Overcapacity Protocols for Hospital Access Block

Grant Innes, MD
The Face of Access Block

• A 37 yr old female with presents with chest pain. At triage she seems stable. There are 24 admitted patients in the ED and no available stretchers so she is triaged back to the waiting room.

• After ~ 6 hrs, just as she is being moved to a stretcher, she complains of sudden dyspnea and collapses.

• Respirations agonal, P=144, BP=50 and O₂ sat = 82%.

• Resuscitation unsuccessful. Diagnosis: Massive PE

Access Block = Inability to provide timely care
Introduction

• Hospital access block is the main cause of ED access block

• Hospital and Emergency access block (a.k.a. crowding) are associated with multiple adverse outcomes

• Overcapacity protocols (OCP) that ‘push’ admitted patients to inpatient units during overcrowding can reduce delays to inpatient care and free up ED stretchers for arriving sick patients
Concept: Program Accountability?

1. **Timely assessment and disposition**: e.g. . .
   - ED is accountable for EMS patients, referred patients and walk-in patients
   - Hospital programs accountable for patients referred for admission
   - Community/Long-term care programs accountable for ALC patients

2. Provide **budget, space, nursing care** for pts requiring admission

3. Have **contingency plans** addressing volume surges, off-hours care needs and access challenges

4. **Queue management**: If access is a program accountability, programs are responsible to manage their queue
Queue Management ??

Management by Closing Doors
(“SORRY! We’re Full . . .”)

Systematic downloading of pt care to less effective, more expensive locations is a form of accountability failure

Wrong-service queuing is a sign of system failure to be corrected
Key Concepts in Hospital Flow
ED LOS for Admitted Patients

In an ED with 20,000 admitted pts/year:

- 4 hour LOS = 80,000 ED stretcher hours
- 8 hour LOS = 160,000 ED stretcher hours
- 12 hr. LOS = 240,000 ED stretcher hours
- 16 hr. LOS = 320,000 ED stretcher hours
- 20 hr LOS = 400,000 ED stretcher hours
Who’s in?
- Uncle Bob: Day 5 on tele. Stable. Waiting for thallium scan
- Aunt Audrey: Stroke-day 4 / facial droop / getting education
- Clive: Refusing Discharge to LTC facility
- Mabel: Cant go home: has 3 stairs to get into her house
- Elderly with behavioural problems- unacceptable to LTC
- Young man: IV antibiotics for osteo –smoking outside hospital

Who can’t get in?
- AMI-needs emergent revascularization
- Necrotizing fasciitis – needs rapid surgical debridement
- Massive PE – needs heparin/lytics
- Subdural – needs CT and surgical evacuation
Perverse allocation of resources

- Hallways and waiting rooms for seriously ill, undiagnosed untreated patients
- Beds, nurses and excellent care for stabilized patients who no longer require hospital-based care

The sickest patients (who need acute hospital-based care) should have priority for acute care spaces
#1 Problem: Compromised flow

St. Paul's Hospital

Patients in the ED

Physical stretchers
Flow Models: “Push” or “Pull”

**Pull System**: (current)
- Pts wait outside. Providers ‘pull’ when ‘ready’
- Readiness is based on perceived capacity under preferred operating conditions – not on patient need

**Provider-focused**: Pts suffer the consequences of program shortfalls

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**Push System**: (Patient need drives flow)
- The patient becomes the accountability of the “right program” when they need that program’s care

**Patient-focused**: Programs adapt to meet patient needs

Push systems provide evolutionary stress necessary to drive system change
How Big is the Problem? (ED Access Block at FMC)

80,000 hrs
How big is the solution?  
(Funded care hours at FMC)

FMC Funded Care Hours:  
8,000,000 care hours!!!

