Fast Track: Designing the System to Perform as the Name Suggests

Srikant Iyer, MD, MPH
Paula Gallagher, BSN, MN
Michael Buncher, MBA, MSPH
Joseph Luria, MD

James M. Anderson Center for Health Systems Excellence

Cincinnati Children's Hospital Medical Center

The authors have no relevant financial disclosures or conflicts of interest.

Emergency Department (ED) Crowding – "A National Epidemic"
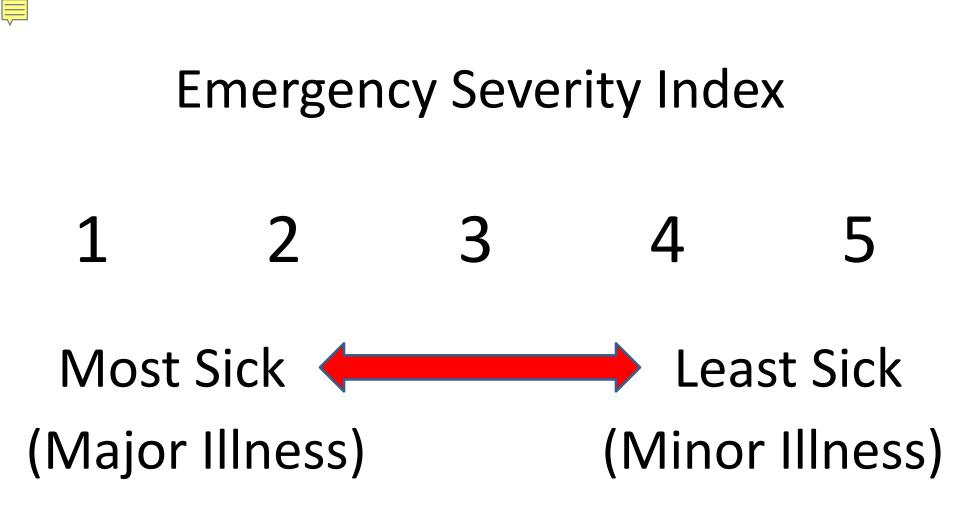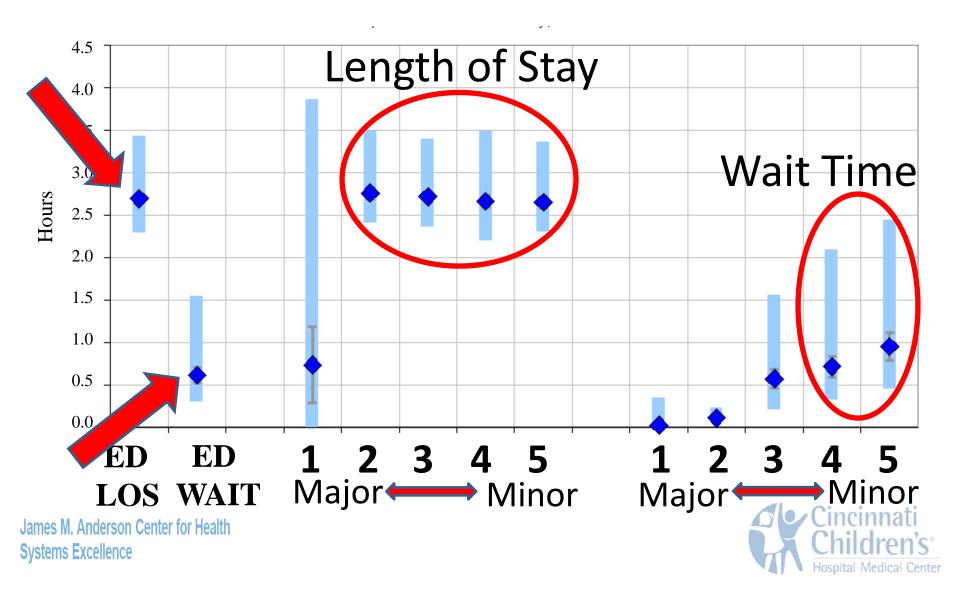
157

