University of Utah
UNDERGRADUATE RESEARCH JOURNAL

HEALTHCARE ENCOUNTERS OF FORMERLY HOMELESS INDIVIDUALS SUPPORTED BY THE HOUSING FIRST PROGRAM

Author: Hailey McLean – Health, Society & Policy
Advisor: Sara Hart – College of Nursing

ABSTRACT

Homeless individuals often have high utilization of emergency healthcare services. With United States healthcare costs continuing to rise encouraging appropriate utilization as a way to lower costs and improve outcomes is becoming a priority. This study examined the healthcare encounters of formerly chronically homeless individuals living in a housing first model in Salt Lake City, Utah. Data were gathered over a 6-week period by case managers who work onsite at the housing facility. The case managers recorded healthcare encounters of their residents in a log that included: resident apartment number, insurance status, date of the encounter, location of the encounter, and notes which included type of encounter and reason for it. A total of 113 healthcare encounters were recorded for 32 residents. Approximately 40% of the residents at the housing first facility were represented in the data. Fifty-nine percent of the sample population were covered by Medicaid only, 22% had both Medicare and Medicaid coverage, and 19% had no insurance. The healthcare encounters occurred an average of three miles from the housing first facility. The three healthcare systems most represented in the data include Valley Behavioral Health, Intermountain Healthcare, and the Emergency Medical System (EMS)

system. EMS and Emergency Department (ED) encounters accounted for only 12% of all the recorded encounters. The findings suggest that, in a supportive housing environment, formerly chronically homeless individuals can have success navigating the healthcare system. Additionally, this population has high utilization of mental health services; this may indicate an area that needs more funding, further research or both.

INTRODUCTION

Homeless and previously homeless individuals face many barriers in access to healthcare; transportation, costs, social stigma and knowledge of how to navigate the healthcare system are among the challenges experienced by this population.(1-4) Homeless populations also consistently have worse health statuses than the general population, including increased prevalence of chronic disease, substance use and mental illness.(1, 5, 6) As health care costs continue to rise, addressing high utilization of the healthcare has become a priority. Health care spending increased 4.3% in 2016 and per capita the United States now spends upwards of $10,000, far more than other comparable developed countries.(7, 8) One component of the increasing costs in the United States is high utilization. The concept of "high utilizers" refers to the large proportion of the costs in healthcare that are incurred by a small percentage of patients – the high utilizers.(9) Targeting this small population of people who are responsible for a large percentage of the healthcare costs is one potential way to reduce costs.

Low income individuals, particularly homeless individuals, as a group, have higher utilization of costly emergency services.(10, 11) Previous studies have found that housing instability is associated with both increased ED usage as well as not having a usual source of primary care.(12, 13) As explored above, homeless individuals often have more complex medical needs which makes emergency services even more costly.(10) One study found that individuals experiencing homelessness, who had either mental illness or 2 medical comorbidities were significantly more likely to use the ED; the most complex and costly population is also the most likely to use these costly emergency services.(1)

Programs to encourage effective and appropriate utilization can lower costs and improve outcomes.(14-17) Previous studies have found that access to supportive housing services can reduce the high utilization of emergency services generally found in the homeless population. One study found that for every 100 homeless adults offered supportive case management and/or supportive housing, there would be 49 fewer hospitalization days and 116 fewer emergency department visits.(15) Another study found that homeless individuals experiencing mental illness randomized to a housing first model had decreased psychiatric hospitalizations.(18) A third study found that housing first interventions not only decreased ED visits and inpatient hospitalizations but also correlated to an increase in use of a primary care physician.(19)

The central purpose of this descriptive study was to determine where in the city formerly homeless individuals living in a Housing First Program accessed the healthcare system. Additional goals of this study were to characterize the types of healthcare encounters and insurance status of this population, and to generally better understand how this population interacts with the healthcare system. This study aimed to help inform the efforts of student Hotspotting teams working with residents at Grace Mary Manor a HACSL housing first program. Interprofessional Student Hotspotting Teams work closely with high utilizers of healthcare to help improve healthcare literacy, care management and healthcare navigation in an effort to reduce costs, improve health, and provide learning experiences for the students. Hotspotting was first implemented in Camden New Jersey and is now a nationally expanding program organized by the National Center for Complex Health and Social Needs. Expected patient outcomes of

student Hotspotting include: improved quality of life, improved knowledge of medical and health issues, and increased utilization of primary care.(20)

