Attacking Patient Flow From All Angles: Combining Multiple Strategies in a Single Implementation

Paris B Lovett
Attacking Patient Flow from All Angles:

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Objectives

• Describe successful ED operational changes to improve patient flow at an urban academic medical center
• The “choice”: making changes piecemeal, versus all-at-once
• Discuss strategies and tactics for successful change
The problem: a snapshot from the past

- Traditional ED structure
- A series of queues
  - Quick registration
  - Triage
  - Full registration
  - Bed placement
  - Nurse assessment
  - Provider assessment
  - Lab TAT
  - Radiology TAT
  - Consultant TAT
  - Disposition
- Severe boarding

<table>
<thead>
<tr>
<th>Data</th>
<th>54 ED BEDS</th>
<th>740 Hosp Beds</th>
<th>82 Total patient in ED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respirators in ED</td>
<td>1</td>
<td></td>
<td>1 Respirators in ED</td>
</tr>
<tr>
<td>Longest Admit time (hours)</td>
<td>19</td>
<td></td>
<td>19 Longest Admit time (hours)</td>
</tr>
<tr>
<td>Total admits in ED</td>
<td>30</td>
<td></td>
<td>30 Total admits in ED</td>
</tr>
<tr>
<td>Longest Waiting room time</td>
<td>3.0</td>
<td></td>
<td>3.0 Longest Waiting room time</td>
</tr>
<tr>
<td>(in hours)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEDOCS Score</td>
<td>183</td>
<td></td>
<td>183 NEDOCS Score</td>
</tr>
</tbody>
</table>

Above 180: Disaster
Not Busy 21 - 60 Busy 61 - 100 Overcrowded 141 - 180 Dangerous
Possible solutions
(from published research, conferences, site visits)

• Immediate bedding
  – Closing the Waiting Room

• Bedside registration and triage
  – Bring the process to the patient

• Use of vertical space
  – Not all patients are created equal

• Doctor/Provider in triage
  – Shorten time to ordering process

• Combination fast-track and mid-track (ambulatory ESI 3)
One change at a time? (Piecemeal approach)

• Not too much wrenching change
  – Staff satisfaction
• Retain familiar processes
  – Safety and quality
• Valued skill sets
The beginning of organizational change

• 2008 Immediate Bedding
  – **Low-utilization** state (not full/less busy): immediate bedding, bedside registration, bedside triage
  – **High-utilization** state (full/busy): triage and registration in waiting room

• Utilized UHC Best Practices
  – Registered **Nurse as First Point** of Contact for Patients
  – **Limited Triage** Nursing Assignment to Four Hours
  – Work Up Area to Begin **Protocol Orders**
Hi-Flow/Low Flow State- Pilot

• One week Pilot with processing area with dedicated NP, RN, and technician to begin work up of patients when no bed was available
• Improved metrics:
  – Time-to-Provider (TTP)
  – Discharged Length-of-Stay (DLOS)
  – Patient Satisfaction (internally tracked for pilot)
• Maintained Principles and Moved Forward
Gold Team Pilot July- September 2010

• Goal is to shorten time to see a provider for Medical Screening Examination (MSE)
  – Improve Throughput
  – Improve Patient satisfaction
  – Improve Safety
  – Improve LWBS rate
• 70% of LWBS patients at TJUH leave from waiting room
• NP, RN, & Technician Triage Based Team
• 10am-7pm weekdays
• Ambulatory ESI 3s – MSE, Management, Disposition
The Gold Team

• For Primary ED Patients Assigned to Waiting Room Began Advanced Level Work-Ups while awaiting Bed Assignment
• Nearly 15% of All Patients, 25% on Monday/Tuesday
• Discharges 10-15% of Patients
• Admits 5% of Patients
  – Ensuring Rapid Bed Assignment
• Facilitated Evaluation of 80%
  – Lab
  – Imaging
  – Therapy
Gold Team Pilot Results

• The door-to-provider time decreased: 117 to 18 min
• The door-to-antibiotic time: 100% maintained
• LWBS decreased approx 3%
• Diversion decreased by 35 hrs/month
Piecemeal problems

• Inconsistent implementation – different charge nurse and attending shifts
• Reversion to familiar: nights, weekends, periods of stress
  – Immediate bedding would stop
  – Chairs moved out of vertical rooms
• Varying support
  – Nursing and tech support for provider in triage would disappear on short-staffed shifts
• Cumulative stresses without big wins
• Constant change without unifying end-point “are we there yet?”
• One change not fully implemented even while introducing the next
• Each change had different bases of support, and resistance
Piecemeal successes

• No cost to implement (no budget!)
  – Small changes could be made without large costs
• Able to gather data for varying processes to see what works
  – Solicit staff feedback at the frontline level, gain “buy-in”
  – Use this data to later leverage for funding
• Staff becomes familiar with process change over time
  – Staff has some familiarity helps full implementation
Giving it everything: Delta Team

• Decision on all-at-once approach with launch July, 2011
• Selling the problem using data from pilots
• Clear goals
• Large working group: “flow group”
• Comprehensive problem-solving approach
• Multiple lines of communication
• Multiple audiences
• Constant feedback
Why improve throughput?

