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North American Observatory on Health Systems and Policies

Rapid Review

Delivering Primary Care in Non-Traditional Healthcare Settings to Individuals Experiencing Homelessness

Prepared for Healthcare Excellence Canada

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Executive Summary

People experiencing homelessness (PEH) are a heterogeneous population who nonetheless share common challenges of stigma and exclusion, along with multiple barriers to accessing primary care. There are higher rates of unmet need and emergency department use among PEH, which in part relates to barriers accessing essential health and social services. One of the approaches that has been taken in Canada and other countries to better meet the health needs of PEH has been to provide primary care outside of the mainstream health system, i.e., in "non-traditional" settings. This rapid review aimed to identify and learn from promising or emerging primary care initiatives in non-traditional settings that support better access to care for PEH.

We conducted a rapid review of academic and grey literature to scope models of primary care delivered in non-traditional healthcare settings to PEH. We complemented this literature review by conducting interviews with researchers and practitioners with expertise and experience with primary care for PEH. Our focus was on non-traditional healthcare settings including shelters and facilities that serve individuals with substance-use disorders, such as residential treatment centres, detoxification centres, managed alcohol programs, among others. We described the models that emerged from the literature according to 1) access point, site, and timing of service delivery; 2) target population; 3) team composition; 4) service provision; 5) funding; and 6) impacts on access to primary care, considering multiple dimensions of access. We did not uncover any robust evaluations of the impacts of these programs on access or health outcomes, though we see some indication of positive experiences among clients, frequent contacts, and potentially reduced emergency department visits.

Drawing on the academic and grey literature, and interviews with expert advisors, we describe six key considerations for improving access to primary care in non-traditional settings:

1. Foster positive interpersonal relationships between PEH and healthcare providers
2. Include peer support workers and interprofessional team members to address the complex needs of PEH
3. Establish a welcoming and inclusive environment to encourage primary care access and social connectedness
4. Support system navigation and build connections to mainstream care to reduce barriers
5. Enable collection and sharing of health information to improve care continuity and support evaluation of primary care programs
6. Adopt sustainable and adaptive funding models

Given the heterogeneity of the PEH population, and the wide variety of primary care interventions that we uncovered in our review, these considerations will need to be adapted to the particular population subgroup being served and their local environmental and social context.

Introduction & Background

People experiencing homelessness (PEH) can be considered a vulnerable population. In addition to personal and economic hardships, they also often face stigma and exclusion based on their lack of or underhoused status (1). More than 235,000 people in Canada experience homeless in any given year, and between 25,000 and 35,000 people could be experiencing homelessness on any given night (3).

Homelessness affects a heterogenous group of people including men, women, youth, families with children, and different racialized and ethnic communities (4,5). Specific sub-groups are overrepresented in Toronto's homeless population. For example, Indigenous people account for 2.5% of Toronto's population, yet make up 15% of those that are homeless in the city (4). Newcomer families to Canada also face risk of and experience homelessness (6).

The pathway to homelessness itself is not linear; rather, it is a complex interaction of factors at the individual/family level (traumatic childhood, low education attainment, lack of job skill, mental illness, substance abuse) and societal level (unaffordable housing, poverty, racism, discrimination, labour market, decreased social benefits) (5,7). More recently, the COVID-19 global crisis is causing significant additional hardship on families and individuals. Widespread economic fallout and housing insecurity has placed more people at risk of losing their home (8). High rates of poor mental health (9), problematic substance use (10), and chronic illness (11) have been well documented among PEH before the pandemic. PEH tend to die much younger, with an average life expectancy of 47 compared to 77 years in the general population (12).

Many reasons have been given for this stark difference in life expectancy. Premature deaths are more associated with acute and chronic medical conditions than with either mental illness or substance misuse. Although, the phenomenon of the "tri-morbidity," or the presence of mental illness combined with substance abuse and one or more chronic conditions, seems to drastically increase the risk of early death (13).

However, PEH face multiple barriers to accessing primary care. There are high rates of unmet need, alongside high reliance on acute healthcare measures, including the emergency department and inpatient care (14). This trend is apparent in countries with and without universal healthcare coverage (15). In a prior study, less than half of PEH surveyed reported having a family doctor, which is a key factor to healthcare access and health status (16). PEH often experience challenges that make accessing a primary care practitioner or service hard, which include residence and occupational instability, mental health disorders, substance use, and discrimination and distrust, among others (17,18).

One of the approaches taken to better meet the health needs of PEH has been to provide primary care outside of the mainstream health system, i.e. in "non-traditional" settings (19). The purpose of this rapid review was to identify and learn from promising or emerging primary care initiatives in non-traditional settings that support better access to care for PEH.

Methods

Rapid Scoping Review

We conducted a rapid review of academic and grey literature to scope models of primary care delivered to PEH in non-traditional healthcare settings. Non-traditional healthcare settings included, but were not limited to, shelters and facilities that serve individuals with substance use disorders, such as residential treatment centres, detoxification centres, and managed alcohol programs, among others.

For the academic literature review, we searched for studies published in English between 2016 and 2021 in two bibliographic databases by using keywords related to primary care. We excluded study protocols and grant proposals to capture studies with preliminary or final findings of the outcomes of the models of care and studies whose focus was housing first. Additionally, we only included studies carried out in countries that are members of the Organization for Economic Co-operation and Development (OECD) and that focused on primary care rather than disease-specific focuses such as COVID-19, HIV/AIDS, hepatitis C, and diabetes. The same inclusion criteria were followed for the grey literature review, and we further included studies that provided a detailed or as complete as possible description of the categories of interest and that were different from the models in the academic literature. The search was conducted using Google's search engine, on websites of key organizations including the Canadian Observatory on Homelessness and the Canadian Centre on Substance Use and Addiction, and consultations with NAO network members with relevant expertise.

We first reviewed the academic literature and summarized the included articles according to 1) access point, site, and timing of service delivery; 2) target population; 3) team composition; 4) service provision, 5) funding, and 6) access to primary care. See Appendix B for summary tables of the academic and grey literature articles included. We applied the concept of *access* as developed by Levesque et al. (2013) to describe the extent to which these programs enabled PEH to access primary care. Definitions of each of the five dimensions of accessibility: 1) Approachability; 2) Acceptability; 3) Availability and accommodation; 4) Affordability; and 5) Appropriateness were used deductively during the analytical process (20) (Table 1).

Table 1. Five Dimensions of Access (Levesque et al., 2013)

Approachability	People facing health needs can identify that some form of services exist, can be reached, and have an impact on the health and well-being of the individual.
Acceptability	Cultural and social factors that determine the extent to which people accept aspects of the service and the perceived appropriateness for the persons to seek care.
Availability and accommodation	Refers to health services (either physical space or persons working in health care roles) that can be reached both physically and in a timely manner. Availability is seen in the physical existence of health resources with capacity to deliver sufficient services.
Affordability	Represents the economic capacity for people to spend resources (or threaten their safety) and time to access appropriate services.
Appropriateness	Reflects the fit between services and client need, its timeliness, the amount of care spent in assessing health problems and determining the correct treatment plan, and the technical and interpersonal quality of the service provided.

A detailed methodology, including search syntax and screening of the academic and grey literature, review can be found in Appendix A.

Key Informant Interviews

A validation of key findings approach was used involving key informant interviews to provide information regarding access to primary care for PEH. Subject matter experts—clinicians (physicians), researchers, and policy advocates—were invited to participate in informal interviews led by a lead researcher (SA) and participated in by other team members between January and February 2022. Guiding questions were developed in advance to first validate emerging findings and to identify promising programs relevant to the individual's jurisdiction, and then, generate specific factors needed to support improved primary care access for PEH.

Limitations

The academic literature search was limited by publication date (2016–2021) and language (English). We did not conduct a critical appraisal, therefore the quality of studies included may still affect the strength and robustness of the review key findings. Both academic and grey literature reviews excluded studies or models of care that did not describe program outcomes in terms of access to primary care, with the potential exclusion of innovative programs due to the limited availability of information about their operations and program results. Despite this, we adopted a broad approach to define and include a diversity of PEH and the primary care services reported. This allowed us to examine a breadth of relevant programs.

Analytic Overview of Models of Care

In total, we extracted data from 31 academic papers representing programs and service models across five jurisdictions: United States (US; n=16), United Kingdom (UK, n=6), Australia (n=5), Canada (n=3), and Brazil (n=1). A summary table of the academic review articles can be found in Appendix B.