METHODS

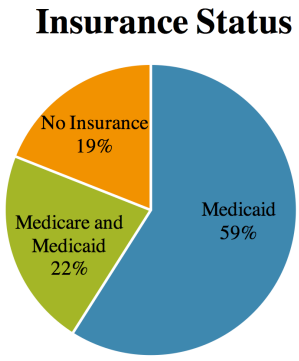
This study examined the healthcare encounters of formerly chronically homeless individuals now living in a housing first model in Salt Lake City, Utah. Grace Mary Manor (GMM) is an 84-unit apartment complex located at 19 West Gregson Avenue in Salt Lake City. GMM provides "permanent supportive housing" for formerly chronically homeless individuals.(21) An individual must be chronically homeless and have a disabling condition to qualify to live at Grace Mary Manor. According to the state of Utah "Chronic homelessness is defined as an unaccompanied homeless adult individual (persons 18 years or older) with a disability who has either been continuously homeless for a year or more or has had at least four separate occasions of homelessness in the past three years, where the combined occasions total a length of time of at least 12 months".(22) GMM offers onsite case management and wrap-around support services to assist individuals transitioning out of homelessness. Case managers can assist with care management and coordination as well as provide residents transportation to medical appointments.

For this study case managers at GMM recorded healthcare encounter data over a 6-week period in the summer of 2017. Data were collected in logs that included: date of the healthcare encounter, location of the healthcare encounter, reason for encounter, insurance status of the resident, and resident apartment number. A healthcare encounter was defined as any interaction between a resident and some sort of clinical professional

including pharmacists, counselors, physicians, paramedics, nurses and care managers. Case managers recorded all healthcare encounters they were aware of but because of the nature of the relationships between the case managers and the residents it was not possible to accurately record every interaction between all residents and the healthcare system. Residents at GMM are not required to disclose healthcare information to their case manager, thus the data collected do not represent an exhaustive log of all healthcare encounters for all residents during the 6-week period of time. Case managers recorded the data and notes on the paper logs that were collected, digitized, and coded for analysis. Data was completely de-identified after the completion of data collection by coding of the apartment number ensuring total anonymity of the residents to all who analyzed the data. Data or notes that were ambiguous due to handwriting or lack of detail were clarified with case managers after the data collection period had ended.

RESULTS

A total of 113 healthcare encounters were recorded over the 6-week period. The 113 encounters represent 32 of the 81 (40%) residents at GMM; at the time of the data collection only 81 of the 84 possible residences were occupied. Of the 32 residents for whom data was collected 19 (59%) were enrolled in Medicaid, 7 (22%) were enrolled in both Medicare and Medicaid, and 6 (19%) had no healthcare insurance – see Fig. 1. Background demographic data on all of the 81 residents of GMM was obtained and is provided in Table 1; this data is presented to provide information on the GMM population in



of residents represented in the data.

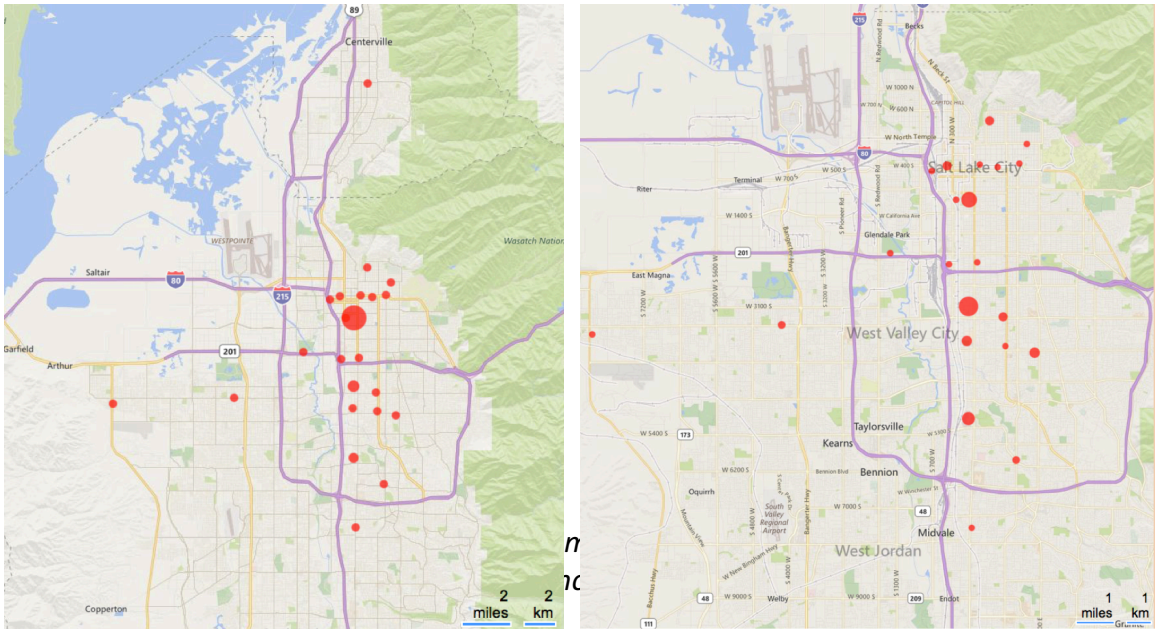
general. Of the 113 encounters 42 represent either daily or weekly encounters for 2 different residents – these encounters were regularly scheduled, recurring mental health encounters at Valley Behavioral Health. For this reason, separate data analysis was completed for all 113 encounters as well as the 71 encounters remaining when the recurring daily and weekly encounters were removed.

