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PATIENT SATISFACTION & KNOWLEDGE OF SERVICES: AN EVALUATION OF A
STREET MEDICINE PROGRAM

By

ALETA MARIE CHRISTENSEN

AUGUST 11, 2015

ABSTRACT

INTRODUCTION: Healthcare needs among homeless populations are difficult to meet within the scope of a standard healthcare model. A street medicine model addresses the specific needs of those experiencing homelessness; healthcare professionals seek to build trust and rapport with people who are living unsheltered by taking their clinical practice to the streets. The street medicine program evaluated in this study provides primary and behavioral care in a metropolitan area in the Southeastern United States.

AIM: This program evaluation aimed to answer the following questions: how has the street medicine program affected the perceptions of ill-health and access to healthcare among its current patients? Further, how would the current patients of the street medicine program rate their satisfaction with the program and are they aware of all available services?

METHODS: Using a mixed methods approach, 40 semi-structured interviews and participant observations were conducted with patients of the street medicine program. Participants were asked to rate their satisfaction with the program and their overall health status on a 5 point Likert scale. Informed by Consensual Qualitative Research (CQR) analysis methods, the qualitative data were transcribed and coded. All quantitative analyses were done using SPSS.

RESULTS: Overall, 70% of participants rated their satisfaction with the street medicine program as excellent (n=28). For self-rated health status, there was a normal distribution across the Likert scale with 43% reporting their overall health status as moderate (n=17). Using CQR, four key domains emerged from the qualitative data: community trust, rapport building, needs addressed, and needs not addressed. These domains encompassed specific participant responses. Examples include: heard about the street medicine program through word of mouth (community trust), team showed kindness (rapport building), received diagnosis and treatment (needs addressed), and needing help getting into housing (needs not addressed).

CONCLUSION: Overall, this study validated the effectiveness of the street medicine program in building trust and rapport with its patients. Satisfaction with the street medicine was high across patients. This study contributes information regarding patient experiences within an alternate healthcare model serving a highly vulnerable population.

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STREET MEDICINE PROGRAM

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ALETA MARIE CHRISTENSEN

B.S., GEORGIA STATE UNIVERSITY

A Thesis Submitted to the Graduate Faculty
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APPROVAL PAGE

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Author's Statement Page

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ALETA MARIE CHRISTENSEN

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Chapter 1 - Introduction

Homelessness, poverty and health care are intimately interwoven. Poor health can be both a cause and a result of homelessness. People who are homeless are at greater risk of infectious disease, chronic illness, poor mental health, and substance abuse, as well as being victims of violence, compared to the general population. Further, the number of people affected by homelessness is striking.

Estimates of how many people experience homelessness annually range drastically from 2.3 million to 3.5 million (Maness & Khan, 2014) which equates to about 1% of the U.S. population and it is estimated that this number will continue to grow (McCabe, Macnee, & Anderson, 2001). In one metropolitan area alone, nearly 7 thousand people were living unsheltered, on the streets. Women and children were significantly represented in these statistics and 21% were veterans (DeNavas-Walt, Proctor, & Smith, 2011). Throughout the United States, between 130,000 and 200,000 veterans experience homelessness every night and most suffer from PTSD. There is also a growing population of family units that experience homelessness; estimates suggest that 41% of the homeless population is intact family units. The rising shortage of affordable housing coupled with an increase in poverty rates is largely responsible for the startling numbers (“Health Care and Homelessness,” 2009). It is important to note that homeless population demographic data is a very rough estimate, especially for those living unsheltered. Because this population lives in unreachable and ignored/avoided locations, and due to the mobile and transient nature of homelessness, it is very difficult to get accurate data.

People experiencing homelessness are roughly 5 times more likely to become ill than housed people and have an average life expectancy of between 42 and 52 (Maness & Khan, 2014). Lack of stable housing and overcrowding in shelters can lead to outbreaks and the spread

of communicable disease. This was the case in Atlanta in August of 2014 when there was a Tuberculosis outbreak leading to the death of 3 people and the infection of forty-seven (Algar, 2014). According to local officials, this outbreak has still not yet been contained and the tuberculosis cases are consistently identified in individuals who have been staying at various shelters. Homelessness hinders good nutrition, personal hygiene, and basic first aid. This, paired with dangerous, violent conditions and extreme weather exposure, creates a situation in which the needs of homeless populations are increasingly complex. Even a simple cut or common cold can quickly escalate into a life-threatening infection or pneumonia. Unsurprisingly, mental illness and addiction can develop or be made worse in such challenging situations. Further, conditions which require regular, uninterrupted treatment, such as tuberculosis and HIV/AIDS, are extremely difficult to treat or manage among those without established care within a healthcare system or a consistent place of residence (Algar, 2014).

Due to the overwhelming burden of health disparities the homeless population carries, it is important to assess the model in which patient care is given. In a standard model of healthcare, patients have to travel to a clinical setting where there are often regimented protocols for the flow of a visit with a healthcare provider (Hwang & Burns, 2014). Homeless populations need a more tailored approach to healthcare. In addition, individuals experiencing homelessness need to be empowered to take an active role in their health care (Bogart, Bird, Walt, Delahanty, & Figler, 2004). One way to address the needs of homeless populations is a patient-centered medical home model which can incorporate healthcare and housing as well as provide resources for employment and legal aid (Maness & Khan, 2014). However, availability of these programs is limited and requires individuals experiencing homelessness to have access to resources that connect them to these options. Additionally, individuals experiencing homelessness that have

poor mental health or have an infectious disease are less likely to seek care (Currie, Patterson, Moniruzzaman, McCandless, & Somers, 2014) and those that do seek care report poor coordination of care and follow-up after services are received (Greysen, Allen, Lucas, Wang, & Rosenthal, 2012).

