SFDPH CHEP: OPT-IN Project
Summary of Findings from Phases 1 and 2

BACKGROUND

In San Francisco, there are officially an estimated 7,500 individuals who are experiencing homelessness,[1] and the true number is likely higher. These individuals are more likely to be from marginalized communities, including communities of color and LGBTQ+ youth, who also are more likely to suffer from chronic and infectious health conditions and mental health and substance use disorders.[1–3] People experiencing homelessness are more likely to be living with HIV and/or hepatitis C virus (HCV), compared with the general population.[4–8] They also experience many challenges related to accessing health care, maintaining relationships, keeping appointments, including logistical barriers, stigma, and discrimination.[1,3,9] Substance use is one driver of HIV and HCV infection among people experiencing homelessness, with an estimated 65% reporting recent substance use.[1] In addition, there are an estimated 22,500 people who inject drugs (PWID) in San Francisco, with 31% residing in the Tenderloin district and nearly 70% experiencing homelessness at any given time.[10,11]

The San Francisco Department of Public Health (SFDPH) contracted with Facente Consulting to work with the Community Health Equity & Promotion (CHEP) branch to develop and evaluate a model for effective provision of HIV pre-exposure prophylaxis (PrEP) and anti-retroviral therapy (ART), as well as curative HCV treatment, among people experiencing homelessness, including PWID. This report summarizes the findings from Phase 1 (literature review) and Phase 2 (client interviews and observations) from this project.

METHODS

Literature Review

A literature review was conducted to identify evidence-based strategies for delivering care and outreach for people experiencing homelessness who are living with or at risk for HIV or HCV. Review articles and meta-analyses were primarily identified through PubMed. Governmental and non-governmental resources were also reviewed. Publications available through April 2019 were included. The review focused on studies that examined impacts on overall and disease-specific health outcomes and utilization of prevention and care services.

Qualitative Interviews and Observations

Much of the primary data for this phase of the project was gathered in the context of the encampment health fair (EHF) model, which is one of San Francisco's current service delivery models for this population. CHEP, in collaboration with other SFDPH, City department, and community-based providers, holds monthly EHFs to provide medical, behavioral, and social services to people who are experiencing homelessness and are living with or at and risk for HIV,

many of whom are PWID. The health fairs are held in a blocked-off alley, parking lot, or sidewalk. In addition to other occasionally-offered services such as legal support, EHFs consistently provide attendees with access to medical care; testing and treatment for HIV, HCV, and TB; PrEP/PEP counseling; vaccinations; and harm reduction services.[1]

One-on-One Interviews

Two one-on-one interviews were conducted with individuals who had previously attended an EHF and were considered "success stories" and therefore referred to Facente Consulting by the EHF providers. Participants were interviewed regarding their experience in the health fairs and their post-health fair retention in medical care. The original plan was to interview three individuals: someone diagnosed with HIV at an EHF; someone who started PrEP at an EHF; and someone who started HCV treatment at an EHF. Ultimately, only two individuals were interviewed, one who was diagnosed with HIV and one who started HCV treatment. The third client (who started PrEP) could not be scheduled, after multiple attempts.

Encampment health fair in the Bayview district

Qualitative Intercept Interviews and Observations at Encampment Health Fairs

Facente Consulting staff attended two EHFs. The first EHF was held on March 19, 2019 in the Bayview district. The second was held on May 21, 2019 in Willow Alley (Willow St between Polk St and Larkin St). The Bayview EHF was attended primarily to gain an understanding of the health fair set-up and to observe the experiences of attendees. During the Willow Alley EHF, eleven attendees were approached and informally interviewed. They were asked about their experiences at these health fairs, what they enjoyed, and what they would like to see changed.

FINDINGS

Literature Review

The complete literature review is included in Attachment 1. In summary, the review identified the following interventions and approaches as being effective mechanisms for providing services to people experiencing homelessness who are living with or at risk for HIV and HCV:

[1] An overview of the CHEP encampment health fair was presented on July 19, 2019 by Whole Person Care. The presentation, titled "Street-Based Care: A Collaborative Approach," provided a background on this model, current efforts and services provided at the health fairs, and the collaborations and partnerships that have been established to improve the health fair.

Outreach and recruitment	A variety of outreach activities were identified as being effective, including incentivized peer-network or snowball recruitment, location-based outreach in areas frequented by people experiencing homelessness, and information sharing with emergency departments and jails.
Contingency management	Providing reinforcements, specifically monetary or voucher incentives for achieving care goals (e.g., clinic visits, blood draws, and viral suppression), has consistently been found to be effective at improving health outcomes as long as the incentives are consistent and continue.
Medication-assisted treatment	Medical treatment to combat physical addiction to opioids improves ART adherence, therapy completion, and other health outcomes for people with substance use disorders. There are some data that it can be effectively combined with daily directly-observed therapy for ART.
Harm reduction	There is significant evidence that harm reduction approaches improve health outcomes for people with substance use disorders.
Cultural competency and stigma	Staff and organizational cultural competency can impact health outcomes among people experiencing homelessness, people who use substances, and people living with or at risk for HIV or HCV infection. Proactively monitoring for experiences of stigma among clients using standardized tools can help to continually ensure that services offered are culturally sensitive and accessible.
Housing	Permanent supportive housing using a Housing First model has been shown to successfully address chronic homelessness among people with serious mental illness and/or substance use, especially when harm reduction is integrated into service provision.
Peer provider programs	Interventions that use peer support services among people experiencing homelessness and people with severe mental health conditions show positive impacts on quality of life, substance use-related harms, and physical and mental health.
Integrated and tailored care	Meta-analyses and systematic reviews have consistently identified that the most effective care models for people experiencing homelessness offer an integrated physical site that is specifically tailored to this population where they can access medical care, mental health care, social services, and related services.