The studies described a wide range of primary care models that vary in the ways people can access the services, the composition of the provider teams, the types of services delivered, their target populations, and their funding models. For instance, these models included co-located primary care clinics in the shelter system or other services frequented by PEH that often provide space for sleeping or day use with accessible food, clothing, and laundry and hygiene facilities (21–28). Other types of models included those providing street outreach services, with the philosophy of "going to the people" (1,29–35) and some use of telehealth (36,37). Some models integrated primary care with other services, such as opioid treatment, supportive housing, or psychosocial support. The teams of providers were, in some cases, interprofessional that included physicians, nurses, social workers, care coordinators, outreach and peer workers, and others working together to meet the needs of PEH (38–49).

In the sections below, we outline the main characteristics of the models of primary care delivery to PEH in non-traditional settings found in the academic literature based on, 1) access point, site, and timing of service delivery, 2) target population, 3) team composition, 4) service provision, 5) funding models, and 6) access to primary care. See also Appendix B for a summary of the interventions.

Access Point, Site, and Timing of Service Delivery

Access Point

In most cases, the access point (i.e., how PEH access the primary care service) is by **drop-in/walk-in** or facilitated by the outreach of clinical and social service providers. Less described was care access either by appointment or referral. First, papers infrequently described **appointments** needed with the exception of four programs (36,38,43,49). Minimal use of an appointment system was meant to reduce access barriers since PEH are often needing to address "survival priorities" (50); however, several papers did acknowledge the use of "appointment escorts," or staff who made appointments, accompanied the PEH, or made transportation arrangements (23,25,35,42). For one paper, the appointment system within a co-located service (primary care + day/food drop-in) consisted of PEH being seen in order of arrival (21). **Referral-based** access points occurred in the context of hospital discharge. Individuals identified as experiencing homelessness while hospitalized were referred to such programs to support their health and social needs once discharged from hospital (29,35,42).

Assertive **outreach** was another significant access point for primary care. For example, the role of the community health nurse was described as being the first point of contact for PEH (28). Several models included assertive outreach efforts for approaching potential patients in community settings (i.e., street, park, bridge, library, other sites that provide food or respite) (26–35,38,41,42,44–46,51). Often when working in the community, clinicians partner with outreach workers who can identify and engage with PEH (31,44). In the case of "Begin the Turn," a program designed to address overdose crisis in North Philadelphia, outreach specialists, who have lived experience in substance use and recovery and are considered credible messengers, help to connect with patients (44). Approaching individuals at the outreach setting, like a shelter or a drop-in, is a strategy referred to as "opportunistic" or a "one-stop shop" (21,28,45).

Site

The site of delivery was commonly a shelter or hostel (22,23,25,27,31,32,34,35,38,39,42,43,47), or a local service frequented by PEH, such as a respite or drop-in centre, food pantry, library, or soup kitchen (21,25–28,33–36,38,39,45,51). Street medicine programs target the unique needs of the "unsheltered" or rough-sleeping homeless population. For this reason, care is delivered via "walking rounds" on the streets, under bridges, or anywhere that a client may reside (28–30). Several programs operate out of a mobile unit and have consistent and intentional locations (24,26,27,31,32,38,44). For example, hot spots for fatal overdoses for an opioid treatment program (44) and one that targets sex workers is co-located nearby a drop-in centre (24). In the US, the Veterans Health Administration (VHA) operate integrated primary care services that are delivered in more traditional locations, such as medical centres and community-based outpatient clinics (41,48). Similarly, a Community Health Centre in an urban locale in Canada is the site of an Indigenous health and wellness program (40).

Timing

Described less often was the timing of the service, such as hours of service, frequency, and duration of delivery. Detailed hours of service was referred to in two papers: 11 a.m. to 2 p.m. (24) and 7 p.m. to 11 p.m. (31). Where mentioned, frequency ranged from one day a week (24,28), two-to-three days or nights a week (31,44) and at most, four days per week (49). Two papers mentioned time limits of the service at four and six months because of having a brief targeted mandate and resource limitations (42,45). Only one paper described the rate of follow-up based on the team and the patient agreeing on frequency of return consultations (35). The length of the drop-in clinic for the pharmacist-led service lasted two hours (34). Finally, once discharged from acute care, patients were expected to be seen in the community within one week (29).

Target Population

Most of the study interventions generally target PEH who would be accessing the shelter system or are co-located within shelters. However, some also focussed on those living in the streets and parks, who are often referred to as the "hard-to-reach." While most of the interventions focussed on PEH in general, there were some sub-populations, like homeless veterans, refugees and asylum-seeking, men, women, people who use substances, female sex workers, and Indigenous peoples who were specifically being served by the primary care interventions (see Table 2).

Table 2. Breakdown of target population

Sub-population	Program Name
General homeless	Telehealth (36,37), Freo Street Doctor (26,27), Boston Health Care for the Homeless Program (38), Safetynet's Mobile Health and Screening Unit (32), Community outreach center (33), Health Care for the Homeless Program (39), Community Health Nurse (28), PHOENIx (34,35,51), Co-Ordinated Access to Care for Homeless people (42), Multidisciplinary Street to Home Model (45), Inner City Access Program (47), GP Community Outreach Services (21)
"Street sleepers"/those that do not access the shelter system or services co-located within shelters	Safetynet Primary Care (31), Street Medicine (29,30), The Mission/Center for Health and Wellness (43)
Veterans	Telehealth tablets (37), Homeless Patient Aligned Care Team (37,41,48)
Men	The Mission/ Center for Health and Wellness (43), Nurse-led Primary Health Clinic (23)
Women	She. Health. Empowered. (22,24)
Substance use disorder	The Mission/Center for Health and Wellness (43), "Begin the Turn" (44), Stephen Klein Wellness Center (49)
Indigenous	Niiwin Wendaanimak Four Winds Wellness Program (40)
Refugees, asylum seekers	Safetynet's Mobile Health and Screening Unit (32)
Female sex workers	She. Health. Empowered. (31)

Team composition

Disciplines

Many different care providers were involved in the delivery of primary care and other services through the described programs. Care providers commonly had professional backgrounds in medicine, nursing, and allied health. Although family physicians/general practitioners (GPs) were the most common medical professional described, some programs included other medical specializations like psychiatrists (22,42,47) and infectious disease specialists (24). Similarly, nursing staff sometimes included specialized roles like nurse practitioners (22,50), mental health nurses (45), and community health nurses (28). Some programs described case managers (42,44), treatment coordinators and administrative staff (32,41,49) among their teams. For example, Weinstein et al. (2020), described the use of a Medication Assisted Treatment Coordinator to assist with scheduling, checking in on patients, verifying insurance, and supporting case management (49). Students and trainees from multiple disciplines were also involved in some programs, including medicine, nursing, dentistry, pharmacy, social work, and public health professions. In three cases, the programs were student-led (25,33,43) (Table 5B. in Appendices).

Team Structure

Team structures varied significantly across the programs described. In most cases, programs were delivered through interprofessional teams. These teams consisted of between two and six different disciplines. Some interventions consisted of a pharmacist and outreach worker (34,35,51), nurse and social worker (46), and physician and nurse (31). Greater disciplinary involvement was noted across street and mobile outreach initiatives, including community outreach workers (24,26,29,30,45). When services were represented by more than three disciplines, these tended to involve opioid treatment (44,49), cross sectoral collaboration (e.g., primary care and housing) (41,42,47,48), and student-led outreach (33). Several papers highlighted the role of a peer support worker or community health worker with lived experience as a useful strategy in supporting PEH engagement and continuity of care (29,42,44). Where many of the PEH were identified as Indigenous, Indigenous case workers and an

Indigenous Mentor were part of the team to provide mentorship on cultural practices to staff and clients (45).

Service Provision

Comprehensive primary care services consisted of a range of services. Programs offer a full spectrum of primary care services including medical consultations, mental health, chronic disease management, wound care, routine vaccinations, medication dispensation, and even antiretroviral therapy and monitoring for people living with HIV/AIDS (29,30,46). Other programs, such as mobile clinics, offer x-ray imaging, laboratory testing, and blood work (29–32,46). For instance, the pharmacist-led innovation, PHOENIx in Scotland, dealt with many areas of primary care including cardiovascular and respiratory health, nutrition, mental health, alcohol consumption, sexual health, foot care, female health, and medication reviews (34,35). This program conducts initial "health check" assessments about several aspects of health. The information collected is used to formulate a plan together with the patient on priority issues to be addressed (51).

Some programs offered primary care in addition to harm reduction interventions and treatment for substance use, including medication for opioid use disorder (44,49), family planning, testing, treatment of sexually transmitted infections (24,43), mental health care (43), needle exchange (31), and care for acute and chronic needs, bridging people to primary care (44).