ED Access Block:  
80,000 hrs

Efficiency is Critical!
The Perfect Access Solution would

• Drive program **accountability** for patient care
• Increase **appropriateness:** sick pts in; stable pts through
• **Reduce risk:** Move sick patients out of hallways
• Enhance rapid **FLOW** during peak periods
• Be an evolutionary stressor to drive **efficiency**
• Be an **overcapacity plan** for high demand periods
Alberta Provincial Overcapacity Protocol
**ED Inflow:**
1) Arriving CTAS 2/3 patients will move within 15/30 min into an ED acute care space.
2) If no ED space available, patients will move to an ED overcapacity or intake space so care can be initiated.

**Hospital Inflow:** If . . .
- a) ED is overcapacity by 10%, and
- b) 35% of ED stretchers are blocked, and
- c) arriving patient needs stretcher-based care

The most stable admitted patients go to OCP spaces on the most appropriate inpatient units.
Research Overview

**Population**: all adult ED patients in 14 urban or regional hospitals

**Intervention**: Post-OCP (Feb.1-Sep 30, 2011).

**Control**: Pre-OCP (Feb.1-Sep 30, 2010).

**Outcome**: ED LOS (ADM pts); # boarded patients; left without being seen (LWBS); patient satisfaction

**Design**: Before-after multi-center study.
## Results

~1.2 Million patient visits studied

<table>
<thead>
<tr>
<th></th>
<th>Pre-OCP</th>
<th>Post-OCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>579,071</td>
<td>615,787</td>
</tr>
<tr>
<td>Admission rate</td>
<td>12.9%</td>
<td>13.1%</td>
</tr>
<tr>
<td>EMS arrival %</td>
<td>17.9%</td>
<td>18.3%</td>
</tr>
<tr>
<td>% CTAS 1-3</td>
<td>62.5%</td>
<td>63.2%</td>
</tr>
<tr>
<td>Hospital AvLOS (d)</td>
<td>7.0 d</td>
<td>6.8 d</td>
</tr>
</tbody>
</table>
Results

**Primary outcomes:**

• Mean ED LOS (ADM pts) fell by 33% (17.2 to 11.6 hr.)

• Mean # of admitted pts at 10am fell by 46% (11.3 to 6.1)

**Secondary outcomes:**

• Wait time to MD fell from 113.2 min to 99.3 min

• LWBS rate fell from 4.0% to 3.8%.

• OCP effects sustained over time; but varied by site

*All differences significant at p<0.001 (sample size)
<table>
<thead>
<tr>
<th>Site</th>
<th>Admissions Pre OCP</th>
<th>Admissions Post OCP</th>
<th>Access benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean LOS</td>
<td>N</td>
</tr>
<tr>
<td>FMC</td>
<td>10976</td>
<td>15.2</td>
<td>12215</td>
</tr>
<tr>
<td>PLC</td>
<td>6904</td>
<td>16.7</td>
<td>7315</td>
</tr>
<tr>
<td>RGH</td>
<td>8435</td>
<td>19.9</td>
<td>9505</td>
</tr>
<tr>
<td>RDRH</td>
<td>5248</td>
<td>16.7</td>
<td>5588</td>
</tr>
<tr>
<td>GNCH</td>
<td>4060</td>
<td>29.3</td>
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</tr>
<tr>
<td>MCH</td>
<td>3497</td>
<td>27.7</td>
<td>3718</td>
</tr>
<tr>
<td>RAH</td>
<td>8463</td>
<td>23.1</td>
<td>9187</td>
</tr>
<tr>
<td>SCH</td>
<td>1949</td>
<td>30.9</td>
<td>2249</td>
</tr>
<tr>
<td>UAH</td>
<td>11403</td>
<td>17.2</td>
<td>11981</td>
</tr>
<tr>
<td>All</td>
<td>60,935</td>
<td>21.8</td>
<td>66,107</td>
</tr>
</tbody>
</table>

*Stretcher hours freed up for ED inflow = ΔLOS (per admitted pt) x Number of admissions
Mean N of admitted patients held (at 9 sites with pre-existing access block)

