Good Samaritan Hospital

• Located on the south shore of Long Island
• Catchment area of ~800,000 residents
• Community Hospital with 437 beds
• Five residency training programs
  – Including EM Residency
• Large voluntary medical staff
• ED: 100,000 annual visits
Emergency Severity Index

- Five tier system based on number of resources needed to treat patient
- Feb 2007
  - 2006 LWBS = 3.5%
  - Utilized a 4 tier triage system
  - Geographic/District Nursing teams
- July 2007
  - Adoption of Emergency Severity Index triage protocol (ESI)
Missed Opportunities

• Plateau of LWBS: 2%
  – 2007, 2008

• Drill Down reveals ESI 3 issue
  – 88% of LWBS are ESI 3 patients
  – Nearly 40% of patients who LWBS presented with 1 of 6 chief complaints
  – 85% of these CC are triaged as an ESI 3
Conundrum Pie

LWBS ESI Distribution

- LWBS ESI Distribution
  - ESI 2: 6.99%
  - ESI 3: 0.53%
  - ESI 4: 4.62%
  - ESI 5: 87.86%
ESI 3 Conundrum

• Patients are too complex for typical fast track visit
• Not ill enough to be brought back immediately at times of high census
• Result: highest LWBS rate for this subgroup of patients
• Significant potential for morbidity
• Converted an existing district within the ED to a pseudo-ESI district
• Largely surgical chief complaints
  – Abd pain, MVC, Gyn, etc.
• Failed due to disproportionate distribution of acutely ill medical patients in other districts
Rethink, Retool

• Initial pilot was successful for ESI 3 subgroup
• Need to design a process that does not overload the main treatment area with critically ill patients
• ASU located above ED and available after-hours
Process Design Team

• ED Leadership
  – Physician, Nursing, Administrative
• Admitting
• IT: System Analyst
• Support Services
  – Housekeeping, Security
Mid-Track Evolves

• Mid-Track opens August 4, 2009
• Operates from 4p-12a
• No new patients after 11p
• Physician in triage, but not triaging
  – Only sees ESI 3 pts with 1 of 6 CC
  – Phlebotomy station set up near triage
  – After initial evaluation pts go up to ASU
  – Care coordinated with NPP for entire shift
<table>
<thead>
<tr>
<th>Chief Complaint</th>
<th>LWBS Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal pain</td>
<td>4.6%</td>
</tr>
<tr>
<td>Flank pain</td>
<td>3.5%</td>
</tr>
<tr>
<td>Headache</td>
<td>5.5%</td>
</tr>
<tr>
<td>Pregnancy complication</td>
<td>5.3%</td>
</tr>
<tr>
<td>Vaginal Bleeding</td>
<td>6.1%</td>
</tr>
<tr>
<td>Vomiting</td>
<td>2.5%</td>
</tr>
</tbody>
</table>
Checklist

• Staffing challenge
  – Need physician, MLP, nurse and EDTA
• Need recliners for patients
• Supply cart
• Medication cart
• Security
• Housekeeping
  (Hiker’s rules)
The first four months…

MT Pts by Chief Complaint

- Abdominal pain: 8.2%
- Headache: 52.0%
- Flank pain: 3.8%
- Pregnancy complications: 8.1%
- Vaginal bleeding: 5.8%
- Vomiting: 13.6%
- Other: 8.5%
Time of Day

MT pts by hour of day

- 0
- 20
- 40
- 60
- 80
- 100
- 120

800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300
Interesting Trends

• 33% of patients seen in MT arrive before MT opens
• 75% of patients seen in MT are women
• 22% of MT patients are admitted
Data Overload
Lessons Learned/Challenges

- Process design quite challenging
- Bolus of patients when MT starts at 4p
  - Pts ‘triaged’ to MT before 4pm
- Tech position is mission critical
- Start time should be earlier
  - Space limitations
- Catch all for ‘Other’
Caveats, Testimonials

- Recognize that adding more ‘ED space’ does not address the core issue
- Continue efforts to address core issue: inpatients occupying an ED patient’s bed
- “I love the mid-track, now there are much less people yelling at me”
  – Registration Clerk in waiting room
Evaluation and Management of ESI Level 3 Patients at Mary Washington Hospital

Jody Crane, MD, MBA
jcranemd@gmail.com
- Segmentation
- Lean Elements
- Maintaining Flow
- Reliability
Patient Segmentation

- 3 distinct ED service families delineated based on retrospective utilization review of 9,000 patients relative to chief complaint:

<table>
<thead>
<tr>
<th>ESI</th>
<th>Resources</th>
<th>Admission?</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Super Track”</td>
<td>4,5</td>
<td>0 or 1</td>
</tr>
<tr>
<td>“Mega-workups”</td>
<td>1,2,3</td>
<td>Many</td>
</tr>
<tr>
<td>“Tweeners”</td>
<td>3</td>
<td>Varied</td>
</tr>
</tbody>
</table>
# Guide for Triage Pivot-

