

Background

- Hotspotting in healthcare is a method of targeting super-utilizers of the Emergency Department (ED) with the goal of intervention, based on the work of the Camden Coalition and Dr. Jeffrey Brenner.
- The benefits of these interventions include better quality care for patients (pt) and health care cost reduction.

Goals

- Follow 2 patients over the course of 2 weeks
- Identify common patient trends and needs
- Propose interventions to improve these patients' quality of life and reduce ED visits

Super-Utilizer Criteria

Inclusion:

- 2 or more admissions in past 6 months
- 3 or more of the following conditions:
 - 2 or more chronic conditions
 - 5 or more medications
 - Barriers to accessing care (language, low health literacy, non compliant)
 - Lack of social support
 - Drug use
 - Homelessness
 - Uninsured

Exclusion if admission is:

- Oncology related
- Pregnancy related
- Surgical procedure due to acute problem
- Complication of progressive chronic disease with limited treatment
- For mental health w/o comorbid conditions
- To treat acute disease only

Acknowledgements

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References

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- Gawande, A. (2011). The hot spotters. *The New Yorker*, 86(45), 40-51.
- Roski, J., Bo-Linn, G. W., & Andrews, T. A. (2014). Creating value in health care through big data: opportunities and policy implications. *Health affairs*, 33(7), 1115-1122.
- Soarian financials

Patient Trends:

- The medical records of two super-utilizers followed were analyzed over one year.
- Combined total of 189 visits (60 and 129 respectively) to the UMass Emergency Department UMass (Figure 1).
- Top 3 chief complaints for:
 - Pt 1: Chest pain, dyspnea, and musculoskeletal pain
 - Pt 2: Abdominal pain, nausea, and vomiting
- Costs of each ED visit ranged from an estimated \$1,660 to \$4,210 (Figure 2).

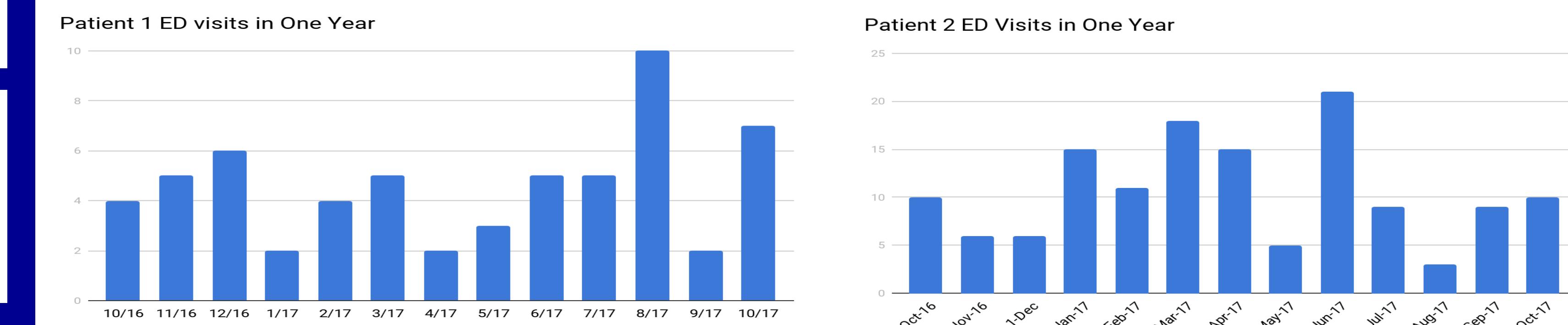


Figure 1. Number of ED visits over one year by month

Pt 1 Chief Complaint	Procedure	Cost (\$)	Total Cost (\$)
Chest pain	Radiology	512.00	4,119.07
	Chemistry labs	714.00	
	Pharmacy	1.07	
	Lvl 5 ED Visit	2,892.00	
Dyspnea and Dizziness	Lvl 3 ED Visit	1,660.00	1,660.00

Pt 2 Chief Complaint	Procedure	Cost (\$)	Total Cost (\$)
Nausea, Vomiting, Abdominal pain	Pharmacy	1099.59	4,209.59
	Chemistry Labs	713.00	
	Lvl 4 ED Visit	2,397.00	
Abdominal Pain	Lvl 3 ED Visit	1,660.00	1,930.00
	Chemistry Labs	240.00	
	Pharmacy	30.00	

Figure 2. Example of Itemized Cost per ED visit in 2017

	Patient 1	Patient 2
Insurance	Medicaid	Medicaid
Housing	Homeless/Sober house	Subsidized housing
Employment	None since 2011	Retired with volunteering
PCP	Yes (inconsistent)	Yes
Case Manager	Yes	Yes (community healthlink)
Mental Health	Psychiatrist only	Psychiatrist and Therapist
Food Access	Food stamps	Food stamps, runs out
Transport	Bus	Taxi
Monthly income	~\$750 / month	~\$1200 / month
Social support	None	Limited

Figure 3. Patient Needs Assessment Table

Common Patient Concerns

- Housing**
 - Pt 1 feels that her housing situation is unsafe, and is a significant source of stress.
 - Pt 2 recently moved to an independent subsidized home, but misses structure and socialization as in prior assisted home.
- Socialization**
 - Pt 1 lacks support system and skills to cope with stress and pain.
 - Pt 2 has inconsistent social support and unhealthy family relationships. Often presents to ED for social contact and attention.
- Life structure and organization**
 - Pt 1 has history of canceling appointments and no-shows, and is unwilling to see therapists.
 - Pt 2 has poor financial management, spending a large portion of monthly income on frequent taxi rides to the ED.

Proposed Interventions

- Housing**
 - Contact existing social worker and case manager to evaluate status on housing applications.
- Socialization**
 - Encourage patient to contact hotspotting team for urgent social needs.
 - Explore potential day programs that patient may be eligible for:
 - Genesis Club (Worcester, MA)
 - Seven Hills Foundation (CBDS and ADH programs)
 - Explore patient's willingness to volunteer to get them out into the community (e.g., animal shelter).
- Structure**
 - Propose to accompany patient to their appointments.
 - Perform motivational interviewing to explore patient's willingness to seek PCP and reasons for refusal of particular health services.
- Self-Management**
 - Provide skills for managing diabetes, hypertension, and weight (e.g., BP monitoring at home and diet).
- Shared integrated care plan**
 - Identify in collaboration with patient, goals of care (medical and social).
 - Specify actions, schedule to track progress, and timeline.

Challenges

- Coordination of care:** lack of medical records and communication between St. Vincent's, UMass, and third-party social services.
- Lack of willingness to engage medical students:** healthcare team members are often hesitant to work with students for reasons such as HIPAA.
- Qualifications/eligibility criteria for social services:** ED super-utilizers often do not meet the numerous qualifications set forth by social programs and services. Examples include Medicare coverage, age, and diagnosed disability or mental health conditions.
- Repeated outpatient cancellations and "no-shows":** some health care providers are unwilling to work with patients who repeatedly fail to attend their appointments, which exacerbates patients' access to PCP care.
- High emotional and social needs:** ED super-utilizers often need a level of social support and companionship that students and care providers cannot consistently meet.