Improve Patient Flow

The Setting

- Pediatric ED at tertiary-care children's hospital

- 90,000 annual ED visits

- 8-county local service area, national and international referral center
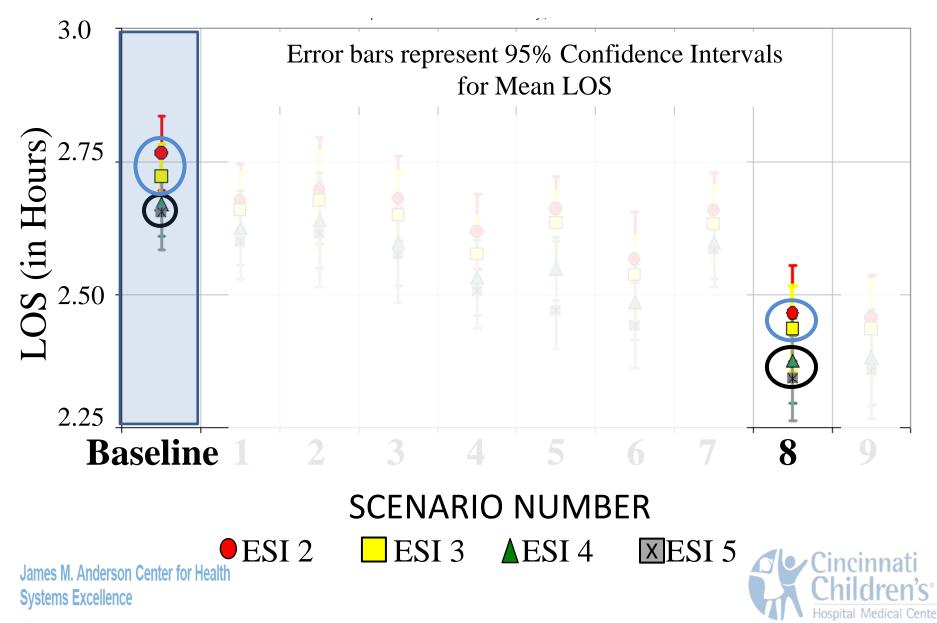
- 42 exam rooms (7 of which are Fast Track)

Emergency Severity Index

1   2   3   4   5

Most Sick ←——————→ Least Sick

(Major Illness)   (Minor Illness)

"Current" System: LOS vs. Wait Time

Cincinnati Children's® Hospital Medical Center

Major vs. Minor

Cincinnati Children's®
Hospital Medical Center
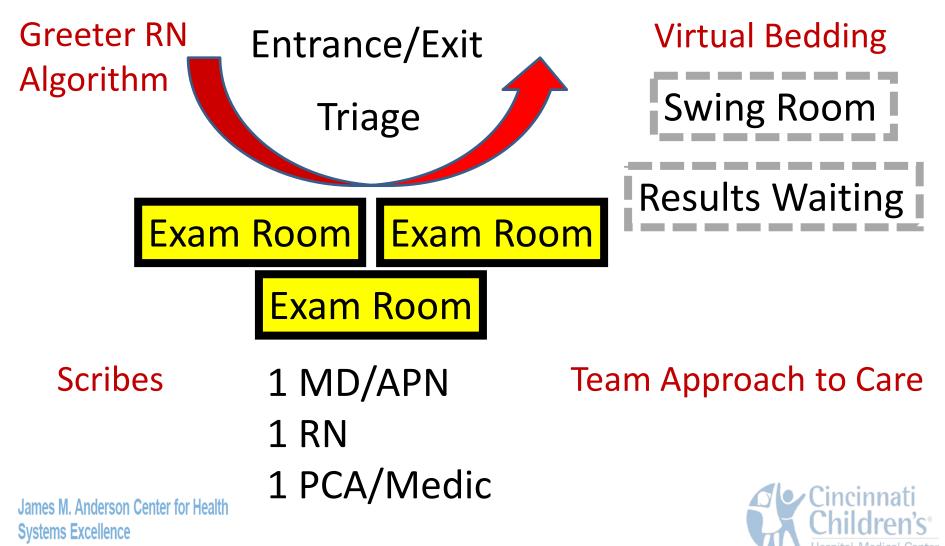
Effect of Working on "Minor Patients"