Another approach to healthcare for homeless populations is a street medicine model. Within the street medicine model, patients that are living unsheltered receive healthcare wherever they are living; that is, healthcare providers leave the clinical setting and see patients on the streets (Howe, Buck, & Withers, 2009). The street medicine model also seeks to provide a patient-centered approach to healthcare, but further strives to build relationships with individuals that have been excluded from standard healthcare models in addition to delivering care based on the needs stated by the patient (Withers, 2011). Meeting individuals experiencing homelessness on their terms is an important tool for building trust among a population that has historically been distrustful of systems within society and is known to underutilize available services (Withers, 2011). The current study evaluates patient satisfaction and knowledge of services of one such street medicine program.

Chapter 2 - Review of the Literature

Homelessness and health

History of the disparity. Those who experience homelessness have been historically single white males. However, this is no longer the case and the disparity now affects an ethnically diverse group of men, women, and children. Alcohol and drug abuse and dependence has been a long standing factor to homelessness (McQuiston, Gorroochurn, Hsu, & Caton, 2014). Historically, those that experience homelessness have been at higher risks for morbidity and mortality in general. HIV/AIDS has been a leading cause of death among this population and other sexual transmitted infections have been prevalent (Caton et al., 2013).

Affected population. Veterans experience higher rates of homelessness than those who have not served in the military (Metraux, Clegg, Daigh, Culhane, & Kane, 2013). There are striking differences in homelessness rates between the branches of service. 64.3% of the veterans surveyed by Metraux, et al served in the Army, 16.1% in the Navy, 11.7% in the Marines, and 7% in the Air Force. Also of note, veterans that had experienced homelessness had finished their tours of service and were honorably discharged (90.1%) (Metraux et al., 2013). Individuals with alcohol and drug dependencies are at a higher risk for experiencing homelessness as well as those with a criminal record (McQuiston et al., 2014). Although women are in the minority among homeless populations, they are still significantly represented. Women who are experiencing homelessness are at a higher risk of contracting HIV/AIDS and other sexual transmitted infections (Caton et al., 2013). This could be the result of the high prevalence of sex work and illicit drug use among women experiencing homelessness (V. Bungay, 2013).

Determinants or causal factors. In a 2014 study that explored recurrent homelessness and causal factors, it was reported that among participants that had obtained housing, 23.7%

experience homelessness again. It was also reported that dependence on drugs and alcohol was higher among those who experience recurrent homelessness. Finally, it was found that those who experienced recurrent homelessness were more likely to have a diagnosis of antisocial personality disorder and/or a criminal record (McQuiston et al., 2014). In another study, researchers found that 56.8% of participants had experienced homelessness at least twice in the three years previous indicating that previous homelessness is a risk factor for future periods of homelessness (Okuyemi et al., 2013). In a study of women experiencing homelessness, 48% of participants had experienced some kind of childhood sexual abuse and 32% had a history of PTSD (Caton et al., 2013).

Intersectionality of gender, SES, age and race/ethnicity. Among veterans, one study did not find any differences between male and female genders, but homelessness was strongly associated with lower educational attainment before entering the military, and black or Hispanic veterans were more likely to experience homelessness (Blackstock, Haskell, Brandt, & Desai, 2012). In another study, 85% of the veterans that had experienced homelessness were male and rates of homelessness increased as military rank decreased (Metraux et al., 2013). Okuyemi, et al, reported that among their population of people experiencing homelessness that smoked, 56.3% were black and 35.6% were white, 74.7% were male, and the mean age was 44.4 years (2013).

Discussion around impact within varying levels of the social-ecological model. Metraux et al, concluded that their study will provide an important foundation for the media to discuss homelessness among veterans. They implied that using popular media sources to spread awareness would have an effect on the disparity at a societal level (2013). In her article, Bungay stated that interventions for women experiencing homelessness needed to target accessibility to

healthcare and treatment programs for alcohol and drug dependencies at the community level. Bungay also stated that the needed accessibility would be greatly increased with additional support from the societal level through funding and policy change (2013). Okuyemi, et al, reported that among the homeless population they surveyed, 37% of smokers wanted to quit within the next six months and over 70% had already tried to quit. This suggests that there is readiness to change at the individual level and that interventions targeted at the individual could be successful (2013). McQuiston, et al, specified the need for comprehensive and collaborative societal level interventions due to the complexities and comorbidity of disparities associated with homelessness (2014).

Effect of homelessness on other health disparities. Women who are experiencing homelessness are more likely to engage in illicit activities such as sex-work and drug use. Women who are experiencing homelessness also have a higher burden if they become pregnant in that they lack the resources to ensure a healthy pregnancy, provide adequate care for a child, or terminate the pregnancy (Vicky Bungay, Johnson, Varcoe, & Boyd, 2010). Tobacco use has been responsible for a very large burden of disease but due to policy change smoking rates in the U.S. are declining. However, among homeless populations, smoking rates are 70% higher than among those who are not homeless. In addition, 82.8% of the participants from one study had used illicit drugs and 42.7% considered themselves an alcoholic or dependent on drugs (Okuyemi et al., 2013). McQuiston et al, identified the high prevalence of drug and alcohol dependency and mental health disorders among those experiencing homelessness. In addition to showing these as causal factors for recurrent and chronic homelessness, the authors determined that rates of emergency room visits among this population were very high (42.4%). This could suggest that poor health and homelessness are part of a self-perpetuating cycle (2014).

