Implementing a Screening Tool for Homelessness at LVHN

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Abstract

Recent research has shown that the largely uninsured or underinsured homeless population makes frequent visits to the emergency departments of community hospitals, utilizing the hospitals' financial resources to receive healthcare. The Lehigh Valley Health Network (LVHN) is assessing the prevalence of the local homeless population in the emergency department (ED) to work towards implementing the street medicine program to provide better care to this population and reduce emergency department costs, via screenings for homelessness in the emergency room. The study found 3% of patients were at risk of homelessness and 7% screened positive for homelessness, culminating to 10% of this vulnerable population using the LVHN-ED for medical care. The percentage was greater for the 17th Street site than MHC and CC and no differences were seen between weekdays and weekends. This information can be used to better allocate the network's funding by targeting individuals who are more likely to use the ED and increasing the use of the street medicine program to reduce expensive emergent care.

Keywords: homelessness; prevalence; emergency department; allocation of funds; street medicine

Introduction

Across the country, progress is being made to improve the quality of life for those less privileged, and one aspect that is undergoing a great deal of scrutiny is the United States Healthcare System. With the initiation of the Affordable Healthcare Act, the country has made progress in providing healthcare to all. However, there are still many populations struggling to have necessary basic medical needs met. One of the most vital social determinants of health on personal well-being is stable housing, yet the homeless population has little access to primary care. The main concern of these individuals is food and shelter, not healthcare, resulting in costly emergency room visits when illness and injury ensue. This is an issue nationwide, and the Lehigh Valley Health Network (LVHN) must examine these concerns within its local community. The first step in addressing the problem is to gain an assessment of emergency department (ED) usage by the homeless population, examined in the current study.

According to the National Health Care for the Homeless Council, the homeless population has significantly poorer health than the non-homeless, even when compared to low-income populations (NHCHC, 2011). Not only do injury and illness frequently result in lost jobs and financial hardship leading to homelessness, but homelessness often causes or exacerbates serious illnesses. Furthermore, the homeless population often does not receive proper treatment due to many reasons including lack of access and lack of education about the necessity of healthcare. Even if treatment is received, it is often difficult to follow through given the lack of financial resources or even just a lack of a place to rest and recover (NHCHC, 2011). For this reason, it is important to begin examining homelessness within the LVHN in order to address the medical needs of the population, which if left untreated will continue to result in costly ED visits. The current study is starting by looking to find the percentage of homeless patients in the LVHN-ED, and looking at differences in prevalence between locations and day of the week to see where and when resources are needed most for this population to limit uncompensated care expenses by the LVHN.

A community-based study by Kushel, Perry, Bangsberg, Clark, and Moss (2002) found that 40.4% of the homeless population received ED care in the past year, and of this number 18.4% reported using the emergency department exclusively for outpatient care, and 45.6% of users reported using the ED exclusively. Although there is currently no data on the ED use of the homeless population of the Lehigh Valley, we believe that these trends would appear. A significant amount of overall ED costs come non-urgent medical care (Bharel et al. 2013). Additionally, a great deal of ED expenditure comes from under or uninsured homeless individuals (Baker & Baker, 1994). Therefore, significant ED costs result from the homeless population using the emergency room as their primary healthcare. It is currently impossible
to assess the cost spent by the LVHN to care for the largely uninsured homeless population, though there was a total of $327 million spent in uncompensated care used toward the community in 2013 (Lehigh Valley Health Network [LVHN], 2013). By finding the percentage of homeless patients utilizing the LVHN-ED there can be better allocation of funds within the EDs between location and time of the week, limiting uncompensated care spent in the ED while providing better care to the homeless.

