS, who

also faced difficulty obtaining supportive services and experienced discrimination (GAO, 1997). HOPWA funds are provided to eligible states and cities based on a formula; there is also a small competitive grant program.

The confluence of these and other events changed the face of homelessness yet again. The typical homeless person of the 1980s was younger (less than 40 years old), more impoverished, and had a higher burden of co-occurring medical, mental health, and substance use disorders than previous generations of persons experiencing homelessness. For the first time, women and families appeared in significant numbers (Rossi, 1990). Shelters that had long served poor and older alcoholic men withstood a new and eclectic wave of impoverished men and women displaced from their homes, many of them struggling with undue burdens of co-occurring medical, psychiatric, and substance use disorders. Many others were simply living in poverty. Sociologists referred to this generation as experiencing "literal homelessness" with no access to conventional dwellings, such as houses, apartments, mobile homes, rooming houses, or SROs (Jones, 2015).

Different Types of Homelessness

The amount of time that individuals who experience homelessness are without stable housing varies considerably, from short to more extended periods. Kuhn and Culhane (1998) categorized homelessness with a temporal topography when examining the utilization patterns of single adults in public shelters in New York City (NYC) and Philadelphia during the 1990s. They identified three groups of individuals experiencing periods of homelessness: (1) transient, 80 percent of those using the shelter who had a single brief stay; (2) episodic, 10 percent of shelter users who had repeated but brief shelter stays; and (3) chronic, 10 percent of users who essentially spent each night in the shelter. Related studies in NYC (Culhane and Kuhn, 1998) found that the small group of chronically homeless adults comprised 18 percent of shelter use, staying for more than 180 days in their first year in the shelter system and accounting for 53 percent of the total shelter days used by single adults. Philadelphia data indicated that 10 percent of single adults staying in shelters accounted for almost 35 percent of the total shelter days. The identification of specific subgroups of individuals experiencing chronic homelessness shaped later federal policy.

Using administrative data regarding shelter utilization from NYC, Philadelphia, Columbus, Ohio, and the state of Massachusetts, Culhane et al., (2007) developed a typology of families experiencing homelessness. Families who are episodic shelter users were more likely than others to exhibit a behavioral health or social service history. The authors note that the number of families who are episodic shelter users is relatively small. Long-term shelter users among families experiencing homelessness, in contrast to single adult shelter users, were not more likely to have high service needs or barriers to housing stability. The authors argued that a simple policy solution to help families experiencing homeless would be to provide emergency or transitional rental subsidies.

FEDERAL RESPONSES TO HOMELESSNESS

Early Responses

Until the late 19th century, the problem of homelessness was in the hands of local and state authorities (Bostic et al., 2012). Urban slums in many cities, plagued with overcrowding, poor hygiene, and rudimentary sanitation, became a frequent source of outbreaks of major infectious diseases (Neiderud, 2015; Eisenstein, 2016). To address the growing problem of urban slums, in 1892 Congress allocated $20,000 to the Department of Labor (DOL) to investigate urban slums in cities with at least 200,000 residents (Congressional Research Service, 2004). In 1908, President Theodore Roosevelt formed a formal housing commission to continue these investigations, but these efforts were halted with the stock market crash of 1929.

Consequent to the Great Depression of the 1930s, there was a significant increase in the number of persons experiencing homelessness in America and a greater need to address poverty and to improve the quality and affordability of housing. In response, a number of federal policies and pieces of legislation were enacted to improve the overall quantity and affordability of housing. For example, the Emergency Relief and Construction Act of 1932 authorized the Reconstruction Finance Corporation to lend public funds to corporations to build housing for low-income families (Congressional Research Service, 2004).

Another relevant federal legislative act from this era included the National Industrial Recovery Act of 1933, which allowed the Public Works Administration (a government-sponsored work program) to use federal funds for slum clearance, the construction of low-cost housing, and subsistence homesteads; close to 40,000 housing units were produced that year.

Post-World War II Legislation

Decades of economic distress, followed by 5 years of World War II mobilization, resulted in severe housing shortages and led the federal government to lay the cornerstones for today's affordable housing system. For example, in response to the severe housing shortage after the war, Congress passed the Housing Act of 1949. Its goal was to offer "a decent home and a suitable living environment for every American family" (HUD, nd, p. 3). Unfortunately, the urban renewal programs it authorized often destroyed more housing than was created (Lipsitz, 2008). Its use of public housing to serve the displaced households, who were generally minorities, and creation of a Federal Housing Administration (FHA) mortgage program to finance suburban housing available only to whites helped to entrench poverty and segregation in America's cities, particularly for people of color. The Housing Act of 1954 continued and broadened slum clearance and urban redevelopment in inner cities. It was not until the Housing Act of 1956 (P.L. 84-1020) that relocation payments were authorized to those individuals and families who were displaced by the process of urban renewal (HUD, 2014).

The Housing and Urban Renewal Act of 1965 (P.L. 89-117) was enacted as a rent supplement for low-income, disabled, and elderly individuals. Legislation in 1965 also formally created the Department of Housing and Urban Development. Finally, Title VIII of the Civil Rights Act of 1968, the Fair Housing Act, established fair housing provisions to prohibit discrimination in access to housing. This act covers discrimination based on disability status or family status. Discrimination based on age was added in 1995 through the Housing for Older Persons Act. Enforcement of Title VIII is vested with HUD's Office of the Assistant Secretary for Fair Housing and Equal Opportunity (HUD, 2007b). The HUD Rule on Affirmatively Furthering Fair Housing, authorized in 1968, was not published until 2016. Perhaps not surprising insofar as it took 50 years to issue the rule, enforcement of its provisions has been lackluster and inconsistent.

The Housing and Community Development Act of 1974 (P.L. 97-35) merged several urban development programs into the broader Community Development Block Grant (CDBG) program. This legislation also created the Housing Choice Voucher program, also known as the Section 8 program, to provide low-income housing through rental subsidies paid to the private sector. The "tenant-based" form of these rent subsidies, whereby families with a voucher choose and lease safe, decent, and affordable privately owned rental housing, is the mainstay of today's federal housing assistance programs for homeless and low-income individuals and families. The program serves more than 2.1 million households (Congressional Budget Office, 2015).

The first federal legislation enacted to explicitly address homelessness was the 1977 Stewart B. McKinney Homeless Assistance Act (PL 100-77). In addition to defining homelessness (see Box B-1), which is important for allocating federal resources, it also made provisions for using federal money to support shelters for persons experiencing homelessness. The McKinney Act also created a targeted Health Care for the Homeless (HCH) primary care funding stream, with a distinct broad definition of homelessness, which now exists within the Federally Qualified Health Center (FQHC) program.

The 1997 Stewart B. McKinney Act also authorized the creation of the U.S. Interagency Council on Homelessness (USICH). USICH is an independent executive branch body established to better coordinate homelessness programs across government agencies. The USICH includes representative membership from all major federal agencies whose mission touches upon homelessness, including, among others, HHS, HUD, the Department of Veterans Affairs (VA), and the Federal Emergency Management Agency (FEMA).[1] The council is charged with assessing the effectiveness of federal activities and programs for people experiencing homelessness, and to apprise state and local governments, public agencies, and private organizations about the availability of relevant federal programs and funding opportunities (USICH, 2016).

[1]The USICH was not reauthorized from 1994-2000, was reinstated in 2001, and received a 1-year extension of its current authorization, until October 1, 2018.

In 2002, the USICH spearheaded the Chronic Homelessness Initiative, asking states and local jurisdictions to create 10-year plans to end chronic homelessness. Another change in federal policy occurred in 2003, bringing a focus on "ending chronic homelessness" through low-threshold and permanent supportive housing programs (HUD, 2007a). At that time, through a collaborative process overseen by the USICH, the federal government formally defined chronic homelessness as "an unaccompanied homeless individual with a disabling condition who has either been continuously homeless for a year or more or has had at least four episodes of homelessness in the past three years" (HUD, 2007a, p. 3).

The next reauthorization of the McKinney-Vento Act, called the HEARTH Act, was signed into law in 2009. The reauthorization consolidated several existing programs for individuals experiencing homelessness, created a federal goal that individuals and families experiencing homelessness be permanently housed within 30 days, and codified the planning processes used by communities to organize into Continuums of Care in order to apply for homeless assistance funding through HUD.[2] New definitions of "homeless," "homeless person," and "homeless individual" were expanded. These changes were based on Congress identifying (1) a lack of affordable housing and limited housing assistance programs, and (2) an assertion that homelessness is an issue that affects every community.

BOX B-1

Definition of Homeless Person, according to Public Law 111-22, the Stewart B. McKinney Homeless Assistance Act, as amended by The Homeless Emergency Assistance and Rapid Transition to Housing (HEARTH) Act of 2009

(1) Individuals and families who lack a fixed, regular, and adequate nighttime residence and includes a subset for an individual who is exiting an institution where he or she resided for 90 days or less and who resided in an emergency shelter or a place not meant for human habitation immediately before entering that institution;

(2) Individuals and families who will imminently lose their primary nighttime residence;

(3) Unaccompanied youth and families with children and youth who are defined as homeless under other federal statutes who do not otherwise qualify as homeless under this definition; or

(4) Individuals and families who are fleeing, or are attempting to flee, domestic violence, dating violence, sexual assault, stalking, or other dangerous or life-threatening conditions that relate to violence against the individual or a family member.