Other models provided case management services in addition to primary care in primary care units, housing services, and other social care programs such as food pantries, laundry, and on-site showers (48). For example, in nurse-led clinics, nurses undertake general medical and mental health assessment and care, administer medications, and facilitate prescription and dispensing, while also providing case management for men with more complex needs and making referrals to other health professionals and specialist services (23,28). Homeless Patient Aligned Care Teams (H-PACTs) in the US offer comprehensive primary care and social services, including social work case management and housing services (41,48). Some programs, offer primary care along with case management through street outreach, including referrals, counseling, connections to community-based health and social services, health insurance navigation, and coordination of housing and benefits applications (29,33,42,44).

Funding Models

Most of the models of care identified in the academic literature did not specify their sources of funding. Among those that describe their financing sources, most were financed by government funds, and fewer by non-government or charitable and grant funds. Detailed descriptions about the funding models such as period of funding, eligibility for resources, and monitoring were typically not described in the models of care found in the academic literature.

Government funds were provided by health insurance and social funds such as Medicare in the US, the Health Service Executive in Ireland (24,32,40,43), and the Ministry of Health in Ontario, Canada (40,47). Some models of care run by non-government organizations reported using their own funds to provide services, coming mainly from donations or other unspecified sources (29). For instance, the Street Medicine program in the US is financed by an academic institution, with in-kind support from the medical centre (29) and in Australia, several programs accept funding from the city government and philanthropic donations (26–28,45). In the Freo Street Doctor's case, which has been operating in

Australia since 2005, termination of state funding resulted in a multi-focus sustainability plan to ensure ongoing operations (27,52). Other models of care financed by grants helped reduce program costs. The Co-ordinated Access to Care for Homeless People (CATCH) received support through the Canadian Institutes of Health Research (CIHR), while the Inner City Access Program (ICAP) also in Canada and a medication for opioid use disorder (MOUD) program in the US received block funding to cover some of their expenses and improve the delivery of services (47,49). Less is known from the academic papers on the extent to which funding was either sustained or further supported by operational funding.

Access to Primary Care

Most of the papers reviewed failed to offer robust program or service evaluations including quasi-experimental or randomized controlled studies. Instead, the study authors reported on descriptive findings, such as perceived benefits, health service utilization, and some estimates of cost savings. Broadly, this finding points to a significant gap in the literature on the effectiveness of these programs, the limitations with current data (self-reported, surveys, and experience), and indicators of access (many were not clearly defined or meaningful to this population). To better understand the extent to which access to primary care was being addressed by the study interventions, we applied a deductive analytical approach. The patient-centred access to healthcare framework developed by Levesque et al. (2013) was used to map study findings to the five dimensions of access: 1) Approachability; 2) Acceptability; 3) Availability and accommodation; 4) Affordability; 5) Appropriateness (20), summarized in Table 3.

The access findings suggest that interventions can result in frequent contacts with PEH and referrals to additional providers and services, a reduction in emergency department visits, and be perceived by service users as acceptable. However, we cannot draw any conclusions on either the health outcomes of service users or the generalizability beyond those sampled or included in the papers.

Table 3. Overview of impacts on access to primary care from interventions examined

Dimension of access	Impacts on access to Primary Care	Examples
Approachability	Number of people served	Safetynet's mobile health and screening unit completed, in 18 months, health assessments for more than 700 Syrian refugees in Ireland, and screened over 70 PEH and 250 asylum seekers (32).
	Number of referrals made	Referrals to other health services doubled over a 7-year period in a nurse-led primary care shelter-based clinic (23).
	Number of ED visits avoided	Video visits based out of a drop-in centre reduced potential ED visits by 29.1% or enabled access for patients that would otherwise forgo care (38.2%) (36).
	Number of hours providing care	A cohort of undergraduate nursing, social work, and medical students spent 30 hours performing outreach (33).
	Patient engagement/ attachment/retention	For an opioid addiction outreach service, some retention in care was noted as 61.2% of the 147 clients served were in care at 1 month, 36.6% at 3 months, and 27.6% at 5 months (44).
Acceptability	Higher acceptability of services	Consistency of the service provision team, greater accessibility to medical, rehabilitation, and equipment services, and team meetings increased service acceptability (47).
		Empathetic non-judgemental staff, interested in helping PEH with improving their health and circumstances was important to PEH accessing a mobile primary care service (26).

		The informal and flexible nature of outreach services helps to mitigate barriers to accessing formal primary care like avoiding perceived stigmatized attitudes from staff or other patients (51).
Availability and Accommodation	Perceived convenience of health services due to their location	Patients of a GP-outreach model reported on it being more "convenient" as it brought services together as a "one-stop shop" (21).
		People seeking opioid use disorder treatment were able to access help on a walk-in basis where service can be accessed 4 days per week (49).
		A health assessments drop-in clinic is set up for 2 hours at venues such as hostels, day centres, and soup kitchens making services more reachable (34).
Affordability	Ability to receive primary care services	Non-traditional care services are generally affordable to PEH. However, connections back to the mainstream that provide higher-quality care and specialized care may not be affordable for all groups experiencing homelessness, especially if they are not covered by the country's statutory health insurance program, e.g., undocumented and migrant populations. There are also indirect costs related to accessing primary care services, such as commuting cost for clients. It is worth noting that studies did not typically comment on affordability at the individual level or get into details about insurance status (except for those studies on veterans in the US).
Appropriateness	Services provided meet clients' needs	The Multidisciplinary Team in Australia assists PEH to overcome systemic barriers by delivering health care organized around the specific needs and circumstances of this population. They engage PEH "in situ," and their workers proactively follow-up on the patients, enabling continuity of care (45).
		PEH expressed wanting providers/staff to value their experiences and perspective, while also desiring to better understand information about their own health and healthcare processes; however, their needs are not the typical health needs of the general community. Being able to address issues holistically is key to shared decision making (28).
		Some sites are limited in the services they can offer compared to formal primary care practices, including limited ability to support continuity with a rotating provider schedule, and limited capacity to perform lab studies on site. These limitations make sites more appropriate for management of acute medical needs and offering social and emotional support services (25).

Abbreviations: PEH (People experiencing homelessness); ED (Emergency Department); GP (General Practitioner).

Key Findings

This section summarizes six key considerations for the provision of primary care services to PEH in non-traditional settings based on the academic and grey literature and informant interviews (see Appendix B for summary tables of the academic and grey literature). Notably, since most interventions occurred in the general homeless population across a variety of contexts, these considerations may vary in their relevance to different homeless sub-populations and settings, such as youth, refugee groups or rural geographies. Therefore, environmental and social context will play an important role in implementing programs and services in the local context. For example, technological tools (virtual care, tablets) might facilitate access to services that prove challenging to attend in-person; but some may experience barriers to technology use, including physical, cognitive, motivation, cost, or availability.

1. Foster positive interpersonal relationships between PEH and healthcare providers

Positive relationships with health and service providers help to facilitate access and continued engagement with primary care among PEH. Fostering therapeutic relationships and building trust requires consistency of staff and providers dedicated to giving practical and inclusive help. Pervasive discrimination of PEH within the healthcare system has had a negative impact on their engagement and disengagement with primary care services (16). However, when recognized as individuals with personal needs and goals, PEH are more likely to access and engage with care. Some strategies adopted by providers and services were found to be effective and helped patients to feel listened to and respected. These included, for example: adoption of an informal and non-judgemental approach; taking time to meet with clients; and demonstrating an interest in matters unrelated to health. Several academic papers described adopting a trauma-informed approach to care to build trust and sustained communication with clients, including the opioid treatment programs (Stephen Klein Wellness Center and Begin the Turn) in the US, the Niiwin Wendaanima program in Canada, and the Homeless Healthcare program in Australia (40,44,49,53). Only one program described in detail its “harm reduction policy” that followed the teaching of non-interference and was complemented by harm reduction and cultural safety (40).

Our expert advisers validated relational approaches to facilitate better engagement and improve primary care access. Experts recommended building trust and consistency among providers, non-judgemental, trauma-informed, and harm reduction approaches to care, and focusing on meaningful outcomes for the individual. Adequate training was also recognized as critical for frontline workers to successfully care for and support PEH. Specialized training is available through the primary care services, like in the Boston Health Care for the Homeless Program (US) and Ottawa Inner City Health (Canada) (54,55). In these examples, future physicians and those in residency have access to training opportunities to learn firsthand about the complex health care needs of PEH. However, it was mentioned that student involvement must also be balanced with consistency among providers to underpin the therapeutic alliance.