Evaluations of programs that deliver care to homeless populations

Providing healthcare services to homeless populations presents considerable challenges within standard healthcare models. The literature discusses numerous barriers to care including limited access to providers, transportation issues, and lack of health insurance or ability to pay (Rowan, Mason, Robitaille, Labrecque, & Tocchi, 2013). These barriers are often exacerbated by a mistrust of healthcare providers, negative experiences within the healthcare system (Weinstein et al., 2013), poor mental health (Schütz et al., 2013), and drug and alcohol addiction (Rowan et al., 2013).

Many programs and services exist to address the needs of homeless populations. A street medicine model addresses the specific needs of those experiencing homelessness; healthcare professionals seek to build trust and rapport with people who are living unsheltered by taking their clinical practice to the streets and other locations that are outside of a clinical setting (Withers, 2011). While no literature could be found for this review that evaluated a program using a street medicine model, evaluations of programs targeting homeless populations were reviewed and included the following themes: concurrent disorders, housing assistance, utilization of health student volunteers, and rapport and trust.

Concurrent disorders. People experiencing homelessness are more likely to suffer from both poor mental health and substance abuse/addiction. Having concurrent disorders can create a never-ending cycle negatively impacting housing status and overall health; individuals that suffer from concurrent disorders are not only more likely to experience homelessness, but are also more likely to utilize healthcare services from emergency departments (Schütz et al., 2013). Many programs attempt to address mental illness as a way to also address homelessness. One such program is the Burnaby Treatment Center for Mental Health and Addiction (BCMHA).

BCMHA is located in an inner-city area in British Columbia and aims to provide access to care for individuals with concurrent disorders. Patients received multi-dimensional treatment from a multidisciplinary team of healthcare providers. Evaluators conducted a baseline assessment and then an assessment after six months using questionnaires that measured mental health, substance use, and housing situation. The program evaluation conducted for BCMHA concluded that addressing patients' concurrent disorders resulted in significant improvements to their mental health and substance use was reduced; the study only reported on housing status at baseline (Schütz et al., 2013).

Housing assistance. Housing assistance in conjunction with other social services and healthcare could be more effective than simply providing “treatment as usual;” that is, social services without collaboration and high utilization of emergency departments (Tinland et al., 2013). A program evaluation was conducted for Pathways to Housing – Pennsylvania (PTH-PA), which provides access to permanent housing, healthcare, and community support for individuals experiencing homelessness. Evaluators in this study determined that when permanent housing was combined with onsite healthcare, overall health of homeless populations were improved and utilization of emergency services were reduced (Weinstein et al., 2013).

Utilization of health student volunteers. The utilization of health student volunteers in the delivery of services to homeless populations, can contribute to their development as compassionate, skilled providers for vulnerable populations. The Houston Outreach Medicine Education and Social Services program is a student-run clinic that provides primary care services to those experiencing homelessness. Program evaluators reviewed whether the program was of educational value to these students by counting the number of patient encounters, along with analyzing survey responses and verbal and written reflections from students about working in the

program. Evaluators found that the program indeed had a measurable impact on students' educational experience in their healthcare professional training; students gained "empathy, compassion, and heightened social awareness" (Clark, Melillo, Wallace, Pierrel, & Buck, 2003).

Rapport and trust. Many programs try to provide more services that are easily accessible by emphasizing rapport and trust building to ensure that homeless populations feel comfortable obtaining services. One program, the Interdisciplinary Teaching Medical and Dental Clinic for Inner City Street Youth in Ottawa, Canada, provides dental and health services for the homeless youth population. Evaluators measured reach and satisfaction of the program. Results showed that patients needed additional clinic hours, but were otherwise satisfied with the atmosphere, convenience, and services provided (Rowan et al., 2013).

Patient satisfaction

Among all patients, not just those experiencing homelessness, patient satisfaction is a proven predictor of healthcare service utilization (Macnee & McCabe, 2004); specific to homeless populations, patient satisfaction is an important tool in measuring the success of patient-centered medical homes (Chrystal et al., 2015). However, most tools for measuring patient satisfaction have only been shown to be reliable among white, middle class populations (McCabe et al., 2001).

Among homeless populations, patient satisfaction tools are needed that accurately capture their satisfaction specific to their healthcare and health-related behaviors. This is best done by collecting both qualitative and quantitative data from patients (Kertesz et al., 2014) and should capture information regarding respect and non-judgement (McCabe et al., 2001). Additionally, trust is an important component of a successful patient-doctor relationship and higher trust in a

provider is associated with increased satisfaction (Rolfe, Cash-Gibson, Car, Sheikh, & McKinstry, 2014).

Any evaluation of healthcare models that address the needs of the homeless population, needs to include patient reported measures of satisfaction with care. Evaluation protocols that ignore self-reported patient satisfaction can be used to support the justification of additional funding for standard models of healthcare that provide services to homeless populations, even if the care is not patient-centered (Kertesz et al., 2014). The literature identifies the need for research that investigates the meaning of satisfaction from the perspective of individuals experiencing homelessness (McCabe et al., 2001).

Chapter 3 - Program Description

In order to address the healthcare needs among the homeless population in a metropolitan area in the southeastern United States, a community-based organization implemented a street medicine program that focuses on primary and behavioral care. The street medicine program engages people who are experiencing homelessness to address primary and behavioral healthcare needs. The program aims to build trust of providers and standard healthcare models among a population generally distrustful and ostracized by medicine and society. The ultimate goals of the street medicine team, per the program's logic model, are to provide stability of care, improve physical and behavioral conditions, connect patients to housing and educate patients on risk reduction behaviors to promote health awareness while they are living in such challenging conditions (Appendix page 38).