The average distance traveled for a healthcare encounter was three miles.

Category	Sub type	Percentage
Sex	Male	74.07%
	Female	25.93%
Income	Extremely Low Income	91.36%
	Very Low income	6.17%
	Low Income	2.47%
Income Sources	Social Security	58.02%
	State Assistance	6.17%
Other	Elderly	19.75%
	Disabled	67.90%

Table 1*. Background demographics for all the residents of GMM at the time of the study.*

When EMS encounters that occurred at GMM are removed from the data, the average distance to a healthcare encounter is 3.5 miles. The maximum distance traveled for a



healthcare encounter was 15.7 miles. Figure 2 maps the distribution of healthcare encounters in the valley.

The majority of the healthcare encounters captured in the logs were not EMS or ED encounters. Whether or not an encounter involved EMS/ED was determined using the notes written by the case managers. Twelve percent of all encounters were EMS/ED. When the daily/weekly outliers were removed, 20% of encounters were EMS/ED. See Figure 3. EMS encounters typically refer to an incident where EMS was called but the resident was not transferred to another medical facility. EMS/ED encounters refer to an encounter where EMS transported the resident to an ED. ED refers to the resident having a healthcare encounter at the ED without the involvement of EMS.

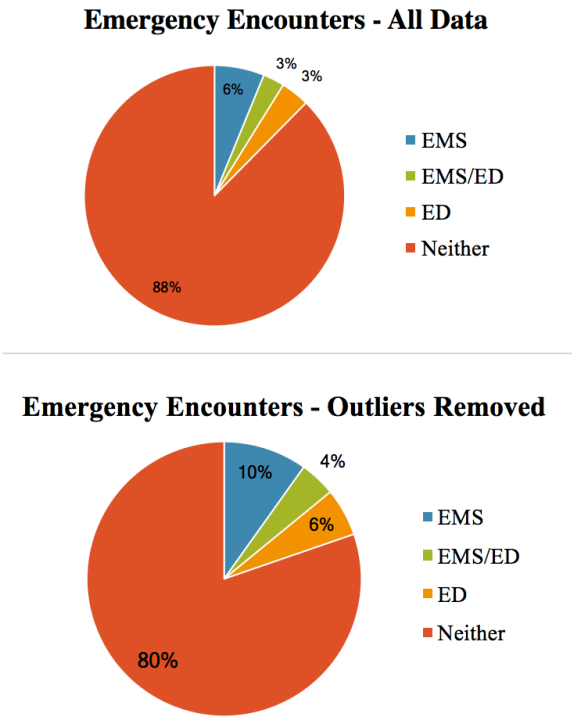


***Figure 3**. Top is all 113 encounters, bottom is 71 encounters with daily and weekly removed. Category determined by case manager notes.*

Table 2 breaks down the number of encounters by insurance status. Of the total 113 encounters captured, 63 (56%) were with a resident who had both Medicare and Medicaid coverage, 40 encounters (35%) were with a resident who had Medicaid coverage, and 10 encounters (9%) were with an uninsured resident. Encounters were also examined on the basis of what healthcare system was utilized. Each encounter