2. Include peer support workers and interprofessional team members to address the complex needs of PEH

Across the academic literature, people with lived experience (peers, community outreach workers, or outreach specialists) were found to have helped clients and programs in many ways. These staff can proactively connect with PEH in informal conversations, explain what services can offer, and generally support relationship building. Several of the experts confirmed that staff with lived (and in some cases living) experience bring immense value to the outreach primary care team, as they usually have "insider knowledge" or have experience with "walking a similar path" that encourages engagement. The Neunerhaus program in Austria trains, in their Peer Campus, people who have been or are affected by homelessness to deliver assistance to PEH based on their experiences and expertise (56). Similarly, the Boston Healthcare for the Homeless Program includes clients in the program's governance and service design to ensure that it effectively meets the complex needs of PEH (54,55).

All data sources highlight opportunities to diversify the workforce and consider other members as being essential to the delivery of primary care, like nurse practitioners, case managers, mental health clinicians, and peer workers. Additionally, when the availability of GPs and traditional primary care services are limited, alternative providers can help to successfully meet the care needs of PEH (e.g., pharmacists, nurse practitioners). Case managers and system navigators may also help to enhance primary care access and continued engagement with the health and social care system. In previous UK-based work described by an expert advisor, a "liaison officer" helped to identify the "hidden homeless" population and make connections with them in the system. In Canada, Ottawa Inner City Health is largely run by "nurse coordinators." These nurses function as system navigators in addition to providing primary care for PEH in the shelter system, and running a nurse practitioner-led primary care clinic that has a physician internist to offer support as needed (55). According to expert informants, these nurses are the "backbone of program" since they practice to their full scope and beyond.

3. Establish a welcoming and inclusive environment to encourage primary care access and social connectedness

The physical space and the social environment in an outreach and care setting influence PEH engagement with primary care outreach services. Spaces where providers can engage with PEH in a "relaxed" manner (no fixed appointment, flexible hours outside of standard 9 a.m. – 5 p.m.), offer meaningful activities (collecting food, laundry), provide staff/volunteer support, and promote a welcoming atmosphere are all ways to reduce professional barriers and stigma. The clinical space can offer a form of social support, fostered through interacting with others with shared norms, trust, and reciprocity. Spaces that encourage socialization and information sharing can support better mental and physical health, including "social connectivity," and/or a feeling of inclusion. The importance of cultural safety and competence were noted across some programs: for example, there was cultural-specific programming for Indigenous people in the Niiwin Wendaanimak program in Toronto, Canada (40), the inclusion of Indigenous case workers and an "Indigenous Mentor" in the Multidisciplinary Street to Home Model in Australia (45), and culturally competent care described in the Mission program in the US (43).

Furthermore, models adding interpretation and cultural navigation services, either virtually or in-person, help overcome language and cultural barriers to improve the PEH experience in accessing primary care

services. The Neunerhaus and Marienambulanz programs in Austria see these navigation services as particularly important in settings serving PEH with complex backgrounds, including migrants and refugees (56,57). This was also confirmed during the interviews with our expert advisers who referred to Ottawa Inner City Health as an example of service integration for Indigenous populations (estimated to make up about 30–40% of their clients). Ottawa Inner City Health includes a traditional healer and other Indigenous cultural practices in their services, including access to "country food" or traditional food flown in from northern communities, and smudging ceremonies. Partnering with Indigenous leaders promotes meaningful engagement for Indigenous peoples experiencing homelessness.

One expert noted that a high concentration of homeless/street-related services can also deter access for PEH because of the potential risk to personal safety. Another expert mentioned that security staff are hired at a care location in an urban setting, which helps clients and staff feel safe. A similar concern about safety was echoed in the academic literature that found PEH expressed feeling unsafe, threatened, or intimidated by others within traditional primary care centres. These more mainstream sites lack support workers to mediate the space (21).

4. Support system navigation and build connections to mainstream care to reduce barriers

Co-location of services is critical for ensuring PEH access to healthcare services. For PEH, issues of housing and income instability often take precedent over health-related matters, contributing to absences from care. When co-located with other services, such as food and laundry programs, and housing and mental health services, there is more opportunity to engage with primary care. For instance, the Neunerhaus organization in Austria uses their annexed café to approach PEH and link them to primary care and social services (56). Access to primary care can be further supported by rotating clinic sites to different locations frequented by PEH. This can provide clients with a "one-stop-shop" that offers convenience (45).

System navigation, quick referrals, and connections to mainstream care are all important health system opportunities to improve primary care access. Evidence suggests that clients, providers, and staff each experience challenges while navigating the healthcare system. Designated personnel can help to not only navigate and co-ordinate service, but they can also more directly advocate for PEH. For example, an expert informant described how clinical staff may accompany clients to other service appointments, such as diagnostic testing, to ensure they receive the services they need. Accompanying clients was also noted in the Multidisciplinary Street to Home model in Australia (45). Nimble referral processes or "quick connections" to appropriate services serve as tangible rapid results for PEH. These timely referrals can promote hopefulness and motivation to remain engaged. An example of program navigation assistance for PEH in the healthcare system is the Boston Health Care for the Homeless Program, which helps clients to access the benefits and entitlements that they should have and acts as a point of contact between the clients and their insurance (54).

Expert advisors acknowledged that to improve access, primary care services need to "go where PEH are" rather than have PEH go where they would not normally visit. They also highlighted that healthcare providers are often limited in their ability to conduct outreach in the community by the service delivery model (such as a primary care practice). Experts reiterated the importance of different sectors (e.g., housing, income support, primary care) working collaboratively to improve the living situation of PEH, and that integration also needs to happen *within* sectors. For example, standalone outreach primary

care models need to integrate with more traditional primary care services to enhance the continuity of care (relational and informational). Once a patient's circumstances improve, the goal should be to transition the individual to mainstream primary care services. Although, given historical mistrust with providers and the healthcare system more broadly, PEH often find the transition difficult and prefer to continue with the outreach service.

An example given by an expert advisor was the Community Health Centre (CHC) model operating in urban centres. Described as a "hub-and-spoke" model, CHCs can serve as the traditional or mainstream clinic setting (the "hub") integrated with many interprofessional providers based in street outreach and community settings (the "spokes"). Depending on their location, CHCs can be well-resourced and have autonomy over their own budget and workforce to allow for innovative practices to meet the needs of local populations, including PEH. Ottawa Inner City Health, funded in part through the CHC sector, is also an example of a hub-and-spoke model because it provides outreach to the community, a primary clinic, as well as integrated services with a local hospital. As the needs of the homeless population have changed, Ottawa Inner City Health has adapted its services to accommodate. For example, an onsite ear, nose, and throat (ENT) clinic dedicated to cancer screening was organized because of the high rates of cancer among PEH.

5. Enable collection and sharing of health information to improve care continuity and support evaluation of primary care programs

Tracking outcomes is challenging when the service is "one touch" with minimal documentation tools or systems available. More robust data collection can help evaluate outcomes; most of the studies examined here are descriptive in nature and lack appropriate outcome measures.

Experts noted that other challenges to identify and track appropriate outcomes include differences between what hospitals or governments and program-running organizations see as important outcomes. For example, program-running organizations might be interested in collecting measures beyond clinical outcomes to learn about the impact of the services delivered, including relational components of the models of care. Limited funding and human resources to identify and track outcomes have also been recognized as limitations. Informational continuity is defined as the degree of communication between services, professionals, and service users (58). For PEH, another challenge to enable informational continuity is the lack of transferability or integration of health records between health settings, especially when patients receive care anonymously. One way of addressing this challenge, reported by several experts, was through informal channels of communication among health and social service providers. For example, both clinicians and researchers described a "community of practice" approach to information sharing for clients with severe and complex needs.

Informal communication networks based on strong interpersonal relationships between clinical and service providers help to support PEH in the absence of more formal mechanisms. Although, what may present as a challenge to information sharing is that according to a few informants, PEH also value "discretion" when accessing services, particularly for certain groups, like youth facing homelessness. Discretion might mean PEH seeking care anonymously or that primary care services tailored to PEH not display certain signage. By maintaining discretion, it was felt that perceived stigma or judgement by services users could be avoided.

6. Adopt sustainable and adaptive funding models

The academic studies reviewed here lack detailed descriptions of their funding schemes and their challenges establishing program sustainability. Expert informants referred to sustainable funding models for homeless services on the provider side. For example, some of the current issues regarding funding practices consist of time-limited funding (e.g., research grants), non-renewable and time-limited government funding, and philanthropic donations. However, despite these funding challenges, some programs have been able to deliver long-lasting services. For example, Ottawa Inner City Health has provided primary care services to PEH since 1998, receiving funding from mixed sources, including government funds through the CHC sector. Similarly, other programs like the Boston Healthcare for the Homeless (US) and CoolAid (Canada) began operating with smaller donations and grants and over time secured additional funding through a mix of sources to continue and expand services (59,60).