Qualitative Intercept and One-on-One Interviews

The one-on-one and intercept interviews affirmed much of what was reported in the literature regarding elements of an effective service delivery model for this population. Clients valued that EHFs provide a one-stop hub for all their medical, social, and behavioral needs, and they also noted the importance of the non-medical services. For example, clients can visit medical providers and receive testing at the EHFs, and they can also receive free food and coffee.

The interviews shed light on how the EHF model motivates clients to engage in care in a way they otherwise would not, if their only option was a four-wall clinic. First off, the accessible drop-in nature is pivotal. As one health fair attendee mentioned:

> **"I care about my health but getting to a clinic is too hard. Here someone came by last night and told me I could stop by. That's something I could do."**

Another component that draws people in is the open space it provides, which supports social interactions where people can play music, eat, chat, and bring their personal belongings and pets. Nearly every client interviewed mentioned this element, demonstrating how essential this is for a service delivery model to be effective for this population. In essence, clients portrayed the EHF model as a community hub as well as a place to get services.

Interview comments describing the community and social aspect of the EHFs

Lastly, according to participants, EHFs provide a space free of stigma, where they feel welcome and experience full support and respect as they seek medical care. Multiple clients described EHFs as sites where stigma and negative perceptions do not exist, in contrast to what some have experienced in traditional clinic settings. Specifically, they noted that at EHFs the only rule to follow was to be respectful of others. They were treated like it was care providers in *their* domain, not a requirement for them to go to care providers' domains, following their rules and codes of behavior. This concept – often described in the literature specifically, such as rules around appointments or dress/hygiene – was one of the biggest differences clients cited between EHFs and typical four-wall services.

DISCUSSION AND CONCLUSION

By all accounts, San Francisco's EHF model is a highly successful approach to reaching this population, and thus holds promise as one mechanism for expanding ART and PrEP access for people experiencing homelessness. According to clients, the essential features that make this model a success are integrated services; flexibility/drop-in; accessible location; a stigma-free environment; and a space that is conducive to relationship-building and social networking. While clinic settings can (at least in theory) build in all of the other critical service elements –

integrated services, stigma-free environment, flexibility, accessibility – in most clinic settings, it would be extremely challenging to replicate this social engagement space.

This population clearly cares about their health and will access health and social services, including ART, PrEP, and HCV treatment under the "right" conditions. Standard medical settings, however, are not meeting the needs of this group of people, as evidenced by the fact that many EHF participants do not regularly attend four-wall clinics. Clients often feel unwelcome or mistreated in these settings, specifically becoming targets of stigma and discrimination due to their health conditions or homelessness status.

The most noteworthy finding from the interviews was that clients universally and strongly valued the physical, open space where people can engage and socialize with each other, bring their personal items (e.g., carts) and pets, play and listen to music, and enjoy the time and space while getting a reprieve from many of the stressors of homelessness.

In order to improve HIV ART, PrEP, and HCV treatment access for homeless populations in San Francisco, service delivery models must integrate accessible clinical and social services with protected social spaces for enjoyment and companionship. In addition, most of the items that these individuals carry with them on a day-to-day basis (and risk losing, if separated from them) are not typically allowed in medical facilities or any public closed-door space. The "open" nature of the EHF health care space prevents people from having to choose between their belongings and seeking medical care.

Encampment health fair in the Bayview district

In summary, any new model for provision of HIV and HCV care for PWID and people experiencing homelessness in San Francisco must offer a blend of accessible, stigma-free medical and social services in the context of an interactive social space. To the extent that traditional four-wall clinics can embody the critical features that make the EHF successful, those settings could become more acceptable to this priority population. San Francisco has a number of community-based clinic settings that could be adapted to embrace some or all of the EHF features in an indoor setting. However, it may be that other models (including drop-in spaces or mobile services) will be a more effective strategy than modification of existing clinical settings. Phase 3 of this project involves a series of interviews with care providers to develop new prototype models for services that can be tested with the priority community in the final phase, Phase 4.

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Attachment 1: Literature Review

Care and outreach for people experiencing homelessness who are living with or at risk for HIV or hepatitis C virus infection

Summary

Human immunodeficiency virus (HIV) and hepatitis C virus (HCV) infection are more common in people experiencing homelessness compared to the general population. People living with HIV who live on the street are more likely to have an unsuppressed viral load and are less likely to access healthcare services. People experiencing homelessness also encounter multiple barriers to accessing healthcare. The goal of this literature review was to identify evidence-based strategies for performing health-related outreach and service delivery to adults living on the street who are living with or at risk for HIV and HCV infection. Due to time constraints, the literature on youth experiencing homelessness was not included.

Review articles and meta-analyses were primarily identified through PubMed. Governmental and non-governmental resources were also reviewed. Publications available through April 2019 were included. The review focused on studies that examined impacts on overall and disease-specific health outcomes and utilization of prevention and care services.

While there is a substantial volume of literature on people experiencing homelessness, the vast majority of publications are descriptive in nature. This review was largely limited to studies that reported some type of formal evaluation or assessment of an intervention involving a control or comparison group. A small number of descriptive publications were included to address specific areas.

The table on the following page highlights the interventions and approaches with the strongest evidence to support their use in providing services to people experiencing homelessness who are living with or at risk for HIV and HCV infection.

Table 1. Highlighted interventions and approaches with strong evidence of positive impact.

