

What housing-related services and supports improve health outcomes among chronically homeless individuals?

Answer: Evidence suggests that permanent supportive housing (PSH) and case management can improve health outcomes among chronically homeless individuals, including improvements in self-reported mental health status, substance use, and overall well-being. These models can also reduce hospital admissions, length of stay in inpatient psychiatric units, and emergency room visits. However, most of the evidence identified in this review is not specific to Medicaid populations, and limitations such as small sample size, selection bias, and imprecise definitions of the models studied may limit generalizability.

What is chronic homelessness?

According to the U.S. Department of Housing and Urban Development, a single adult or a parent in a homeless family is chronically homeless if he or she has a disabling condition and (1) has been continuously homeless for a year or more or, (2) has experienced a total of 12 months of homelessness during the previous three years.¹⁴

Policy context

AcademyHealth undertook this review at the request of a Medicaid medical director in a state considering whether to pay for housing-related services through Medicaid. Although federal Medicaid funding cannot cover rent or mortgage payments, states can opt to pay for two other types of housing-related services: (1) case management to achieve and maintain housing stability; (2) collaborative efforts with other government agencies such as services for residents in public housing. This review looked for evidence about whether such services improve health outcomes for Medicaid populations.

Supporting evidence

There are two broad categories of evidence that evaluate housing-related services and supports eligible for Medicaid coverage. Two systematic reviews^{1,2} and two recent primary studies^{3,4} evaluate **permanent supportive housing (PSH)**, an approach which prioritizes providing safe, affordable housing to chronically homeless individuals in addition to offering optional supportive services. One systematic review⁵ evaluates the second category, **case management**, a service often provided as a part of PSH.

The systematic reviews found that both PSH and case management have a positive impact on health outcomes such as self-reported mental health status and substance use, a large impact on health care utilization, and in one recent primary study, a reduction in Medicaid health care costs.³ Among models of case management, one systematic review⁵ found that assertive community treatment (ACT) and critical time intervention (CTI) are associated with improvements in self-reported mental health status and reductions in the length of psychiatric hospital stays and number of emergency room visits for mental health concerns. See Appendix 1 for definitions of models.

Limitations

- AcademyHealth found only one study specifically focused on a Medicaid population. While other studies reported here may include individuals eligible or enrolled in Medicaid, insurance status is rarely reported.
- Studies evaluating PSH models provide minimal detail on the nature of the supportive services within their programs, limiting the ability to pinpoint the most effective components of each model. In addition, there appear to be no meta-analytic studies that attempt to estimate the impact of either PSH or case management by aggregating data across studies.
- Few studies of PSH and case management report physical health outcomes. Where such outcomes are included, the data come from self-reported surveys rather than clinical records.
- While the prevalence of mental illness and substance use among homeless individuals is high, there is limited rigorous evidence about the most effective services for homeless individual who are not mentally ill.
- Systematic reviews report that of the studies included, many have small sample sizes, risk of selection bias, and imprecise definitions of interventions.

AcademyHealth conducted this rapid review over a two-week period using an established protocol that emphasizes timeliness, efficiency, and responsiveness to policymakers' needs. It synthesizes peer-reviewed systematic reviews published within the last ten years and peer-reviewed primary studies published since the most recent systematic review. A primary analyst undertook and revised the review. Two additional AcademyHealth analysts and an external housing policy expert provided input on the search strategy, initial findings, and draft report. Appendix 3 lists the search terms and databases used in this rapid review.

Appendix 1: Definition of Housing-Related Services and Supports Examined

Case management models:

Standard case management (SCM) is a coordinated and integrated approach to managing services for the individual, with the goal to provide ongoing supportive care.⁶

Intensive case management (ICM) targets individuals with the highest, most complex needs who require more intensive services, more frequent client contact than SCM. Case managers in this model typically have smaller caseloads.⁷

Assertive community treatment (ACT) is similar to ICM, but a multidisciplinary team available around the clock shares responsibility for providing services to clients.⁸

Critical time intervention (CTI) is an intensive time-limited case management approach to enhance care continuity by bridging the gap between services during periods of transition (e.g., between institutional and community care) and strengthening clients' social and professional networks.⁹

Permanent supportive housing

Permanent supportive housing (PSH) is intended to provide affordable housing combined with supportive services (e.g., case management) for people with disabilities or other significant barriers to housing stability. There are a variety of models of supported housing—from scattered housing units visited by case managers to centralized or clustered housing with onsite staff. Some models offer onsite physical and behavioral health services, while others partner with local health care providers to coordinate services offsite. PSH has transitioned over the past 10 years to focus on a “housing first” approach, which provides housing and services without requiring participation in mental illness or substance use treatment.¹⁰