Furthermore, experts suggested that alternative funding models that pay physicians “by the session” rather than fee-for-service, are needed when caring for complex populations, such as PEH, because they often require longer appointments, may have multiple health concerns or co-morbidities, and may be unpredictable in terms of appointment times. Indeed, the salaried model of remuneration for the CHC workforce, including physicians, was noted as an enabler of quality primary care for PEH.

On the demand side, these models of primary care are delivered at no direct cost for clients but accessing them can nevertheless present financial challenges. To address the financial barriers that some PEH might experience when accessing primary care services, some models of care have adopted strategies to reduce such indirect costs, including the provision of bus tokens for them to commute to the health settings. Multiple key informants also acknowledged that clients may experience direct financial barriers in terms of accessing prescription drugs and specialized services they are referred to.

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Appendix A. Detailed Methodology

Academic Literature Review

We undertook a targeted search of academic literature in two bibliographic databases (MEDLINE and ProQuest) to uncover models, approaches, or innovations that have demonstrated evidence of increasing access to primary care for this population using non-traditional (healthcare delivery) settings. We used a combination of database-specific syntax (e.g., Medical Subject Headings) and keywords related to two concepts: 1) primary care, and 2) homelessness. Keywords related to our main concepts were complemented using words from existing literature reviews (11,61–63). The search was limited by publication year (2016–2021) and English language. We first developed the search in MEDLINE (see Table A1) and later into other database-specific syntax. All final electronic database searches were conducted and exported on October 12, 2021.

Table A1. Electronic database search strategy (October 12, 2021)

MEDLINE	SYNTAX	RESULT
1	exp *Primary Health Care/	
2	health services accessibility/ or "delivery of health care"/	
3	exp Family Practice/ or exp General Practice/	
4	physicians/ or general practitioners/	
5	exp Physicians, Family/	
6	exp Homeless Youth/ or exp Homeless Persons/	
7	(primary care or primary health care or primary healthcare or health services accessibility or healthcare services accessibility or general practic* or family physician or family doctor or primary care doctor or family pract* or nurse pract* or nurse* or Family nurse pract* or Primary nursing or family nurse or primary nurse or case manag* or delivery of healthcare or delivery of health care or access to health care or access to healthcare or ambulatory care facilities).tw,kf.	
8	(Homelessness or homeless or Homeless Persons or Homeless Youth or lack of housing or squatter or rough sleep or no fixed address or roofless or transient or people experiencing homelessness or under housed or shelter* or street).tw,kf	
9	(community adj (health servic* or healthcare servic* or health nurs* or health work* or outreach or health cent*)).tw,kf.	
10	(outreach adj (services or work* or nurs*)).tw,kf.	
11	nurse practitioners/ or *family nurse practitioners/	
12	exp Primary Nursing/	
13	exp ambulatory care facilities/ or exp community health centers/	
14	1 or 2 or 3 or 4 or 5 or 7 or 9 or 10 or 11 or 12 or 13	
15	6 or 8	
16	14 and 15	
17	limit 16 to (english language and yr="2016 -Current")	**2,078**
ProQuest SYNTAX		**RESULT**
((ab("primary care" OR "primary health care" OR "primary healthcare" OR "health services accessibility" OR "healthcare services accessibility" OR ("general practice" OR "general practices" OR "general practitioner" OR "general practitioners") OR "family physician" OR "family doctor" OR "primary care doctor" OR ("family practice" OR "family practiced" OR "family practices" OR "family practitioner" OR "family practitioners") OR ("nurse practitioner" OR "nurse practitioners") OR nurse* OR "Family nurse pract*" OR "Primary nursing" OR "family nurse" OR "primary nurse" OR ("case managed" OR "case management" OR "case manager" OR "case managers") OR "delivery of healthcare" OR "delivery of		**618**

health care" OR "access to health care" OR "access to healthcare" OR "ambulatory care facilities" OR "community health service" OR "community healthcare service" OR "community health nurs*" OR "community health work*" OR "community outreach" OR "community health cent*" OR "outreach services" OR ("outreach work" OR "outreach worker" OR "outreach workers" OR "outreach working") OR "outreach nurs*") AND ab(Homelessness OR homeless OR "Homeless Persons" OR "Homeless Youth" OR "lack of housing" OR squatter OR "rough sleep" OR "no fixed address" OR roofless OR transient OR "people experiencing homelessness" OR "under housed" OR shelter* OR street) AND la.exact("English")) NOT stype.exact("Books" OR "Encyclopedias & Reference Works" OR "Newspapers" OR "Wire Feeds" OR "Blogs, Podcasts, & Websites")) AND pd(20161013-20211013)

Duplicates removal and screening was conducted through a web-based systematic review management software, Covidence. Screening was performed sequentially in two phases: 1) titles and abstracts, and 2) full-text articles. At the start of each phase, reviewers selected a random sample of 10 articles to screen and compare results to pilot the selection criteria. The titles and abstracts of citations whose eligibility was uncertain (rated "maybe") were passed directly to full-text review; during full-text review, any uncertain articles were reviewed by the team.

Articles were included if they met the following criteria: 1) country member of the Organisation for Economic Co-operation and Development (OECD), 2) Focus on non-traditional healthcare settings (e.g., mobile outreach vans to shelters and community health centres), 3) solo and interprofessional care models, 4) virtual primary care models, 5) models that show to improve access to primary care, and 6) models providing services to people who are experiencing homelessness. See the inclusion and exclusion criteria in table A2.

Table A2. Inclusion and exclusion criteria

Inclusion	Exclusion
- Country member of the OECD - Focus on non-traditional healthcare settings (e.g., mobile outreach vans to shelters) - English (and French if resources permit) - Solo and interprofessional care models/structures (including community health centres) - Virtual primary care models - Models improve access to primary care - People who are experiencing homelessness	- Literature more than five years - Housing First - COVID-19 testing, tracing, isolation, treatment - Traditional healthcare settings (e.g., hospitals, long-term care facilities, general practitioners' office) - Did not measure or improve access to primary care - Models of care do not target people who are experiencing homelessness

Grey literature review

To have a broader view of the models of care providing primary care to people experiencing homelessness in non-traditional settings, we performed targeted searches for models not covered in the academic literature. The search was conducted in Google's search engine, using the same keywords used in the academic literature search, and websites of key organizations including the Canadian Observatory on Homelessness and the Canadian Centre on Substance Use and Addiction. Network members of the NAO with relevant expertise were also consulted for their insights in their corresponding jurisdictions. We included models of care described in the grey literature that provided a detailed or complete, as much as

possible, description on the categories of interest (i.e., setting, team composition, services delivered, attachment to care, funding, and results of the program) and that were unique from the models in the academic literature. Additionally, we used the same inclusion criteria followed in the academic literature review.