SuperTrack Screening - First assessment is, "Does the patient look sick?" If not, then use the following criteria:

<table>
<thead>
<tr>
<th>SuperTrack</th>
<th>Extremity Swelling – Trauma or possible DVT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremity Pain – Stable, no obvious deformity, No open wound.</td>
<td>Pregnancy Related – “I need a pregnancy test”</td>
</tr>
<tr>
<td>Laceration - All minor lacerations</td>
<td>Back Pain</td>
</tr>
<tr>
<td>Urinary Complaint</td>
<td>Ambulatory</td>
</tr>
<tr>
<td>Dental Complaint</td>
<td>Minor accident/injury</td>
</tr>
<tr>
<td>Cough/Congestion - Exclude ill-appearing patients, patients &gt;60</td>
<td>Unlikely to need x-rays</td>
</tr>
<tr>
<td>Ear Complaint</td>
<td>Unlikely to need IM/IV meds</td>
</tr>
<tr>
<td>Rash</td>
<td>All other level 5’s</td>
</tr>
<tr>
<td>Eye Complaint</td>
<td></td>
</tr>
<tr>
<td>Cellulitis – Exclude diabetics or extensive cellulitis</td>
<td></td>
</tr>
<tr>
<td>Allergic Reaction</td>
<td></td>
</tr>
<tr>
<td>Sore Throat</td>
<td></td>
</tr>
<tr>
<td>Facial Complaint</td>
<td></td>
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<tr>
<td>Wound Check</td>
<td></td>
</tr>
<tr>
<td>Head Injury – Minor</td>
<td></td>
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<tr>
<td>Skin Problem</td>
<td></td>
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<tr>
<td>Puncture Wound</td>
<td></td>
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<tr>
<td>Rabies</td>
<td></td>
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<tr>
<td>Foreign Body</td>
<td></td>
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<tr>
<td>Med Refill</td>
<td></td>
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<tr>
<td>Abscess</td>
<td></td>
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<tr>
<td>Breast Complaint</td>
<td></td>
</tr>
<tr>
<td>Animal Bite</td>
<td></td>
</tr>
<tr>
<td>Superficial Bleeding</td>
<td></td>
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<tr>
<td>Insect Bite</td>
<td></td>
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<tr>
<td>Congestion</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td><strong>PA Capable Patients (Team III potential level IIIIs)</strong></td>
<td></td>
</tr>
<tr>
<td>Back Pain – Age &lt;40</td>
<td></td>
</tr>
<tr>
<td>Headache – History of Migraines, Exclude Age &gt;40, Atypical headache, No prior Migraines, “Worst Headache of Life”</td>
<td></td>
</tr>
<tr>
<td>Fever – Age &gt;3 months, &lt;40 years</td>
<td></td>
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<tr>
<td>Flank Pain – Age &lt;40 years</td>
<td></td>
</tr>
<tr>
<td>Vaginal Complaint – (bleeding, discharge, etc)</td>
<td></td>
</tr>
<tr>
<td>Neck Complaint</td>
<td></td>
</tr>
<tr>
<td>MVA – Only Musculoskeletal complaints (neck, back, extremity, laceration, etc.)</td>
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<tr>
<td>Rectal Complaint</td>
<td></td>
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<tr>
<td>Flu-like Symptoms – Age &lt; 40</td>
<td></td>
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<tr>
<td>Nosebleed – Mild or stopped</td>
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<td></td>
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<tr>
<td>Asthma</td>
<td></td>
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<tr>
<td>Groin Complaint</td>
<td></td>
</tr>
<tr>
<td>Visual Complaint – Age &lt;40</td>
<td></td>
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<tr>
<td>Wound</td>
<td></td>
</tr>
<tr>
<td>Pelvic Pain</td>
<td></td>
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<tr>
<td>SOB – Possible bronchitis, respiratory infection, age &lt;40</td>
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<td></td>
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<tr>
<td><strong>Mega-workups (MD Team)</strong></td>
<td></td>
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<tr>
<td>Abdominal Complaint (Except as described above)</td>
<td></td>
</tr>
<tr>
<td>Chest Pain (Except as described above)</td>
<td></td>
</tr>
<tr>
<td>SOB (Except as described above)</td>
<td></td>
</tr>
<tr>
<td>AMS</td>
<td></td>
</tr>
<tr>
<td>Weakness &gt;40 years</td>
<td></td>
</tr>
<tr>
<td>Dizziness &gt;40 years</td>
<td></td>
</tr>
<tr>
<td>GI Bleed</td>
<td></td>
</tr>
<tr>
<td>Syncope &gt;30 years</td>
<td></td>
</tr>
<tr>
<td>CVA</td>
<td></td>
</tr>
<tr>
<td>Hypotension</td>
<td></td>
</tr>
<tr>
<td>HTN</td>
<td></td>
</tr>
<tr>
<td>Nausea, vomiting &gt; 60 years</td>
<td></td>
</tr>
<tr>
<td>Fall &gt; 60 years</td>
<td></td>
</tr>
<tr>
<td>Diarrhea &gt;50 years</td>
<td></td>
</tr>
<tr>
<td>All exclusions from “Tweener” group above</td>
<td></td>
</tr>
</tbody>
</table>