Outreach and recruitment	A variety of outreach activities were identified as being effective, including incentivized peer-network or snowball recruitment, location-based outreach in areas frequented by people experiencing homelessness, and information sharing with emergency departments and jails.
Cultural competency and stigma	Multiple studies have found that stigma can influence health outcomes globally and in the U.S. among people at risk for or living with HIV infection, particularly stigma experienced in healthcare settings. A systematic review found that primary care programs that were specifically tailored for people experiencing homelessness were more acceptable to patients and led to higher patient satisfaction.
Contingency management	Providing reinforcements, specifically monetary or voucher incentives for achieving care goals (e.g., clinic visits, blood draws, and viral suppression), has consistently been found to be effective at improving health outcomes as long as the incentives are consistent and continue.
Medication-assisted treatment	Medical treatment to combat physical addiction to opioids improves ART adherence, therapy completion, and other health outcomes for people with substance use disorders. There are some data that it can be effectively combined with daily directly-observed therapy for ART.
Harm reduction	There is significant evidence that harm reduction approaches improve health outcomes for people with substance use disorders.
Housing	Permanent supportive housing using a Housing First model has been shown to successfully address chronic homelessness among people with serious mental illness and/or substance use, especially when harm reduction is integrated into service provision. An initial assessment and ongoing monitoring of fidelity to all of the components of a Housing First model, particularly harm reduction, should be a key component of any attempts to implement Housing First.
Peer provider programs	Interventions that use peer support services among people experiencing homelessness and people with severe mental health conditions show positive impacts on quality of life, substance use-related harms, and physical and mental health.
Integrated and tailored care	Meta-analyses and systematic reviews have consistently identified that the most effective care models for people experiencing homelessness offer an integrated physical site that is specifically tailored to this population where they can access medical care, mental health care, social services, and related services.

Other interventions are presented in the review, although the evidence supporting them is not as strong. Some of these approaches are likely still worth using; however, significant consideration should be given to designing effective evaluations of these efforts. Evaluating the program as a whole, as well as individual components, will aid in further improving program delivery and also support the field as a whole in moving toward more evidence-based approaches.

Background

People experiencing homelessness are more likely to suffer from chronic and infectious health conditions, mental health issues, and substance use disorder, and more likely to die from these conditions.[1] Human immunodeficiency virus (HIV) and hepatitis C virus (HCV) infection are also more common in people experiencing homelessness compared to the general population.[2-6] Among people living with HIV infection (PLWH), people experiencing homelessness and people who use substances are more likely to have an unsuppressed viral load.[7-11]

People experiencing homelessness who live outdoors or in emergency shelters, also referred to as "rooflessness" according to the European Typology on Homelessness and Housing Exclusion, often have the highest needs for health services and are least likely to access them.[12] In a study among PLWH in San Francisco who received care at the primary low-income clinic, there was a dose-response relationship between viral suppression and degree of housing instability; people living outdoors having the lowest levels of viral suppression (42% virally suppressed) compared to next lowest group, those living in shelters, of whom 59% were virally suppressed.[13] A study in Pennsylvania found that among people experiencing homelessness, those who were living roofless were less likely to access healthcare services.[14]

There is a clear need to implement effective interventions for people experiencing rooflessness to decrease morbidity and mortality. The goal of this literature review was to identify evidence-based strategies for performing health-related outreach and service delivery to adults experiencing rooflessness who are living with or at risk for HIV and HCV infection. Interventions focused on adults who use substances were examined, since there is substantial overlap between this population and those living roofless. Due to the volume of literature, studies on youth experiencing homelessness were not included. This gap is important to be aware of since some interventions, such as cognitive behavioral therapy and eHealth, have been more thoroughly evaluated and found to be beneficial among youth, but not adults, and others, such as respondent driven sampling, have been found to be less effective among youth and young adults.

Methods

There are a large number of papers examining service delivery to people experiencing homelessness and people using substances. Doing a systematic analysis of the field was beyond the scope of this review. As such, the primary focus of the literature review included review articles, systematic reviews, meta-analyses, and evidence-based guidelines produced by government and non-profit entities. For review articles published before 2018, more recent relevant studies were identified. In certain cases, original studies were reviewed to obtain additional information about a particular intervention or outcomes. Open-source articles were more likely to be included since the full findings were available for review, however articles where only the abstract was available were included if sufficient detail was provided.

Articles were identified primarily through PubMed searches, although the SAMSHA Evidence-Based Practices Resource Center and the Cochrane Library were also examined. Publications available through April 2019 were included. Search terms included terms for 1) the population of interest (e.g., homelessness, substance use, injection drug use), 2) specific health conditions (e.g., HIV and HCV), and 3) care delivery models (e.g., outreach, primary care, case management, integrated care, intervention). The review focused on studies that examined impacts on overall and disease-specific health outcomes and utilization of prevention and care services.

Findings

People experiencing homelessness encounter multiple barriers to accessing health care. In addition to having competing priorities, such as food and shelter, they also face challenges keeping appointments, and suffer stigma and discrimination because of their housing status or co-morbid conditions (e.g., substance use or mental health diagnoses).[15] PLWH and others with chronic conditions who experience homelessness have challenges maintaining medication schedules, particularly with complex regimens and logistical barriers to developing routines.[16,17] Poor relationships with healthcare providers also creates barriers to staying engaged in care.[18]

The following interventions are organized into three general categories:

1. Single interventions or activities, which summarizes the evidence supporting a specific intervention such as case management or housing
2. Interventions and evidence around program structure, including location and integrated care
3. Model clinics, which are specific examples of comprehensive service delivery that are worth examining in more detail

SPECIFIC SINGLE INTERVENTIONS OR ACTIVITIES

Outreach and recruitment: No studies were identified that specifically evaluated outreach and recruitment methods for people experiencing homelessness for the purpose of service delivery. Examining the literature on implementing research studies did find several approaches that are relevant to this review. A New York City (NYC) study examined recruitment strategies among Black gay, bisexual, and other men who have sex with men (MSM) and transgender women who use substances.[19] The goal of the study was to evaluate HIV infection and related behavioral characteristics in these populations. Authors tested respondent driven sampling (RDS)[1], community venue-based recruitment plus a limited RDS component, and online advertising to recruit study participants. They recruited approximately 2,000 participants of

