Optimizing ED Flow: Implications for ED Design

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Session Objectives

After this session, participants will be able to:

- Describe the design at Stafford Hospital to improve ED performance
- Identify key design principles to facilitate patient flow in the ED

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Overview

- Important Considerations
- The Front End
- Main ED

THE Question

How Many Beds Do I Need???
Important Considerations

- What exactly are you trying to achieve?
  - More space?
  - More rooms?
  - Update facility?
  - Accommodate more patients?
  - Decrease door to doc?

- If you don’t ask yourself this, you will likely fix the wrong problem (think root cause)

Important Considerations

- Consider your short and long-term growth to predict future needs
- Consider the next step after this renovation/construction
- Consider your current operational metrics to arrive at target number of beds, etc.
  - i.e. if your LOS is 10 hours, you will not be able to handle 1500 annual visits per bed
  - Consider benchmarks as they apply to your unique situation
- Most start with 1,400-1,500 visits per bed

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Important Considerations

- You should either have your operational issues clearly worked out, or at least rapid cycle tested
- Don’t rely on a new, bigger facility to solve all of your problems
- Consider clinical and operational functionality as primary considerations

The Front End - Registration

- Registration has evolved away from the front end and to the bedside!
- Most EDs have “mini-reg” function upon patient arrival
- Front end check out and copay collection provides pooling of front end staff who also perform mini-reg
- Should not have separate greeter/desk
The Front End – Arrivals

- Ideally walk-in arrivals and rescue squad arrivals processed by the same registration staff

- Should be near triage for the availability of a nurse to screen rescue squads if needed or part of your design
Triage/Intake

- Is changing from, “Who can wait?” to the initial evaluation area
- Minimal nurse screening to determine most efficient path for patient (streaming)
- Incorporating physician evaluation
- Incorporating ancillary resources and results waiting in close proximity

Latest Innovations

- Pivot Nurse
- Midlevel in Triage – “Super Track”
- Physician in Triage Models
  - Rapid Medical Evaluation (RME)
  - Intake Teams
- Intake Teams

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Results Waiting

**Internal**
- Patients don’t feel they’re sent to WR
- WR is empty
- Closer supervision
- Less elopement
- More comfortable
- Less space

**External**
- Patients may feel going back to WR
- WR looks busy
- Less supervision
- More elopement
- Less comfortable
- More space

Solution

Vertical area
Vertical patients will be sent to an area that will act as their ‘home base’ during their stay in the ED. Physicians will see the patient immediately upon arrival in a private exam room. If tests and treatments are required, the patient will wait in one of the pods (above) until results are ready. At which point, patients will be brought to the exam room to be seen by the physician to get the results. Our study indicated that a patient could be in a pod waiting for test results for 90 to 120 minutes.
A Vertical patients individual space made with formed Contour.
B Winco transfer patient recliner.
C Pull-out table.
D Livengood transfer cart with O2. Vac and power in a mobile cart which is plugged into support column when not moving.
E Power, O2, vac for long term patient support.
F Family chair.
G Pad for entertainment and control.
H Control for Phillips Hue lights, focused sound, air conditioning and patient information.
I Phillips Hue internet LED lights.
J ACD Hypersonic focused sound panel.

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STARS
Strategic Triage, Assessment and Rapid Service

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Get Closer to the Patient Arrival…

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Intake and Results Waiting

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Intake and Results Waiting

Get Closer to the Patient Arrival...
Main ED

- Should articulate with triage and facilitate flow
- All rooms should be clearly visible from central staff area
- Lab/radiology should be in close proximity
- Trauma area should be accessible from outside if possible and should incorporate “decon area” to facilitate flow of critical/contaminated patients
- Should be amenable to team based care
- Should consider the increasing prevalence of POC testing
- Should consider internal RW Area

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Stafford Medical Center ED
(Opening Feb 2009)

Combined Arrivals

Main ED

Waiting

Triage

EMS/Decon

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Teams/Pods

An ED I recently visited was 30,000 sf with nursing zones, but no Doc zones. The average Doc walked 7 miles per shift! Yes, true...

- However, teams can be very effective:
  - Decreased staff movement due to proximity of rooms
  - Greatly enhanced communication
  - Clear handoffs and signals due to few numbers of unique staff interactions
- The division of the ED into teams (if desired) is an important consideration and should be thought through carefully.
- Consider team-based documentation areas as opposed to separate nurse and MD areas
Boarding

- Admissions outside of normal admitting timeframe should be segregated
- Care for by inpatient nurses or nurses specifically designated to care for them
- Can get the admission started and can be evaluated by Hospitalist
- Clinical Decision Unit/Obs Unit
Non - ICU

Admitting - Boarding Occupancy

ICU

Holds/Admitting

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Summary

1. Understanding of Operations Management and flow is critical to designing a successful ED.

2. Bringing patients and staff together efficiently is the key to front end design. Articulating reception, triage, first physician contact, and diagnostics is the key to streamlined patient care.

3. In the Main ED, facilitating communication through proximity, and understanding your beds needs is critically important for success.

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For Further Reading...

2006 Guidelines for Design & Const. of Health Care Facilities

By Facility Guidelines Institute, AIA Academy of Architecture for Health, US Dept. of Health & Human Services

ISBN: 157165013X
AIA/FGI, 2006
Paperback: 352 pages
All the latest in healthcare design. Reorganized to be more accessible and updated to reflect the most current trends in medical practice.

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For Further Reading…

J Ambulatory Case Manage
Vol. 33, No. 4, pp. 296-300
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New Directions in Emergency Service Operations and Planning

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Abstract: Emergency services continue to evolve new operational and facility concepts in response to increasing demand for care and pressures for efficient, low-cost, patient management. This article describes new models for ‘intake’ of patients and for responding to peak demand that are redefining the traditional emergency service. Application of Six Sigma and ‘Lean’ analysis techniques are demonstrating dramatic improvements in throughput times and in the utilization of treatment spaces. This article provides an overview of the application of lean concepts to emergency services. Case studies of Mary Washington Hospital and Banner Health Corporation illustrate the resulting application of these tools. Implications for the required patient care and design concepts are also discussed. Key words: ambulatory care, design, emergency services, Lean, Six Sigma

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