[2]See also: https://www.hudexchange.info/programs/coc.

In 2010, under President Obama's administration, a federal strategic plan to end homelessness was released (USICH, 2017). The federal strategic plan established four key goals: (1) Prevent and end homelessness among Veterans in 5 years; (2) Finish the job of ending chronic homelessness in 7 years; (3) Prevent and end homelessness for families, youth, and children in 10 years; and (4) Set a path to ending all types of homelessness.

REFERENCES

Anderson, N. 1923. The Hobo: the Sociology of the Homeless Man. Chicago, IL: University of Chicago Press.

Bostic, R. W., R. L. J. Thornton, E. C. Rudd, and M. J. Sternthal. 2012. Health in all policies: the role of the US Department of housing and urban development and present and future challenges. Health Affairs 31(9):2130–2137.

Collin, R. W., and D. J. Barry. 1987. Homelessness: A post-industrial society faces a legislative dilemma. Akron Law Review 20(3): 409-432.

Congressional Budget Office. 2015. Federal Housing Assistance for Low-Income Households. Online. Available at https://www.cbo.gov/publication/50782. Accessed August 6, 2017.

Congressional Research Service. 2004. A Chronology of Housing legislation and Selected Executive Actions, 1892-2003. Online. Available at https://financialservices.house.
gov/media/pdf/108-d.pdf. Accessed September 29, 2017.

Culhane, D. P., E. Gollub, R. Kuhn, and M. Shpaner. 2001. The Co-Occurrence of AIDS and Homelessness: Results from the Integration of Administrative Databases for AIDS Surveillance and Public Shelter Utilisation in Philadelphia. Journal of Epidemiology and Community Health 55:515-520.

Culhane, D. P., S. Metraux, J. M. Park, M. Schretzman, and, J. Valente. 2007. Testing a Typology of Family Homelessness Based on Patterns of Public Shelter Utilization in Four U.S. Jurisdictions: Implications for Policy and Program Planning. Housing Policy Debate 18(1):1-28.

Culhane, D. P. and R. Khun. 1998. Patterns and Determinants of Public Shelter Utilization Among Homeless Adults in New York City and Philadelphia. Journal of Policy Analysis and Management 17(1): 23-43.

DePastino, T. 2013. Citizen Hobo: How a Century of Homelessness Shaped America. Chicago Scholarship Online. Available at DOI:10.7208/chicago/9780226143804.003.
0009. Accessed September 29, 2017.

Desmond, M. 2016. Evicted: Poverty and Profit in the American City. New York, NY: Crown.

Eisenstein, M. 2016. Disease: Poverty and Pathogens. Nature 531:S61-S63

Etulain, R. W. 1979. Jack London on the Road: The Tramp Diary and Other Hobo Writings. Pp. 41-54. Logan, Utah: Utah State University Press.

Flynn, K. 1985. The Toll of Deinstitutionalization,. Pp. 189-190 in P. W. Brickner,L. K. Sharer, B. Conanan A. Elvy, and M. Savarese. The Health Care of Homeless People. New York, NY: Springer Publishing Company.

GAO (U.S. General Accounting Office). 1997. Report to the Subcommittee on VA, HUD and Independent Agencies. Committee on Appropriations, House of Representatives. Housing for Persons with AIDS. GAO/RCED-97-62. Washington, DC: GAO.

HUD (U.S. Department of Housing and Urban Development). 2007a. Defining Chronic Homelessness: A Technical Guide for HUD Programs. Online. Available at https://www.hudexchange.info/resources/documents/DefiningChronicHomeless.pdf. Accessed September 29, 2017.

HUD. 2007b. Programs Administered by the Fair Housing and Equal Opportunity (FHEO). Online. Available at https://portal.hud.gov/hudportal/HUD?src=/program_offices/
fair_housing_equal_opp/progdesc/title8. Accessed September 29, 2017.

HUD. 2014. Major Legislation on Housing and Urban Development enacted Since 1932. Online. Available at https://portal.hud.gov/hudportal/documents/huddoc?id=LEGS
_CHRON_JUNE_2014.docAccessed September 29, 2017.

Jones, M. M. 2015. Creating a Science of Homelessness During the Reagan Era. Milbank *Quarterly* 93(1):139-178.

Katz, B. 2006. Racial Division and Concentrated Poverty in U.S. Cities. Urban Age Conference, Johannesburg, South Africa. Online. Available at https://www.brookings.
edu/wp-content/uploads/2016/06/20060707_UrbanAge.pdf. Accessed September 29, 2017.

Kim, S., and R. A. Margo. 2003. Historical Perspective on U.S. Economic Geography. Online. Available at http://www.econ.brown.edu/Faculty/henderson/kim-margo.pdf. Accessed September 29, 2017.

Kusmer, K. L. 2002. Down and Out, On the Road: The Homeless in American History. New York, NY: Oxford University Press.

Lebow, J. M., J. J. O' Connell, S. Oddelifson, K. M. Gallagher, G. R. Seage III, and K. A. Freedberg. 1995. AIDS among the homeless of Boston: a cohort study. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology* 8:292-296.

Lipsitz, G. 2008. Government Policies and Practices that Increase Discrimination. Online. Available at http://www.prrac.org/projects/fair_housing_commission/chicago/lipsitz.
pdf. Accessed September 29, 2017.

McCarty, D., M. Argeriou, R. B. Huebner, and B. Lubran. 1991. Alcoholism, Drug Abuse, and the Homeless. *American Psychologist* 46(11):1139-1148.

Neiderud, C. J. 2015. How urbanization affects the epidemiology of emerging infectious diseases. Infection Ecology and Epidemiology 5:10.3402/iee.v5.27060.

Rossi, P. H. 1989. Down and Out in America: The Origins of Homelessness. Chicago, IL: The University of Chicago Press.

Rossi, P. H. 1990. The old homeless and the new homelessness in historical perspective. *American Psychologist* 45(8):954-959.

USICH (U.S. Interagency Council on Homelessness). 2016. United States Interagency Council on Homelessness Historical Overview. Online. Available at https://www.usich.gov/resources/uploads/asset_library/USICH_History_2016.pdf. Accessed September 29, 2017.

USICH. 2017. Opening Doors. Online. Available at https://www.usich.gov/opening-doors. Accessed on May 8, 2018.

Wayland, F. 1877. Papers on Out-Door Relief and Tramps, Read at the Saratoga Meeting of the American Social Science Association, before the Conference of State Charities. Online. Available at http://quod.lib.umich.edu/m/moa/aaw7999.0001.001/10?view=text. Accessed June 8, 2017.

Appendix C

Counting the Number of Individuals Experiencing Homelessness

It is difficult to precisely quantify the size of the homeless population. Direct methods of counting the number of individuals experiencing homelessness include a single-night count or census of the homeless where contact is made with each homeless person. An advantage of this approach is that direct contact allows for data accuracy, as well as collection of other sociodemographic and other information on the characteristics of these populations. However, this approach is limited in that it only represents a point-in-time snapshot or cross-sectional account of the state of homelessness at that juncture. In 2017, the national Annual Homeless Assessment Report found that on a single night in 2017, 553,742 individuals experienced homelessness.

The method that yields the largest estimates is surveying people in conventional housing about their past experiences with homelessness. Link et al. (1994) contacted 1,507 adults using random-digit dialing to ask individuals to self-report on their experience with homelessness. Based on this approach it was estimated that 26 million people (14 percent of the nation's population) had experienced self-defined homelessness during their lifetimes and that 8.5 million people had experienced homelessness in the past 5 years. This included those adults who were "doubled-up": that is, who moved in with friends or relatives to avoid homelessness. The self-reported group of individuals who had experienced literal homelessness over their lifetimes was 13.5 million people or 7.4 percent of the population. Among this group, 5.7 million (3.1 percent) reported homelessness during the 5 previous years.[1]

Recognizing these challenges, and partly in response to federal legislation, HUD has worked to create a comprehensive system to count and track persons experiencing homelessness. Local Homelessness Management Information Systems (HMIS) were created and information is aggregated into national reports in response to a Congressional directive in 2001 requiring HUD to provide data to support an assessment of the effectiveness of the McKinney-Vento Act. HUD was

[1]The Link et al. (1994) study defines "literal homelessness" as either sleeping in a homeless shelter or sleeping in a park, abandoned building, on the street, or in a train/bus station.

charged with providing accurate and unduplicated counts of the clients using homelessness services and a detailed accounting of the pattern of services used. To meet this charge, from 2001 to 2005, HUD extensively consulted with grassroots organizations who were already working at the community level to use technology to improve service delivery for their local populations. HUD also consulted with technology experts and service providers to collect information on the essential elements of data collection. This planning and needs assessment period resulted in the development of the HMIS Data and Technical Standards guide in 2004. Universal data elements included: name, social security number, date of birth, race and ethnicity, gender, veteran status, presence of disabling conditions, residence prior to use of services, entry and exit date for services, and destination post services. However, each program uses its own computer program for tracking this information, and it is not easy or even possible to share information across jurisdictions.