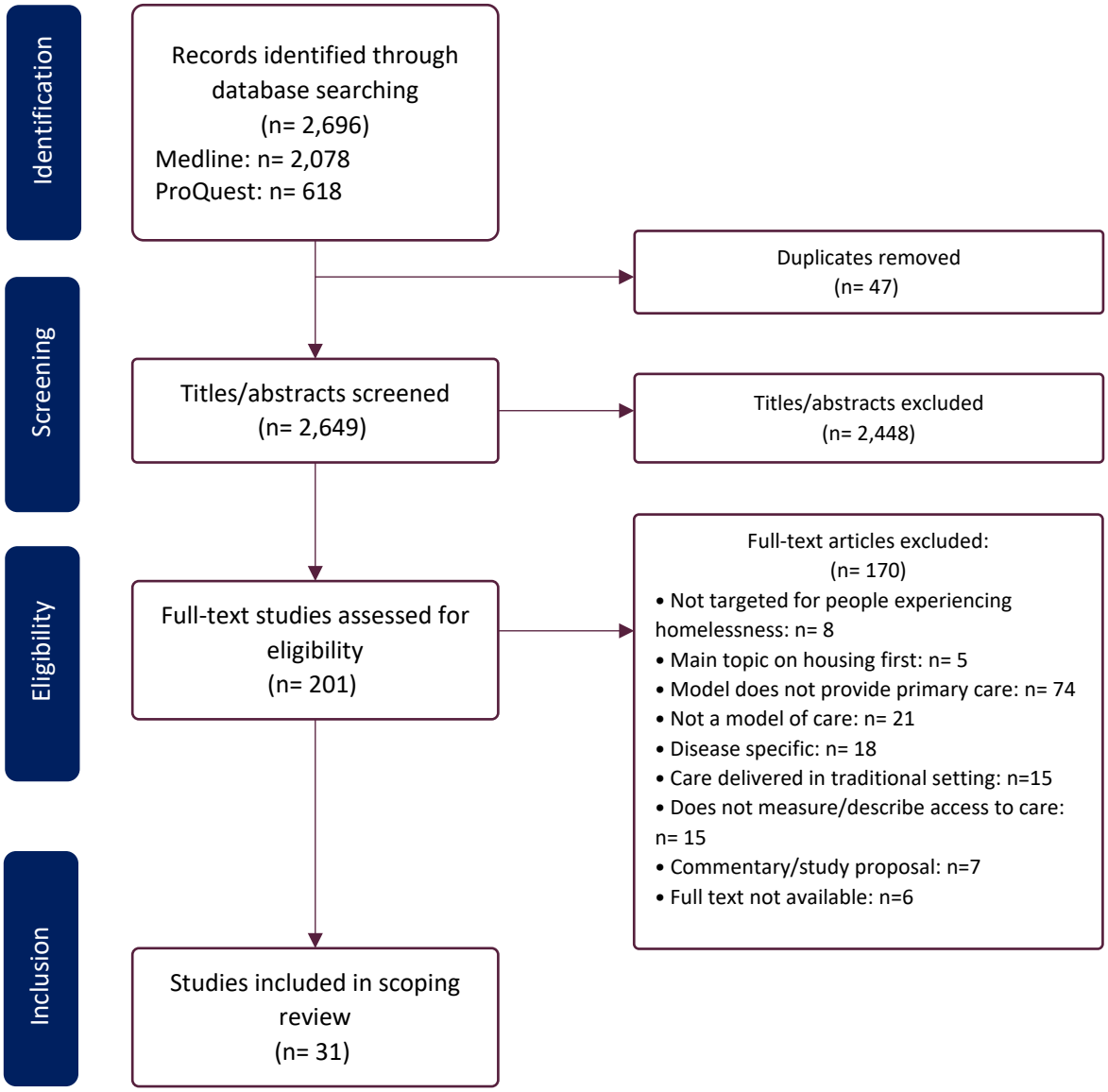
Analysis

The papers identified for inclusion consist of qualitative, cross-sectional, special reports, systematic review, retrospective descriptive, cohort and chart review, cross-sectional survey, process evaluation, quasi-experimental, and a scoping review. To synthesize the descriptive results, we used a deductive structure for both data collection and analysis. During the first stage of data extraction, three team members (MMV, SC, MS) extracted summary data into a Microsoft Excel data extraction form. Our objective was very broad, thus allowing us to capture most of the data relevant to our review questions. When there was any absence of data, additional searching of online material was included where appropriate in the form. The synthesis stage involved a deductive approach by creating relevant categories to describe how the primary care services worked and for whom.

Theoretical Framework

During analysis of the papers, we applied conceptualization of *access* developed by Levesque et al. (2013) to describe the extent to which these programs enabled access to primary care for people experiencing homelessness. Definitions of each of the five dimensions of accessibility: 1) Approachability; 2) Acceptability; 3) Availability and accommodation; 4) Affordability; and 5) Appropriateness were used deductively during the analytical process.

Figure A1. PRISMA Flowchart



Adapted from: Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta analyses: the PRISMA statement. PLoS Med. 2009 Jul 1;6(7):e1000097. doi:10.1371/journal.pmed1000097

Appendix B. Summary of the Review Literature

Table B1. Summary of the academic review articles

Program /Citation	Jurisdiction	Target Population(s)	Care Location	Care Team	Services	Funding Source(s)	Outcomes
PHOENIx (Lowrie et al., 2019)	Scotland	PEH	Pop-up, drop-in	Pharmacist independent prescribers, Street Outreach Worker	Comprehensive health assessment**	Not specified	Identification of new clinical issues; referrals to other healthcare professionals; continuity of care with referrals.
PHOENIx (Johnsen et al., 2021)	Scotland	PEH	Pop-up, drop-in outreach clinics	Pharmacist independent prescribers, Street Outreach Worker	Health check** + validated measures	Not specified	Effective at case finding and engaging patients with who were reluctant to utilize or physically unable to access existing services.
PHOENIx (Lowrie et al., 2021)	Scotland	PEH	Shelters	Pharmacist independent prescribers, Street Outreach Worker (expert in housing assessment, benefits, advocacy and social prescribing)	Comprehensive health assessment**	Not specified	Rate of prescribing meds, receipt support for benefits, housing or advocacy.
Safetynet's Mobile Health and Screening Unit (Commins, 2018)	Ireland	PEH; refugees; asylum seekers	Mobile clinic	General Practitioner (GP), nurse, project manager, driver	Health assessments	Health Service Executive (HSE)	>700 health assessments for refugees, >700 PEH screened for tuberculosis (TB) and other communicable disease.
Safetynet Primary Care (Swabri et al., 2019)	Ireland	PEH; targets chronic subset	Sites convenient to PEH: hostels and street	Nurses, doctors, voluntary agencies	Primary care service; harm reduction (needle exchange)	HSE	Successful at providing treatment for physical health symptoms; majority of complaints remained untreated.
GP Community Outreach Services (Hirst & Cuthill, 2021)	UK	PEH	Drop-in day centre, food drop-ins	GP	Medical services	Not specified	Better access medical care at all three sites. These settings were also reported as more comfortable, were perceived as safer, convenient, relaxed, and clients felt more listed to.

Community outreach center (COC) (Doran & Doede, 2021)	US	PEH	Street outreach	Nursing, medical, social work students, COC staff, university faculty, community partners	Basic care/physical assessments; wound care; referrals, coordinated case management, health education, behaviour change	Not specified	30 hours of outreach and 127 actions performed; majority health teaching, support and encouragement.
Telehealth (Adams et al., 2021)	US	PEH	Urban drop-in centre	Family medicine attending and resident physicians, medical students	Medical services	In part, Health Resources and Services Administration Primary Care Training and Enhancement	High level of satisfaction for telehealth; avoided emergency department (ED) visits or supported greater access to care.
Telehealth tablets (Garvin et al., 2021)	US	Veterans experiencing homelessness	Telehealth	Not specified	For any clinical care that does not require physical contact	US Department of Veterans Affairs National Center for Homelessness Among Veterans	Almost half of participants had a video visit within 6 months of receipt, most frequently for telemental health.
The Mission/ Center for Health and Wellness (Lashley, 2019)	US	Homeless men seeking addiction recovery	Long-term residential addictions recovery program	Medical and administrative professionals	Integrated health care; primary care; screening for sexually transmitted infections; referrals	Direct revenue from billing Medicare, Medicaid and private insurance	Primary care clinic has seen >2,500 clients; $300,000 in health-associated savings; avoidance of ED visits; better medication adherence.
Street Medicine (Feldman et al., 2021)	US	PEH recently discharged from hospital	Street outreach	Physician, physician assistant, registered nurse, community health worker with lived experience	Primary care services	Unspecified (medications covered by insurance or hospital free of charge)	206 inpatient consults to PEH; majority received follow-up care post discharge within 1 week; within 1 year, 30% of patients were placed in transitional housing, and 12% housed after discharge from service.
Street Medicine (Stefanowicz et al., 2021)	US	PEH	Street outreach	Advanced practice clinician OR physician, nurse,	Primary care; chronic disease management, wound care, routine	Not specified	Not specified

				community health worker	vaccinations, antiretroviral therapy; point-of-care testing		
Homeless Patient Aligned Care Team (H-PACT) (Trivedi et al., 2018)	US	Veterans experiencing homelessness	Not specified	Not specified	Co-located primary care*	Operate under accountability care model	Among Veterans receiving integrated care in H-PACT, dual use of Medicare and VA outpatient care is strongly associated with acute hospitalizations financed by Medicare.
H-PACT (Jones et al., 2018)	US	Veterans experiencing homelessness	Walk-in appointments, extended hours, community outreach	Lead primary care provider, registered nurse case manager, clinical assistant, clerk	Mental health and social services integrated with primary care	Not specified	Positive experiences in communication, comprehensiveness, shared decision-making, self-management support.
Begin the Turn (O'Gurek et al., 2021)	US	PEH + opioid addiction	Mobile unit (serves 2 consistent locations)	Staff, three outreach specialists, physician authorized to prescribe buprenorphine, counselor, case manager	Buprenorphine treatment, wound care, acute and chronic care needs, bridge to primary care	Not specified	High attachment – 100% of patients completed street intake through mobile unit; high retention rates at 61% and 27.6% at 1 and 5 months.
Federally qualified health center (FQHC) (Dickins et al., 2020)	US	PEH utilizing shelters	3 clinics under 1 FQHC; 3 shelters medically serviced by the FQHC	Provider (nurse practitioner), physician], medical assistant, registered nurse	Not specified	Expanded Medicaid under the *Affordable Care Act*	Description of factors affecting access to and ability to use primary care services among PEH.
Stephen Klein Wellness Center, FQHC (Weinstein et al., 2020)	US	PEH + opioid addiction	Clinic	Medication assisted treatment (MAT) care coordinator, licensed behavioral health provider, medical assistant	Primary care + Medication for opioid use disorder (OUD)	FQHC; block funding for OUD treatment from Pennsylvania Department of Human Services	High retention rate at 3 and 6 months (82% and 63%).