The current study aims to obtain the percentage of homeless patients seeking medical care in the LVHN-ED via an assessment of homelessness by asking questions of the patients' current housing situation. This is a necessary preliminary step in working towards improved healthcare for the homeless population in the homeless community of the LVHN. It allows for assessment of fund allocation within the network depending on when there is the most need from this population in the ED. Additionally, it allows for progress in implementing the street medicine program, a developing system that provides basic medical services free of charge to the homeless population in the locations that these individuals often frequent. The information gained from this study will work towards improving the program by illuminating when its services are needed most and identifying individuals in need of its services. We predict to see a difference in the prevalence of homelessness or at risk of homelessness in the LVHN-ED population between LVHN-ED sites and the time of week. The study is a first step in improving the effectiveness of the LVHN in meeting the needs of its community.

Methodology

Participants

Participants were recruited at the Cedar Crest (CC), Muhlenberg (MHC) (, and 17th Street hospitals' EDs. Patients who were under 18 years old, could not speak English, were critically ill, did not have the capacity to answer survey questions, or were unwilling to participate were excluded from the study. In cases where the participant's capacity or medical condition was unclear, the member of the research team confirmed it with the attending doctor, physician assistant or resident on staff. Selection bias was eliminated via the random assignment of patients to pods within the emergency department. The member of the research team could only survey within a previously assigned section during a screening period and all patients within the ED pod who met the inclusion and exclusion criteria were approached.

Materials

A five question, yes-or-no answer survey was used to identify homelessness recorded electronically (Appendix 1). The electronic form included responses for site, gender, age, and day of the week. A sixth question was used to account for patients who had come into the emergency department more than once during the surveying period. A log was kept for each patient who came into the ED pod during the screening period with the date, time of day, gender, age, whether or not the patient participated. The paper logs were transposed and coded into an Excel file database for analysis.

Procedure

The team members were assigned shifts at select pods in the LVHN-CC, LVHN-MHC, and LVHN-17th Street EDs. All eligible patients were identified and approached, and the survey was administered to willing participants. The purpose of the study was explained to the patient and verbal consent was received before screening. The team member read the questions aloud and recorded the patients’ answers on the electronic survey. If the patient did not consent, the reason would be recorded in the log. Participants who screened positive for homelessness, having answered at least one ‘Yes’ to the questions 2, 3, 4, and 5 were brought up to the attending doctor or resident to consider referring the patient for a consult for the street medicine program. Participants who answered ‘Yes’ to question 1 were considered at risk of homelessness. Weekdays were defined as Monday through Thursday and weekends were defined as Friday through Sunday.

Analysis was run to examine the percentage of homeless and at risk for homelessness patients overall and for each emergency room. Prevalence at site and weekend versus weekday was calculated as a percentage of number of occurrences to the size of the population. P-values were set to 0.05 and analysis was run using Stata software v.12.1.

Results

Participants (N= 1646) were recruited across all 3 sites; after removing participants who had taken the survey before, 1616 subjects were used in the analysis. Of the 1616 subjects analyzed [female (f)=936], the site variability was as follows: Cedar Crest (CC) (N= 673, f= 378), Muhlenberg (MHC) (N= 668, f= 390), and 17th Street (N= 275, f= 168). Tables 1 and 2 provide a summary of the data. The overall prevalence of at risk for homelessness was 3% and homelessness was 7%. Summated, the screening period showed prevalence of homelessness or at risk for homelessness of 10% (Figure 1). There was a
significant difference between the prevalence at 17th Street with CC, $p = .001$, and MHC, $p = .0001$, where 17th Street (22%) had a greater percentage of homeless or at risk for homelessness than CC (8%) or MHC (8%) (Figure 2). There was no significant difference between CC and MHC, $p = .920$.

There was no significant difference in the presentation of homelessness or risk for homelessness between weekdays and weekends, $p = .34$. Of the 1,616 participants analyzed, 119 of 1,046 screened Monday through Thursday were identified as homeless or at risk for homelessness (11%) and 50 of 570 screened Friday through Sunday were identified as homeless or at risk for homelessness (8.8%). Broken down by site, there was no significant difference in positive screenings between weekdays or weekends at 17th street, $p = .867$ or Muhlenberg, $p = .441$ (Figure 3). However, subjects were more likely to screen positive for homelessness at Cedar Crest on weekdays as compared to weekends, $p = .010$.