A 2017 update of the HMIS data guide now requires additional information on the relationships of the user to the head of household as well as the length of time on the street or in an emergency shelter or safe haven prior to receipt of services. There is also a requirement for data collection on program-specific indicators including income and source of income, noncash benefits, presence of physical or development disability, HIV/AIDS status, mental health, substance abuse, domestic violence, services received, destination upon exit and reason for leaving, employment, education, general health status, pregnancy status, veteran's information, and children's education.

In another effort to better determine the number of persons experiencing homelessness in America, HUD developed a single point-in-time (PIT) counting system. The origins of this system date back to the early direct methods employed by HUD to count the homeless. The first study was conducted in 1984 in which a subset of service providers was asked to estimate the number of persons experiencing homelessness in their geographic area. Estimates suggested that between 250,000 to 350,000 persons were experiencing homelessness at a given point-in-time. Building on lessons learned from this early work, HUD created a new PIT system that included a mandate requiring Continuums of Care networks to annually count all persons experiencing homelessness in their catchment area including those in emergency shelters, transitional housing, and other safe havens. HUD also standardized the timing of the data collection to a single night in January. More recent estimates based on a single night in January 2017 suggested that 553,742 persons were experiencing homelessness in 2015, for a rate of 17 per 10,000 persons (HUD, 2017a).

Despite improvements made to the PIT system counts, significant logistical challenges remain in this method of data collection. A phalanx of volunteers is deployed to conduct a count of people experiencing homelessness within a specified geographic area; this effort is coordinated by the local Continuum. A variety of concerns have been raised about this procedure, including logistical issues covering large geographic areas and the likelihood of missing individuals experiencing homelessness who choose to remain out of sight and, therefore, are not

counted. Efforts have been made to improve the PIT counts, including using decoy individuals who are "planted" in sites (Hopper et al., 2008) and the use of an incident command system similar to that used by police and fire departments (Troisi et al., 2015). Nonetheless, there continues to be widespread agreement that it is difficult to adequately estimate the number of persons experiencing homelessness in the United States. Although New York City's count is one of the most sophisticated, Hopper et al. (2008) estimated that it missed about half of the people not staying in shelters.

Thus, there are persistent concerns that estimates based on PIT counts represent a significant underestimate of the true burden of U.S. homelessness. Several sources of evidence provide support for these concerns. For example, the Annual Homelessness Assessment Report provides estimates of the overall number of people who stay in shelters or transitional housing programs in the United States over the course of a year and estimates by specific subgroups; however, the report does not provide information on the number of people at risk of homelessness. One strong predictor of homelessness is "doubling up," as defined above. HUD's American Housing Survey found that from 2003 to 2009, the number of doubled-up households of more than one family living together increased from 2,737,000 to 3,354,000 households (PD&R Edge, 2014). Increases were also found for households with an adult child living at home and households with more than one family where individuals are related.

Although "doubling up" is not a form of literal homelessness, HUD (2014) considers it as "housing instability" and thus many researchers see this as a precursor to the experience of homelessness for the family staying with an existing household. Among people who entered homeless shelters from housing in 2016, three quarters had been staying with family or friends and only a quarter in a place they owned or rented prior to becoming homeless (HUD, 2017b). HUD treats doubling up households as experiencing "housing instability" rather than homelessness.

The National Alliance to End Homelessness (2016) estimated that nearly 7 million individuals were "doubled up" in 2014.[2] Another household-related factor that serves as a strong predictor of future homelessness is severely high housing costs for low-income renters (Shinn et al., 1998). HUD reports that 7.7 million households, or almost 42 percent of very low income renter household, experience "worst-case housing needs." Worst-case housing needs are defined as "renters with incomes below 50 percent of the area median income who do not receive government housing assistance and who pay more than one-half of their income for rent."

[2]Most recent data available.

REFERENCES

Hopper, K., M. Shinn, E. Laska, M. Meisner, and J. Wanderling. 2008. Estimating numbers of unsheltered homeless people through plant-capture and post-count survey methods. *American Journal of Public Health* 98(8):1438-1442.

HUD (U.S. Department of Housing and Urban Development). 2017a. The 2017 Annual Homeless Assessment Report (AHAR) to Congress. Part 1: Point-in-time estimates of homelessness. Online. Available at https://www.hudexchange.info/resources/documents/2017-AHAR-Part-1.pdf. Accessed April 6, 2018.

HUD. 2017b. The 2016 Annual Homeless Assessment Report (AHAR) to Congress. Part 2: Estimates of Homelessness in the United States. Online. Available at https://www.hudexchange.info/resources/documents/2016-AHAR-Part-2.pdf. Accessed May 13, 2018.

Link, B. G., E. Susser, A. Stueve, J. Phelan, R. E. Moore and E. Struening. 1994. Lifetime and five-year prevalence of homelessness in the United States. *American Journal of Public Health* 84(12):1907-1912.

National Alliance to End Homelessness. 2016. The State of Homelessness in America. Online. Available at https://endhomelessness.org/homelessness-in-america/homelessness-statistics/state-of-homelessness-report/. Accessed September 29, 2017.

P&R Edge. 2014. American Housing Survey Reveals Rise in Doubled-Up Households During Recession. Online. Available at https://www.huduser.gov/portal/pdredge/pdr_edge_research_012714.html. Accessed September 29, 2017.

Shinn, M., B. C. Weitzman, D. Stojanovic, J. R. Knickman, L. Jimenez, L. Duchon, S. James, and D. H. Krantz. 1998. Predictors of homelessness among families in New York City: From shelter request to housing stability. *American Journal of Public Health* 88(11):1651-1657.

Troisi, C. L., R. D'Andrea, G. Grier, and S. Williams. 2015. Enhanced methodologies to enumerate persons experiencing homelessness in a large urban area. *Evaluation Review* 39(5):480-500.

Appendix D

Examples of Homeless Service Programs in Denver and San Jose

The committee visited several homeless service programs in Denver and San Jose, including rapid re-housing and permanent supportive housing programs. Below are summaries of what the committee learned during these visits.

SITE VISIT: DENVER, COLORADO

As part of the committee's work, two cities were selected for site visits. One of these cities was Denver, Colorado. The committee visited a permanent supportive housing (PSH) facility with an onsite health clinic and met with a number of officials working to reduce homelessness in the Denver metropolitan area.

Denver had an estimated median household income in 2015 of $58,000 (City-Data, 2017). This is lower than the state estimated median household income of $63,900. The estimated median house/condo value in 2015 was $316,700; this is slightly higher than the Colorado median value at $283,800. Whites are the largest population group, with Latinos the second largest group at over 30 percent of the population. About one-fifth of the residents in Denver speak Spanish at home.

Denver's 2016 point-in-time count indicated no change from the previous year. However, the number of veterans experiencing homelessness increased (Metro Denver Homeless Initiative, 2016) and the number of homeless students increased (according to the McKinney-Vento definition of homelessness, which is different from the HUD definition).

In 2012, Denver passed an ordinance that bans camping on public or private land. The ordinance targets individuals experiencing homelessness without shelter. According to critics of the ordinance, it criminalizes homelessness by enforcing bans against sleeping in cars, lying down in public areas, and taking shelter in bus stations.

Stout Street Clinic & Housing Center and Colorado Coalition for the Homeless

The Colorado Coalition for the Homeless (CCH) provides PSH and onsite medical and dental care in downtown Denver via the Stout Street Health Center, established in 2014. According to CCH, more than 13,000 individuals experiencing homelessness receive care at this facility each year (CCH, 2017). All services are provided regardless of immigration status, housing status, or ability to pay.

The Stout Street Health Center introduces a model of integrated health care targeted to the needs of homeless patients. It incorporates patient-centered, trauma-informed medical and behavioral health care, substance treatment services, dental and vision care, social services, and supportive housing to more fully address the spectrum of problems adults and children experiencing homelessness bring to medical providers.

Staff from CCH and from the Metro Denver Homeless Initiative spoke about the importance of Medicaid expansion for helping individuals experiencing homelessness. They also mentioned the problem of competing definitions of "homelessness" and "chronic homelessness." Finally, the role of transportation and the role of the criminal justice system and their intersections with homelessness were discussed by the group.

Volunteers of America Colorado Branch

The Volunteers of America Bill Daniels Veteran Services Center opened in August of 2015. The facility is housed within the Volunteers of America (VOA) Colorado Branch offices. Although no health care services are provided at this site, the facility serves veterans and their families to access opportunities for housing, employment, and benefits and support from a variety of veteran-serving programs in one location. There is also a major focus on putting low-income veterans into rapid re-housing projects. Staff member Shea Leibfreid noted that outreach to women veterans is poor and that more attention needs to be paid to their mental health. Also coordinated at the Veterans Service Center are bridge-housing programs, as well as low-barrier housing programs.

A major topic of discussion focused on the Homeless Management Information System (HMIS), a technology system mandated by HUD to collect and track client-level data. There were a number of problems mentioned by the VOA staff, including the poor system quality and the fact that there is no cross-operability across data systems. For example, the HMIS system likely does not interact with a local database for client services.

Finally, several staff members described frustration with the fact that funding streams are siloed and disconnected. This was a common theme across the site visits in both locations.