						Center of Excellence	
Boston Health Care for the Homeless Program (Behl-Chadha et al., 2017)	US	PEH	Mobile street and shelter outreach/Patient centred medical home	Not specified	Not specified	FQHC	Higher scores on self-management support and behavioral health integration.
JeffHOPE Student run clinics (Wang et al., 2020)	US	PEH	4 shelters, 1 drop-in homeless respite center	Medical students and physician medical team	Committee: Advocacy, Education, Procedures, Screening, Pharmacy, Research, Triage and Kids	Medicaid	Pharmacy and procedures committees were most utilized; medical care provided to those who otherwise would not have sought care; replaced both ED visits and seeing primary care provider.
Health Care for the Homeless Program (Dolce et al., 2018)	US	PEH	Outpatient clinics, 50 shelters, street, treatment programs, soup kitchens, 104 medical respite in-patient units, medical facility that houses primary care + dental clinics	Clinicians and administrators, dental students	Oral health risk assessments, coordinate patient referrals, organize events	FQHC	Increase in number of oral examinations that were provided to patients seeking primary care services (12% to 45%).
She. Health. Empowered. (Stewart et al., 2020)	US	Women experiencing homelessness	Mobile clinic co-located with drop-in centre	Medical staff (infectious disease physician, nurse, medical social worker)	Primary medical care and harm reduction interventions for substance use, family planning, sexually transmitted infections (STIs) treatment, HIV care	Pilot program funded through grants	Among those tested, patients had high rates of curable STIs (44%), injection opioid use (36%), transactional sex (69%), unintended pregnancy (10%), and HIV infections (10%)

Primary Health-Care Services in Women's Shelters (Mantler, 2020)	US	Women experiencing homelessness	Women's shelters	Nurse practitioners, specialists, dental practitioners	Dental care, rapid HIV testing/ counseling and education	Not specified	Integrated primary healthcare services in women's shelters increased access to and acceptability of services, served as a bridge back to health care, and decreased future health care burden.
Niiwin Wendaanimak Four Winds Wellness Program (Firestone et al., 2019)	Canada	Urban Indigenous PEH	Community health centre + satellite centres	Led by Indigenous staff	Health care, counselling and case management, dental service, harm reduction program	Ministry of Health	Process evaluation found that the program bridged teachings of inclusivity and harm reduction; strengths included Indigenous leadership and access to health promoting activities and community building.
Co-Ordinated Access to Care for Homeless people (Lamanna et al., 2018)	Canada	PEH with recent discharge from hospital	Assertive outreach, home visits, shelter-based clinic	Case manager, access to interdisciplinary care, peer support workers, nurse, primary care physician, psychiatrists	Helping with immediate health needs	CIHR grant	Self-reported service location and peer escorts key to continuity of care; case managers were valued; timely service provision, interpersonal skills promoted engagement and system navigation.
Inner City Access Program (ICAP) (Pauley et al., 2016)	Canada	Homeless, underhoused, marginalized people	Inner city housing facilities	Registered Nurse, personal support worker, care coordinator	Integrated cluster care (nurse, personal support) and supportive housing	Ministry of Health/local publicly funded community care provider	Client satisfaction associated with goal achievement; greater perceived goal achievement.
Freo Street Doctor (Arnold-Reed et al., 2018)	Australia	PEH (mention of young Aboriginal patients)	Mobile clinic (van)	GPs	Not specified	Municipal funds and charitable donations	Demonstrated unrestricted access, including electronic records for all clients.
Freo Street Doctor (Strange et al., 2018)	Australia	PEH	Mobile clinic (van)	GP, nurse, outreach worker	Primary care; connects patients to housing and other services	Not specified	High satisfaction with service because more comfortable setting, welcoming.
Multidisciplinary Street to Home Model	Australia	PEH	Assertive outreach where client needs it	General nurse, mental health nurse, Indigenous	Integrated healthcare and psychosocial model	Queensland Government	Enabled PEH to overcome access barriers to mainstream healthcare and other services;

(Parsell et al., 2020)				case workers, Indigenous Mentor			facilitated access to housing by assisting clients with applications.
Nurse-led Primary Health Clinic (Roche et al., 2018)	Australia	Men experiencing homelessness	Hostel	Nurse	General medical and mental health assessment and care, administer meds and facilitate prescription and dispensing, case management, referrals	Not specified	The majority of survey respondents attended the clinic more than 20 times in the past year; hospital ED avoidance; referral to other health services doubled.
Community Health Nurse (Goeman et al., 2019)	Australia	PEH	Co-located with a Christian charity organization; assertive outreach	Nurse	Primary care (wound care, diabetes), linking clients to needed existing services and providing emotional support	Gandel Philanthropy	Facilitated engagement with health and community services and participation in social activities.
Street Outreach Office (Paula et al., 2018)	Brazil	PEH	Street outreach	Nurses, social workers	Curative, antenatal, rapid HIV testing, syphilis and viral hepatitis, glucose management, blood pressure measurement, TB treatment, health education	Municipal Office Health	Established a process of "building bonds" with PEH; created greater access through spontaneous access points in community.

* Mental health, social work case management, housing services, food donations, on-site showers and laundry facilities.

**Covers cardiovascular health, respiratory health, nutrition, mental health, substance misuse, alcohol consumption, blood born viruses, sexual health, foot care, female health, and medication reviews.

Abbreviations: COC (Community outreach centre); ED (emergency department); FQHC (Federally qualified health center); GP (General Practitioner), HIV (human immunodeficiency virus); H-PACT (Homeless Patient Aligned Care Team); HSE (Health Service Executive); ICAP (Inner City Access Program); MAT (Medication assisted treatment); STI (sexually transmitted infection); TB (tuberculosis); OUD (opioid use disorder); UK (United Kingdom); US (United States).

Table B2. Summary of the grey literature

Program/ Starting Year	Jurisdiction	Target population(s)	Care location	Care team	Services	Funding Source(s)	Outcome(s)
Homeless Healthcare (2008)	Australia	PEH	Multiple (mobile health unit, transitional accommodation facilities, refuges, and alcohol and drug rehabilitation centre)	Practitioners, nurse, outreach workers and other specialized professions	General practice	Some government funding; increasingly reliant on donations	Persons who participated in the housing initiative and became housed had lower emergency presentations, admissions and fewer days in hospital; cost savings.
Marienambulanz‡	Austria	People without health insurance, including PEH	Multiple (outpatient centre; mobile unit)	Interdisciplinary care team (unspecified)	Primary care; dental care; gynecological care; psychiatry; diabetes care; social work; referrals to specialist partners	Not specified	Increased access to primary care services among mobile people without health insurance.
Neunerhaus (2006)	Austria	PEH; persons without health insurance	Multiple (mobile unit, NGO's health centre and café)	Doctors, nurses, social workers, peer workers, and interpreters	Primary care; vision care; dental care; gynecological care; social work; social support from peer workers	Vienna Social Fund; Austrian Health Insurance Fund	Increased access to health care services among mobile people without health insurance; improved clients' health literacy.
Ottawa Inner City Health (1998)	Canada	PEH or street involved	Multiple (mobile team that visits shelters, primary care clinic, special care unit for men, special care unit for women	Nurse practitioners, doctors, client care workers, peer workers, case managers	Primary care; HIV and mental health services; substance abuse services; peer support	Funded through Community Health Centre sector; Affiliated with University of Ottawa, and has partnerships with different organizations	Improvement of health and reduction of unnecessary ED visits.