The street medicine program partners with a non-profit organization that aims to empower healthcare students by expanding on their traditional medical educations through volunteer opportunities with the street medicine team. Student volunteers are exposed to the realities of living on the street and are trained to better engage with patients experiencing homelessness and inter-related health disparities. Another goal of the street medicine program is to encourage students to choose career paths that provide health care to underserved populations.

In order to meet the goals of the street medicine program, once a week a team is assembled for street outreach and patient care. The team consists of multidisciplinary healthcare professionals that are able to address primary and behavioral healthcare needs. The team also includes a peer outreach specialist and health student volunteers.

Chapter 4 - Methods

Theoretical Rationale. Very little research exists on site-specific patient care and little is known about the impact, including patient satisfaction, of programs that follow a street medicine model. Because so little is known, an inductive approach was appropriate; rather than entering this evaluation research with expectations and theories, theories and recommendations emerged through data analysis (Heath & Cowley, 2004).

Consenting Process. This study was approved by the university's Institutional Review Board for human subject protection. The informed consent form was the first document presented to clients for review. The consent form was read aloud to each participant and signed by the participant and the researcher. To ensure that consent was not obtained while participants were obviously impaired from alcohol, consent from participants was only obtained from participants in a sober state. All participants consented to be in the study.

Ethical Consideration. Careful consideration was given in the development of study protocols to ensure risks to participants were minimal. Receiving medical care was not contingent on research participation, nor were any benefits directly given to participants. In the consent form participants were made aware that their input could potentially help the street medicine program grow and improve.

Validity and Reliability Measures. This study utilizes methodological and data triangulation as the primary validity strategies. Through using multiple methods, both a structured interview in addition to participant observation, criteria for methodological triangulation are met. With the resources available, the main reliability strategies consisted of clear write ups and note taking, as well as thorough checking of the transcripts for mistakes made

through the transcription process. Finally, research validity and reliability was established through peer debriefing and team meetings.

The proposed evaluation has been requested by the partnering non-profit organization in addition to community-based organization that runs the street medicine program. These stakeholders were available throughout the process for checking in and troubleshooting. Additionally, as this is a thesis project, regular meetings with the thesis chair and co-chair occurred.

Evaluation Stakeholders. There are three primary stakeholders for the purposes of this evaluation: 1) The community-based organization that runs the street medicine program, 2) the homeless population reached by the street medicine program, and 3) the partnering non-profit organization that provides student volunteers.

Evaluation Questions. The goal of this evaluation is to learn the opinions of the patients of a street medicine program through semi-structured mixed method interviews and participant observation. This evaluation intended to answer the following questions: 1) how has the street medicine program affected the perceptions of overall health status and access to healthcare? 2) are patients satisfied with services? and 3) is the homeless population reached by the street medicine team aware of all services provided?

Sample. After engaging with the Street Medicine team, clients were told of research being conducted to evaluate patient expectations and satisfaction. If interested, the clients were directed to the onsite researcher for more information about the research and participation. This convenience sampling easily captured participants meeting the inclusion criteria: any individual experiencing homelessness that was eligible to receive care or had already received care from the

Street Medicine team. Participants were drawn from the various locations that the street medicine team visited.

Procedure. Data collection occurred concurrently with the normal Street Medicine program. The researcher accompanied the Street Medicine team on Wednesday nights to all locations. The time spent at each location varied due to volume of people present, treatment needs, and overall interest among individuals in being engaged by the team. Participants engaged in face-to-face semi-structured audio-recorded interviews (appendix page 41). The interviews were all conducted by the student PI and were guided by the interview protocol developed for this evaluation and took between five and fifteen minutes. The participants were asked to answer questions related to their expectations around interacting with the Street Medicine team, whether or not their expectations were met, and current health status. Given the literature around patient satisfaction among homeless populations, the semi-structured interview contained both qualitative and quantitative elements. After conducting the semi-structured interview, the student PI completed a participant observation (appendix page 42) in order to gather information about what could be observed and to record notes on the setting in which the client was engaged. The student PI recorded the client's current appearance and level of attentiveness during the interview.

Process for Data Analysis. For this study, a Consensual Qualitative Research (CQR) approach was utilized during data analysis (Hill et al., 2005). The interviews were transcribed focusing primarily on the information that was directly relevant to the questions asked. The research team then met to discuss the meaning of the data and came to consensus on domains and core ideas. The agreed on domains refer to broader topics that cluster the data into major themes being evaluated. Core ideas were determined using summaries that more precisely and

succinctly reflected what the participants said. Finally, where applicable, specific needs were identified as topics within a core idea. Due to the size of the sample and the nature of the data, data were primarily analyzed in terms of frequency.

Chapter 5 - Results

Sample. In total, forty interviews were conducted over the course of thirteen weeks. Over the course of the thirteen weeks, the street medicine team visited six locations and participants were successfully recruited from four of the locations visited. The final sample, Table 1, was primarily male and African American/Black. The majority of participants reported being homeless for longer than one year. The average age of participants was 46.7 years and had a normal distribution ranging from 18 years to 72 years.