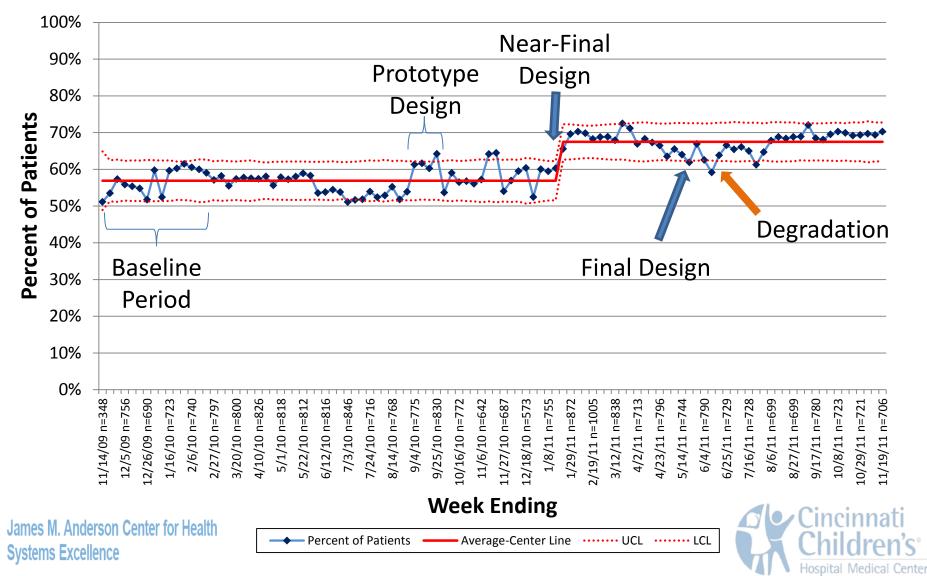| Fast Track Aims	Measure	Target
↑ Patients	<u>P-chart</u> Proportion of ESI 4-5 patients seen (Minor)	55 → 70%
↓ LOS	<u>Run chart</u> Average Fast Track LOS	2.3 → 1.5 (hrs)

Intervention (Adapted from Crane and Noon, 2011)