Discussion
The results show that 10% of all patients seeking medical care in the LVHN-ED experience homelessness or are at risk for homelessness. The majority of these individuals is under or uninsured and cannot cover these hospital visits, drawing on the LVHN financial aid to cover the cost. Because the prevalence varies between location valuable information is gained about where to allocate resources to aid this population, particularly looking at the street medicine program to follow up with the homeless ED patients. The best way to create cost-effective care for the homeless is to increase access to basic medical care where it is needed most. The data suggest that the 17th Street area would benefit most from the program. Additional findings show that there is no difference in the prevalence between weekends and weekdays. This is a valuable finding as staffing costs more on the weekends. Because there is no difference in the day of the week, more hospital funding does not need to be put towards weekends versus during the week. Knowing the needs of the homeless patients between the weekends and weekdays allows the LVHN to provide the best care and to provide proper intervention.

Multiple studies conducted across the US in major cities have shown that the homeless population are frequent users of the ED (Kushel, Perry, Bangsberg, Clark, & Moss, 2002; Kushel, Vittinghoff, & Hoss, 2001; Bharel et al., 2013), but this is the first study to date to examine the percentage of use by the homeless population within the ED itself. The study shows that a significant number of ED patients are experiencing unstable housing. Though no data was collected on the cost of these visits, emergency room visits and hospital admissions are costly for all, and because this population is known to often have minimal or no health insurance, the LVHN must rely on its financial resources to cover ED expenses (LVHN, 2013). By gaining an understanding of the prevalence of homelessness in the ED, the LVHN can better distribute its funding to aid this population across location, though it is not needed across day of the week. Financial resources can be allocated into the street medicine program, distributed to areas where it is most needed (i.e. 17th Street), to provide better care for the homeless and reduce need for ED visits by improving overall health and comprehensive treatment to patients post-ED visit.

A limitation to the current study is the restriction of who can be surveyed based on the "has the capacity to answer survey questions" inclusion/exclusion criteria. Some patients who came into the ED during the screening period were excluded from the study based on their inability to answer survey questions because of cognitive impairment resulting from psychiatric issues and/or drug use. Ku, Scott, Kertesz, and Pitts (2010) found that homeless people were more frequently treated for psychiatric issues as well as alcohol or drug use. Therefore, it may be the case that many homeless patients were not screened due to the condition under which they were brought into the ED. Future studies may work to analyze these individuals in some way for homelessness, possibly by using increased awareness of the problem by doctors to incorporate assessment of housing during patient evaluation. Another limitation is that the survey is only administered in English; yet lower socioeconomic status individuals who are more likely to be experiencing homelessness are often from minority populations, many of whom do not speak English. Other problems may arise from misinterpretation of survey questions and social desirability bias by patients due to the self-reported nature of the survey.

The current study will continue into the winter months during an additional screening period to assess the needs of the homeless population and their use of the ED when weather conditions are harsh and it is more difficult to survive without a stable home. Future directions should aim to examine the prevalence of homelessness across the LVHN, beyond the ED. Information about the financial and insurance situations of LVHN patients should be examined to assess the use of medical resources by individuals of low socioeconomic status and those
under or uninsured. Additionally, information regarding reason for ED visitation should be examined in order to assess whether the homeless seek emergent or non-emergent care more often. This information will further increase knowledge about the importance of the street medicine program in reducing ED visitation by improving health of the homeless via follow-up treatment and accessible care.

By tracking the homeless population in the LVHN network-wide, strategies for reaching out to this population and encouraging preventative medicine can be improved. The hope would be to decrease emergency department use and hospital admissions within the homeless population for illnesses and injuries that could be prevented via primary care rather than allowing symptoms to worsen to need hospitalization. Ultimately, this will reduce the LVHN’s cost for uncompensated care and provide enhanced knowledge when budgeting LVHN financial aid. The current study should be continued to be integrated into ED care as a regular screening to promote better discharge plans and encourage outpatient care by homeless patients utilizing the ED for conditions that could be treated or prevented more cost-effectively.