[1] Respondent driven sampling is a recruitment approach where a cohort of representative individuals in the population of interest is selected and incentivized to recruit members of their social networks to the project. These recruited individuals are then, in turn, incentivized to recruit members of their networks, and so on. The final sample is weighted to be representative of the entire population of interest. Snowball sampling uses the same strategy but is not weighted and is not designed to create a representative sample.

whom 54% reported they were experiencing homelessness. The proportion of participants who were experiencing homelessness did not vary substantially by recruitment method except for participants recruited via online advertising who reported much lower levels of homelessness. Online advertising was the least effective recruitment method, yielding only 34 participants. Community venue-based recruitment plus limited RDS yielded most (63%) of the final sample. The authors noted that this approach was more resource intensive and required thorough formative research on socializing and movement patterns of the populations of interest. Notably, frequencies of risk behaviors and rate of HIV positivity varied between the sampling methods, suggesting that somewhat different populations were accessed through the different approaches. Differences between populations identified by different recruitment strategies were also found in other studies of Black MSM and people who use drugs.[20,21]

A project in Los Angeles used both direct recruitment and snowball sampling to locate PLWH who were out of care. The authors found snowball sampling to be more effective at identifying people and more likely to recruit people with greater service needs.[22] A group in San Francisco used a social network based approach to increase HIV testing among Black MSM and found it to be effective.[23]

Co-locating outreach at locations that are frequently used by people experiencing homelessness is a common approach and has been used successfully for health screening and study recruitment.[24,25] This approach is also for census data collection in people experiencing homelessness. In a smoking-cessation study among people experiencing homelessness, recruitment and retention efforts were performed through shelters and transitional housing units.[26] Recruitment and retention were more effective during cold-weather, when participants were more likely to go to shelters, and after the first few days of the month since many participants sought other housing options during the few days after receiving monetary government assistance.

The Seattle-King County HIV program examined HIV surveillance data and jail booking records and concluded that data exchange between the health department and local jails could create opportunities to re-engage with PLWH at the time of booking.[27] The authors later used this information to implement automatic notification of case managers when high-needs patients were booked into the local jail.[28] The U.S. Veterans Administration (VA) explored the idea of co-locating clinic for people experiencing homelessness with an emergency department as a way of improving continuity of care[29] and the Seattle clinic mentioned above implemented text message notifications to case managers when high-needs patients were seen in affiliated emergency departments.[28]

Pre-exposure prophylaxis for HIV: No intervention studies on pre-exposure prophylaxis (PrEP) use among people experiencing homelessness were identified. A literature review of anti-retroviral therapy (ART) adherence among PLWH who inject drugs suggested that barriers and facilitators identified in this population likely apply to people who inject drugs who are not living with HIV infection.[30] This same observation likely applies to people experiencing homelessness. Among people experiencing homelessness who are at risk for HIV infection,

awareness of PrEP is less than 25% in multiple studies.[31,32] However, interest in PrEP was reported to be high.[32,33] Specially targeted PrEP marketing and outreach may be appropriate to successfully increase PrEP use in this population.[34]

Contingency management, a behavioral intervention based on providing tangible reinforcement for certain behaviors,[35,36] has been identified in multiple trials as an intervention that has significant impact on improving health outcomes among high-need patients, including people experiencing homelessness, those who use substances, and those with severe mental illness.[35,37-41] Specific health outcomes that have been examined include HIV anti-retroviral therapy adherence and viral suppression, tuberculosis (TB) disease treatment and latent TB infection treatment, and substance use disorder treatment.[38] To date, contingency management is the most promising intervention to promote behavioral change in people who use cocaine and other psychostimulants.[37] Trials on contingency management for TB treatment adherence have found that cash and voucher rewards are similarly effective.[38] However, there have not been any trials of contingency management in people experiencing homelessness who also use drugs and/or are living with HIV or HCV. Additionally, in all studies with follow-up, the impact of contingency management disappears once the incentives end. Therefore, if incentives are used, they should be implemented as a long-term, possibly permanent, intervention.

Medication-assisted treatment, including opioid substitution therapy, has not only been shown to improve health outcomes among people who use substances, but also to increase adherence to ART among PLWH[7,39,42-45] and improve completion of HCV therapy.[46] There were no intervention trials identified that were specifically looking at the impact of medication-assisted treatment on HIV treatment adherence or HCV treatment completion among people experiencing homelessness. Pharmacological interventions to decrease stimulant use has not been shown to be effective.[37]

Directly observed therapy, where a healthcare worker watches a patient take and swallow the indicated medications, has been used routinely for TB treatment for decades. Its use has also been examined for increasing ART adherence among PLWH. While it has generally not been found to be helpful, it has been shown to work effectively among PLWH who use drugs.[47] A logical corollary of this is to combine directly-observed ART with medication-assisted therapy.

Psychosocial interventions include non-pharmacologic interventions based on psychotherapy models, such as cognitive behavioral therapy (CBT) and motivational interviewing (MI), as well as interventions such as case management and supportive housing. [48]

Motivational interviewing and cognitive behavioral therapy: No systematic reviews or meta-analyses of MI or CBT in people experiencing homelessness were identified. A 2013 Cochrane review of psychosocial interventions in people with both severe mental illness and substance misuse found no impact on loss to treatment from long-term integrated care, intensive case management, CBT combined with MI, CBT alone, MI alone, skills training, or contingency management.[49] However, this analysis was not focused on people experiencing homelessness

and a more recent systematic review (2018) found that there is moderate-quality evidence that MI may have small, but statistically significant, short term effects on health outcomes in people with substance use disorders. [50] A small number of studies have examined the use of MI in people experiencing homelessness to support behavior change around substance use. These studies had mixed results and did not provide consistent evidence supporting the use of MI in this population.[51-54]