Department of Local Affairs, Division of Housing Office

The meeting with the Division of Housing and other staff members working on homelessness focused primarily on transitional housing. They noted that individuals experiencing homelessness in the Denver area had addiction and mental health problems. In particular, anxiety and depression were mentioned.

Echoing other conversations, staff noted the lack of interoperability between HMIS data and other data sources as a barrier. They also mentioned the lack of adequate resources and challenges with accessing adequate mental health services for clients.

Social Impact Solutions: Denver Social Impact Bond Initiative

Social Impact Solutions is a Denver-based organization that is working with the City of Denver, the Corporation for Supportive Housing, and Enterprise Community Partners to create a supportive housing initiative. Early supporters of the Social Impact Solutions include the Piton Foundation, Kaiser Permanente, the Denver Foundation, the Colorado Health Foundation, the Rose Community Foundation, the Nonprofit Finance Fund, the Corporation for National and Community Service, and the Urban Institute (City and County of Denver, 2017). The Bond Initiative is a 5-year project that targets heavy utilizers of emergency care, police, and detox services. The initiative plans to produce a PSH scattered-site program in the short term to provide housing and supportive services for the top 250 heaviest utilizers. New PSH units are planned for the long term. The Urban Institute is conducting an independent evaluation of the project.

Summary

Denver is experiencing increases in homelessness and is using a variety of different methods to reduce homelessness, including new facilities (Stout Street), transitional housing, and innovative funding strategies. Issues raised by program staff include frustration with the HMIS system and its lack of interoperability, siloed funding streams, and recognition of the critical role played by the Medicaid expansion in Colorado.

SITE VISIT: SAN JOSE, CALIFORNIA

As part of the committee's work, two cities were selected for site visits. One of these cities was San Jose, California. The committee visited several permanent supportive housing facilities (PSH) and met with Santa Clara County officials working in homelessness.

San Jose is California's third-largest city and the tenth-largest city in the United States in terms of population size. Its population is growing, and the city has a large percentage of foreign-born residents, considerably higher than the state's figures. Asians and Latinos are the largest population groups, with whites

third. The city is perhaps best known for its motto that it is "the Capital of Silicon Valley."

San Jose is also quite expensive; housing costs are beyond what many can afford. The National Low Income Housing Coalition estimates that Santa Clara County (where San Jose is located) is the fifth most expensive county in the United States. There is a lack of affordable housing and very low rental vacancy rates.

According to Jacky Morales-Ferrand, director of housing for the city of San Jose, "homelessness and the lack of available housing for extremely low-income populations continues to be a pressing issue" for both the city and Santa Clara County. U.S. Department of Housing and Urban Development (HUD) data indicate that among 48 major cities, Santa Clara County has the highest rate of unsheltered homelessness and the third-largest number of individuals experiencing chronic homelessness.

In November 2016, Santa Clara County Measure A passed to provide $950 million for the creation of affordable housing over 30 years. Passed by nearly 68 percent of the voters, this will increase the creation of new affordable housing.

Onizuka Crossing

The committee first visited two new PSH projects, Onizuka Crossing and Parkside Studios. Onizuka Crossing, built in 2016, has 58 units for individuals and families experiencing chronic homelessness. The residents came from a list of 140 high utilizers of county services, including hospitals, jails, and shelters. Onizuka Crossing is managed by MidPen Housing. There are one-, two-, and three-bedroom units; all 58 units are filled. The total cost of the development was more than $32 million, and financing was provided by a number of different state, city, and county agencies. This facility is California's first Pay For Success project. Supportive services are provided on site.

In describing policy barriers, Helen Tong-Ishikawa of MidPen Housing noted that the lack of affordable housing is a major barrier for individuals experiencing homelessness. She said that "as a result of being homeless, individuals [experiencing homelessness] are less likely to seek preventative medical care." Tong said that as a result of living in PSH, she has seen increases in the use of preventative services by residents.

Parkside Studios

Parkside Studios is a three-level building with 59 studio apartments for individuals experiencing homelessness, as well as couples and single parents with one child. Eighteen of the units are set aside for special-needs households, 11 with mental illness and 7 households with individuals experiencing chronic homelessness. All units are currently occupied, and the waiting list is closed. The building

was constructed using modular construction, which helped accelerate the construction schedule by approximately 3 months. Parkside Studios was tax credit-financed.

Services provided include service coordination and intensive case management, including mental health services, for the 18 special needs households (one unit is for the site manager for a total of 59 units). The intensive case management and mental health services are provided by a nonprofit service partner, whose funding is provided by Santa Clara County's Office of Supportive Housing.

Much like the previous discussion of barriers at Onizuka Crossing, Kathy Robinson of Charities Housing noted that a major barrier to reducing homelessness is a lack of housing. She said that there is only a 2 to 3 percent vacancy rate for housing in Santa Clara County. She also noted that she has seen an increase in the population of women experiencing homelessness.

Office of Supportive Housing, Santa Clara County, and Destination: Home

The committee met with Ky Le, director of the Office of Supportive Housing for Santa Clara County, and Jennifer Loving, executive director of Destination: Home, a public-private partnership focusing on addressing homelessness in Santa Clara County.

The Community Plan to End Homelessness reports that in 2016, 81 percent of veterans experiencing homelessness were using their Section 8 vouchers, with 138 new landlords committed to housing these veterans. In all, 244 referrals to PSH were made, and 567 referrals were made to rapid re-housing.

In 2015, Santa Clara County began collaborating with Abode Services on a project called Project Welcome Home. Funded via a Pay for Success model, the funders include a number of foundations, and funding is included for an independent evaluator. The two primary measures of interest include number of months of tenancy (stably housed) and improvements in health and well-being for individuals being served. Project Welcome Home targets the 150–200 individuals experiencing chronic homelessness who are the most frequent users of county systems.

Also of interest is whether the costs of services delivery is reduced for Santa Clara County. The evaluation is designed to be a randomized controlled trial, with the control group receiving usual care. Unfortunately, no data are available to date; the first interim report is due in October 2018, and the final results from the RCT will be available in October 2021.

The 18-month update from Project Welcome Home shows that 128 of the county's "most vulnerable patients" are now in PSH. The project so far indicates reductions in the use of county services by 88 percent. The results are exceeding the targets set with the Pay for Success funding and the project is expecting to earn its success payments.

Bill Wilson Center: Peacock Commons

The committee visited the Bill Wilson Center in Santa Clara, a nonprofit organization providing services to children, youth, young adults, and families. A short drive away is Peacock Commons, a PSH project for youth and young adults experiencing homelessness (ages 18–25). Named Peacock Commons and painted in "peacock" colors, there is housing for 45 youth/young adults in the 28-unit apartment building. According to Lorraine Flores, senior director of program development and impact for the Bill Wilson Center, Peacock Commons is an effort to provide PSH for youth.

It took 6 years for Peacock Commons to complete the rehabilitation of an apartment building. The funding is complex and comes from 11 different sources. Most residents, a number of whom are youth who have aged out of the foster care system, stay at Peacock Commons for 1.5 to 2 years before moving out. Thus, Peacock Commons is more of a "transpermanent" housing program. A majority of residents have a need for affordable/subsidized child care, and although some support services are available on-site, others require transportation to access off-site. A unique feature of Peacock Commons is that low-income adult mentors live in six of the apartments and provide 10 hours per week of mentoring to the youth living at Peacock Commons. A site manager also lives on site.

Summary

One of the major takeaways from the San Jose site visits is that it is complex to create housing, provide supportive services, and braid together funding streams. There is also a gap in the assessment of outcomes. Finally, efforts to scale up PSH programs seem difficult at best, given the complexities of funding, building, and managing PSH programs.

REFERENCES

CCH (The Colorado Coalition for the Homeless). 2017. Health Services. Online. Available at http://www.coloradocoalition.org/health-services. Accessed August 15, 2017.

City and County of Denver. 2012. Denver Social Impact Bond Initiative: Permanent Supportive Housing. Online. Available at https://www.enterprisecommunity.org/sites/default/files/2017-06/Denver%20SIB%20Summary.pdf. Accessed May 4, 2018.

City-Data. 2017. Online. Available at www.city-data.com. Accessed August 15, 2017.

Metro Denver Homeless Initiative. 2016. Online. Available at http://www.mdhi.org. Accessed August 16, 2017.

Appendix E

Studies of Effectiveness of Permanent Supportive Housing

Studies included in this appendix were identified through a literature search, an examination of published systematic reviews on the effectiveness of permanent supportive housing, and published systematic reviews on interventions to improve the health of people experiencing homelessness.

Programs are grouped by study design, then listed in chronological order by year of first publication.

Study Design:

- RCT: comparison of outcomes among participants randomized to intervention and control groups (RCT) (rows shaded in gray)
- Quasi-experimental: comparison of outcomes among individuals who were allocated to or entered intervention and comparison groups on a non-randomized basis
- Single-group before-after studies are excluded from this table.

Homelessness:

- Information on duration or severity of homelessness among study participants is provided when available.
- Information on housing status at baseline is provided for studies in which not all participants were literally homeless at the time of entry into the study.