Greeter RN Algorithm

Entrance/Exit

Triage

Virtual Bedding

Swing Room

Results Waiting

Exam Room

Exam Room
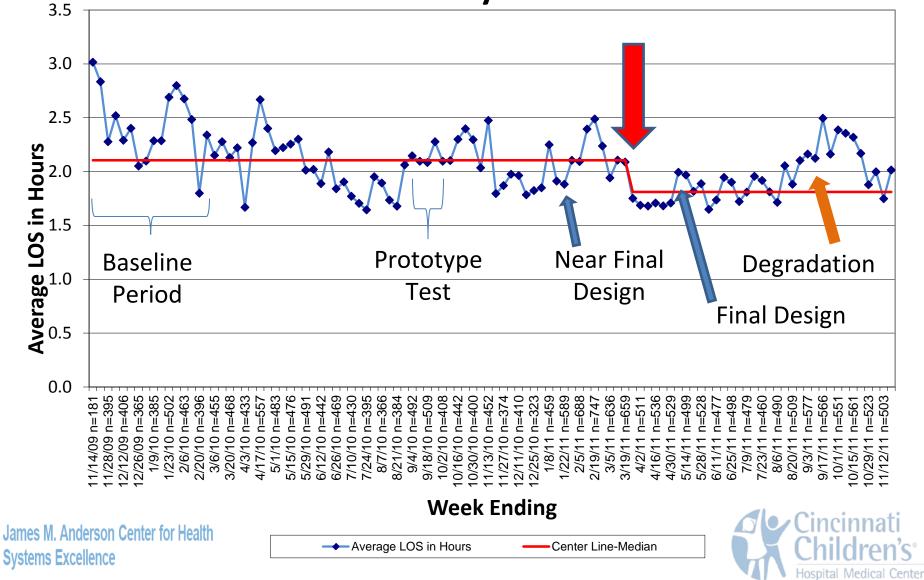
Exam Room

Scribes

1 MD/APN
1 RN
1 PCA/Medic

Team Approach to Care

Primary aim 1: Proportion of "Minor" Patients Seen in Fast Track (ESI 4 or 5)
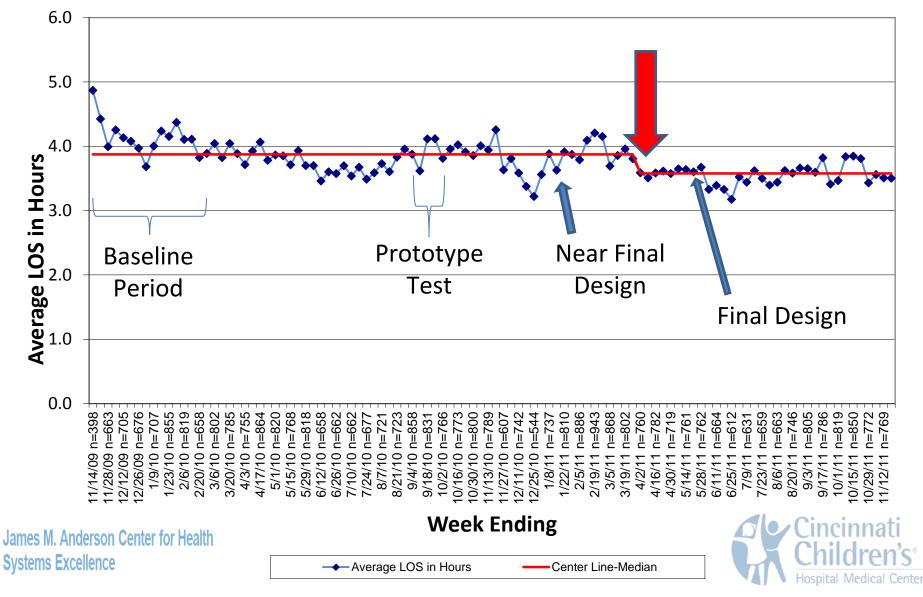
Primary Aim 2: Fast Track Average Length of Stay

James M. Anderson Center for Health Systems Excellence

Cincinnati Children's Hospital Medical Center

Secondary Aim: Average Length of Stay for "Major" Patients (ESI 2 or 3)

Conclusions and Implications

- Successfully increased proportion of patients with minor illness (ESI 4 or 5) seen in Fast Track to 70%

- Need further work to sustain reduction in length of stay

- Documented a 17.5 minute decrease in average length of stay for "major" patients (ESI 2 or 3), consistent with our simulation-based prediction

- Application outside the ED

Thank You

- Coauthors (Paula Gallagher, Michael Buncher, Joe Luria)

- Mentors (Frederick Ryckman, Richard Ruddy, Uma Kotagal)
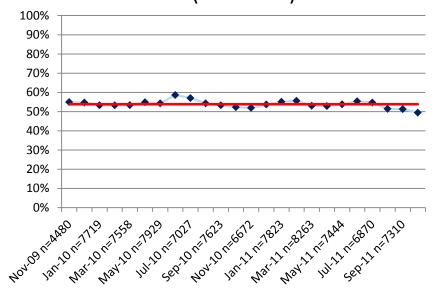
- IHI Faculty (Jody Crane, Charles Noon)

Supplemental Slides

Fast Track Service Gains

Proportion of "Minor" Patients in ED
(ESI 4 or 5)

