INADEQUATE ACCESS TO CARE MAY BE ASSOCIATED WITH LONG ED STAYS FOR BEHAVIORAL HEALTH PATIENTS

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INTRODUCTION

- The incidence of emergency department (ED) boarding, in which patients spend extended periods of time in the ED, has grown in Massachusetts and nationwide. ED boarding is typically caused by inadequate access to follow-on care rather than need for ED-level services.
- The Massachusetts Executive Office of Health and Human Services convened an ED Boarding Working Group that defined boarding as a length of stay in the ED of 12 or more hours from a patient's time of arrival to the ED to his/her time of departure.
- The problem of ED boarding is particularly acute for patients with behavioral health (BH) disorders.
  - The vast majority of ED boarders in Massachusetts have a BH-related primary diagnosis. Despite the fact that patients with primary BH diagnoses comprised 7% of all ED visits in 2015, they accounted for 57.5% of all ED boarders.
- ED boarding negatively affects the quality of ED care. BH-related boarding, in particular, is potentially harmful to patients as external stimuli from busy EDs often increase patient anxiety, agitation, and aggression.[1] ED boarding is also associated with patients leaving the ED before receiving treatment, which increases BH patients' risk of self-harm and suicide.[2] Finally, ED boarding is both costly and can affect other patients by contributing to overcrowding and consuming ED resources, which can delay treatment for other patients.

OBJECTIVE

- To understand the trends in and characteristics of BH-related ED boarding.
- To understand the factors associated with boarding for patients with primary mental health-related diagnoses.

STUDY DESIGN

DATA

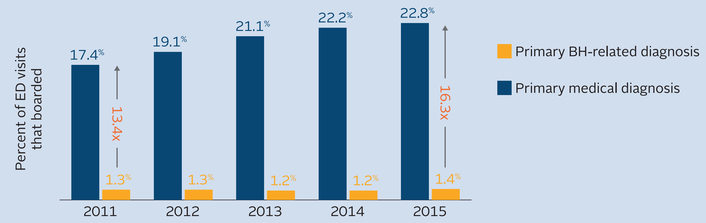
- We used the Center for Health Information and Analysis' (CHIA) Emergency Department Database from 2011 to 2015 (10/1/2011- 9/30/2015). Included in the data are all outpatient ED visits, including Satellite Emergency Facility visits. Excluded from the data are outpatient ED visits that resulted in an outpatient observation stay or an inpatient admission of the patient at the reporting facility. Based on rough comparisons to hospital-level data collected from the Department of Public Health that included patients admitted to the same hospital, we estimate that 10 to 13% of BH ED boarders did not appear in CHIA's ED database because of these exclusions.
- We identified BH-related ED visits using the ED Algorithm developed by John Billings and colleagues at New York University.[3] Any visit with a Billings' classified mental health, substance abuse, or alcohol-related primary diagnosis code was included.
- We also used data on the number of BH providers and inpatient psychiatric beds per region from the Massachusetts Department of Public Health. Provider data includes psychiatrists, psychologists, psychiatric APRNs, and other mental health providers. Inpatient psychiatric beds data includes beds in acute free-standing, general, and state-operated hospital beds.

ANALYSIS

We examined trends in ED boarding for patients with primary BH-related diagnoses. We also analyzed the probability of ED boarding for patients with primary mental health-related diagnoses, controlling for median community income, time of arrival to the ED, number of medical diagnoses, number of BH-related diagnosis, age category, payer, gender, number of BH providers per 10,000 population in a patient's region of residence and number of BH beds per 100,000 in a patient's region of residence.

RESULTS

From 2011 to 2015, the percentage of ED visits with a primary BH-related diagnosis that resulted in boarding grew steadily - from 17.4% to 22.8%. Meanwhile, the percentage of visits without primary BH diagnoses that resulted in boarding remained constant at roughly 1%. Overall, in 2015, a patient with a BH diagnosis was 16.3 times more likely to board than a patient without a BH diagnosis.



Analyzing 87,412 ED visits with a primary mental health-related diagnosis in 2015, we found that 28% of patients boarded. Some factors that affected a patient's probability of boarding included:

- *Time of arrival to the ED:* compared to patients who arrived to the ED between the hours of 8AM to 12PM, patients arriving between the hours of 4PM and 8PM and 8PM and 12AM were 17 and 22 percentage points more likely to board, respectively.
- *Age:* compared to adults, teenage patients (ages 12-17) were 4 percentage points more likely to board.
- *Payer:* compared to commercial patients, Medicare and Medicaid patients were 8 and 7 percentage points more likely to board, respectively.
- *Gender:* compared to men, women were 5 percentage points less likely to board.
- *Supply of BH providers and psychiatric beds:* a 10% increase in BH providers in a patient's region decreased his/her likelihood of boarding by 2.4 percentage points. Meanwhile the number of the number of psychiatrics beds in a patient's region had minimal effects on his/her likelihood of boarding.