Insurance Status	# of encounters	% of all encounters
Medicaid	40	35%
Medicaid and Medicare	63	56%
No Insurance	10	9%

***Table 2.** Encounters broken down by insurance status of the resident.*

was coded for all of the systems utilized. For example, if a case managers note said "EMS transported client to Intermountain Hospital" this encounter was coded as utilizing EMS and Intermountain Healthcare. The predominant hospital systems near GMM are Intermountain Healthcare System, the University of Utah Health System (U of U), Mountain Star, LDS, Pioneer Valley, and Salt Lake City Regional. Other relevant systems represented in the data include 4th Street Clinic, which provides healthcare to homeless and previously homeless individuals, as well as Valley Behavioral Health which provides substance abuse, mental and behavioral health services. Additionally, the Homeless Support and Stability Project (HSSP) Counseling provides case management as well as clinical and medication management to the residents at GMM. HSSP Counseling is a program administered by the main Salt Lake City homeless shelter – the Road Home.

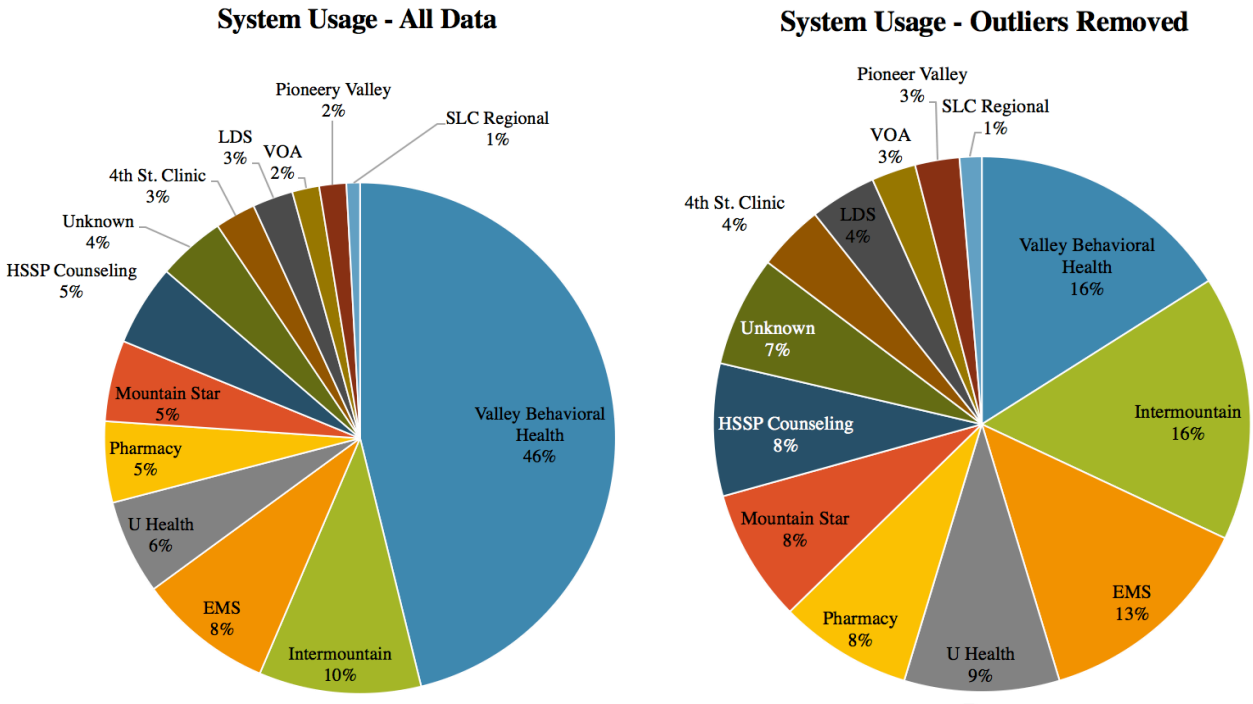


Figure 4*. Pie charts show what systems were used in the encounters captured in the logs. Left is all data. Right excludes the daily and weekly outliers.*

When all encounters were coded, there were 117 total system utilizations and with outliers removed there were 75 system utilizations. Only 4 recorded encounters concurrently utilized more than one system. Looking at all encounters, Valley Behavioral Health constitutes about 46% of the system utilization. When the daily/weekly outliers are removed, Valley Behavioral Health still constitutes a significant portion of the utilization, as well as Intermountain, EMS, and the U Health. Figure 4 shows the breakdown of system utilization captured in the logs. Encounters were also sorted by both insurance status and system utilized. Figure 5 shows the breakdown of insurance status for the various systems for only data with the outliers removed.