Additional 5500 patients per year through the Fast Track
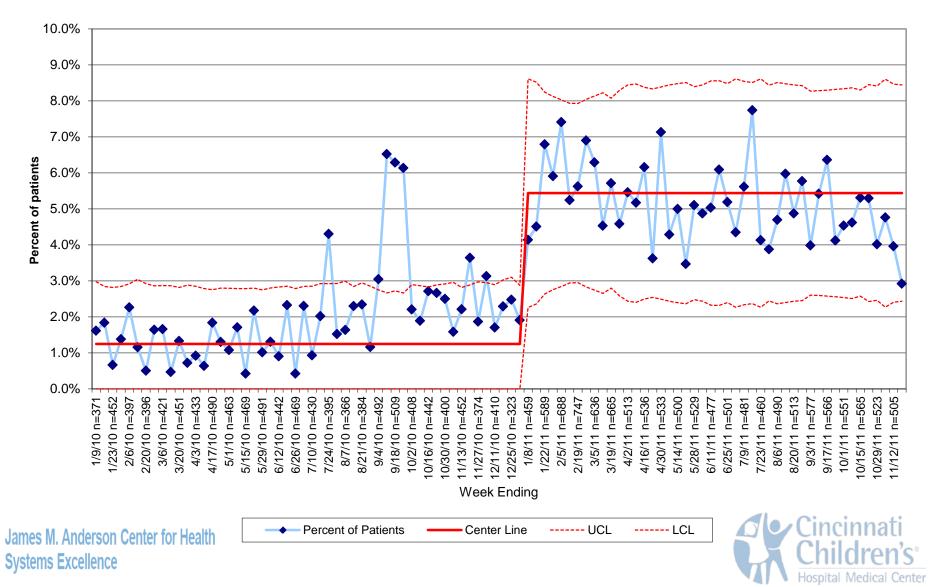
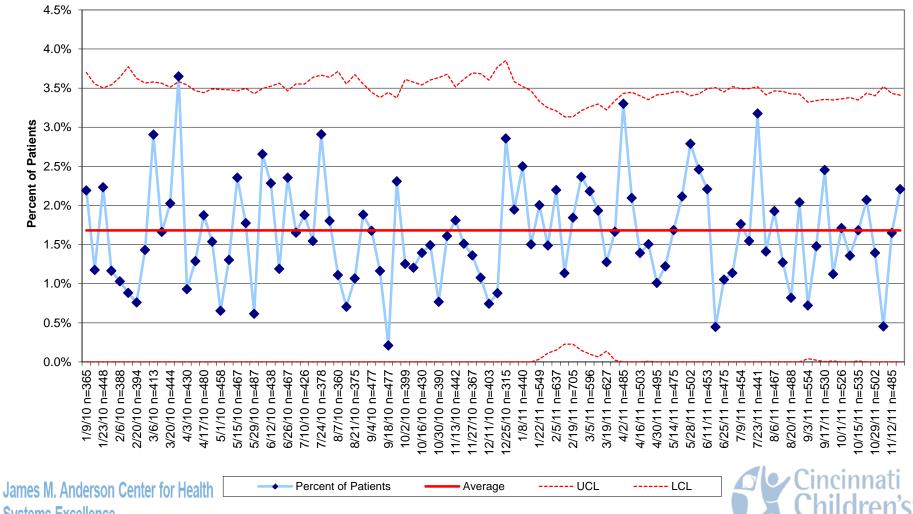# Patients with "Major Illness" (ESI 1-3)

Jan 14 - Oct 1, 2010 Patients Seen: 28,504	Jan 14 - Oct 1, 2011 Patients Seen: 28,373

Transfers from Fast Track to Major
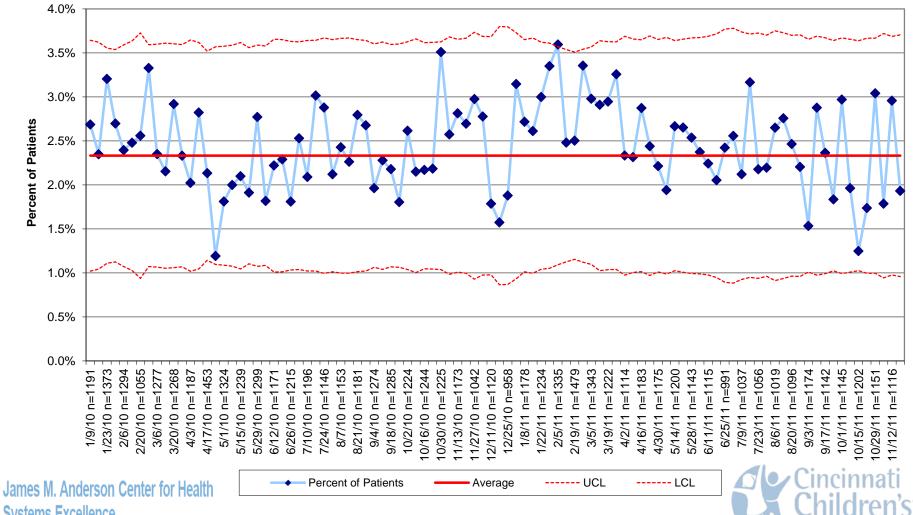
48-Hour Returns (Fast Track)

48-Hour Returns (Major)