CBT has been studied a limited number of times in people experiencing homelessness. In a comparison to a mindfulness-based intervention among previously homeless men residing in transitional housing, CBT was less effective in reducing substance use.[55] However, another study comparing a CBT-based intervention around sexual risk taking among homeless men with mental illness found that CBT had a greater impact than a general HIV education course.[56]

Trauma-informed care: People living with HIV infection, and/or experiencing homelessness, substance use, and mental health conditions are more likely to have traumatic experiences, including adverse childhood experiences, than the general population.[57-59] Trauma-informed care is an approach to providing care and services that focuses on an individual's experience with trauma and how that trauma may be impacting their life and response to services. It is increasingly used in a variety of health and non-health settings. However, no studies were identified that evaluated the impact of trauma-informed care on health outcomes in adults experiencing homelessness, or people with substance use disorders. One observational study found a positive association between perceptions of receiving trauma-informed care and mental health measures (self-reported sense of empowerment and emotional regulation) among survivors of interpersonal violence associations.[60] A 2015 systematic review of the use of trauma-informed in correctional settings found only two studies that used control groups.[61] Those two studies reported increased program completion and decreased recidivism than those who didn't participate in the trauma-informed programs, however there were substantial methodological issues with these studies. A review of the data on trauma-informed HIV prevention and treatment found that most studies were in an international context, were focused on women, and either did not assess or did not lead to long-term changes health outcomes.[58]

Harm reduction: Harm reduction is a general set of principles, as well as practical approaches, aimed at decreasing the negative impacts from drug use. There is significant evidence harm reduction approaches improve health outcomes for people with substance use disorders.[62-67]

Case management: There are multiple different case management models that provide the same basic services including practical support, help developing independent living skills, crisis management, supporting medical treatment, and helping clients connect and stay engaged with sources of support.[68] Four models in particular have been studied for supporting people experiencing homelessness[68]:

1) Standard case management (SCM): The focus of SCM is coordination of services. Case managers have higher caseloads and generally serve all or most clients in an

organization. Standard case managers don't generally do outreach. The average caseload should be 35 clients/case manager.

2) Intensive case management (ICM): ICM focuses on the highest need clients. Case managers provide services directly to patients, have more frequent client contact, and perform client outreach. Caseloads are lower than with SCM (15 clients/case manager).
3) Assertive community treatment (ACT): Like ICM, ACT also focuses on the highest need clients, provides direct services, and performs outreach, but unlike ICM, case managers work as part of a multidisciplinary team including clinicians and other care-team members with shared group responsibility for client outcomes. The team is available to clients 24/7 and carries a low caseload, 15 patients, although medical providers often cover multiple teams.
4) Critical time intervention (CTI): CTI provides intensive, but time-limited services to enhance continuity of care when clients are transitioning between life stages (e.g., post-hospitalization). CTI case managers perform both service provision and coordination of care. Case managers generally carry a case load of 25 clients.

A 2013 systematic review of these models[68] found that SCM, ICM, and ACT all increased contact between participants and case managers/other program staff. However, SCM and ICM did not decrease participant need for additional medical/psychiatric care. ACT participants did have decreased use of inpatient and emergency room psychiatric services. Data on CTI for healthcare use were limited. SCM, ACT, and CTI all increased housing stability, although the findings were most noticeable with ACT programs. SCM and CTI have been shown to decrease substance use. ICM and ACT have not been shown to have an effect on substance use. Few cost-effectiveness analyses have been performed. ACT has been shown to be more expensive than other case management models but does lead to savings on inpatient services. Based on this, two studies concluded that ACT programs were cost-neutral compared to other case management options and had better outcomes.[34] A 2017 Cochrane meta-analysis found that ICM was somewhat effective in decreasing hospitalization time in people with severe mental illness, particularly if it was delivered in a manner consistent with ACT.[69] Otherwise ICM had limited impact on health outcomes. And a 2007 Cochrane meta-analysis found some evidence that case management supported linkage to care for people with substance use disorders, but did not have other health impacts.[70] In 2008, the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA) released a best practices toolkit on ACT.

Crisis intervention: No studies were found that examined crisis intervention specifically for people experiencing homelessness. However, as stated above, the ACT case management approach specifically includes 24/7 availability and has been shown to be the most effective of available case management models at improving health outcomes in people experiencing homelessness.[68] Crisis intervention for people with serious mental illness has been shown to reduce hospital admissions and improve global functioning.[71] The National Association of State Mental Health Program Directors has developed a model for comprehensive crisis response with the specific goal of ending unnecessary emergency department visits and incarceration events.

Homeless-focused care, culturally competent care and stigma: A systematic review of health care services for people experiencing homelessness found that primary care programs that were specifically tailored for this population were found to be more acceptable to patients and lead to higher patient satisfaction.[15] One study found that providing an in-person orientation to the clinic and meeting clinic staff was associated with improved retention in care among veterans experiencing homelessness.[54] An assessment of 52 drug treatment programs serving people with homelessness in Los Angeles found that patients who participated in programs with higher cultural competency around communities of color had less drug use at discharge; this relationship was seen even among people experiencing rooflessness. [72] SAMHSA has released an evidence-based best practice guidelines for organizations that want to improve cultural competence.