Appendix 2: Summary of Evidence

Permanent supportive housing: Two systematic reviews of PSH programs^{1,2} report positive impacts of the model on self-reported health outcomes and utilization of health care services, though the systematic review authors caution that attrition, selection bias, and imprecise definitions of PSH limit their generalizability. One primary study³ published more recently than the two systematic reviews found a reduction in health care costs and improvements in self-reported access to care and well-being. A second recent primary study⁴ found reductions in emergency department (ED) visits and an increase in outpatient service use.

- **Health care utilization and costs:** The first primary study referenced above analyzed Medicaid claims data and found a reduction in per member per month health care costs for homeless individuals in a PSH setting—claims dropped from an average of \$1,626 per month one year before individuals' move in date to \$899 in monthly costs one year after move in.³ The second primary study was not specific to Medicaid, but found a reduction in ED visits after enrollment in PSH, and an increase in outpatient care.⁴ One systematic review reported that three randomized controlled trials (RCTs) and one meta-analysis found a significant reduction in hospitalizations and ED visits among individuals with mental illness or substance use when compared with other forms of treatment (e.g., housing contingent on participation in treatment).²
- **Mental health outcomes:** Both systematic reviews found improvements in self-reported mental health outcomes, though one meta-analysis included in the systematic reviews found little to no impact (though no negative impact) on psychological symptoms. However, both systematic reviews did find reductions in self-reported substance use.
- **Physical health outcomes:** There is limited reporting of physical health outcomes in studies included in the systematic reviews, and where available, such data is self-reported by patients rather than collected from a review of clinical records. However, the same Medicaid-focused primary study referenced above found improvements in self-reported access to care and overall well-being.³

Case management: A systematic review ⁵ found that assertive community treatment (ACT) and critical time intervention (CTI) (see Appendix 1 for definitions of models), is associated with a reduction in self-reported psychological symptoms, and in some cases, a reduction in the length of psychiatric hospital inpatient hospital stays and number of ED visits for mental health concerns, particularly for individuals with dual mental health and substance use diagnoses. There is weaker evidence within this systematic review on the impact of standard case management (SCM) and intensive case management (ICM) on health outcomes. It is important to note that while the systematic review cited here was conducted in 2013, much of the literature referenced in that review is from the 1990s and early 2000s. Additionally, this systematic review did not report on whether the included studies evaluated case management in the context of permanent supportive housing.

- **Assertive community treatment:** Evidence from the systematic review suggests that ACT can reduce self-reported psychiatric symptoms, psychiatric hospital stays, and ED visits among individuals with dual mental illness and substance use diagnoses.
- **Critical time intervention:** The systematic review found a statistically significant effect of CTI on the reduction of psychiatric symptoms. No studies within the systematic review reported on physical health outcomes.
- **Standard case management:** The systematic review reported that several RCTs using the same survey found conflicting results regarding the effectiveness of SCM in reducing self-reported medical issues. The systematic review found no evidence that SCM reduces health care utilization.
- **Intensive case management:** The systematic review included four studies of ICM for homeless substance users, none of which reported evidence of an impact on self-reported physical or mental health outcomes. In addition, the review found evidence that ICM did not have an effect on the number of days spent in residential treatment facilities or the number of inpatient or outpatient services used. The review noted that findings were similar for individuals with severe mental illness.

Appendix 3: Search Terms and Databases

The following list shows the basic Boolean search term strategy used for the review. Searches were modified based on search functions within each database used.

Medicaid AND homeless*; Medicaid AND homeless* AND housing; Medicaid AND housing AND homeless* AND (“mental illness” OR “severe mental illness”); Medicaid AND homeless* AND (“supportive housing” OR “permanent supportive housing”); Medicaid AND homeless* AND “case management”.

Databases: Health Systems Evidence, the Cochrane Library, EPPI-Centre Reviews, PudMed, Web of Science Core Collection, ProQuest Social Science Database, and EBSCO Social Sciences Full Text.