James M. Anderson Center for Health Systems Excellence

Cincinnati Children's® Hospital Medical Center
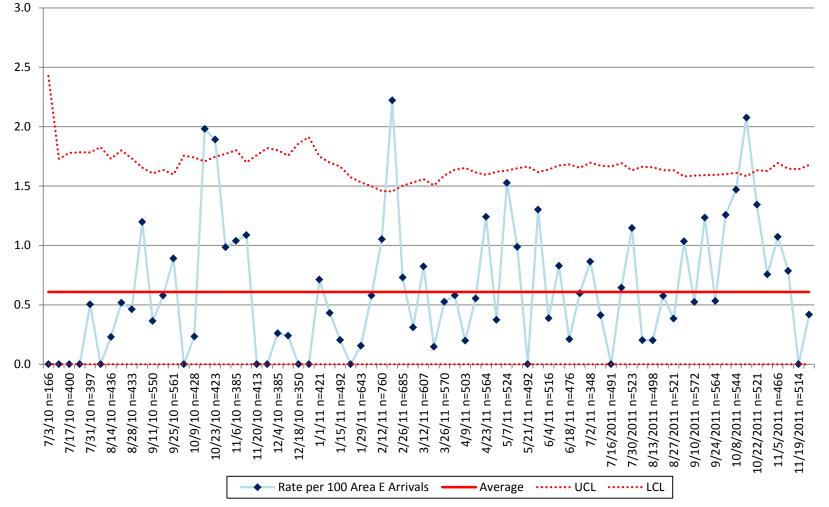
LWBS Rate (Fast Track)

Resource Comparison

Pre-Intervention

- 4 providers
- 3 nurses
- 1 patient care assistant
- 14 rooms

Post-Intervention

- 3 providers
- 3 nurses
- 2 patient care assistants
- 9 rooms
- 2 scribes

Model Value

- Cost
  - Includes personnel costs, materials/equipment costs
  - Does not include resident physicians, utilities
- Measure: Cost/patient encounter
  - FY 2010 - $93.29
  - FY 2011 - $84.13 (10% decrease)
  - Lowest cost model among 2 EDs and 3 urgent cares

Greeter RN Segmentation Algorithm

Predict ESI ① → **YES** → Send to **STS**

↓ **NO**

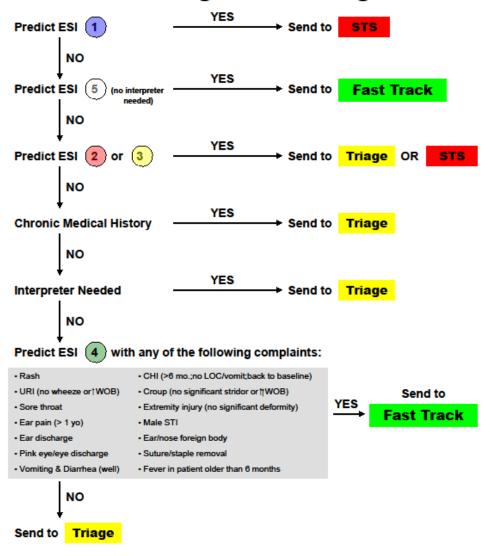Predict ESI ⑤ (no interpreter needed) → **YES** → Send to **Fast Track**

↓ **NO**

Predict ESI ② or ③ → **YES** → Send to **Triage** OR **STS**

↓ **NO**

Chronic Medical History → **YES** → Send to **Triage**

↓ **NO**

Interpreter Needed → **YES** → Send to **Triage**

↓ **NO**

Predict ESI ④ with any of the following complaints:

• Rash	• CHI (>6 mo.;no LOC/vomit;back to baseline)
• URI (no wheeze or↑WOB)	• Croup (no significant stridor or↑↑WOB)
• Sore throat	• Extremity injury (no significant deformity)
• Ear pain (> 1 yo)	• Male STI
• Ear discharge	• Ear/nose foreign body
• Pink eye/eye discharge	• Suture/staple removal
• Vomiting & Diarrhea (well)	• Fever in patient older than 6 months

→ **YES** → Send to **Fast Track**

↓ **NO**

Send to **Triage**

Triage Guidelines

Continue to send patients to Area E as has been your past practice.