• Quality/Safety
• Service
• Finance/Operations
• People
• Growth
Selling the problem: Quality and safety

• Long waits + Undifferentiated patients
  = Disaster waiting to happen
• Limits access to care for the most vulnerable population
• Directly impacts clinical measures and performance
Quality and Safety

Average Claims / 25k patient visits

<table>
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<tr>
<th>Time to Physician</th>
<th>Average Claims</th>
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<tbody>
<tr>
<td>0-30 minutes</td>
<td>0.90</td>
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<tr>
<td>30-60 minutes</td>
<td>2.74</td>
</tr>
<tr>
<td>&gt; 60 minutes</td>
<td>4.16</td>
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</table>

Source: KB Jensen & TA Mayer. Practical Patient Flow Solutions. ACEP 2010
Service:
Patient Satisfaction by Time Spent in ED

Represents the experiences of 1,524,726 patients treated at 1,656 EDs nationwide between January 1 and December 31, 2007

*Data adapted from Engineering Patient Flow, Kirk Jensen MD, MBA, FACEP
Service: what our patients are telling us

•“I never would've expected to have to wait 8/9 hrs. before speaking to a doctor, let alone, 13 hours total. I would've done better to take a train to [a distant] ER & back in the time this took. I'd never recommend this ER, even though I'm a loyal patient [of the hospital].
Service: what our patients are telling us

• “Staff were all incredibly friendly, but that did not take away from the anger and frustration I felt through having to wait seven hours in the waiting room before being treated”
Finances, Operations & Growth

• Diversion sacrifices high-acuity, high probability of admission, high payer mix patients
  – Approximately $1000/hour

• Loss of professional and facility fees from ED visits
  – 70% patients in our ED who walkout are insured

• Loss of inpatient revenue from admissions
People

• Impact upon staff of angry patients
• Failing at our mission
• ED Physician and Staff satisfaction surveys
How did we improve?
Clear Goals and Metrics

• Getting providers and patients together sooner (time-to-provider, TTP)
• Reducing ED length-of-stay (LOS for discharged patients, DLOS)
• Avoiding turning patients away
  – Reducing ambulance diversion
  – Reducing walkouts
• Improving patient experience
Flow Group

• Open meetings, weekly, two hours
• Physicians, nurses, techs, administrators
• Invited EVS, Radiology, Lab, consult services, etc
• Multiple action plans
  — Owner, progress, completion date
• Respond quickly to problems
• Report back to all staff
• Members of this group became deeply committed
  — Champions for change
Problem-solving approach

• Flow diagrams for every process
  – Problems and fixes from every source
• Table-top exercises
  – Virtual patients, flowing into department
  – Looking for missing processes, bottlenecks
• Verbal walk-throughs of each process, involving all staff types
Example: Greeting New Patients

- **Aim** – get patients inside
- **Prior state** – registrar at greeter desk, nurse in triage
- **Patients’ route:**
  - Pass security
  - Demographics at greeter desk
  - Wait
  - Triage
  - Wait
  - Registration
  - Wait
  - Bed
Example: Greeting New Patients

- Problems:
  - If patients go immediately inside, who assigns them to different clinical areas? (Two acute areas, one fast track)
  - Aim to have clinical person be first to see patient
- Replace greeter with “first nurse”
  - First patient contact is a clinician
Example: Greeting New Patients

- With existing staffing
  - One triage nurse (intake nurse)
  - First nurse
  - Close second triage room

- Who will assign ESI score?
  - Abbreviated process: name, dob, mode of arrival, quick look, “why are you coming to the ED today?”

