

Research Article

Homeless Frequent Flyers: The Impact of Homelessness on Frequent Use of the Emergency Department

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Abstract

Frequent users of the emergency department (ED) are a diverse group of patients with a wide variation in demographics and socioeconomic status. Three point six percent of Medicaid enrollees account for 48.8% of total program spending and each “frequent flyer” has an average cost of above \$25,000 per patient per year [1]. This group is in general sicker, older and in need of medical intervention, however, there are frequent users who repeatedly present to the ED for low acuity issues. A study from the Washington University Department of Emergency Medicine in St. Louis demonstrated that while patients with between 3-20 ED visits per year had a higher acuity rate than the general ED population, that users presenting more than 20 times had lower acuity scores, were hospitalized for shorter periods and had longer stays in the ED [2].

The demographics of the group of high utilizers presenting more than 20 times a year, or ultra-high utilizers, is not well established [3], however homelessness has been shown to be a predictor of increased ED utilization [4]. Case management based interventions with a primary focus on housing have been shown to decrease health care utilization among the subset of frequent users who are homeless [5,6], and while these results are encouraging they have also been subject to criticism.

Frequent use of the ED in any given year is not a strong predictor of frequent use in subsequent years and studies that don't take this into account are biased towards showing positive results of an intervention. In studies from San Francisco General Hospital and a statewide analysis from Massachusetts, only 38% and 28.4 %, respectively, of frequent users from one year continued to be frequent users the next [7,8]. Interestingly, the data from San

Francisco General Hospital followed patients over the course of 5 years and found decreasing attrition rates from the group of frequent users indicating that there is a smaller population who might benefit most from intervention.

The homeless are a small subset of the population at risk for both poor health care outcomes and frequent health care utilization. This group is not static or homogeneous and changes greatly from year to year, making interventions difficult to target and harder to evaluate. In 2008 about 2 million Americans experienced homelessness, but only 19% were chronically homeless [9]. Furthermore, most frequent users of the ED are typically sicker than the average patient with data from Massachusetts showing higher rates of hospitalization and mortality [10]. Finding which patients are chronic, frequent and inappropriate users of the health system would help use identify those most likely to benefit from intervention and also represent the greatest cost saving to the system. Prior case management interventions for high utilizers have not been objectively shown to be cost effective, reproducible or achieve the desired clinical effect. The lack of evidence that such programs work may be due to the heterogeneity of the high user population in which various subsets will benefit from different types of intervention (the end stage congestive heart failure patient requires a different approach from a homeless alcoholic).

Methods

We performed a retrospective chart review looking at the records of the 100 most frequently seen patients in the ED for each year from 2005-2010 at a large, urban academic hospital with an annual volume of 55,000. Patient's visit dates, chief complaints, disposition and housing status were reviewed. Homelessness was defined by self-report at registration.

Patients were categorized according to their ED utilization, with those seen >4 and those seen ≥20 times in a given year identified as a High Utilizers and Ultra-High Utilizers, respectively. Patient who visited the emergency department >4 and those who visited the ED ≥20 times in at least three of the five years of the study were identified as Chronic High Utilizers and Chronic Ultra-High Utilizers, respectively.

Descriptive statistics with 95% confidence intervals were calculated, and comparisons were made using the fisher exact test to calculate odds ratio and the unpaired Student T test to test the difference in means.

Results and Discussion

During the 5 year study period, 189,371 unique patients were seen, of which 0.7% patients of were homeless. A list of the top 100 utilizers from each study year was compiled and a total of 335 patients were identified as patients on lists from multiple years. Twenty percent (95%CI 16-25%) of these patients were identified as homeless. One-hundred forty eight patients were chronic high utilizers and 16% of this group (95% CI 11-22%) were homeless, while 12 patients were Chronic Ultra-High Utilizers and 41% of the group (95% CI 19-68%) were homeless. Homelessness as predictive variable of ED utilization trended towards an increase in the likelihood of a patient being an ultra-high utilizer with an associated odds ratio of 3.0 (p=0.068). Furthermore, there is a statistically significant difference (p<.01) in the percentage of homeless among the Ultra-High Utilizers compared to the entire 335 patient group identified in this study. The demographic information of the 12 Chronic Ultra-High Utilizers is shown in Table 1 and Table II shows rates of homelessness by ED utilization.

Our facility has a 40% overall admission rate. However, of the chronic ultra-high utilizers, those who are non-homeless had an admission rate of 24% compared to 14% for the homeless.

Table I. Demographics of Ultra-High Utilizers (n=12)

Gender	
Male	5 (42%)
Female	7 (58%)
Average Age	47.8
Ethnicity	
White	5 (42%)
Black	5 (42%)
Hispanic	2 (17%)
Education	
Some High School	2 (17%)
High School Grad	4 (33%)
College or Vocational	6 (50%)

Table II. Effects of Housing Status on ED Utilization

		Homeless	Not Homeless
General Population	ED	0.7%	99.3%
Chronic Utilizers	High	16%	84%
Chronic Utilizers	Ultra-High	41%	59%

Chronic Ultra-High Utilizers of our ED are disproportionately homeless compared to the study group (p<.01) and are admitted less frequently. Treating abdominal pain and observing intoxicated patients until sober (Table III) does not address the underlying issues which brought these patients to the emergency department. Chronic Ultra-High Utilizers are a particularly appropriate group to house or otherwise involve with aggressive case management as our traditional physician driven model at best provides short-term relief.

As demonstrated in the introduction, the frequent flyer population is variable from year-to-year, and research has suffered by not clearly defining the groups that would most benefit from interventions. A recent systematic review of ED case management interventions showed only one of three randomized controlled trials reduced ED utilization among frequent utilizers and none attained statistical significance in regard to clinical outcomes [11]. The lack of evidence that such programs work may be due to the heterogeneity of the high user population in which various subsets will benefit from different types of intervention (the end stage congestive heart failure patient requires a different approach from a homeless alcoholic).

Table III. Chief Complaint of Each of the 12 Ultra-High Utilizers

Homeless	Non Homeless
Alcohol intoxication	Asthma
Migraine	Gastroparesis
Abdominal Pain	Body Pain
Alcohol intoxication	Pancreatitis
Abdominal Pain	Migraine
	Abdominal Pain
	Sickle Cell Pain

Conclusion

Chronic Ultra-High Utilizers of our ED are a disproportionately homeless group (p<.01) whose underlying reasons for seeking care are often not well addressed in the emergency department. Focusing on a small, well defined group of Ultra-High Utilizers will build on previous research showing encouraging results for case management programs such as housing [12], and hopefully create an evidence base for scalable action.

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