Multiple studies have found that stigma can influence health outcomes globally and in the U.S. among people at risk for or living with HIV infection, particularly stigma experienced in healthcare settings.[47] One survey of PLWH in the U.S. experiencing homelessness and mental illness and/or substance use found that almost 70% reported experiencing stigma around HIV, and approximately 25% experienced stigma around homelessness, substance use, and/or mental health.[73] Other surveys of people experiencing homelessness in the U.S. have found that stigma is associated with poor self-reported health status.[74] The International Association of Providers of AIDS Care recommends that programs monitor for stigma using standardized measures.[47]

Housing: A full assessment of the literature on interventions around housing needs of people experiencing homelessness is beyond the scope of this review and has been completed elsewhere.[75] However, permanent supportive housing using a Housing First model has been shown to successfully address chronic homelessness among people with serious mental illness and/or substance use.[75-77] An initial assessment and ongoing monitoring of fidelity to all of the components of a Housing First model should be a key component of any attempts to implement Housing First.[77]

Information technology and eHealth: Cell phone- and computer-based engagement with users of health care services, also referred to as eHealth, are routinely used by healthcare providers and systems. Use of cell phones and email has been explored in people experiencing homelessness. A 2013 systematic review found that 44-62% of people experiencing homelessness owned mobile phones and 47-55% had routine access to or use of computers.[78] While the majority of studies the authors examined were among homeless youth, more recent studies have found similar levels of cell phone use and computer access among non-youth, including among roofless populations and people over age 50 who were experiencing homelessness. [79-82] Participants in these and related studies report that they use cell phones and text messaging to communicate with health care providers. [80,83,84]

Very few intervention studies on eHealth among adults experiencing homelessness have been published. In a small pilot study among homeless veterans (n=20), text appointment reminders led to significantly fewer canceled visits and no shows, and may have contributed to a decrease in ER visits and hospitalizations.[85] A research study on people who inject drugs in Boston provided cell phones to study participants who needed one as a way to improve recruitment and retention.[86] Prior to implementing that change, the authors noted that 24% of people screened as otherwise eligible for the study were excluded because they didn't have a cell phone. These individuals were more likely to be homeless, people of color, and have frequent incarcerations. Individuals receiving cell phones were as likely to complete the study as those who already had cell phones. The Max Clinic in Seattle, a clinic designed to reach particularly high-need PLWH, provides cell phones to patients without access to one, but has not evaluated this intervention.[28]

Peer support services: A 2017 systematic review examined the literature on intentional peer support among people experiencing homelessness.[87] The authors identified ten studies, none of which were exclusively in people experiencing homelessness. The meta-analysis found that peer support services had statistically significant positive impacts on overall quality of life, harm due to substance use, and physical and mental health, although only one of the studies included met the criteria for a high-quality study. A more recent study on peer navigator support for African American adults with severe mental illness who were experiencing homelessness found that peer navigators were associated with small to moderate positive impacts on general health status, recovery, and quality of life, and significant decreases in the number of canceled and missed appointments.[88,89] The peer navigator manual for this study was developed with a community-based participatory research approach[90] and is available online.

Peer support is frequently used for PLWH however few studies have formally examined the impact of this approach on health outcomes. A 2018 systematic review of active case-finding strategies for TB in people experiencing homelessness found mixed support for use of peer educators.[36] Peer education on diabetes for people experiencing homelessness has been shown to be as or more effective than health professional-led education.[91] Peer providers are an established evidence-based approach to improve outcomes among people with mental illness and substance use disorder.[92] The National Association of State and Mental Health Program Directors developed a toolkit for hiring and supervising peer workers.

Programs should note that certain peer services are billable to Medicaid.

PROGRAM STRUCTURE

Facility type: A 2008 policy-style review of healthcare models for people experiencing homelessness classified published studies as providing care through three types of models: 1) a permanent facility or clinic site, 2) care provided through community-based temporary clinics at fixed sites (e.g., weekly clinics at homeless shelters), and 3) mobile clinic models operating from vehicles at sites frequented by people experiencing homelessness.[93] No model was found to be superior in terms of provision of care; however, the authors noted that there were no formal

evaluations or assessments of any of the models and quantitative comparisons were not possible. More recent reviews have also not been able to identify sufficient quantitative evaluations to conduct formal meta-analyses of the impact of clinic location on health outcomes.[15]

Mobile health services for people experiencing homelessness have been used in many communities, but very few formal evaluations have been performed.[15] In a country with universal health care, people experiencing homelessness were still found to use a mobile health bus for care.[94] A survey of 150 users of the health bus found that 95% had a regular source of care; only 12% indicated that the health bus was their primary source of medical care. However, users reported a median of almost 2 visits per month. Most clients (85%) used the health bus to obtain basic supplies, but 37% used it to address medical issues. A separate qualitative study of the same health bus found that clients valued the quality of the patient-provider interactions and accessibility of the bus, in contrast to disrespectful treatment and inconvenient locations of regular healthcare services.[95] In a study examining the impact of ICM among substance users experiencing homelessness, participants recruited through a mobile health van had more contact with a case manager than those who participated via self-referral.[68]

One study examined the feasibility of co-locating a homeless-focused patient centered medical home[2] with an emergency department.[29] ED clinical staff were generally supportive of the concept, but no additional information about this model was found. Co-locating health services at locations that are frequently used by people experiencing homelessness is a common approach and has been used successfully for health screening and study recruitment.[24,25]

Care integration and tailored care: Meta-analyses and systematic reviews have consistently identified that the most effective care models for people experiencing homelessness offer an integrated site that is specifically tailored to this population where they can access medical care, mental health care, social services, and related services.[15,96,97] Notably, the ACT model of case management, which has shown the most promise among people experiencing homelessness, has team-based integrated care as a core function.[68]

The need for integrated physical and mental health care is not specific to models for people experiencing homelessness. The International Association of Providers of AIDS Care recommends that providers proactively identify and manage mental health issues related to HIV diagnosis and treatment.[47] Numerous studies have shown strong evidence that mental health issues, such as depression, had significant impacts on ART adherence and HIV-related health outcomes.[47] Integrating mental health care for people with mental health and substance use disorder into HCV care has been shown to increase completion of HCV therapy.[98]

[2] A patient centered medical home is a team-based model where a single diverse group of healthcare providers is responsible for providing comprehensive care for a patient's physical and mental health needs, including prevention/wellness, chronic illness, and acute health needs. For more information, see: https://pcmh.ahrq.gov/page/defining-pcmh.