- Reduced triage coverage?
  - At “high utilization” times, nurses move from inside ED to staff second triage
Example: Greeting New Patients

- Who will bring patients back?
  - Geographic nurses, techs from ED
  - Create a “pull” mentality

- Need for registration out front?
  - Move registration inside
Intake Process
The Whiteboard
Tabletop exercise

- Bring virtual patients into the ED, watch them flow
- Re-allocate staff, do it again
- Plan shift staffing
  - New gaps at night
- Find bottlenecks
- Missing processes
  - Who will bring patients back to ED?
  - Which nurse will cover second triage
Example – Vertical Patients

• NP in triage suffered too few private rooms for examining patients
• Specific “quick exam” rooms set up
• Prioritizing quick turnover of these rooms
• Exam table, no stretcher
• All shifts monitored for reversion to using stretcher (never)
• Touching base with consults (used to semi-private rooms on floor)
• Visitor policy – not allowing staff to shut out visitors routinely
Vertical Room with five chairs
Quick exam room with exam table, not stretcher
All-at-once implementation

• Previously two main clinical areas (A, B) plus Fast Track (FT)
• Two vertical rooms and one quick exam room in each of three clinical areas. Each converts three treatment spaces to ten
• Additional quick exam rooms (flexible use)
• Immediate bedding/triage/registration in low-utilization state
• Delta Team – physician in triage plus NP disposition team for fast-track / mid-track
Delta Team

• Combination Fast Track (ESI 4+5) and mid-track (Ambulatory ESI 3)
• Attending in triage sees all cases which are triaged out front, or which are assigned to Delta Team
• Delta patients three dispositions:
  – Discharged from waiting room (1/6)
  – Handoff to acute areas (A, B) (1/3)
  – Managed through to disposition by NP on Delta Team (1/2)
Attending and Nurse in Triage
Road Rules

• “No touch, no turf”
• Patients can only flow from less acute to more acute areas
• Report issues in “real time”
• Be flexible
Multiple lines of communication

From Flow Group
• Huddle rounds
• Attending retreat
• Resident retreat
• Faculty meeting
• Management update and report-outs to Hospital staff
• ED faculty and staff meetings
• Administrative rounding
• Posters in break room
• . . . and yes, email

To Flow Group
• Read out emails/suggestions
• Open meetings for all staff
• Invite non-regulars (radiology, lab, etc)
• Invite hospital admin, risk, PI, consults
Multiple audiences (and concerns)

**ED**
- Nurses
  - Patients less screened
  - “Slammed” multiple patients
  - Stretching ratios
- Faculty
- Residents
- Techs
- Ancillary support

**External**
- Hospital admin
- Dean/University admin
- Nursing leadership
- Consult services
- Patients
The results

<table>
<thead>
<tr>
<th>Metric</th>
<th>Measure</th>
<th>FY11</th>
<th>FY12</th>
<th>Change</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Diversion</td>
<td>Average, hrs/month</td>
<td>63.0</td>
<td>8.7</td>
<td>-54.2</td>
<td>0.000</td>
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<tr>
<td>LWOBS</td>
<td>Average, % of patients</td>
<td>5.6%</td>
<td>3.5%</td>
<td>-2.0%</td>
<td>0.000</td>
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<tr>
<td>DLOS</td>
<td>Median, minutes</td>
<td>267</td>
<td>238</td>
<td>-29</td>
<td>0.000</td>
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<tr>
<td>ALOS</td>
<td>Median, minutes</td>
<td>610</td>
<td>543</td>
<td>-67</td>
<td>0.001</td>
</tr>
<tr>
<td>TTP</td>
<td>Median, minutes</td>
<td>65</td>
<td>35</td>
<td>-30</td>
<td>0.000</td>
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</tbody>
</table>
Constant feedback – monthly charts

• Charts posted monthly in break room, in magazine, online

• Charts presented monthly to senior management and large cross-discipline meetings, report-outs
Volume Up

ED Volume (Patients/Month)
Walkouts Down

LWOBS (Left Without Being Seen) - % of all ED Arrivals

Target
FY10
FY11
FY12
Diversion way down

![Graph showing diversion rates over months for different fiscal years]

- **Diversion way down**

![Graph showing diversion rates over months for different fiscal years]
Time-to-Provider way down

Median Time-to-Provider (TTP) (minutes)
Discharged LOS Down

Median Discharged LOS (DLOS) (minutes)

- Target
- FY10
- FY11
- FY12
Admitted LOS down

Median Admitted LOS (ALOS) (minutes)

July | August | September | October | November | December | January | February | March | April | May | June

- 800
- 700
- 600
- 500
- 400
- 300
- 200
- 100

Target
FY10
FY11
FY12

Legend:
- Target
- FY10
- FY11
- FY12
Financial Impact of Incremental Admissions and ED visits

• 13,434 admissions from the ED FY12
• Increase from 12,514 in FY11
• 920 incremental admissions, or $12M incremental revenue
• 3,512 extra ED visits
  – $351K incremental pro-fees
  – $1.8M incremental facility fees
Summary

• Selling the problem
• Clear Goals
• Flow group
• Problem-solving
• Multiple audiences and lines of communication
• Constant feedback