Mental Health ED Boarding

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Steward Health Care
Mental Health ED Boarding

- MA survey 2012
  - 100% ED directors reported boarding of psych pts
  - 85% daily basis
  - 50% increasing yearly since 2007

- Consumes ED resources

- Prolongs wait times for all patients

- Increase elopements and Left w/o Being Seen rates

- Reduced # ED beds available to accommodate surges

- Quality of Care: suffers (milieu, lack ongoing MH care)
  - no psychiatric care/intervention undertaken

  “Boarders without doctors”
‘Point in Time’ Results

- MACEP conducted an 8AM “point in time survey” of all EDs in MA in March, April and July of 2011
  - How many boarders? * Hours since decision to admit?
- Findings:
  - 16% (1 in 6) of ED beds are filled with mental health patients awaiting admission
  - On average 39% boarded in the ED for more than 24 hours
  - 10% boarded in the ED for more than 3 days
  - 2.5% boarded in the ED for more than 5 days

<table>
<thead>
<tr>
<th>Date</th>
<th>% of EDs responding</th>
<th># of Boarders</th>
<th># of hours</th>
<th>% of ED beds</th>
<th>Mean hours boarding</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/21/11</td>
<td>69%</td>
<td>149</td>
<td>5269</td>
<td>14%</td>
<td>35</td>
</tr>
<tr>
<td>4/21/11</td>
<td>94%</td>
<td>180</td>
<td>5335</td>
<td>13%</td>
<td>29</td>
</tr>
<tr>
<td>7/11/11</td>
<td>75%</td>
<td>111</td>
<td>3752</td>
<td>16%</td>
<td>33</td>
</tr>
<tr>
<td>2/20/15</td>
<td>79%</td>
<td>192</td>
<td>5547</td>
<td>16%</td>
<td>26</td>
</tr>
</tbody>
</table>
ED Beds: BH Boarders

Mean % ED Beds to BH Boarders

1/18 patients present to ED with MH Dx

1 in every 5.5 patients that occupies a bed in the ED have MH Dx

Maxed at 54% bed occupancy in an ED with 185 pt/day volume
Are we Over or Under Bedded?
Total BH Boarders by Region
Mal-distribution

REGION 5: 16 % population yet 32% of MH boarder burden
MACEP Grant

Understand Causes MH LOS and Boarding

- Two week time frame: Jan/Feb 2012 (f/b future date TBD)
- 2 Hospitals per geographic region
- teaching/community/city/rural
- ED volume
  - 37K – 115K
  - 630K visits per year
  - ~22% MA ED volume
Data fields

- Race
- Ethnicity
- Mode
- Insurance
- Date/Time
  - Arrival
  - MH request
  - MH arrival
  - Bed Request
  - Departure
- Medical Assessment
  - Lab tests
  - Active Etoh
  - Active substance abuse
  - Active medical problem
- Psych Dx
- Close obs/restraints
- Dispo:
  - Inpt, observ, discharge: setting
    - Hospital unit vs Free standing
    - location
Data Fields (cont)

- Primary MH clinician:
- Secondary MH clinician (if applicable)
- Past medical Hx
  - Specific Dx
- Past Social Hx
  - Aggression, imprisonment, homeless, developmental disability, sexual offender
  - Recent psych admission
- Pre Hospital MH eval
  - Bed search initiated pre arrival
Data Findings

- 872 study patients
- Primary Analysis
  - ED process time analysis
  - Predictors of LOS
- Other conclusions
Summary of Results: Gender

Length of Stay (p=0.171)

Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Length of Stay in ER: Hours</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>17.3 hours</td>
<td>472</td>
</tr>
<tr>
<td>Female</td>
<td>15.7 hours</td>
<td>395</td>
</tr>
</tbody>
</table>

17.3 hours, N=472
15.7 hours, N=395
Summary of Results: Ethnicity

Length of Stay in ER: Hours

- White: 17.2 hrs, N=613
- African American: 15.3 hrs, N=104
- Hispanic: 14.0 hrs, N=111
- Other: 16.9 hrs, N=28
Summary of Results:
Insurance as strong predictor

<table>
<thead>
<tr>
<th>Insurance Type</th>
<th>Length of Stay in ER: Hours</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td>12.9 hrs</td>
<td>162</td>
</tr>
<tr>
<td>Medicare</td>
<td>13.7 hrs</td>
<td>70</td>
</tr>
<tr>
<td>Any State</td>
<td>17.2 hrs</td>
<td>507</td>
</tr>
<tr>
<td>Uninsured/Self</td>
<td>20.8 hrs</td>
<td>91</td>
</tr>
</tbody>
</table>
Summary of Results