Outcomes:

- For each outcome, the group(s) with statistically significant better outcomes are identified as Control or Comparison (C), Intervention (I), Intervention 1 (I1), Intervention 2 (I2), etc.
- = denotes no statistically significant difference between groups for that outcome.
- For health care utilization, *lower* use of emergency departments and hospitals and *higher* use of outpatient services and substance abuse treatment services were defined as better outcomes, unless otherwise specified.

N/A denotes data not available.

References	Site and Location	Study Participants	Interventions and Follow-up	Housing Outcomes	Health Care Utilization Outcomes	Physical Health, Mental Health, Quality of Life Outcomes	Substance Use, Incarceration, and Other Outcomes
	Randomized Controlled Trials						
Lipton 1988	Bellevue Hospital Program New York City	Patients experiencing homelessness with chronic mental illness being discharged from a psychiatric inpatient unit Enrolled: N=52 Intervention: n=26 Control: n=26 Sex: 65% male Age: mean 37 years	Intervention: Residential treatment program providing permanent supportive housing, case management, meals, activity therapy, referrals to other programs, and on-site psychiatric care. Control: Usual care Follow-up: 94% at 12 months	% Nights in permanent housing: I % Nights homeless: = % Nights homeless after discharge: I	% Nights spent in hospital (including index stay): I	Psychiatric illness severity: =	
Hulburt 1996	McKinney Homeless Research Demonstration Project San Diego	Persons experiencing homelessness and persons at high risk of homelessness with severe and persistent mental illness Enrolled: N=362 Intervention 1, 2, 3, and 4: n=90 or 91 in each group Sex: 67% male Age: 18-29 years 25%, 30-39 years 42%, 40-49 years 24% Race/ethnicity: white 63%, black 20%, Hispanic 12% Homelessness: 64% homeless >1week in past 60 days. Total time homeless: <1 year 32%, 1-3 years 33%, 4+ years 34% Conditions: schizophrenia 55%, major depression 28%, bipolar disorder 16%. Due to eligibility criteria, many persons with severe alcohol or drug use were excluded.	Intervention 1: Comprehensive case management + Section 8 housing certificate Intervention 2: Traditional case management + Section 8 housing certificate Intervention 3: Comprehensive case management only Intervention 4: Traditional case management only Follow-up: 83% at 2 years	Time to housing consistency: = Stable independent housing pattern: I1 & I2			

(Continued)

Continued

References	Site and Location	Study Participants	Interventions and Follow-up	Housing Outcomes	Health Care Utilization Outcomes	Physical Health, Mental Health, Quality of Life Outcomes	Substance Use, Incarceration, and Other Outcomes
Dickey 1996; Goldfinger 1999; Seidman 2003	Massachusetts Mental Health Center Program Boston	Adults experiencing homelessness with major mental illness living in shelters Enrolled: N=118 Intervention 1: n=63 Intervention 2: n=55 Sex: 70% male Age: mean 37 years Race/ethnicity: black 41% Homelessness: N/A Conditions: schizophrenia 45%, schizoaffective 17%, bipolar disorder 14%, major depression 13%, alcohol/drug abuse ~50%	Intervention 1: Case management + Placement in group housing with staff support and gradually increasing self-governance Intervention 2: Case management + Placement in an independent apartment Follow-up: 86% at 18 months	Housing stability index: = Housing at 18 months: = Days homeless over 18 months: I1	Inpatient mental health services: = Outpatient mental health services: =		Neuropsychological functioning: = (10 of 11 measures), I1 (executive functioning measure)
Rosenheck 2003; Cheng 2007	HUD-VA Supported Housing (HUD-VASH) Program San Francisco, San Diego, New Orleans, Cleveland	Veterans experiencing homelessness with major psychiatric disorder and/or substance abuse disorder who were receiving Veterans Affairs services Enrolled: N=460 Intervention 1: n=182 Intervention 2: n=90 Control: n=188 Sex: 96% male Age: mean 42 years Race/ethnicity: N/A Homelessness: homeless >1 month 100% Conditions: serious psychiatric diagnoses 10%, alcohol or drug disorders 50%, dual diagnoses 35%, other psychiatric disorders 5%	Intervention 1: Intensive case management + voucher providing immediate access to subsidized housing. Intervention 2: Intensive case management alone Control: Usual care with short-term broker case management through outreach worker. Follow-up: 53% at 36 months Intervention 1=70% Intervention 2=48% Controls=40%	Days housed in last 90 days: I1	Outpatient VA mental health visits: I1 & I2	Medical problems: = Psychiatric problems: = Psychological distress: = Quality of life: I1	Alcohol problems: = Days intoxicated: = Drug problems: = *Using multiple imputation analysis for missing data*: Alcohol problems: I1 Days intoxicated: I1 Days of alcohol use: I1 Drug problems: I1 Days of drug use: I1

Gulcur 2003; Tsemberis 2004; Padgett 2006	Pathways to Housing Program New York City	Persons experiencing chronic homelessness with severe Axis I mental illness Enrolled: N=225 Intervention 1: n=99 Intervention 2: n=126 Sex: 77% male Age: mean 41 years Race/ethnicity: white 28%, black 40%, Hispanic 15% Homelessness: At enrollment: living on street/public place 51%, living in psychiatric hospital 36%. Conditions: psychosis 54%, bipolar disorder 13%, major depression 14%, history of alcohol or substance abuse disorder 90%	Intervention 1: "Housing First" program provided immediate housing in an independent apartment without any prerequisite psychiatric treatment or sobriety. Clients were offered ACT and housing support services, but could refuse. Intervention 2: "Continuum of Care" program provided outreach services, followed by treatment and transitional housing, then permanent supportive housing. Receipt of housing was contingent on sobriety and compliance with psychiatric treatment. Follow-up: 90% at 24 months, N/A at 48 months	Proportion of time stably housed: I1	Proportion of time hospitalized: I1	Psychiatric symptoms: =	Alcohol use: = Drug use: = Use of substance abuse treatment programs: I2
McHugo 2004	Integrated Housing Services Program Washington, DC	Adults with severe mental illness who were homeless or at high risk of homelessness Enrolled: N=121 Intervention 1: n=60 Intervention 2: n=61 Sex: 48% male Age: mean 40 years Race/ethnicity: black 83% Homelessness: 85% homeless at baseline, mean proportion of time literally homeless in past 6 months 38% Conditions: schizophrenia spectrum disorders 74%, mood disorders 27%, mean 40 days of alcohol use in past 6 months, mean 25 days illicit drug use in past 6 months	Intervention 1: Parallel Housing Services (PHS) with scattered-site housing owned by community landlords or housing agencies + ACT team services Intervention 2: Integrated Housing Services (IHS) with congregate-site housing + case management, provided by teams within a single mental health agency There was substantial cross-over in housing types. Among participants stably housed at 18 months, housing was 53% vs. 47% in own apartment, 28% vs 21% in SROs, and 6% vs. 21% in group homes, in PHS and IHS respectively. Follow-up: 84% at 18 months	Proportion of days in stable housing: I2 Housing satisfaction: =	Medical or dental care: = Psychiatric services: =	Psychiatric symptoms: I2 Quality of life: I2	Days of alcohol use: = Days of drug use: =

(Continued)

Continued

References	Site and Location	Study Participants	Interventions and Follow-up	Housing Outcomes	Health Care Utilization Outcomes	Physical Health, Mental Health, Quality of Life Outcomes	Substance Use, Incarceration, and Other Outcomes
Sadowski 2009; Buchanan 2009; Basu 2012	Chicago Housing for Health Partnership Chicago	Adults experiencing homelessness with at least 1 of 15 specified chronic medical illnesses who were enrolled while admitted to hospital Enrolled: N=405 Intervention: n=201 Control: n=204 Sex: 77% male Age: mean 46 years Race/ethnicity: white 8%, black 78%, Hispanic 8% Homelessness: median duration of homelessness 30 months Conditions: HIV-seropositive 36%, major depression 42%, alcohol intoxication in past 30 days 60%, illicit drug use in past 30 days 59%	Intervention: Case management + transitional care at respite facility after discharge from hospital + placement in permanent housing at group living facilities or scattered site apartments using Housing First model Control: Usual care (routine discharge planning by hospital social worker; case management services as available in the community) Follow-up: 90% in intervention group and 74% in control group at 18 months	Stable housing: I	*Unadjusted analysis:* Hospitalizations: = Hospital days: = Emergency department visits: = *Analysis adjusted for baseline variables:* Hospitalizations: I Hospital days: I Emergency department visits: I	Quality of life: = *Among HIV-seropositive participants (intervention n=47, control n=47):* Alive and with intact immunity (based on CD4 count and viral load) at 12 months: I	
Wolitski 2010; Kidder 2007	Housing and Health Study Baltimore, Chicago, Los Angeles	HIV-seropositive adults who were experiencing homelessness or at severe risk of homelessness, with income <50% of median area income Enrolled: N=630 Intervention: n=315 Control: n=315 Sex: 70% male (41% MSM, 29% male non-MSM) Age: 18-29 years 10%, 30-39 years 27%, 40-49 years 48%, 50+ years 14% Race/ethnicity: white 8%, black 78%, Hispanic 9% Homelessness: housing status in past 90 days: homeless 27%, unstably housed and severe risk of homelessness 69%, in own place and severe risk of homelessness 4% Conditions: AIDS diagnosis 39%.	Intervention: Immediate Housing Opportunities for People with AIDS (HOPWA) rental assistance + case management Control: Customary housing services + case management Follow-up: 87% in intervention group, 82% in comparison group at 18 months	Housing status: I	Any medical care: = Appropriate medical care: = Emergency department visits: = Hospital admissions: = On HAART: = Medication adherence: =	CD4 count: = Viral load: = Overall physical health: I* Overall mental health: = Depression: I* Perceived stress: I* *Significant improvements in these outcomes at 6 and 12 months, but differences no longer significant at 18 months	Sexual risk behaviors: =