	CHANGE IN PROBABILITY (mean probability of sample is 0.267)
TIME OF ARRIVAL TO ED (Comparison group: 8AM to 12PM)	
12PM to 4PM	0.07*
4PM to 8PM	0.18*
8PM to 12AM	0.22*
12AM to 8AM	0.04*
NUMBER OF MEDICAL DIAGNOSES	0.00
NUMBER OF BH-RELATED DIAGNOSES	0.09*
AGE (Comparison group: adults, ages 18-64)	
Children (ages 0-11)	-0.06*
Teens (ages 12-17)	0.04*
Seniors (ages 65+)	-0.04*
PAYER (Comparison group: commercial)	
Medicare	0.08*
Medicaid	0.07*
Uninsured	0.04*
MEDIAN COMMUNITY INCOME (Comparison group: less than $50,000)	
$50,000-$69,000	0.01
$69,000-$87,000	0.01*
More than $87,000	0.03*
FEMALE	-0.05*
NUMBER OF BH PROVIDERS PER 10,000 POPULATION	-0.02*
NUMBER OF PSYCHIATRIC BEDS PER 100,000	0.00*

*denotes p<0.5

CONCLUSIONS

- ED boarding for patients with primary BH-related diagnoses is a growing concern in Massachusetts.
- The time of day a patient with a primary mental health-related diagnosis arrived to the ED greatly impacted their likelihood of boarding.
- Of patients with a primary mental health-related diagnosis, teenagers and those covered by public payers were particularly likely to board.
- A 10% increase in the number of BH providers in a patient's region of residence is associated with a 2.4 percentage point reduction in likelihood of boarding.
- The minimal effect that psychiatric beds in a patient's region had on his/her likelihood of boarding is ultimately not surprising as patients are often sent to any open bed in the state, regardless of whether it is conveniently located to the patient's home.

POLICY IMPLICATIONS

- Despite being a relatively BH-provider-rich state, evidence suggests that demand for BH services exceeds the state's BH capacity, and that some BH patients in Massachusetts lack access to timely care when they need it. One option available to policymakers is to increase the number of providers by investing in training, recruitment, and retention programs.
- Massachusetts should consider expanding mental health services targeted to teenagers. This may include expanding and improving access to outpatient mental health services and inpatient beds. Increasing outpatient services for teenagers may not only prevent patients from using the health system's safety net (the ED), but some psychiatric emergencies that eventuated in ED care would likely have been preventable with effective outpatient treatment.[4] While we found a minimal effect that psychiatric beds in a patient's region had on his/her likelihood of boarding, qualitative analysis from ED providers suggests that psychiatric bed availability is particularly constrained for teens. Expanding the number psychiatric beds available to teenage patients will likely reduce ED lengths of stay for teens that waiting to be admitted to inpatient care.
- There are also hospital-level interventions that may reduce ED boarding. For example, many hospitals have sought to reduce ED boarding by focusing on improving access to psychiatrists in the ED through the use of telepsychiatry, which allows for psychiatric assessment and care through videoconferencing.[5] Telepsychiatry can shorten ED lengths of stay by providing consultations for BH ED patients when staff psychiatrists are otherwise unavailable (often during nights and weekends). As a result, patients can be assessed when they present to the ED instead of having to wait for staff psychiatrists to become available.

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1. Hawton JF, Weitzel H. Deliberate self-harm patients who leave the accident and emergency department without a psychiatric assessment: a neglected population at risk of suicide. Journal of Psychosomatic Research. 2001; 50(2): 87–93.
2. Weiss AP, Chang G, Rauch SL, et al. Patient and practice related determinants of emergency department length of stay for patients with psychiatric illness. Annals of Emergency Medicine. 2012; 60(2):162-171.
3. Billings, J. Emergency Department Use in New York City. NYU Wagner School's Center for Health and Public Service Research. 2000. Available from: http://wagner.nyu.edu/faculty/billings/nyued-background.
4. American Hospital Association. Bringing behavioral health into the care continuum: opportunities to improve quality, costs, and outcomes. Chicago (IL) American Hospital Association Trendwatch; 2012, Jan.
5. Williams M, Pfeffer M, Boyle J. Telepsychiatry in the emergency department: overview and case studies. Oakland (CA): California Healthcare Foundation; 2009 Dec.

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