★ All EMS to Main Side when possible
Pivot

50-60% Mini Triage

15-20% Discharge Track

42 43 44 45 46 47 48 49

20-30% OR 1 OR 2 OR 3 OR 4 TR 5 TR 6 Team 1

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“Super Track”

- Fast Track located *in or near triage* for the purpose of promptly treating patients who require very low resource utilization.
“Team Triage”*

- Team of providers utilizing an “intake team” mentality for promptly assessing, treating, and discharging level 3 patients

Quick Look
Quick Reg

Quick Triage

2 Providers (MD/PA),
2 RN, 1 Paramedic
2 Scribes, 1 PSR/HUC

5 Rooms

Treatment Area

Results Waiting

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RATED Implementation

“Leaned” the process

- Visual Management with color coding
- Point of use supplies
- Rapid Changeover
- Reduced Staff Movement
- Reduced Variation
- Designed to meet takt time
Triage Demand/Capacity – Takt Time

Arrivals: 20 pts/hr
System must process:
1 pt every 3 minutes

Each room must process: 10 pts/hr

Triage

That’s 1 patient every 6 minutes for each room – 3 min for entrance/exit, 3 min for triage

After triage, to patient intake
Intake Team

1. Mini Triage
2. Discharge Track
3. Intake

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Results Waiting
PODs

- Implemented 02/09 anticipated 10% volume drop w/ SHC opening
  - Dropped 1MD and 2 PA shifts per Day (28 hours)
  - Decreased RN Staff by 15%
  - Closed 10% of Rooms
- Eliminated Mini Triage
Volume vs. Walkouts 2001-2007

Monthly Patient Volume

Volume vs. Walkouts

- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009

Target

© 2009, Jody Crane, MD, MBA, Charles E. Noon, Ph.D.
NOT THAT LONG AGO, most of the letters to the editor that landed here regarding the Mary Washington Hospital emergency room were complaints about the excruciatingly long time a patient had to wait to get treatment. Develop an after-hours high fever and you could count on camping out most of the night. Now, however, we're hearing how delighted readers are with the efficiency, friend-line-sness, and expertise of the MWH ER staff.

The change stems from a program called RATED ER. The experimental patient-flow process invented by the MWH staff is so effective it's getting national attention. Already called "quite possibly brilliant" by the journal Emergency Medicine News, RATED ER is also slated to get some coverage in TIME.

The innovation's acronym stands for "Rapid Assessment, Triage, and Efficient Disposition of Patients in the Emergency Room." Essentially, it streamlines the process of diagnosis and treatment, focusing particularly on "semi-urgent" patients--those complaining of abdominal pain or nonspecific chest pains who may or may not need admission, depending on test results. More expeditiously treating this large group moves everyone through the ER faster.

It isn't as though MWH was the only hospital where ER visits dragged: The American Medical Association says 90 percent of the nation's emergency rooms are at or above capacity. A 2007 report by Press Ganey found that emergency departments that saw more than 40,000 patients a year (MWH will see more than 110,000 in 2008) had average door-to-door times exceeding 4.4 hours. The MWH average sometimes reached 6 hours.

Now, using RATED ER, that number has fallen to 3 hours, and the number of walk-outs (patients who tire of waiting and leave) is below 2 percent—down from 12 percent.

The emergency room will never be able to provide patients with instant service, but the situation is much better than it used to be. MWH should be proud. Someday, its innovation may help ERs all across the country provide more efficient care--and letters-to-the-editor writers will have to direct their fury elsewhere.

Cable providers, anyone?
Department of Health Administration and Policy

4th Annual Improvement of the Year Award

Presented to
Mary Washington Hospital

"LEAN Concepts"

for
Service Excellence

2008

Hospitals in pursuit of Excellence

A guide to superior performance improvement
Key Points

- Patient segmentation strategies and careful process analysis should be used to improve flow for your ESI level 3 patients

- Lean Healthcare can deliver the structure to achieve long term sustained results

- Intake team operational design can dramatically affect throughput and capacity in most ED settings