		CD4 count: <200 24%, 200-349 25%, 350-500 20%, >500 30%.					
Aubry 2015; Aubry 2016	At Home/Chez Soi Study (High Needs stratum) Vancouver, Winnipeg, Toronto, Montreal, and Moncton, Canada	Adults with a current mental disorder, with or without a concurrent substance use disorder, who were absolutely homeless or precariously housed (≥2 episodes of homelessness in the past year) and not receiving ACT or ICM services; assessed to have high needs for treatment based on factors including psychiatric and substance use diagnoses, community functioning score, and pattern of hospitalizations or incarceration Enrolled: N=950 Intervention: n=469 Control: n=481 Sex: 68% male Age: mean 39 years Race/ethnicity: white 60%, Aboriginal 19%, other racial or ethnic minority 21% Homelessness: absolutely homeless 82%, >24 months lifetime homelessness 59%, longest period homeless >1 year 51% Conditions: major depressive episode 43%, PTSD 27%, psychotic disorder 52%, substance-related problems 73%	Intervention: Immediate supportive housing (mostly in private-market scattered-site units) using Housing First model + ACT team services (client required to accept contact at least once per week) Control: Usual care Follow-up: 88% in intervention group, 77% in control group at 21-24 months	Percentage of days in stable housing: I Time to housing: I Self-reported housing quality: I	Number of days in hospital: = Emergency department visits: =	Generic Quality of life: = Condition-specific Quality of life: = Health status: = Mental health symptoms: = Community functioning: =	Substance use problems: = Number of Arrests: = Community integration: =
Stergiopoulous 2015; Kozloff 2016; Adair 2016; Somers 2015; Somers 2017	At Home/Chez Soi Study (Moderate Needs stratum) Vancouver, Winnipeg, Toronto, and Montreal, Canada	Adults with a current mental disorder, with or without a concurrent substance use disorder, who were absolutely homeless or precariously housed (≥2 episodes of homelessness in the past year) and not receiving ACT or ICM services; assessed to have moderate needs for treatment based on factors including psychiatric and substance use diagnoses, community functioning score, and pattern of hospitalizations or incarceration	Intervention: Immediate supportive housing (mostly in private-market scattered-site units) using Housing First model + intensive case management services (client required to accept contact at least once per week) Control: Usual care Follow-up: 85% at 24 months	Percentage of days in stable housing: I Proportion of participants never housed: I	Number of days in hospital: = Proportion of participants with any hospitalization: = Emergency department visits: =	Generic Quality of life: = Condition-specific Quality of life: I Health status: = Mental health symptoms: = Community functioning: =	Substance use problems: = Number of Arrests: = Community integration: =

(Continued)

Continued

References	Site and Location	Study Participants	Interventions and Follow-up	Housing Outcomes	Health Care Utilization Outcomes	Physical Health, Mental Health, Quality of Life Outcomes	Substance Use, Incarceration, and Other Outcomes
		Enrolled: N=1198 Intervention: n=689 Control: n=509 Sex: 66% male Age: mean 42 years Race/ethnicity: white 48%, Aboriginal 24%, other racial or ethnic minority 28% Homelessness: absolutely homeless 84%, mean lifetime duration of homelessness 4.6 years (median 2.5 years) Conditions: major depressive episode 59%, PTSD 31%, psychotic disorder 22%, alcohol abuse or dependence 55%, substance abuse or dependence 61%					
Shinn 2015; Samuels 2015	Family Critical Time Intervention (FCTI) Westchester County, New York	Families entering the homeless shelters system (excluding domestic violence shelters) in which the mother had a diagnosable mental illness or substance abuse problem and care for at least one child aged 1.5–16 years Enrolled: N=200 Intervention: n=97 Control: n=103 Mothers: Age: mean 31 years Race/ethnicity: white 25%, black 65%, American Indian/Alaska Native 10%; Hispanic 26% Homelessness: N/A Conditions: N/A Children (N=311): Sex: male 51% Age: 1.5–5 years 32%,	Intervention: Time-limited (9 months) continuous intensive case management services from a single caseworker with 12:1 caseload + move from shelter to permanent scattered site subsidized housing as soon as possible Control: Routine case management with workers with 24-48:1 caseload + move from shelter to permanent scattered site subsidized housing only after meeting the caseworker's standards for housing readiness Follow-up: 24 months	Percentage of time housed in the community (0-9 months): I Percentage of time housed in the community (9-24 months): =		Mental health: Children age 1.5-5: Internalizing problems: I Externalizing problems: I Children age 6-10: Internalizing problems: = Externalizing problems: = Self-reported school troubles: I Children age 11-16: Internalizing problems: = Externalizing problems: I Self-reported school troubles: I	

Sosin 1995	Progressive Independence Model Chicago	Persons experiencing homelessness (or recently homeless) completing short-term substance abuse treatment program Enrolled: N=419 Intervention 1: n=96 Intervention 2: n=136 Comparison: n=187 Sex: 75% male Age: mean 35 years Race/ethnicity: black 90% Homelessness: mean 26 months total homelessness over adult lifetime Conditions: alcohol abuse 75%, drug abuse ~75%, mean 18 days alcohol/drug use in past 30 days	Intervention 1: Case management + assistance finding housing in the community Intervention 2: Case management + provision of supported housing in independent apartments Comparison: Usual care (referrals to substance abuse agencies and welfare offices) Follow-up: 74% at 12 months	Days housed in past 60 days: I1>I2>C			Days of alcohol use in past 30 days: I1 & I2 Days of drug use in past 30 days: I1 & I2
Culhane 2002	New York/New York (NY/NY) Housing Program New York City	Intervention group: Persons experiencing homelessness with severe mental illness who received NY/NY intervention Comparison group: Persons experiencing homelessness who did not receive intervention, matched to persons in intervention group on sex, race, age, indicators of mental illness and substance abuse, and pattern of previous service use. Intervention group: N=4679 Matched pairs analyzed: n=3338 for days of shelter use (range n=294 to 570 for health care utilization outcomes) Sex: N/A Age: N/A Race/ethnicity: N/A Homelessness: N/A Conditions: N/A	Intervention: NY/NY program placement, consisting of (1) independent housing linked to community-based or on-site service support or (2) community residence facilities (including long-term treatment facilities and group homes) providing on-site services, with participation mandated by the residence agreement. Comparison: No NY/NY program placement Follow-up: assessment of service utilization 100% at 2 years after placement (service utilization during this period was compared to the 2-year period before placement)	Days of homeless shelter use: I	Inpatient days at: Hospitals (Medicaid): I Public hospitals (non-Medicaid): I VA hospitals: I State psychiatric hospitals: I Outpatient visits and costs (Medicaid): I* *Lower outpatient visits and costs were defined as better		

(Continued)

Continued

References	Site and Location	Study Participants	Interventions and Follow-up	Housing Outcomes	Health Care Utilization Outcomes	Physical Health, Mental Health, Quality of Life Outcomes	Substance Use, Incarceration, and Other Outcomes
Clark 2003	Pinellas County Program Florida	Individuals with severe mental illness entering one of two service programs Enrolled: N=152 Intervention 1: n=69 Intervention 2: n=83 Sex: 52% male Age: mean 38 years Race/ethnicity: white 77%, black 20% Hispanic 3% Homelessness: history of homelessness 91%, homeless more than once 69% Conditions: Axis I diagnosis 100%, psychotic disorder ~50%, mood disorder 45%	Intervention 1: Case management (outreach, counseling, medication management, housing assistance, linkage to other services) Intervention 2: Case management as above + guaranteed access to housing and housing support services. Follow-up: 58% at 12 months Intervention 1: 36% Intervention 2: 76%	Proportion of time in stable housing: = Proportion of time in stable housing (in subgroup of subjects with high impairment at baseline): I2		Psychiatric symptoms: =	Days of alcohol use in last 6 months: = Days of illegal drug use in last 6 months: =
Siegel 2006	SAMHSA Study New York City	Adults with severe mental illness who were experiencing homelessness or at high risk of homelessness and entered one of two housing programs Enrolled: N=139 Intervention 1: n=67 Intervention 2: n=72 Sex: 65% male Age: mean 41 years Race/ethnicity: white 22%, black 39%, Hispanic 26% Homelessness: N/A Conditions: schizophrenia 40%, schizoaffective 26%, bipolar 16% major depression 18%, substance abuse 55%	Intervention 1: "Supported housing": (A) scattered site apartments + ACT team services or (B) residential hotel with 30% of units for persons with mental illness + on-site case management Intervention 2: "Community residences": Single or shared rooms in buildings for persons with mental illness, with meal plan and common dining and meeting spaces, mandatory sobriety + case management services on site *Comparison group matched by propensity score* Follow-up: 18 months	Proportion of tenants remaining in initial housing placement: = Housing satisfaction: I1	Use of crisis services: =	Mental health: = Quality of life: =	