Table 1. Participant characteristics

<i>Characteristic</i>	<i>Total N = 40</i>
<i>Race</i>	
<i>African American/Black</i>	26 (65 %)
<i>White</i>	8 (20 %)
<i>Multiracial</i>	4 (10 %)
<i>Hispanic/Latino</i>	1 (2.5 %)
<i>Gender</i>	
<i>Male</i>	35 (87.5 %)
<i>Female</i>	5 (12.5 %)
<i>Age</i>	
<i>18 - 29</i>	3 (7.5 %)
<i>30 - 39</i>	5 (12.5 %)
<i>40 - 49</i>	14 (35 %)
<i>50 - 59</i>	12 (30%)
<i>≥ 60</i>	6 (15 %)
<i>Length of time experiencing homelessness</i>	
<i>< 1 month</i>	5 (12.5 %)
<i>1 month to < 3 months</i>	1 (2.5 %)
<i>3 months to < 6 months</i>	4 (10 %)
<i>6 months to < 1 year</i>	5 (12.5 %)
<i>1 year to < 2 years</i>	5 (12.5 %)
<i>2 years to < 5 years</i>	8 (20 %)
<i>≥ 5 years</i>	12 (30 %)

Two of the locations were located under overpasses. One of the overpasses provided very little open area for sleeping and people had established sleeping areas on the concrete walkway next to a busy road; two interviews were collected at this location. Both of the participants at this

location were fifty years of age or older and were alone before and after the interview. The other overpass ran over a very busy interstate and an exit ramp. While this location was a high-traffic area, the people found at this location had established sleeping areas underneath the overpass between the highway and exit ramp; eight interviews were conducted at this location. Of the eight participants, all of them reported being homeless for over a year and half of them stated that they had been homeless for over five years. Seven interviews were conducted at a bridge that was cut off and the route that it originally created was diverted. At this location, people have established camps both on top of and underneath the bridge. Over half of the participants had never encountered the team before and this was the only location where the majority of participants were in the company of others. Finally, twenty-three of the interviews were conducted outside of a church at the heart of the downtown area. At this location, people have established sleeping areas along the sidewalks and under the awnings of all sides of the church. The majority of the participants at this location had encountered the team before and over half reported having been homeless for over one year.

Among those interviewed, it was determined that contact was initiated equally by the street medicine team (n=20) and participants (n=19). To examine the relationship between whether or not the participant had encountered the street medicine team before and who made the initial contact on the day the interview was conducted, a Chi-square test for independence was done using a Continuity Correction to determine significance at $p < .05$. Results indicated that the majority of participants that approached the team had previously interacted with the team before (65%). However, this association was not significant, $\chi^2 (1, N = 39) = .211, p = .65$.

Patient satisfaction. A complete report of patient satisfaction can be found in Table 2. Overall, the majority of participants rated their satisfaction with the street medicine program as

excellent. Of the participants that reported highest satisfaction, 23 reported that 2 or 3 needs were addressed, 4 reported that 1 need was addressed. 15 participants that reported highest satisfaction mentioned 1 or two needs that were not addressed. 1 participant reported that no needs were addressed but elements of rapport building were mentioned. Of the participants that rated their satisfaction with the street medicine program as good, the majority reported that 2 or 3 of their needs were addressed; 2 participants also reported that 1 need was not addressed. Of the participants that rated their satisfaction with the street medicine program as moderate, 2 people reported that 1 of their needs was addressed and the other person reported that 3 needs were addressed; all 3 reported that at least 1 need was not addressed. The participant that rated their satisfaction with the street medicine program as poor reported having 1 need that was not addressed during the initial encounter. The majority of participants that rated their satisfaction as excellent had encountered the team before.

Patient health status. Among those participants that reported that at least one of their needs was addressed by the street medicine program, a higher overall health status was reported. Participants reported their overall health status (Table 2) using a Likert scale; there was a normal distribution across the scale with 43% reporting their overall health status as moderate (n=17). Other factors that may have contributed to a participant's health status may include isolation and not knowing of anywhere to receive care. The majority of participants were alone before and after the interview (n=26). 50% of participants reported that the emergency room was either the only other place that they receive care or as a place that they could receive care if they needed besides the street medicine program. 35% of participants reported that they did not know of anywhere to receive healthcare. In order to determine whether or not participants' needs being addressed was correlated to perceptions of health, a Chi-square test for independence was done

to compare participants' overall health status with whether or not they had at least one need addressed. Among the participants that had at least one need addressed, 80% reported that their overall health status was better than fair. This correlation was approaching significance: $\chi^2(4, N = 39) = 8.98, p = .06$.

Table 2. Patient satisfaction and overall health status

<i>Patient Satisfaction*</i>	<i>Total N = 40</i>
<i>Excellent (5)</i>	28 (70 %)
<i>Good (4)</i>	8 (20 %)
<i>Moderate (3)</i>	3 (7.5 %)
<i>Fair (2)</i>	0 (0 %)
<i>Poor (1)</i>	1 (2.5 %)
<i>Self-rated overall health status*</i>	<i>Total N = 39</i>
<i>Excellent (5)</i>	6 (15 %)
<i>Good (4)</i>	9 (22.5 %)
<i>Moderate (3)</i>	17 (42.5 %)
<i>Fair (2)</i>	4 (10 %)
<i>Poor (1)</i>	3 (7.5 %)

* Both patient satisfaction and health status were reported using a 5 point Likert scale.

Qualitative component. Using CQR methods for data analysis, the transcribed interviews were coded into general ideas (domains) and key summaries of participant responses were recorded (core ideas). All domains and core ideas were then quantified and are reported as percentages of the total 40 participants. In total, four domains were agreed on for coding the qualitative components to the data. Domains included rapport building, community trust, needs addressed, and needs not addressed. A complete report for all qualitative components can be found in table 3.

Rapport building. Rapport building was used as a way to describe positive or negative feelings of comfort and/or appreciation between individual participants and the street medicine team. Within this domain five core ideas emerged: trust, gratitude, kindness, team made contact and showed interest, and too many repetitive interactions. At least one comment related to

rapport building was mentioned in the vast majority of the interviews. Predominantly, participants commented about the street medicine team's kindness. Participants mentioned equally the following core ideas: the team made contact and showed interest, gratitude, and trust. Finally, two participants mentioned a repetitive action that was conflicting with rapport building; in both situations participants expressed feeling overburdened with all of the paperwork that was required.

