Crowding in the Emergency Department: Assessing Relationship with Worker-Directed Violence

Laetitia Zhang¹, Karl Jablonowski, MS³,4,5, Marie C. Vrablik, MD, MCR [mentor]²,3,4,5

1: School of Arts and Sciences, Johns Hopkins University 2: Harborview Injury Prevention & Research Center 3: School of Medicine, University of Washington 4: Harborview Medical Center 5: University of Washington Medical Center

Background

- Violence in the emergency department (ED) affects 1 million workers nationwide¹
- Costly impact of occupational violence, including 
  - Financial burden on industry
  - Emotional burden on the victim
  - Rising occupational injury rates indicate inadequacy of current interventions²
- Crowding in the ED associated with adverse consequences
  - Increased length of stay, compromised care, and high stress³
  - Potential association between occupancy rates and rates of ED violence⁴
- Knowledge gaps exist in understanding factors contributing to ED violence
  - Violent events severely underreported
  - Limited studies on environmental circumstances including crowding
  - Previous studies rely on retrospective study design³

Aims

- Obtain a more complete understanding of worker-directed violence in the ED through direct observation
- Compare crowding on days with and without observed violent events

Methods

- Direct observation
  - Setting: Harborview Medical Center (HMC) ED
  - Convenience sampling
  - Recorded violent events, defined as acts of aggression
  - Directed against healthcare workers
  - Perpetrated by patient or visitor
  - Types of aggression
    - Verbal (e.g. yelling at provider, cussing, derogatory statements)
    - Physical (e.g. threatening gestures, kicking, punching, biting)

Comparing Crowding Metrics

- Total patients
- Time to bed
- Length of stay (LOS)
- Boarder hours

Data collection days

- Violent: having one or more violent events within collection period
- Nonviolent: having no violent events within collection period

- Compared difference in daily metrics from monthly averages to adjust for seasonal fluctuation in crowding

Results

Table 1. Observation summary

<table>
<thead>
<tr>
<th></th>
<th>Total hours (hr)</th>
<th>Average collection period (hr)</th>
<th>Total days (dy)</th>
<th>Violent (dy)</th>
<th>Nonviolent (dy)</th>
<th>Total events</th>
<th>Violent Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation Days</td>
<td>123</td>
<td>5.6</td>
<td>22</td>
<td>15</td>
<td>7</td>
<td>29</td>
<td>4.2</td>
</tr>
<tr>
<td>Total events</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td>Violent events</td>
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</tbody>
</table>

Conclusions

- Mixed results concerning relationship between crowding and violence
  - Higher crowding on nonviolent days indicated by time to bed
  - No significant difference indicated by other metrics
  - May not be a compelling approach to address ED worker-directed violence by targeting crowding

Limitations

- Unrecorded events due to convenience sampling
- Limited indication of crowding at the time of the event
- Inability to access monthly averages for June 2017 and July 2017
  - Used monthly metrics from previous year
  - May underestimate LOS and overestimate boarder hours
- Does not reflect staffing or other factors that may influence burden on the ED

Next Steps

- Continue needs assessment of ED worker-directed violence
  - Abstract crowding metrics from hours leading up to each event
  - Increase observation hours
  - Compare other ED settings
  - Investigate patient-level characteristics
  - Offer evidence-based recommendations for intervention toolkit

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References