H.O.M.E. Program (2021)	Canada	PEH; persons who are insecurely housed; persons rostered with the London InterCommunity Health Centre	Mobile health unit	Interdisciplinary care team (unspecified)	Medical care; harm reduction; relationship building; infectious disease testing; health and social care navigation; basic needs support; referrals; peer support	Government of Canada, Ontario Health	Improved access to care, timeliness of care, and health outcomes.
CoolAid (1968 – hotline/hostel; 1970 – free medical clinic)	Canada	PEH, problematic substance use, mental health challenges, infectious disease, chronic illness	Multiple (health centre; street-level; mobile health unit)	Doctors, nurses, pharmacy	Primary care; dental care; pharmacy services; housing support	Donations, grants, various levels of governmental support	Provides care to 7000 patients; offered 3309 dental visits (60).
Homeless Hope (2018)	UK	PEH	Street-level	Nurses	Primary care; foot care; wound care; skin care; nutrition	Donations (not specified further)	Improved professionals' competencies; reduced clients' hesitancy to access care.
Boston Healthcare for the Homeless (1984)	US	PEH	Multiple (hospital, clinic, shelter, soup kitchen, mobile health unit, the street)	Physicians, nurse practitioners, physician assistants, nurses, mental health clinicians, case workers	Primary care; respite care; dental care	Funded initially through the Robert Wood Johnson Foundation; became a federally qualified health centre in 1988 with funding from the Human Resources Bureau of Primary Health; additional funding provided over time by other grants and capital campaigns (59).	Program sustainability and growth; improved access to care.

‡ Starting year not specified.

Table B3. Accessing Services

Program/ Citation	Region/ Jurisdiction	Access Point				Location of service delivery	Hours of service, frequency, and duration of service delivery
		Walk-in/ drop-in	Appointment	Referral	Outreach		
North America							
Telehealth (Adams et al., 2021)	US	X	X			Drop-in centre (telemedicine)	NA
Street Medicine (Feldman et al., 2021)	US			X	X	Street (referred from in-patient unit)	Patient is followed up within 1 week of discharge
Boston Health Care for the Homeless Program (Behl-Chadha et al., 2017)	US	X	X		X	Shelters, community settings (food services)	NA
Community outreach center (COC) (Doran & Doede, 2021)	US				X	Locations where PEH frequent (library, corner stores, and lobbies of senior buildings)	Each morning
Federally qualified health center (FQHC) (Dickins et al., 2020)	US	X				Shelter	NA
Health Care for the Homeless Program (Dolce et al., 2018)	US	X				Shelters, streets, treatment programs, soup kitchens, medical respite unit, integrated medical facility	NA
Telehealth tablets (Garvin, 2021)	US	X				Virtual appointments/tablet	NA
Homeless Patient Aligned Care Team (H-PACT) (Jones et al., 2018)	US	X			X	VHA medical centres, community-based outpatient clinics	NA
Primary Health-Care Services in Women's Shelters (Mantler, 2020)	US					All-female shelters [scoping review]	NA
Begin the Turn (O'Gurek et al., 2021)	US	X			X	Two consistent locations considered "hot spots" for fatal overdoses	Each site 2 days per week Frequency: weekly for 4 weeks, then 2 visits biweekly, then monthly
The Mission/ Center for Health and Wellness(Lashley, 2019)	US		X			Residential setting	NA
Street Medicine (Stefanowicz et al., 2021)	US				X	Anywhere the patient resides (street, bridge, etc.)	NA
She. Health. Empowered. (Stewart, 2020 et al.)	US	X				Mobile clinic parked at the Aurora Commons, co-located at a drop-in centre	1 day each week from 11 a.m. to 2 p.m.
Homeless Patient Aligned Care Team (H-PACT) (Trivedi et al., 2018)	US	X				VHA medical centres, community-based outpatient clinics	NA
JeffHOPE Student run clinics (Wang et al., 2020)	US	X				JeffHOPE; 4 shelters and 1 drop-in homeless respite centre	NA

Stephen Klein Wellness Center [FQHC] (Weinstein et al., 2020)	US	X	X			The Stephen Klein Wellness Centre, a federally qualified health centre	4-days per week
Niiwin Wendaanimak Four Winds Wellness Program (Firestone et al., 2019)	Canada	X				Community health centre	NA
Co-Ordinated Access to Care for Homeless people (Lamanna et al., 2018)	Canada	X		X	X	Hospital-based referral; Shelter-based clinic	Weekly; time-limited services (up to 6 months)
Inner City Access Program (ICAP) (Pauley et al., 2016)	Canada	X				Inner city housing facilities	NA
	Latin America						
Street Outreach Office (Paula, 2018)	Brazil				X	Street	NA
	Europe						
GP care in outreach settings (Hirst & Cuthill, 2021)	England and Scotland	X				Drop-in daycentre and food drop-in	NA
PHOENIx (Johnsen et al., 2021)	Scotland	X			X	Local day centres, soup kitchens, hostels, "bed and breakfast" (B&B), clinic	NA
PHOENIx (Lowrie et al., 2019)	Scotland	X			X	Street and day centres, hostels, soup kitchens (pop-up clinics)	Clinics last 2 hours
PHOENIx (Lowrie et al., 2021)	Scotland	X		X	X	Initial referral to intervention from the Acute Homeless Liaison team in hospital	The team and the patient agreed on the frequency of return consultations
Safetynet's Mobile Health and Screening Unit (Commins, 2018)	Ireland				X	Street and sites serving PEH	NA
Safetynet Primary Care (Swabri et al., 2019)	Ireland	X			X	Street and homeless hostel sites	Tuesday to Thursday nights (7 – 11 p.m.)
	Oceania						
Freo Street Doctor (Arnold-Reed et al., 2018)	Australia				X	Locations within city and surrounding suburbs	NA
Community Health Nurse (Goeman et al., 2019)	Australia				X	Fixed clinic + assertive outreach in street	Clinic: 1 day a week
Multidisciplinary Street to Home Model (Parsell et al., 2020)	Australia				X	Street, in conjunction with mainstream services, or in clients' homes once they exist homelessness*	Support post-housing allocation is limited to 4 months
Nurse-led Primary Health Clinic (Roche et al., 2018)	Australia	X				All-male shelter	NA
Freo Street Doctor (Strange et al., 2018)	Australia	X			X	Community centres, transition housing and parks	NA

Table B4. Team composition

Program/ Citation	Region/ Jurisdiction	Profession/ Role						
		Physicians	Nurses	Allied Health	Students/ Trainees	Community Workers/ Case Managers	Service Providers	Admin
North America								
Telehealth (Adams et al., 2021)	US	X			X			
Street Medicine (Feldman et al., 2021)	US	X		X		X**		
Boston Health Care for the Homeless Program (Behl-Chadha et al., 2017) ‡	US							
Community outreach center (COC) (Doran & Doede, 2021)	US				X			
Federally qualified health center (FQHC) (Dickins et al., 2020)	US	X	X	X				
Health Care for the Homeless Program (Dolce et al., 2018)	US				X			
Telehealth tablets (Garvin, 2021) ‡	US							
Homeless Patient Aligned Care Team (H-PACT) (Jones et al., 2018)	US	X	X	X				X
Primary Health-Care Services in Women's Shelters (Mantler, 2020)	US	Xs	X		X			
Begin the Turn(O'Gurek et al., 2021)	US	X				X†		
The Mission/ Center for Health and Wellness (Lashley, 2019)	US		X		X			
Street Medicine (Stefanowicz et al., 2021)	US	X	X			X**		
She. Health. Empowered. (Stewart et al., 2020)	US	Xs	X	X				
Homeless Patient Aligned Care Team (H-PACT) (Trivedi et al., 2018) ‡	US							
JeffHOPE Student run clinics (Wang et al., 2020)	US	X			X			
Stephen Klein Wellness Center [FQHC] (Weinstein et al., 2020)	US	X*		X				X
Niiwin Wendaanimak Four Winds Wellness Program (Firestone et al., 2019) ‡	Canada							
Co-Ordinated Access to Care for Homeless people (Lamanna et al., 2018)	Canada	Xs	X			X		
Inner City Access Program (ICAP) (Pauley et al., 2016)	Canada	Xs	X				X	
Latin America								
Street Outreach Office (Paula et al., 2018)	Brazil		X	X				

Europe								
Safetynet's Mobile Health and Screening Unit (Commins, 2018)	Ireland	X	X					X
GP care in outreach settings (Hirst & Cuthill, 2021)	England & Scotland	X						
PHOENIx (Johnsen et al., 2021)	Scotland			X		X		
PHOENIx (Lowrie et al., 2019)	Scotland			X		X		
PHOENIx (Lowrie et al., 2021)	Scotland			X		X		
Safetynet Primary Care (Swabri et al., 2019)	Ireland	X	X					
Oceania								
Multidisciplinary Street to Home Model (Parsell et al., 2020)	Australia		X			X		
Freo Street Doctor (Arnold-Reed et al., 2018)	Australia	X						
Community Health Nurse (Goeman et al., 2019)	Australia		X					
Nurse-led Primary Health Clinic (Roche et al.,2018)	Australia		X					
Freo Street Doctor (Strange et al., 2018)	Australia	X	X			X		

Notes: ˢ includes specialist(s); * waivered medical provider; **Outreach worker with lived experienced in homeless; †Outreach worker with lived experienced in substance use and recovery; ‡ Paper did not report team composition

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