Table 3. Qualitative domains and core ideas.

<i>Rapport building</i>		<i>Total N = 30</i>
<i>Trust</i>		7 (17.5 %)
<i>Gratitude</i>		7 (17.5 %)
<i>Kindness</i>		21 (52.5 %)
<i>Team made contact and showed interest</i>		7 (17.5 %)
<i>Too many repetitive interactions</i>		2 (5 %)
<i>Community trust</i>		<i>Total N = 15</i>
<i>Curiosity</i>		4 (10 %)
<i>Convenience</i>		5 (12.5 %)
<i>Multiple encounters</i>		2 (5 %)
<i>Not enough encounters</i>		5 (12.5 %)
<i>Word of mouth</i>		2 (5 %)
<i>Skepticism</i>		1 (2.5 %)
<i>Needs addressed</i>		<i>Total N = 39</i>
	<i>Expected (n = 33)</i>	<i>Actual (n = 36)</i>
<i>Information and resources</i>	4 (10 %)	12 (30 %)
<i>Individual medical care</i>	25 (62.5 %)	28 (70 %)
<i>General addressing of needs</i>	4 (10 %)	5 (12.5 %)
<i>Provided relief</i>		1 (2.5 %)
<i>Needs not addressed</i>		<i>Total N = 21</i>
<i>Information and resources</i>		12 (30 %)
<i>Individual medical care</i>		9 (22.5 %)
<i>General needs not addressed</i>		5 (12.5 %)

* *Total N* refers to the total number of participants that mentioned any core idea of the domain. The reported *n* in each core idea refers to the number of participants from the entire sample (*N*=40).

Community trust. Community trust was established as a domain to describe a broader feeling of comfort and trust between the larger homeless population and the street medicine team. Six core ideas were found within this domain: curiosity, convenience, multiple encounters, not enough encounters, word of mouth, and skepticism. Elements of community trust were mentioned at least one time in a significant portion of interviews. Curiosity refers to the participant not really having expectations of what was going to happen when they met with the team, but that they were simply curious. Participants mentioned that they appreciated that the team came to them and identified that feature as being convenient. Having multiple encounters with the team and hearing about the team through word of mouth were mentioned in 5% of the interviews. Several participants mentioned that there were not enough encounters happening with the street medicine team; those participants all indicated that they wanted to see the team more often. Finally, one interview included the core idea of skepticism; the participant mentioned feeling leery of being approached by the team whom the participant had not encountered before.

Needs addressed. This domain broadly captures participants referring to receiving specific goods, services, or information and resources. Within the needs addressed domain four core ideas were identified: information and resources, individual medical care, general addressing of needs and provided relief. Overall, needs addressed was mentioned by all but one participant. This domain was coded into two different variables in order to distinguish between the needs addressed being mentioned as an expectation or as something that actually happened. In total, 82.5% of participants mentioned needs addressed as an expectation and 90% of participants mentioned needs addressed as something that actually happened at least once. Over half of the participants expected individual medical care and 70% reported actually receiving individual medical care. Within the core idea of individual medical care, the following topics

were mentioned: treatment, medication, vitals/health screening, lab results, foot care, psychiatric care, given medical care, saw provider through telemedicine. 10% of participants reported that they expected general addressing of needs and 12.5% reported that general addressing of needs actually happened; this core idea included the topic of receiving condoms. 10% of participants mentioned that they expected to receive information and resources and 30% of participants reported that they actually received information and resources from the team which included the topics of substance abuse counseling, housing, medical referral, and homeless verification form. Finally, 1 participant reported that the team addressed their needs by providing relief.

Needs not addressed. In total, 52.5% of participants mentioned having between 1 and 2 needs not addressed. It is important to note that among the participants that had needs that were not addressed, 85.7% of them reporting having a different need addressed. The reasons for this included not mentioning additional needs to the team and being unaware that additional needs could be addressed by the team. Within the domain of needs not addressed, three core ideas were identified: information and resources, general needs not addressed, and individual medical care. 17.5% of participants reported not receiving the information or resources that they needed. Specifically, participants mentioned needing help with getting replacement identification and resources for getting housing. 12.5% of participants reported that a general need was not addressed; the topics of general needs not addressed included: food and water, blanket, rain gear, birth control, and feminine hygiene products. 30% of participants identified an individual medical care need that was not addressed; the topics mentioned regarding individual medical care needs not addressed included: earlier intervention/continuity of care, dental care, eye exam/vision, shot instead of pills, not able to meet with a provider, rapid test results (HIV,

hepatitis, pregnancy, etc.), eczema cream, privacy during care, diagnostic test, and over the counter medication (ibuprofen, Benadryl, cold medicine).

Chapter 6 - Summary

Discussion of evaluation questions

The data proved to be useful in evaluating patient satisfaction and knowledge of services. Per the program's logic model (Appendix page 40), this evaluation showed that the street medicine program has been successful with the stated short-term goals of identifying patients' health risks and building rapport between providers and homeless populations. Responses to each evaluation question are below. In addition to providing insight on the proposed evaluation questions, this study also effectively highlighted areas for strengthening and expanding the street medicine program.

1) How has the street medicine program affected the perceptions of overall health status and access to healthcare?

Participants who reported that the street medicine program addressed at least one of their needs also reported a higher overall health status. This could be an indication of the street medicine program having a positive impact on the perceptions of overall health status among homeless populations. Further, the street medicine program successfully provides a model for healthcare that allows for easy access and patient-centered care.