Integrated care does not have to be limited to traditional clinical and social services. Integrating primary HIV care with medication-assisted treatment for people with substance use disorder increased ART adherence in multiple studies, including one 12-month randomized controlled trial.[39] This integrated primary care/medication assisted treatment model has also been shown to work with people with substance use disorder who do not have HIV infection.[99] Integrating a harm-reduction model with an HIV clinic led to a 50% greater odds of attaining viral suppression in people who use drugs and are living with HIV infection.[100] Crisis intervention for people with serious mental health illnesses has been shown to improve multiple outcomes and is another function that could be integrated in a comprehensive care program.[71]

MODEL CLINICS

The following are examples of programs that attempt to provide tailored care to high needs populations using a more fully integrated holistic model with a combination of integrated medical services, social services support, practical support, low barriers to care, and various forms of outreach.

The U.S. Veterans Administration (VA) patient-centered medical homes for veterans experiencing homelessness, referred to as the Homeless-Patient Aligned Care Teams (H-PACT), exists at 33 VA facilities and serves approximately 15,000 patients. The model includes the following features: walk-in appointments for all services; integrated care teams including medical providers, social workers, and mental health and substance use counselors; housing case management; on-site substance use treatment; outreach to community sites; and coordination with emergency departments. Many sites also have clothes pantries, food assistance (e.g., food pantry, onsite meals), transportation assistance, and hygiene care (e.g., on-site showers, hygiene kits). One site added a mental health clinical pharmacist.[101] Additional details about the model are available.[102]The H-PACT model is one of the few that has been well studied and found to be cost-effective. Patients accessing H-PACT have had decreased emergency department use and lower annual costs compared to patients accessing non-homeless focused care.[103,104] Patients were also more likely to rate their health as good or better.[103] It is important to note that the population served by H-PACT, homeless veterans, have access to resources not available to other populations experiencing homelessness and may differ in key ways. Additionally, the evaluations of H-PACT did not stratify by housing status and in one study only 15% of the sample were living roofless.[103] Authors have not specifically reported outcomes among PLWH.

Project Bridge Oakland was a small research project serving “triply diagnosed” individuals (people living with HIV infection, substance use disorder, and serious mental health issues) who had multiple interactions with the criminal justice system.[105] The project was not a true integrated model, but did use peer navigation, ACT case management (a team of a social worker and an HIV primary care physician), and standard case management (e.g., counseling and linkage to services). The team served 19 patients over the 1.5 years of the project. All patients were experiencing homelessness at the time of enrollment in the program. The team conducted weekly case conferences where they reviewed the status of all patients and

conducted regular outreach activities. The physician would sometimes accompany the case manager on outreach visits. Patients received quarterly incentives for completing blood draws and the project provided free bus passes and access to food/meals, condoms, hygiene kits, clothes, a bathroom, hot beverages, and use of the office phone. No formal evaluation of the project was conducted.

In British Columbia, Vancouver Coastal Health houses the Maximally Assisted Therapy (MAT) program, which provides services to high-needs PLWH with multiple barriers to care including homelessness. MAT is based on a harm reduction model. The primary care team consists of social workers, outreach workers, registered nurses, and a clinical pharmacist. Physicians are available for primary HIV care but are not MAT team members. Psychiatric services are not available on-site and it's unclear if medication-assisted therapy for substance use disorder is available. The clinic is open seven days a week with clinical services offered in the morning; no appointment is necessary. There are two outreach teams, both with an outreach worker and a registered nurse. One team is focused on ART medication delivery for clients that are unable to or have not come to clinic to pick up medications. The other team focuses on re-engaging patients that have been lost to care. Patients are generally referred to MAT from other providers and they must sign a community agreement to access services. The project has not published a formal evaluation although of the 130 participants in the project as of July 2012, 118 (91%) were on ART. A second clinic in Vancouver at the Vancouver Native Health Society used to offer the MAT program to indigenous PLWH with a substance use disorder who were also experiencing homelessness but lost funding for the program in 2018.

The Max ("maximum assistance") Clinic in Seattle was designed to engage PLWH who had fallen out of care and had the greatest barriers to staying engaged in care.[28] The clinic design was focused on providing high-intensity support, minimal barriers to accessing care, and incentives to staying in care and attaining viral suppression. Clients have walk-in, no appointment access five afternoons per week to primary and urgent care provided by infectious disease physicians, and walk-in access to medical and non-medical case managers five days a week. Medical case managers have a caseload of 50 patients. Services are provided and coordinated among a large HIV care clinic, inpatient staff at local hospitals, housing providers, the county jail, and an intensive outreach provider. The outreach team is a group of disease intervention specialists that serve as a single point of contact for care coordination among patients and providers. The team is available via a single phone number that is answered by a person during business hours and can receive text messages. The outreach team receives automatic notifications when patients are seen in an emergency department or admitted to an affiliated hospital. Patients are referred to mental health and substance use services as needed, but those services are not immediately available in the clinic except for buprenorphine treatment. Max Clinic patients are provided incentives for coming to clinic, blood draws, viral suppression, and sustained viral suppression. Patients also receive free bus passes and cell phones if needed. Patients are referred from medical and case management providers, partner services programs, and from HIV surveillance data that identify patients who have difficulty staying engaged in care. There are also peer and self-referrals. In the first two years of the clinic, 95 patients were served of whom 36% were living roofless and 65% abused stimulants; 52% were virally suppressed at the

time of enrollment. At the end of those two years, 65% of patients were virally suppressed. A small case-control study of the Max Clinic found that participants had higher levels of continuous viral suppression and engagement in care than controls.[106] This was a non-randomized study and controls did differ from cases in that controls were less likely to be experiencing homelessness and had lower viral loads. However, these factors are likely to diminish the observed impact of the program rather than accentuate.