<table>
<thead>
<tr>
<th>Site</th>
<th>Pre-OCP</th>
<th>Post-OCP</th>
<th>Delta</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMC</td>
<td>16.8</td>
<td>5.8</td>
<td>11.0</td>
<td>-65.6%</td>
</tr>
<tr>
<td>PLC</td>
<td>12.6</td>
<td>5.2</td>
<td>7.3</td>
<td>-58.3%</td>
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<tr>
<td>RGH</td>
<td>19.5</td>
<td>9.1</td>
<td>10.4</td>
<td>-53.5%</td>
</tr>
<tr>
<td>RDRH</td>
<td>9.7</td>
<td>6.3</td>
<td>3.4</td>
<td>-35.2%</td>
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<tr>
<td>GNCH</td>
<td>14.0</td>
<td>6.3</td>
<td>7.7</td>
<td>-55.2%</td>
</tr>
<tr>
<td>MCH</td>
<td>13.4</td>
<td>5.9</td>
<td>7.4</td>
<td>-55.6%</td>
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<tr>
<td>RAH</td>
<td>23.4</td>
<td>13.7</td>
<td>9.7</td>
<td>-41.3%</td>
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<tr>
<td>SCH</td>
<td>8.1</td>
<td>6.0</td>
<td>2.1</td>
<td>-25.8%</td>
</tr>
<tr>
<td>UAH</td>
<td>11.7</td>
<td>8.1</td>
<td>3.6</td>
<td>-30.6%</td>
</tr>
<tr>
<td><strong>All</strong></td>
<td><strong>14.4</strong></td>
<td><strong>7.4</strong></td>
<td><strong>7.0</strong></td>
<td><strong>-48.6%</strong></td>
</tr>
</tbody>
</table>
Discussion

• All flow-access measures improved after OCP

• Major benefit at sites with pre-existing access block:
  – 7.9 hr reduction in ADM LOS (range 4.3-12.8)
  – 48.6% reduction in boarded pts (range 26% - 66%)
  – 523,000 ED stretcher hours freed up for incoming patients (range 23,000-79,000 hours by site)
  – ~10% increase in ED volumes (improved access)

• No OCP effect at sites already meeting 8-hour target

• No increase in bounce-back readmission

• Modest improvement in patient experience
OCP Mechanism of action
NOT: ‘sharing the pain’

• Drives appropriateness: pushes unstabilized acutely ill pts into hospital (and others out?)
• A plan for when there are more pts than beds
• Opens the door: right pt to right place (faster)
• Drives flow
• An evolutionary stressor (efficiency / LOS?)
Demand-driven OCP plans:

• address actual patient need

• Balance necessary overcapacity care across the institution, moving more pts to the “right” place.

Supply-driven OCP plans:

• often compromise flow

• limit patient care and exclude patients in need
Five philosophical tenets of an effective OCP

1. The same care standards apply throughout the hospital, from patient arrival to discharge

2. Overcrowding (access block) is addressed by the entire system

3. Best outcomes and efficiencies occur when patients are matched to the right program and provider ASAP

4. All programs have important care missions and require reasonable access to their resources in order to provide acceptable care and meet performance targets

5. Hallways are undesirable locations for patient care
Questions?
## Study Sites

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Zone</th>
<th>Type</th>
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<td>MHRH</td>
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Background: OCP Implementation

May-Aug, 2010: Presentations to medical dept heads, admin leaders, access committees, senior executives

Jul-Sep 2010: Proposal percolates into admin hierarchy

Nov 2010: AMA Section of EM releases details re 200 adverse outcomes in ED waiting rooms.

Nov-Dec 2010: Media Frenzy. CEO, board and Sr. Leadership move into damage control mode.

Dec 2010: Mandate to implement OCP within 30 days
Build it and they will come?

Average Daily Registered Visits Calgary Urban Adult EDs