2) Are patients satisfied with services?

The overwhelming answer to this question is yes, patients of the street medicine program are satisfied. Drivers of satisfaction include receiving medical and behavioral healthcare, individual rapport building, and strengthening community trust. Of the 3 participants that did not have their needs addressed, two of them mentioned elements of rapport building and community trust. Also, it should be noted that it was observed that 2 of the participants' had their needs

addressed by the team upon a second encounter. One received a shot instead of pills and the other received eczema cream.

3) Is the homeless population reached by the street medicine team aware of all services provided?

Although the majority of the study participants reported that they had needs that were addressed, over half of participants also identified needs that were not addressed by the team. The needs mentioned by participants that were not addressed included topics that the street medicine addresses through services and referrals. Participants reported that they had not mentioned addressing certain needs to the street medicine team because they were not aware that the team offered certain services or could provide certain information or resources.

Although participants were not aware of all services provided by the street medicine program, it is important to comment on one of the primary ethos of the street medicine program. In order to build trust within a program that is largely distrustful of the healthcare system and other structural components of society, the street medicine team attempts to avoid intrusiveness by allowing the patient to lead the encounter and inform the team of what their needs are and how to focus the encounter. Because of this patient-centered approach, it may be that every need cannot be addressed or even discussed.

Support for additional funding

The street medicine program is a valuable resource for its community. This evaluation showed that the street medicine program is able to reach a significant number of people experiencing homelessness who would otherwise be utilizing the emergency room or not receiving care at all (Table 4). This is particularly important given the exorbitant cost and overcrowding reported by emergency departments. Further, as most individuals that are living

unsheltered do not have insurance or are underinsured, reimbursement and payment is low when these individuals are treated in the emergency setting.

The street medicine program is an effective way to address the healthcare needs of the homeless population. Participants of this evaluation identified the importance of multiple encounters as well as the need for more encounters for building rapport and trust (Table 4). In addition, the street medicine model effectively reduces the burden of treating homeless populations within the standard healthcare model. Additional days for outreach and encounters with this population would allow for the street medicine team to engage with more people, increase the number of locations visited, and further increase the opportunities for individuals experiencing homelessness to have their healthcare needs addressed in an appropriate way.

Table 4. Data to support additional funding

<i>Where does the participant receive care (besides the street medicine team)?</i>	<i>Total N=40</i>
<i>Emergency room</i>	20 (50 %)
<i>Clinic/outreach</i>	6 (15 %)
<i>Nowhere else</i>	14 (35 %)
<i>Participant's needs that could be addressed with additional outreach</i>	
<i>Information and resources</i>	n = 12 (30 %)
<i>Individual medical care</i>	n = 9 (22.5 %)
<i>General needs not addressed</i>	n = 5 (12.5 %)
<i>Community trust</i>	n = 15 (37.5 %)
<i>Rapport building</i>	n = 30 (75 %)

Recommendations for program implementation

Over the course of the data collection period, it was observed that many of the individuals the street medicine program encounters lived without basic necessities for self-care. In response, the street medicine team distributed hygiene kits to the individuals they engaged with. However, supplies are limited and often demand exceeds supply. It is recommended that the street

medicine program expand the partnership with the non-profit organization to include asking them to be responsible for acquiring more supplies to stock hygiene kits, in addition to recruiting health student volunteers. Further, it is recommended that the kits include condoms and feminine hygiene products. Finally, it is recommended that the hygiene kits be distributed more freely even to those individuals who do not seek engagement from the street medicine program or who approach the team seeking things the team does not primarily provide, like food.

During the time spent interviewing the opportunity arose on many occasions for participants to identify needs that were not addressed by the team. In some cases, the interviewer was able to redirect the participant back to the street medicine team and additional services, resources, information, and/or goods were provided on the spot. Therefore, it is recommended that someone other than the street medicine team members that are involved in the patient encounter/treatment spend 2-3 minutes after the encounter checking in with the patient about how the encounter went and what other needs the patient may have that were not addressed. This would provide the street medicine team with an opportunity to inform patients of other needs the team can address. This could be done effectively by the peer outreach specialist and would further address the need for additional encounters.

Implications for future research

This study will contribute information regarding patient experiences among a highly vulnerable population. Being able to highlight the program's successes and areas for improvement based on patient satisfaction is a necessary measure to report because the homeless population often goes unseen/untreated and therefore programs like street medicine have no basis for comparison.

Further research is needed to better understand the meaning of satisfaction within homeless populations; there is need for a measure that accurately measures patient satisfaction among underserved and minority populations. Additionally, the data from the current study may show that, among underserved populations, satisfaction bias may be present in that patients are satisfied and grateful for any services, regardless of quality or appropriateness, because they have low expectations.

Conclusion

Overall, this study validated the effectiveness of the street medicine program in building trust and rapport. This study contributes information regarding patient experiences within an alternate healthcare model serving a highly vulnerable population.