Martinez 2006	Canon Kip Community House & Lyric Hotel "Low-Demand" Program San Francisco	Intervention group: Adults experiencing homelessness with qualifying disabilities (substance use disorder, mental illness and/or HIV/AIDS) who applied for supportive housing, received a random rank order, and received housing in the first year of the program Comparison group: Adults experiencing homelessness with qualifying disabilities (substance use disorder, mental illness and/or HIV) who applied for supportive housing, received a random rank order, and received housing in the second year of the program (wait-list controls) Enrolled in main study: N=236 Comparison conducted in subset of participants: Intervention: n=100 Comparison: n=25 Data for main study participants (N=236): Sex: 73% male Age: mean 44 years Race/ethnicity: white 32%, black 53%, Hispanic 8%, Native American 5%, Asian 2% Homelessness: homeless >8 months at move-in 100%, documented homeless 2-8 years before move-in 59% Conditions: substance use disorder + mental illness 75%, substance use disorder + HIV 16%, mental illness + HIV 2%, substance use disorder + mental illness+ HIV 5%, substance use disorder only 4%, mental illness only 5%	Intervention: Supportive housing at two single-site buildings (SRO units with rent subsidies) + on-site support services (including case management, psychiatric care, health care, and vocational training) Comparison group: Usual care Follow-up: 1 year		Any emergency department visit: I Number of emergency department visits: I Any inpatient admission: = Number of inpatient days: =		

(Continued)

Continued

References	Site and Location	Study Participants	Interventions and Follow-up	Housing Outcomes	Health Care Utilization Outcomes	Physical Health, Mental Health, Quality of Life Outcomes	Substance Use, Incarceration, and Other Outcomes
Larimer 2009; Collins 2013	Eastlake Housing First Program Seattle	Adults experiencing chronic homelessness with severe alcohol problems and high costs for use of emergency services, sobering center, and jail Enrolled: N=134 Intervention: n=95 Comparison: n=39 Sex: 94% male Age: mean 48 years Race/ethnicity: white 39%, black 10%, Hispanic 6%, American Indian/Alaska Native 28% Homelessness: mean age 31 years when first became homeless, mean 2 periods of stable housing since first became homeless Conditions: mean 16 times treated for alcohol abuse in lifetime	Intervention: Single-site housing program with meals provided and on-site health care services + on-site case managers. Residents not required to participate in treatment, and alcohol consumption allowed in residents' rooms. Comparison: Wait-listed individuals who were not housed prior to the 3-month assessment point Follow-up: 100% at 6 months for cost-use analysis *Propensity scores were used in regression analyses to adjust for differences between groups*	Nights of homeless shelter use: I	Hospital contacts: = Emergency medical service contacts: = Detoxification days: = Sobering center use: I* *Lower use of sobering center was defined as better		Days incarcerated: = Jail bookings: = Total costs: I
Gilmer 2009	REACH Program San Diego	Intervention group: Adults experiencing homelessness with serious mental illness who entered the REACH program Comparison group: Adults experiencing homelessness with serious mental illness with demographic and clinical characteristics similar to REACH clients who were initiating services at the same time Enrolled: N=338 Intervention: n=177 Comparison: n=161 Sex: 48% male Age: mean 42 years	Intervention: Housing through transitional residential treatment program then SRO units and scattered-site apartments using Section 8 housing vouchers + ACT-team-based case management Comparison: Usual care *Comparison group matched by propensity score* Follow-up: 1-2 years		Data provided on costs (not utilization): Case management costs: I>C Outpatient costs: = Inpatient or emergency costs: I<C		Data provided on costs (not utilization): Criminal justice system costs: I<C

		Race/ethnicity: white 58%, black 24%, Hispanic 11%, other 7% Homelessness: N/A Conditions: schizophrenia 53%, bipolar disorder 18%, major depression 20%, other psychotic disorder 4%					
Gilmer 2010	Full Service Partnership (FSP) Program San Diego	Intervention group: Adults experiencing homelessness with serious mental illness who entered the FSP program Comparison group: Adults experiencing homelessness with serious mental illness with demographic and clinical characteristics similar to FSP clients who were initiating services at the same time Enrolled: N=363 Intervention: n=209 Comparison: n=154 Sex: 63% male Age: mean 44 years Race/ethnicity: white 61%, black 25%, Hispanic 10%, other 5% Homelessness: N/A Conditions: schizophrenia 60%, bipolar disorder 25%, major depression 15%	Intervention: Subsidized permanent housing at scattered sites using Housing First model + ACT team supports Comparison: Usual care *Comparison group matched by propensity score* Follow-up: 6 months – 1 year		Outpatient mental health service use: I Inpatient service use: I Emergency department use: I	Quality of life: I	Justice system use: I

(Continued)

Continued

References	Site and Location	Study Participants	Interventions and Follow-up	Housing Outcomes	Health Care Utilization Outcomes	Physical Health, Mental Health, Quality of Life Outcomes	Substance Use, Incarceration, and Other Outcomes
Tsai 2010	Collaborative Initiative to Help End Chronic Homelessness (CICH) Chattanooga, Chicago, Columbus, Denver, Fort Lauderdale, Los Angeles, Martinez, New York City, Philadelphia, Portland, San Francisco	Adults experiencing chronic homelessness (unaccompanied individuals with a disabling condition who had been continuously homeless for ≥1 year or had ≥4 episodes of homelessness in the past 3 years) entering CICH-funded homeless services in one of 11 cities Enrolled: N=709 Intervention 1: n=131 Intervention 2: n=578 Sex: 76% male Age: mean 46 years Race/ethnicity: white 37%, black 49%, Hispanic 8%, Asian/Pacific Islander 5% Homelessness: past year homeless 86%, mean days homeless in past 3 months 59 days Conditions: schizophrenia 19%, bipolar disorder 19%, depression 29%, alcohol abuse/dependence 53%, drug abuse/dependence 53%	Intervention 1: Residential Treatment First (RTF), defined as participants who stayed in transitional/residential treatment for ≥2 weeks during the 3 months before or after entry into CICH Intervention 2: Independent Housing First (IHF), defined as participants who had no days of transitional/residential treatment during the 3 months before or after entry into CICH Follow-up: up to 2 years	Days in own place: = Days homeless: =	Days hospitalized: =	Psychiatric symptoms: = Overall physical health: = Overall mental health: = Quality of life: =	Days incarcerated: I1 Alcohol use problems: = Drug use problems: =
Hanratty 2011	Heading Home Hennepin Program Minneapolis, Hennepin County	Intervention group: Individuals who had been homeless for ≥1 year or had ≥4 episodes of homelessness in the past 3 years, and with a disability that limited ability to work for ≥1 month Comparison group: Individuals in public shelters at the same time as intervention group, but who were not placed into housing Enrolled: N=528 Intervention: n=264 Comparison: n=264	Intervention: Housing First program with rent subsidies for housing in scattered site apartments + case management services Comparison: Usual care *Comparison group matched by propensity score* Follow-up: 59% at 18 months	Public shelter use: I			Mean number of arrests: I Mean number of days in prisons or jails: I Mean days of health insurance coverage: I

		Sex: 77% male Age: mean 46 years Race/ethnicity: N/A Homelessness: mean shelter nights in past 3 years 156 nights Conditions: N/A					
Srebnik 2013	Begin at Home Program Seattle	Intervention group: Adults experiencing chronic homelessness (unaccompanied individuals with a disabling condition who had been continuously homeless for ≥1 year or had ≥4 episodes of homelessness in the past 3 years) who were referred with ≥60 sobering center visits or ≥$10,000 inpatient paid claims within the past year Comparison group: Individuals who met the above criteria but who did not enter the program Enrolled: N=60 Intervention: n=29 Comparison: n=31 Sex: 72% male Age: mean 51 years Race/ethnicity: white 62%, black 17%, Hispanic 7%, American Indian/Alaska Native 14% Homelessness: N/A Conditions: N/A	Intervention: Single-site Housing First supportive housing program + on-site medical, psychiatric, substance use, and case management services Comparison: Usual care Follow-up: 1 year		Emergency department visits: I Sobering center use: I Number of hospital admissions: = Number of hospital days: =		Number of jail bookings: = Number of jail days: =

REFERENCES FOR APPENDIX E

Adair, C. E., B. Kopp, J. Distasio, S. W. Hwang, J. Lavoie, S. Veldhuizen, J. Voronka, A. F. Kaufman, J. M. Somers, S. R. LeBlanc, S. Cote, S. Addorisio, D. Matte, and P. Goering. 2016. Housing Quality in a Randomized Controlled Trial of Housing First for Homeless Individuals with Mental Illness: Correlates and Associations with Outcomes. *Journal of Urban Health* 93(4):682-697.

Aubry, T., S. Tsemberis, C. E. Adair, S. Veldhuizen, D. Streiner, E. Latimer, J. Sareen, M. Patterson, K. McGarvey, B. Kopp, C. Hume, and P. Goering. 2015. One-year outcomes of a randomized controlled trial of housing first with ACT in five Canadian cities. *Psychiatric Services* 66(5):463-469.