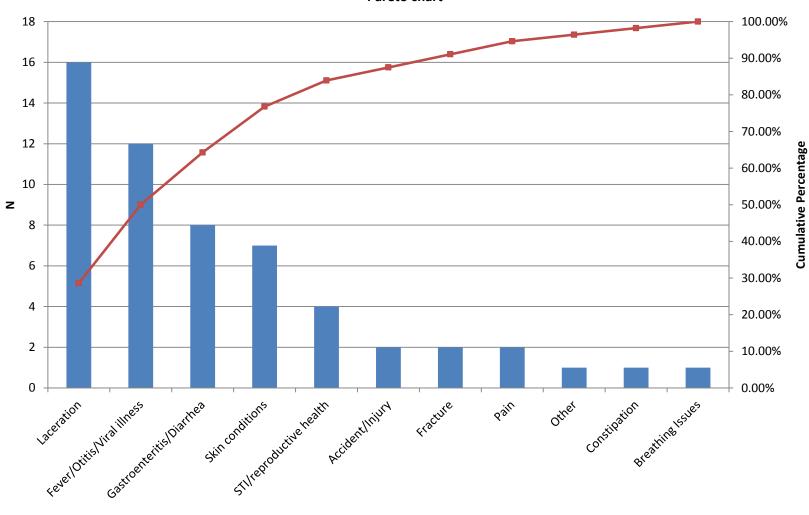**DO NOT** base your decision on who the providers are in Area E or how busy they are.

Pts who can be considered for Area E include:

✓ Simple facial or scalp lacerations and suture/staple removal

✓ Extremity injury without significant deformity

✓ Male STI's

✓ Female STI's with mild or no abdominal pain

✓ (ESI 3 is eligible).

✓ Pregnancy test

✓ Ear/nose foreign body

✓ Spanish speaking pts with ESI = 5
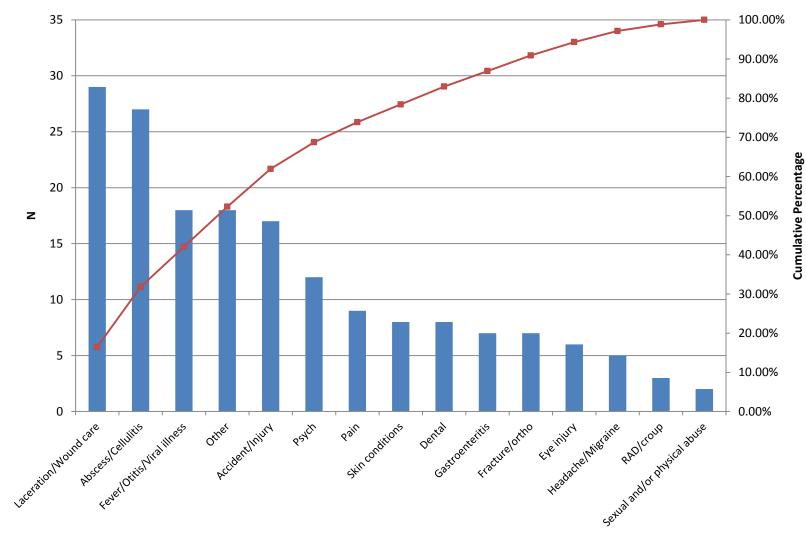
Pts who should not go to Area E include:

✗ Patients less than 6 months old with closed head injury

✗ Patients less than 6 months old with fever

✗ Patients requiring interpreter services with ESI 1-4

✗ Patients who are known to be pregnant, regardless of complaint.

James M. Anderson Center for Health Systems Excellence

Cincinnati Children's Hospital Medical Center

Patients who WERE eligible for Area E, but SEEN in Major
Pareto chart

James M. Anderson Center for Health
Systems Excellence

Cincinnati Children's®
Hospital Medical Center

Patients with ESI 4-5 that were NOT eligible for Area E
Pareto Chart

Simulation Variables

- Patient segments
  - ESI 5, current ESI 4, and ADDITIONAL ESI 4
- Virtual bedding
  - Results waiting lobby vs. stay in room
- Flow Rules
  - Single tier vs. 2-tier triage
  - Wait for fast track bed vs. reroute to major if fast track bed unavailable

Rating of Care (0-10)