Appendix 4: Systematic Reviews

Author and date	Focus of study	Methods	Relevant findings	Limitations in the evidence as reported by the author	AMSTAR Quality Rating ¹³
Benston, 2015 ¹	This systematic review analyzed the research on permanent supportive housing programs for homeless individuals with mental illness and the effect of these programs on housing status and mental health.	<p>Date range: Studies published between 1980-2013</p> <p>Inclusion criteria: Studies in the US only. RCTs and quasi-experimental studies in the United States reporting on impact of PSH on housing or mental health outcomes</p> <p>Exclusion criteria: Studies of transitional housing, inpatient treatment, or case management-only. Studies focusing on outcomes such as housing stability, cost effectiveness, hospitalization, and social service use.</p> <p>Quality and/or strength of evidence assessment: Not specified</p>	<p>Key takeaway: None of the studies included in this review were able to highlight what specific component of supportive housing drove positive outcomes.</p> <p>Studies: 12 primary studies 2 secondary analyses 7 of 14 studies reported on clinical or substance use outcomes.</p> <p>Effect on health outcomes: One study found that permanent supportive housing reduced psychiatric symptoms when compared with the control group. Another study found that living in PSH was associated with a reduction in substance use. The remaining studies found that there was no advantage to the permanent supportive housing models studied because (1) the intervention and the control group saw similar improvements or, (2) no improvements were found between groups. All studies included in the review incorporated case management in their programs, though most failed to detail how case management was implemented across study conditions (e.g., quantity, intensity, and quality of services)</p>	<p>Authors suggest that lack of common terminology and implementation of housing models limits usefulness of efforts to isolate the impact of different components of supportive housing because internal/external validity is threatened due to the variety of other mediating variables that were not controlled for in the analysis.</p> <p>5 of 14 studies were quasi-experimental designs which means that outcomes might be attributable to differences between groups or unmeasured variables.</p> <p>Body of literature does not allow for reporting of effect sizes due to differences across interventions and weak methodologies</p> <p>Most studies reported using self-report tools to determine mental health status or substance abuse. Prior studies on this population have shown differences between self-reported and clinical or observed data. effect sizes due to differences across interventions and weak methodologies.</p>	7/11
Rog et al., 2014 ²	This review evaluated the literature on permanent supportive housing for individuals with mental or substance use disorders who are homeless or disabled.	<p>Date range: Studies published between 1995-2012</p> <p>Inclusion criteria: Studies in the US and abroad. RCT, quasi-experimental, and single group time-series design studies, review articles, systematic reviews.</p> <p>Exclusion criteria: Studies focused on populations with other health conditions and studies of families, children, adolescents. Studies of transitional, congregate, recovery, sober living, or</p>	<p>Key takeaway: Authors reported the strength of evidence for permanent supportive housing as “moderate” due to methodological flaws, such as a lack of consistent definition for permanent supportive housing, lack of clarity in details about supportive housing components, and small sample sizes.</p> <p>Studies: 8 literature reviews 7 RCTs 5 quasi-experimental studies</p> <p>Effect on health outcomes: 3 RCTs examined the Housing First Model, and found that individuals experienced fewer hospitalizations and emergency room visits when receiving the standard of care (e.g., day treatment with no housing, or housing contingent on sobriety and/or treatment)</p> <p>A majority of the studies, including a meta-analysis, found no effect on psychological symptoms or alcohol/drug use.</p>	<p>Authors suggest that there is a lack of clear definitions of supportive housing models across the field—many models qualify and fit into a loose definition, but more clarity is needed to parse out the most effective components.</p> <p>The quality of evidence on PSH is varied in terms of methodological rigor and research design.</p> <p>Most studies included did not provide evidence of fidelity or did not use consistent measurements of fidelity principles.</p> <p>There is little research on inclusion and exclusion criteria for these housing models, which is helpful in understandings which populations</p>	8/11