Aubry, T., P. Goering, S. Veldhuizen, C. E. Adair, J. Bourque, J. Distasio, E. Latimer, V. Stergiopoulos, J. Somers, D. L. Streiner, and S. Tsemberis. 2016. A Multiple-City RCT of Housing First With Assertive Community Treatment for Homeless Canadians With Serious Mental Illness. *Psychiatric Services* 67(3):275-278.

Basu, A., R. Kee, D. Buchanan, and L. S. Sadowski. 2012. Comparative cost analysis of housing and case management program for chronically ill homeless adults compared to usual care. *Health Services Research* 47(1 Part 2):523-543.

Buchanan, D., R. Kee, L. S. Sadowski and D. Garcia. 2009. The health impact of supportive housing for HIV-positive homeless patients: a randomized controlled trial. *American Journal of Public Health* 99 (Suppl 3):S675-680

Cheng, A. L., H. Q. Lin, W. Kasprow, and R. A. Rosenheck. 2007. Impact of supported housing on clinical outcomes - Analysis of a randomized trial using multiple imputation technique. *Journal of Nervous and Mental Disease* 195(1):83-88.

Clark, C., and A. R. Rich. 2003. Outcomes of homeless adults with mental illness in a housing program and in case management only. *Psychiatric Services* 54(1):78-83.

Collins, S. E., D. K. Malone, and S. L. Clifasefi. 2013. Housing Retention in Single-Site Housing First for Chronically Homeless Individuals With Severe Alcohol Problems. *American Journal of Public Health* 103(S2):S269-S274.

Culhane, D. P., S. Metraus, and T. Hardley. 2002. Public service reductions associated with placement of homeless persons with severe mental illness in supportive housing. *Housing Policy Debates* 13(1):107-163.

Dickey, B., O. Gonzalez, E. Latimer, K. Powers, R. Schutt, and S. Goldfinger. 1996.Use of mental health services by formerly homeless adults residing in group and independent housing. *Psychiatric Services* 47:152-158.

Gilmer, T. P., W. G. Manning, and S. L. Ettner. 2009. A cost analysis of San Diego County's REACH program for homeless persons. *Psychiatric Services* 60(4):445-450

Gilmer, T. P., A. Stefancic, S. L. Ettner, W. G. Manning and S. Tsemberis. 2010. Effect of full-service partnerships on homelessness, use and costs of mental health services, and quality of life among adults with serious mental illness. *Archives of General Psychiatry* 67(6):645-652.

Goldfinger, S. M., R. K. Schutt, G. S. Tolomiczenko, L. Seidman, W. E. Penk, W. Turner, and B. Caplan. 1999. Housing placement and subsequent days homeless among formerly homeless adults with mental illness. *Psychiatric Services* 50:674-679.

Gulcur, L., A. Stefancic, M. Shinn, S. Tsemberis, and S. N. Fischer. 2003. Housing, hospitalization, and cost outcomes for homeless individuals with psychiatric disabilities participating in continuum of care and housing first programmes. *Journal of Community & Applied Social Psychology* 13(2):171-186.

Hanratty, M. 2011. Impacts of Heading Home Hennepin's Housing First programs for long-term homeless adults. Housing Policy Debate 21(3):405-419.

Hurlburt, M. S., P. A. Wood, and R. L. Hough. 1996. Providing independent housing for the homeless mentally ill: A novel approach to evaluating long-term longitudinal housing patterns. *Journal of Community Psychology* 24(3):291-310.

Kidder, D. P., R. J. Wolitski, S. Royal, A. Aidala, C. Courtenay-Quirk, D. R. Holtgrave, D. Harre, E. Sumartojo, and R. Stall. 2007. Access to housing as a structural intervention for homeless and unstably housed people living with HIV: rationale, methods, and implementation of the housing and health study. *AIDS and Behavior* 11(6 Suppl):149-161.

Kozloff, N., C. E. Adau, L. P. Lazgare, D. Parenski, A. H. Cheung, R. Sandu, and V. Stergiopoulos. 2016. Housing First" for homeless youth with mental illness. *Pediatrics* 138(4):1-10.

Larimer, M. E., D. K. Malone, M. D. Garner, D. C. Atkins, B. Burlingham, H. S. Lonczak, K. Tanzer, J. Ginzler, S. L. Clifasefi, W. G. Hobson, and G. A. Marlatt. 2009. Health care and public service use and costs before and after provision of housing for chronically homeless persons with severe alcohol problems. *The Journal of the American Medical Association* 301(13):1349-1357.

Lipton, F. R., S. Nutt, and A. Sabatini. 1988. Housing the homeless mentally ill: a longitudinal study of a treatment approach. *Hospital & Community Psychiatry* 39(1):40-45.

Martinez, T. E., and M. R. Burt. 2006. Impact of permanent supportive housing on the use of acute care health services by homeless adults. *Psychiatric Services* 57(7):992-999.

McHugo, G. J., R. R. Bebout, M. Harris, S. Cleghorn, G. Herring, H. Xie, D. Becker, and R. E. Drake. 2004. A randomized controlled trial of integrated versus parallel housing services for homeless adults with severe mental illness. *Schizophrenia Bulletin* 30(4):969-982.

Padgett, D. K., L. Gulcur, and S. Tsemberis. 2006. Housing First Services for People Who Are Homeless With Co-Occurring Serious Mental Illness and Substance Abuse. *Research on Social Work Practice* 16(1):74-83.

Rosenheck, R., W. Kasprow, L. Frisman, and W. Liu-Mares. 2003. Cost-effectiveness of supported housing for homeless persons with mental illness. *Archives of General Psychiatry* 60(9):940-951.

Sadowski, L. S., R. A. Kee, T. J. VanderWeele, and D. Buchanan. 2009. Effect of a housing and case management program on emergency department visits and hospitalizations among chronically ill homeless adults: a randomized trial. *Journal of the American Medical Association* 301(17):1771-1778.

Samuels, J., P. J. Fowler, A. Ault-Brutus, D. Tang, and K. Marcal. 2015. Time-limited case management for homeless mothers with mental health problems: Effects on maternal mental health. *Journal of the Society for Social Work & Research* 6(4):515-539.

Seidman, L. J., R. K. Schutt, B. Caplan, G. S. Tolomiczenko, W. M. Turner, and S. M. Goldfinger. 2003. The effect of housing interventions on neuropsychological functioning among homeless persons with mental illness. *Psychiatric Services* 54(6):905-908.

Siegel, C. E., J. Samuels, D. I. Tang, I. Berg, K. Jones, and K. Hopper. 2006. Tenant outcomes in supported housing and community residences in New York City. *Psychiatric Services* 57(7):982-991.

Shinn, M., J. Samuels, S. N. Fischer, A. Thompkins, and P. J. Fowler. 2015. Longitudinal impact of a Family Critical Time Intervention on children in high-risk families experiencing homelessness: A randomized trial. A*merican Journal of Community Psychology* 56:205-216.

Somers, J. M., A. Moniruzzaman, M. Patterson, et al. 2017. A Randomized Trial Examining Housing First in Congregate and Scattered Site Formats. *PLoS One* 12(1):e0168745.

Somers, J. M., A. Moniruzzaman, and A. Palepu. 2015.Changes in daily substance use among people experiencing homelessness and mental illness: 24-month outcomes following randomization to Housing First or usual care. *Addiction* 110(10):1605-1614.

Sosin, M. R., M. Bruni, and M. Reidy. 1995. Paths and impacts in the progressive independence model: a homelessness and substance abuse intervention in Chicago. *Journal of Addictive Diseases* 14(4):1-20.

Srebnik, D., T. Connor, and L. Sylla. 2013. A pilot study of the impact of Housing First-supported housing for intensive users of medical hospitalization and sobering services. *American Journal of Public Health* 103(2):316-321.

Stergiopoulos, V., S. W. Hwang, A. Gozdzik, R. Nisenbaum, E. Latimer, D. Rabouin, C. E. Adair, J. Bourque, J. Connelly, J. Frankish, L. Y. Katz, K. Mason, V. Misir, K. O'Brien, J. Sareen, C. G. Schütz, A. Singer, D. L. Streiner, H-M. Vasiliadis, and P. N. Goering. 2015. Effect of scattered site housing using rent supplements and intensive case management on housing stability among homeless adults with mental illness: A randomized trial. *The Journal of the American Medical Association* 313(9):905-915.

Tsai, J., A. S. Mares, and R. A. Rosenheck. 2010. A multisite comparison of supported housing for chronically homeless adults: "Housing first" versus "residential treatment first." *Psychological Services* 7(4): 219-232.

Tsemberis, S., L. Gulcur, and M. Nakae. 2004. Housing first, consumer choice, and harm reduction for homeless individuals with a dual diagnosis. American *Journal of Public Health* 94(4):651-656.

Wolitski, R. J., D. P. Kidder, S. L. Pals, S. Royal, A. Aidala, R. Stall, D. R. Holtgrave, D. Harre, and C. Courtenay-Quirk. 2010. Randomized trial of the effects of housing assistance on the health and risk behaviors of homeless and unstably housed people living with HIV. *AIDS and Behavior* 14(3):493-503.