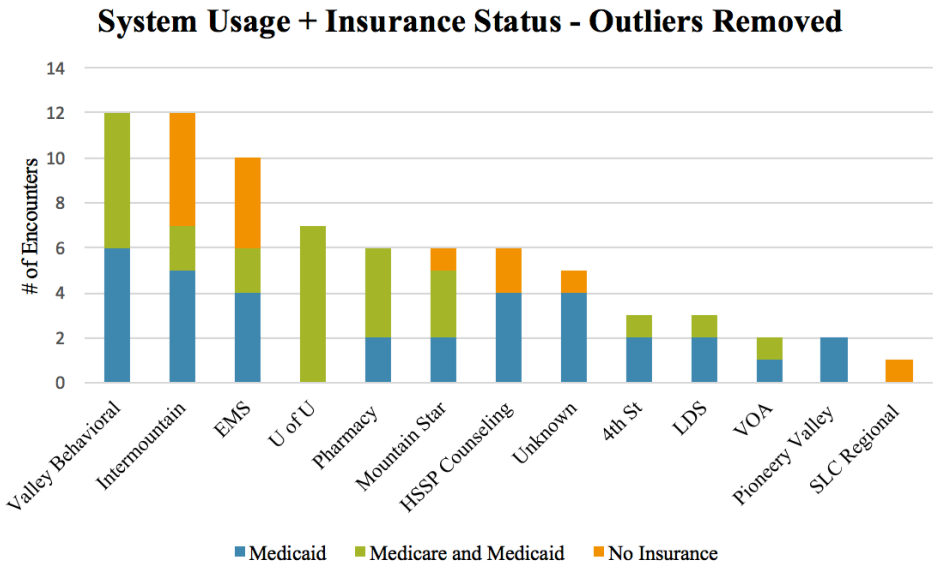


Figure 5. *Bar chart shows # of encounters at the various systems as well as the insurance status of the residents seeking those services.*

DISCUSSION

This study demonstrates that among previously homeless individuals there can be a relatively low utilization of emergency healthcare services and that this population makes high use of mental/behavioral health services. Additionally, this study will help to inform the work of the student hot-spotters and can also provide case managers at

housing first program with a better understanding of the healthcare utilization of their residents.

The insurance status of this population was different from that of the general population in several ways. In 2016 12% of Utahns were uninsured compared to 19% in the study sample.(23) The 19% uninsured in the study sample was surprising given the fact that >90% of the residents at GMM qualify as "Extremely low income" see Table 1. Possible reasons for the higher uninsured rate despite likely qualifying for Medicaid could include lack of knowledge on how to sign up/maintain coverage year to year, not wanting insurance coverage, not feeling any need for insurance etc. In 2016, 10% of the Utah population was enrolled Medicaid, this is in stark contrast to the combined 81% of the study sample enrolled in Medicaid or both Medicare and Medicaid. This difference makes sense due to the nature of the study and the qualifications to live at GMM.

The data demonstrate that at least some individuals in the study sample are willing and able to travel long distances for health care. However, the mean distance travelled to healthcare encounters was only approximately three miles, a distance that many formerly homeless individuals would not find unreasonable to walk. An important finding from this study is the percentage of encounters that utilized the emergency system – either the ED or EMS. While the data collected is difficult to compare to other reported metrics it is clear that the majority of encounters did not involve any sort of emergency care, a contrast from the stereotypes often surrounding this population. When compared to national averages this data suggests that the study population may have lower emergency services usage than the overall population; a recent study found that between 1996 and 2010 emergency departments delivered approximately 48% of the hospital

associated medical care in the United States.(24) Given the fact that homeless populations generally have even higher ED utilization than the general population it is possible that the data presented here demonstrate a decline in the usage of emergency services for the study population compared to their utilization prior to being housed at GMM. That being said it is important to remember that the data presented here do not represent an exhaustive log of all of the healthcare encounters by the residents at GMM. The healthcare encounters analyzed are only the ones known to the case managers. However, the data still suggest that supportive housing may be a potential way to significantly decrease utilization of emergency services, a conclusion in agreement with other studies.(15, 18, 19, 25)