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References


<table>
<thead>
<tr>
<th>At Risk for Homelessness</th>
<th>Total</th>
<th>17th Street</th>
<th>Cedar Crest</th>
<th>Muhlenberg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Homeless</strong></td>
<td>114 (7%)</td>
<td>45 (16%)</td>
<td>34 (5%)</td>
<td>35 (5%)</td>
</tr>
<tr>
<td><strong>Neither</strong></td>
<td>1447 (90%)</td>
<td>214 (78%)</td>
<td>618 (92%)</td>
<td>615 (92%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1616 (100%)</td>
<td>275 (100%)</td>
<td>673 (100%)</td>
<td>668 (100%)</td>
</tr>
<tr>
<td><strong>Total At Risk or Homeless</strong></td>
<td>169 (10%)</td>
<td>61 (21%)</td>
<td>55 (8%)</td>
<td>53 (8%)</td>
</tr>
</tbody>
</table>

Table 1. Prevalence of at risk for homelessness, homeless, neither, and total patients across emergency departments of the LVHN.

<table>
<thead>
<tr>
<th>Monday-Thursday</th>
<th>Total</th>
<th>17th Street</th>
<th>Cedar Crest</th>
<th>Muhlenberg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At Risk for Homelessness</strong></td>
<td>38 (4%)</td>
<td>11</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td><strong>Homeless</strong></td>
<td>81 (8%)</td>
<td>33</td>
<td>26</td>
<td>22</td>
</tr>
<tr>
<td><strong>Neither</strong></td>
<td>927 (89%)</td>
<td>152</td>
<td>348</td>
<td>427</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1046 (100%)</td>
<td>196</td>
<td>389</td>
<td>461</td>
</tr>
<tr>
<td><strong>Total At Risk or Homeless</strong></td>
<td>44/196 (22.4%)</td>
<td>41/389 (10.5%)</td>
<td>34/668 (5%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Friday-Sunday</th>
<th>Total</th>
<th>17th Street</th>
<th>Cedar Crest</th>
<th>Muhlenberg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At Risk for Homelessness</strong></td>
<td>17 (3%)</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td><strong>Homeless</strong></td>
<td>33 (5%)</td>
<td>12</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td><strong>Neither</strong></td>
<td>520 (91%)</td>
<td>62</td>
<td>270</td>
<td>188</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>570 (100%)</td>
<td>79</td>
<td>284</td>
<td>207</td>
</tr>
<tr>
<td><strong>Total At Risk or Homeless</strong></td>
<td>17/79 (21.5%)</td>
<td>14/284 (4.9%)</td>
<td>19/287 (9.1%)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Prevalence of at risk for homelessness, homeless, neither, and total patients broken down by weekend and weekday.
Figure 1. The overall prevalence of homelessness and at risk of homelessness across LVHN EDs.

Figure 2. Prevalence of positive screenings broken down across location showing a significantly more positive screenings at 17th Street than CC or MHC.
Figure 3. Prevalence of positive screenings between weekdays and weekends across location.
Appendix 1

To be explained to the patient:

Social issues related to health can seriously affect your personal wellness, and stable housing is an important part of anyone’s life. According to the National Health Care for the Homeless Council, 1.5 million Americans are homeless each year, with almost half that number experiencing homelessness on any given night. Through this project, we hope to find out the percentage of homeless patients who seek medical care in Lehigh Valley Health Network’s Emergency Departments and ask that you provide some brief answers to the questions below.

Your participation in this survey is entirely voluntary. If you choose not to participate or take the survey and change your mind, you may ask not to have your information included and it will not affect your care or your relationships with any of your health care team.

Housing stability screening questions:

In the last 60 days have you:

1. Been concerned about losing your housing?
   Yes □ No □

2. Changed residences more than twice?
   Yes □ No □

3. Lived with a friend or family member you do not normally reside with due to financial hardship?
   Yes □ No □

4. Been evicted or served an eviction notice?
   Yes □ No □

5. Slept outside, in an abandoned building, your car, in an emergency shelter, or in a motel due to financial hardship?
   Yes □ No □