Discussion

There are multiple limitations to this literature review. A key issue, which has already been mentioned repeatedly, is that relatively few interventions for people experiencing homelessness have been formally tested with a robust sample size. The vast majority of published studies on homelessness are descriptive in nature or qualitative studies of small numbers of individuals. Additionally, most intervention studies, while the authors did collect and report data on housing status, did not examine outcomes specifically among those who were living roofless. Meta-analyses and systematic reviews also did not stratify their findings. As such, the findings reported here may not fully be applicable to the population of interest since there are clear differences in the health status and needs of populations with unstable housing, such as those living with friends, compared to those living in cars or on the street. Finally, there is only one comprehensive model of integrated care and outreach that has been robustly studied and reported on. The VA H-PACT has been shown to lead to improvements in health outcomes and lower healthcare expenses.[103,104] However, in one study, only 15% of H-PACT patients were living roofless and no outcomes specific to this group were reported.

Despite these issues, there is substantial evidence of effective interventions that can be used to implement successful programs. The evidence reviews were grouped into three major categories: specific interventions, general program structures, and model clinics.

SPECIFIC INTERVENTIONS

- **Outreach and recruitment**: A mix of outreach activities will likely be most effective including incentivized peer-network or snowball recruitment, location-based outreach in areas frequented by people experiencing homelessness, and information sharing with emergency departments and jails.
- **PrEP**: No intervention studies on pre-exposure prophylaxis (PrEP) use among people experiencing homelessness were identified. PrEP awareness is generally low in this population and there is a need for effective education that is targeted to people experiencing homelessness
- **Contingency management**, specifically monetary or voucher incentives for achieving care goals (e.g., clinic visits, blood draws, and viral suppression), has consistently been found to be effective at improving health outcomes as long as the incentives continue.
- **Medication-assisted treatment** for people with substance use disorder improves antiretroviral adherence and other health outcomes. There are some data that it can be effectively combined with daily directly-observed therapy for ART.

- **Motivational interviewing and cognitive-behavioral therapy:** There are mixed findings on the impact of motivational interviewing in people experiencing homelessness and people with substance use disorders, although it probably leads to small improvements in health outcomes. Data on cognitive-behavioral therapy are insufficient to support its use.
- **Trauma-informed care:** Trauma-informed care is increasingly used in a variety of health and non-health settings. While it is an intuitively attractive model for use in populations with high levels of traumatic experiences, very few controlled studies have been performed and there are minimal data indicating that it has beneficial impacts on health outcomes.
- **Harm reduction:** There is significant evidence harm reduction approaches improve health outcomes for people with substance use disorders.
- **Case management**: There are many case management models and data on their effectiveness are mixed. Assertive community treatment case management, which includes a team-based approach, low caseloads, and 24/7 availability, has the best evidence for improving healthcare outcomes in people experiencing homelessness. Despite higher upfront costs, two studies found assertive community treatment to be cost-effective due to savings in healthcare costs.
- **Crisis intervention**: No studies were found that examined crisis intervention specifically for people experiencing homelessness. However, crisis intervention for people with serious mental illness has been shown to reduce hospital admissions and improve global functioning.
- **Cultural competency and stigma**: Staff and organizational cultural competency can impact health outcomes among people experiencing homelessness, people using substances, and people living with or at risk for HIV infection. Organizations offering services should proactively monitor for experiences around stigma among their clients using standardized tools in order to continually ensure that services are offered in a culturally sensitive and accessible fashion.
- **Housing**: However, permanent supportive housing using a Housing First model has been shown to successfully address chronic homelessness among people with serious mental illness and/or substance use. An initial assessment and ongoing monitoring of fidelity to all of the components of a Housing First model, particularly harm reduction, should be a key component of any attempts to implement Housing First.
- **eHealth:** Using cell phone- and computer-based approaches to engage with clients can be effective at reducing loss to treatment. Many people experiencing homelessness have cell phones or access to a computer. For those who don't have cell phones, some programs have provided phones to clients although this intervention has not been tested.
- **Peer provider** programs for people experiencing homelessness and people with severe mental health conditions have been consistently associated with beneficial impacts on health outcomes and decreased loss to follow-up.

PROGRAM STRUCTURE

- **Facility type**: There are generally three facility models that have been used to provide care and services to people experiencing homelessness: a permanent clinic, a temporary recurring clinic at locations frequented by people experiencing homelessness (e.g., a

shelter), and mobile clinics. There are insufficient data to recommend one type of facility over another.

- **Integrated and tailored care**: Meta-analyses and systematic reviews have consistently identified that the most effective care models for people experiencing homelessness offer an integrated site that is specifically tailored to this population where they can access medical care, mental health care, social services, and related services.

MODEL CLINICS

- Several specific clinic models are presented that provide potential models to consider. The following are common characteristics of these programs, although these approaches have not necessarily been found to be impactful in the literature and there are other services/approaches that have been found to be impactful that were not implemented in these examples.
    - **Low-threshold medical care**: All the example clinics provided easy access to medical providers, often through availability of walk-in/no appointment medical and case management services.
    - **Outreach services:** All model clinics were integrated with significant outreach activities.
    - **Integrated substance use services:** Several clinics offered on-site medication-assisted therapy.
    - **Incentives:** Two clinics specifically provided incentives to various engagement in care activities.

As noted, many of these approaches do not have strong evidence supporting their use, however they also do not have evidence against them. Some of these interventions are likely still worthwhile using. However, significant consideration should be given to designing effective evaluations of these efforts. Evaluating the program as whole, as well as individual components, will aid in further improving program delivery and also support the field as a whole in moving toward more evidence-based approaches. Since randomized controlled trials are not appropriate assessment tools, other options for evaluation should be considered.[107,108]

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