Another significant finding in the data is the high utilization of mental health services. The predominant system utilized in the data was Valley Behavioral Health. When considering all data, Valley Behavioral Health accounted for 46% of the encounters or 16% of encounters with the outliers removed. “Valley Behavioral Health is a nonprofit network of clinics providing treatment for behavioral issues, addictions, psychiatric conditions, autism and other chronic health conditions”.(26) High utilization of mental/behavioral health services is consistent with other findings on mental health and addiction for this population.(1, 27, 28) It is important to note that just because an encounter was recorded at Valley Behavioral Health it is not clear what precisely occurred at that encounter and it is not safe to assume whether it was a mental health visit, a substance abuse visit, both, or something else. Case manager notes on Valley Behavioral Health encounters varied greatly from simply “Treatment” to “Receives on injectable medication on a monthly basis for schizophrenia”.

After Valley Behavioral Health the system with the next highest utilization was Intermountain Healthcare System. There are several possible factors contributing to this. The main Intermountain hospital is located near to GMM and is accessible via public transportation. Additionally, several of the Intermountain Healthcare System encounters also involved EMS suggesting that the high utilization of the Intermountain Healthcare System may be partially due to the transport decisions of EMS after they are called to GMM.

It is difficult to interpret the results in Fig. 5 due to the small sample size. All of the encounters at Valley Behavioral Health occurred with residents who had health insurance coverage whereas nearly 50% of the encounters at Intermountain were with a resident who did not have insurance coverage. This finding may be due partially to the fact that Intermountain can handle emergency services and EMS will transport residents there in the event of an emergency, when insurance status is no longer a first concern, whereas Valley Behavioral Health encounters were generally pre-planned, and thus more likely to occur with an insured resident.

The main weakness of this study is the small sample size. Although over 100 healthcare encounters were captured, the data represent information on only 32 individuals living in a specific housing first program. Thus, while the data is not informative of larger trends for all previously homeless individuals its specificity may be valuable for the work of the case managers and students working with the residents of GMM. An additional potential weakness of the data is the misclassification of encounters or other coding problems. There was a high degree of variability in what the case managers recorded in the data logs; some encounters had detailed notes while other

encounters had only a single word to characterize the encounter. This variability was challenging to account for in coding of the data and was what necessitated a follow up meeting with several of the case managers to clarify notes. An additional weakness of the study is the self-selecting aspect of the data. As mentioned previously residents at GMM are not required to disclose their healthcare encounters to their case manager, thus the data represent the segment of the population that regularly interacts with and confides in case management.

As mentioned above the primary strength of this study will be its to potential to inform the work of the case managers and students who work with this population. The results of the study indicate that there may be potential for several of the residents to enroll in Medicaid and/or Medicare. The data also highlight some aspects of healthcare that are important to consider when working with this population. Though it is important to ensure access to and use of primary care and preventative medicine it is important to also ensure access to mental health services.

This study reveals that previously homeless individuals in a supportive housing environment may have lower than expected use of emergency services. Additionally, this population was found to have high utilization of mental/behavioral health services. This strengthens the argument that access to mental health services is a potential important aspect for transitioning out of homelessness.(28) Overall this study found that given a supportive environment with access to services such as case management, previously homeless individuals may be able to find success navigating the healthcare system. Future work could examine patterns of utilizations in other times of the year as healthcare utilization may rise or change in other seasons. Additionally, creating a more uniform

data collection method to eliminate variability of case manager notes could improve the data coding process. It would also be valuable to examine patterns of healthcare utilization and attempt to correlate that with the length of stay in the housing first program. It is reasonable to hypothesize that the longer a resident remained in the program the more effective and efficient their healthcare utilization might become as they maintained more consistent insurance coverage and utilized more primary care. It would be valuable to look for data to confirm this as it would strengthen the argument for the cost effectiveness of the housing first program. Similarly, it would be highly informative to either examine the housing first population in comparison to a demographically matched and currently homeless population to identify any significant differences in healthcare utilization or, to randomize homeless individuals to housing first or standard resources and compare differences in outcomes.

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