Author and date	Focus of study	Methods	Relevant findings	Limitations in the evidence as reported by the author	AMSTAR Quality Rating ¹³
		<p>abstinence contingent models.</p> <p>Quality or strength of evidence assessment: Used published guidelines in this journal (Psychiatric Services) to give overall evidence low, moderate, or high ratings.¹¹</p>	<p>Though one study, focusing on homeless individuals with severe alcohol problems found significant reduction in alcohol use when compared with a wait-list group (no treatment).</p>	<p>benefit from which types and what intensity of services.</p>	
de Vet et al., 2013 ⁵	<p>This systematic review evaluated the literature on standard case management, intensive case management, assertive community treatment, and critical time intervention for homeless adults.</p>	<p>Date range: Studies published between 1985-2011</p> <p>Inclusion criteria Studies targeting a homeless population over 18 years of age. Studies that focused on at least 1 of the 4 case management models. Studies that were RCTs or pre-post with at least 1 follow up assessment of outcome variables.</p> <p>Exclusion criteria N/A</p> <p>Quality and/or strength of evidence assessment: Used USPSTF criteria for internal validity (good, fair, poor).¹²</p> <p>Quality assessment: Assessment of quality based on study design type only, no tool used in assessing individual studies</p>	<p>Standard case management (SCM): One study conducted in a residential setting for homeless substance users found a reduction in the severity of participants' medical problems. Two other studies used the same instrument and did not find any effects. Two studies found that SCM participants reported similar use of psychiatric and social care services and length of hospital stays when compared with control groups.</p> <p>Intensive case management (ICM): Four studies of homeless substance users found no benefit from ICM in physical or mental health self-reported outcomes. One study on homeless substance abusers found that ICM did not reduce the number of days spent in residential treatment facilities or on the number of inpatient or outpatient services used. Another study found similar findings for homeless individuals with severe mental illness.</p> <p>Assertive community treatment (ACT): There is little evidence that ACT impacts physical health outcomes, though two of six studies assessing mental health impacts found statistically significant reductions in psychiatric symptoms. One study found that ACT had no significant effect on in or outpatient services for mentally ill homeless participants, though authors suggest there are some questions about the analysis of the data set in question. However, for homeless individuals with a dual substance use and mental illness diagnosis, several studies suggest that ACT is effective in shortening the length of psychiatric hospital stays and reducing the number of emergency room visits for mental health problems.</p> <p>Critical time intervention (CTI): No studies reported on physical health outcomes, though two studies found a statistically significant effect of CTI on the reduction of psychiatric symptoms. Though authors report that more evidence is needed, preliminary results from one study indicate that non program outpatient services were increased. Another study found that CTI reduced the length of hospital and other institutional stays for mentally ill homeless veterans.</p>	<p>Authors noted that some studies included in the review did not clearly define their intervention, thus limiting the ability to pinpoint the most effective elements and compare across models.</p> <p>Heavy reliance on self-reported outcomes in many studies could have led to under or over-reporting of treatment effects.</p> <p>Lack of inclusion of a fidelity assessment in studies limits the ability to directly connect the treatment or intervention effect with the model being tested.</p> <p>More evidence is needed on what works for homeless individuals who are not mentally ill.</p>	9/11

Appendix 5: Primary Studies Published Since the Most Recent, Relevant Systematic Review

Author and date	Methods	Study population	Key features of intervention	Relevant findings	Limitations in the study as reported by the author
Wright, 2016 ³	Retrospective longitudinal panel study that used a combination of self-report surveys and historical Medicaid claims data to assess access, utilization, and cost outcomes	98 residents in the Bud Clark Commons, a permanent supportive housing facility in Portland, OR. All residents had a history of persistent homelessness.	The Bud Clark Commons building in Portland, Oregon, is a permanent supportive housing facility with 130 apartment units. The facility provides fully integrated on-site services including case management, physical and mental health services, substance abuse treatment, employment counseling, and life skills training. It is a "housing first" facility that provides housing for people who come directly from the streets without having to meet certain conditions (e.g., abstaining from substance use) or participate in available services.	<p>Costs: Between the year before and the year after moving into supportive housing, there was a significant reduction in per member per month coverage costs, from \$1,626 to \$899. Expenditures in the second year were also lower than before the move (\$995). Authors note that the reductions in expenditures were likely driven primarily by reductions in ED use, inpatient care, lab testing, and specialty care, as usage of primary care and outpatient behavioral health services went up slightly.</p> <p>Survey: Authors found a reduction in self-reported hospitalizations and ED visits from the year before to the year after the move. Participants also reported a decline in unmet health care needs after the move in date and improvements in wellbeing and overall happiness.</p>	<p>Small pilot study with limited Medicaid claims data to analyze (only 58 out of 98 participants)</p> <p>No comparison group, though "within group" methodology has been used previously with this housing model.</p> <p>Because housing and supportive services (including primary care and mental health services) are so well integrated, it is difficult to isolate impact of housing or supportive services.</p>
Rieke et al., 2015 ⁴	Pre/Post analysis of hospital admissions for individuals placed in supportive housing	23 chronically homeless adults.	Provision of supportive housing arrangement without preconditions (e.g., participation in treatment or other wraparound services).	Results showed a reduction in the number of emergency department admissions and an increase in outpatient admissions during the year following housing placement, indicating that supportive housing may encourage more appropriate use of health care services.	Small sample size and rate of attrition may impact generalizability of findings.

Endnotes

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