Strong predictor LOS (Wednesday short: Fri/Sat long)

<table>
<thead>
<tr>
<th>Day</th>
<th>Length of Stay (hrs)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT</td>
<td>21.9 hrs</td>
<td>93</td>
</tr>
<tr>
<td>FRI</td>
<td>21.2 hrs</td>
<td>124</td>
</tr>
<tr>
<td>THU</td>
<td>15.5 hrs</td>
<td>122</td>
</tr>
<tr>
<td>WED</td>
<td>12.75 hrs</td>
<td>151</td>
</tr>
<tr>
<td>TUE</td>
<td>15.5 hrs</td>
<td>134</td>
</tr>
<tr>
<td>MON</td>
<td>14.8 hrs</td>
<td>150</td>
</tr>
<tr>
<td>SUN</td>
<td>17 hrs</td>
<td>94</td>
</tr>
</tbody>
</table>
LOS By Shift

Strong association Length of Stay (p=0.013)

- 7a-3p Shift
- 3p-11p Shift
- 11p-7a Shift

N = 308
N=421
N=139
## LOS by region

### EMS Region
1. Cooley Dickinson  
   Bay State Medical
2. U Mass  
   Milford Whitinsville
3. Lawrence General  
   Lowell General
4. BIDMC  
   Steward Quincy Medical
5. Sturdy Hospital  
   Brockton Hospital

### ED Arrival to ED Departure

<table>
<thead>
<tr>
<th>Region Number</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13.46</td>
</tr>
<tr>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>18.6</td>
</tr>
<tr>
<td>5</td>
<td>21.2</td>
</tr>
</tbody>
</table>

[Bar chart showing the hours for each region]
Summary of Results

Length of Stay (p<0.001)

Disposition

- Pre-arranged, but discharged: 20 hrs N=11
- Admitted, not pre-arranged: 20.5 hrs N=449
- Discharged: 12.2 hrs N=369
- Pre-arranged, admitted: 14.75 hrs N=39

*Note the 25% reduction with pre-arranged bed*
Summary of Results

Times between each of the following steps in the patients ED visit were calculated to identify bottlenecks.

- **Arrival Time**
- **MH consult obtained**
- **MH consult arrival**
- **MH consult complete**
- **ED departure**
- **ED Boarding**
- **Evaluation time (Bed Request)**
- **Mental Health Response Time**
- **Medical Clearance**
- **Triage**
Those patients without pre-arranged beds had mean LOS of **20.1 hours**
Dual Diagnoses

Active alcohol and drug abuse prolong ED length stay

**Active Alcohol Abuse**
- 20 hrs, N=222
- 15.5 hrs, N=619

**Active Drug Abuse**
- 20.7 hrs, N=289
- 14.3 hrs, N=539
Mean LOS Social Complexities

**Aggression**

- **LOS in ER: Hrs**
  - **No**: 16.3 hrs
  - **Yes**: 20.4 hrs

**Incarceration**

- **LOS in ER: Hours**
  - **No**: 16.3 hrs
  - **Yes**: 23.8 hrs

**Previous Psych Admission**

- **LOS in ER: Hours**
  - **No**: 15.8 hrs
  - **Yes**: 24.5 hrs

**Sexual Offender**

- **LOS in ER: Hrs**
  - **No**: 16.4 hrs
  - **Yes**: 58.8 hrs
Parity?

Length of Stay: Admissions (includes Geripsych)

- Med Surg: 5.5 hrs
- Psych: 16.5 hrs

Length of Stay: Transfers

- Med Surg: 5.2 hrs
- Psych: 21.5 hrs
Other tidbits

- NO significant differences between Boarding times and LOS as related to all clinical/social variables studied
- Age weakly associated with slightly increased LOS, until age > 65 then lower LOS
- Lab tests performed 85% pts; had significantly longer LOS (17h vs 11h)
- Adjustment and Anxiety D/O: lowest LOS of all Dx (mood, psychoses, substance)
- 98% required close observation (~13,000 hours)
- 2% required physical restraints (long LOS)
- Pregnant patients: shorter LOS (Low ‘n’)
Challenges/Opportunities

- MH boarders not blind to insurance (!)
- MH is primarily a banker’s week system: in/outpt
- Certain difficult to place pt profiles (medical co morbidities, dual diagnosis, recidivists, incarcerated, homelessness, aggression (+/-))
  - High acuity/’specializing’ units desirable
- Lack of parity (Prior authorization)