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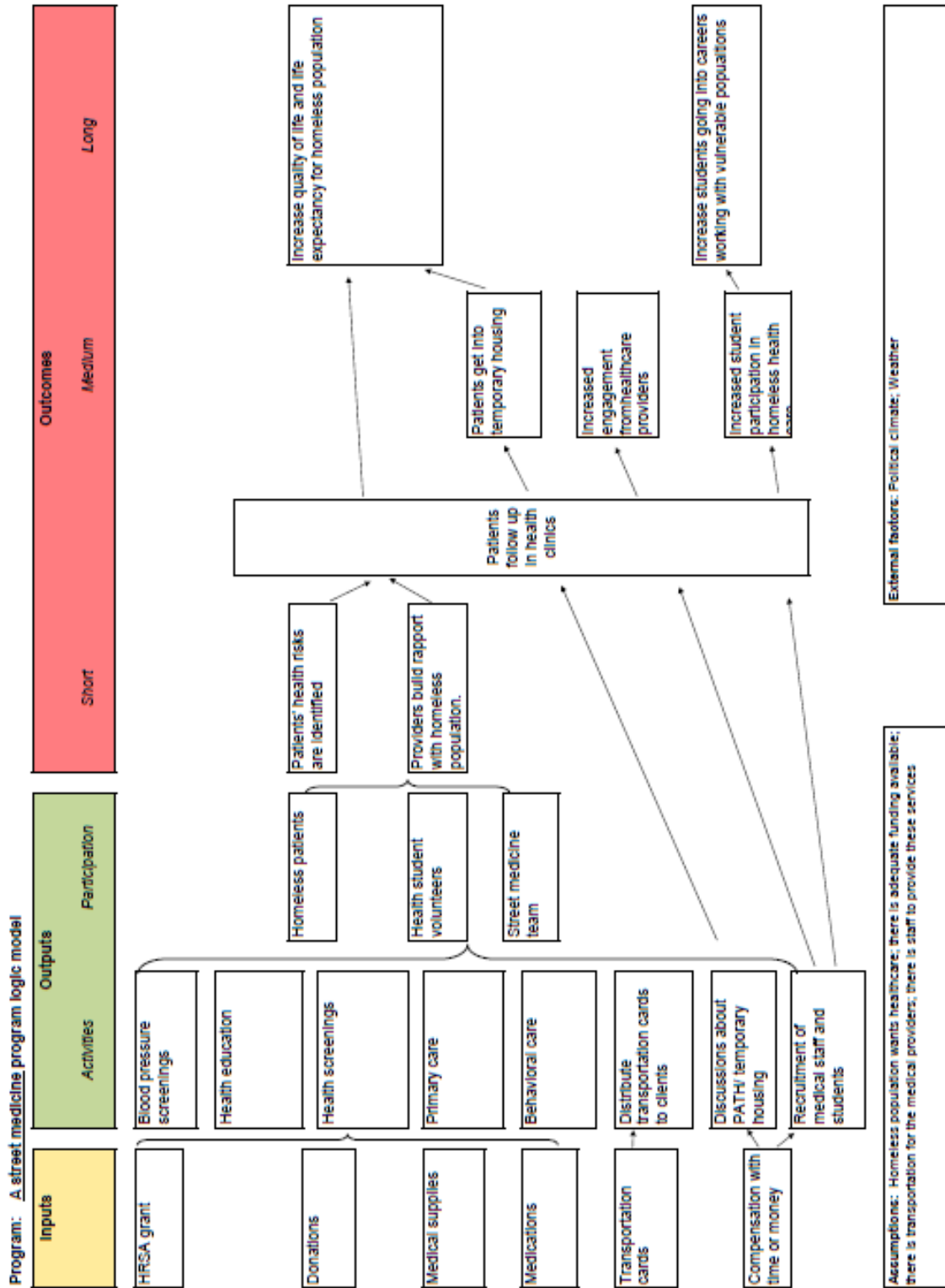
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Appendix



Structured Interview Protocol

Participant ID: _____

Date: _____

Time: _____

Location: _____

1. Have you ever seen the Street Medicine team before? If so, when? Did you receive any goods or services? If not, have you ever heard of Street Medicine?

2. What was your interaction with the Street Medicine team this evening? (Mark all that apply)

- | | |
|--|----------------------|
| 1- Seen by psychiatrist | 5- Given food |
| 2- Seen by primary care physician | 6- Given water |
| 3- Flu shot administered | 7- Given blanket |
| 4- Received information about the team | 8- Given hygiene kit |
| 9- Other: _____ | |

3. What did you think was going to happen when you learned that you were going to meet with the Street Medicine Team?

4. What actually happened when you met with the Street Medicine Team?

Can you give me three words that explain what was good about the time you spent with the Street Medicine Team? What would you change about the time you spent with the Street Medicine Team?

5. How would you rate your satisfaction with the Street Medicine team? Why?

1 2 3 4 5

Poor

Moderate

Excellent

6. How would you rate your overall health status?

1 2 3 4 5

Poor

Moderate

Excellent

7. Besides the Street Medicine team, do you know of anywhere else to receive medical/health care?

8. Demographic information:

1. **Race/Ethnicity:**

- African American/Black
 Asian/Pacific Islander
 Hispanic/Latino
 Multiracial
 Native American/American Indian
 White
 Not Listed (please specify below)

2. **Gender:**

- Female
 Male
 Transgender
 Prefer not to respond

3. **Age:** _____

4. **How long have you been homeless?**

9. Thank you so much for your time! Is there anything else you would like to add about your health or health care?

Participant ID: _____
Date: _____
Time: _____
Location: _____

Participant Observation Protocol

Upon completion of the structured interview, fill out the following AFTER the participant has been thanked and has left.

1. Describe the participant's appearance.

- appropriately dressed for weather under dressed for weather over dressed for weather
- alone before interview alone after interview in the company of others
- clean shaved face moderate facial hair full facial hair
- established "camp"/ sleeping area carrying all belongings visible electronics
- appropriate footwear worn shoes / holes in shoes no footwear

2. Did the participant approach the team or did the team find them?

- Participant approached team Team approached participant

3. How easily was the participant able to stay focused during the interview?

1	2	3	4	5
Participant could not complete the interview		Some distractions were present		Completely focused

4. Additional comments and final thoughts:
