Hardwiring Patient Flow in Your Emergency Department

The Highlights
(Extended Version)

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Studer Group Medical Director
IHI Faculty IHI (Institute for Healthcare Improvement)
Objectives for this Session

- A high-level overview of Emergency Department patient flow and operations
- To understand the approach to optimize demand/capacity issues in the ED
- Develop strategies to efficiently move lower acuity patients through your ED
- An Emergency Department that works for your patients, your healthcare team, and for you
After reading this book, you will learn:

▸ Why patient flow helps organizations maximize the “Three Es”: Efficiency, Effectiveness, and Execution
▸ How to implement a proven methodology for improving patient flow
▸ Why it’s important to engage physicians in the flow process (and how to do so)
▸ How to apply the principles of better patient flow to emergency departments, inpatient experiences, and surgical processes

www.studergroup.com/hardwiringflow
What Matters Most

- Take Care of Your Patients
- Take Care of Your Team
- Take Care of Yourself
Thinking About ED Patient Flow

Optimizing Patient Intake and Throughput: Segmenting Patient Flow Into Incoming Patient Streams…
Alaska Airlines - Reengineering Flow

Prepare for Departure
Alaska Airlines’ patented check-in process eliminates most ticket counters—and the long lines they bring. The new process, shown below, dramatically reduces wait time and interaction with airline personnel.

1. Passenger enters lobby with baggage, bypasses ticket counter and heads for the self-service kiosk.
2. Checks in at kiosk, where airline gathers points of information on traveler; prints boarding pass.
3. Leaves luggage at manned ‘bag drop’ station, where agent has all the information needed to quickly tag the bags.
4. Proceeds to security screening.

Source: Alaska Airlines (text and photos)
The view from the gurney up: “Vertical” vs. “Horizontal” Patients

**Vertical Patients**
- Ambulatory
- Arrive by Triage
- Well
- Younger
- Perceived urgency or convenience factor
- Value (Starbucks or McDonalds)
  - Speed
  - Convenience
  - Financial
  - Other non-medical factors

**Horizontal Patients**
- Stretcher bound
- Ambulance Arrival
- Sick
- Older
- Perceived serious or life-threatening Condition
- Value (Traditional Healthcare)
  - Speed
  - Safety
  - Preservation of Life/Limb
Segmenting ED Patient Flow

- Minor Urgent Care
  - Fast Track
- Peds/Med/Surg
  - Main ED
  - Main ED/CDU
- Complicated medical pts
  - Critical Care and Trauma
    - Critical Care Unit
Patient Segmentation by Acuity

ESI 5-Level Triage System:

- Easy
- Highly Reliable
- Allows for quick patient segmentation
## Emergency Severity Index (ESI) and Patient Acuity

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<thead>
<tr>
<th>Degree of Acuity</th>
<th>Level of Acuity</th>
<th>Patient Condition/Description</th>
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<tr>
<td>High</td>
<td><strong>LEVEL 1 EMERGENT</strong></td>
<td>Patients in this category require immediate attention with maximal utilization of resources to prevent loss of life, limb, or eyesight.</td>
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<td><strong>LEVEL 2 URGENT</strong></td>
<td>Patients in this category should be seen by a physician because of high risk for rapid deterioration, loss of life, limb, or eyesight if treatment or interventions are delayed.</td>
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<td>Medium</td>
<td><strong>LEVEL 3 ACUTE</strong></td>
<td>Patients who develop a sudden illness or injury within 24-48 hours. Symptoms and risk factors for serious disease do not indicate a likelihood of rapid deterioration in the near future.</td>
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<td>Low</td>
<td><strong>LEVEL 4 ROUTINE</strong></td>
<td>Patients with chronic complaints, medical maintenance, or medical conditions posing no threat to loss of life, limb, or eyesight.</td>
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<td><strong>LEVEL 5 ROUTINE</strong></td>
<td>Patients in this category are currently stable and require no resources such as labs or x-ray.</td>
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Segment Your ED’s Patient Flow into Incoming Patient Streams

**Brief RN Assessment:**
ESI Evaluation / Evaluation of Acuity

- **Low Acuity Pathway**
  - ESI Levels 5, 4, + some 3s

- **Moderate Acuity Pathway**
  - Most ESI Level 3s

- **High Acuity Pathway**
  - ESI Levels 1 + 2
Optimizing ED Treatment for ESI 5s, 4s, and Select 3s

- Laboratory
- Supplies
- Supplies
- Office
- Office
- Clean Holding
- Room 9
- Room 10
- Room 11
- ED Core
- Hall Space
- Office
- Room 8
- Room 7
- Room 6
- Room 5
- Room 4 Trauma
- Room 3 Trauma
- EMS Room
- Room 1
- Room 2
- Trauma Entrance
- Room 12
- Zone 1
- Zone 2
- Zone 3
- Zone 4
Keeping Your Vertical Patients Vertical and Moving

- Patients enter intake area
- Treat and Release
- Patient Intake Area
- Results Waiting Area
- Focused Evaluation and Treatment
  - Move to results waiting area.
- Results Back
  - Treatment Complete
  - Discharge
- Triage Orders
- Dx/Rx Protocols
- MLP in Triage
- MD in Triage
- Super-Track
- Fast-Track
- Team Triage
A “Super” Fast Track located *in or near triage* for the purpose of promptly treating patients who require very low resource utilization.
The role of the Fast Track is to segment and serve those patients that are uncomplicated or relatively easy to treat. The Fast Track is not a casual add-on or an overflow unit.
Optimizing your Fast Track

Key tactics:

- Optimize and maximize patient selection
- Match hours of operation to patient demand
- Optimize space and capacity
- The right clinical mix of providers and productivity

A note of caution - Watch out for:

- Inefficient Fast Tracks
- Multiple handoffs resulting in queues
- Too sick patients in FT tying up beds
“Team Triage”- A Service Line

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

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

5 Rooms*

Treatment Area

Results Waiting*

*Mary Washington Hospital design
Courtesy of Jody Crane, MD, MBA
Bed Turns and Results waiting

- 6 Hour ALOS=4 patients per bed per day
- 4 Hour ALOS=6 patients per bed per day

- A key rate limiting server
- A key component of care
- A key “member” of your team

...park bench or MVP?
Optimize ED Bed Capacity and Utilization

*Patients should be in a bed only if it is medically necessary and only for as long as it is medically necessary…*

- Optimizing or maximizing bed capacity and bed turns
  - Does bed capacity match patient demand?
  - Are patients in bed for the shortest mount of time that is medically necessary?
  - Are the patients in beds only those patients that actually need a bed?
  - Are there boarded patients or outpatients in ED Beds?
Focusing on Patient Intake and Segmenting Incoming Patient Flow:
Core Components in your Portfolio of Options

- Triage Orders/Treatment Protocols
- Super-Tracking
- Fast-Tracking
- Midlevel Provider in Triage
- MD in Triage
- Team Triage (Multi-disciplinary assessment and treatment team)
Getting it Right at the Front End of Your ED—Thinking Operationally

- Measure your *patient demand* by hour and design (manage) a system to handle it.
- Make sure your *triage processes enhance flow*, not form a bottleneck; consider redesigning your front end processes.
- Use a simple and reliable system to *segment patient flow*.
- Design and fully optimize a *Fast Track*.
- Commit to the *right staffing mix—and the right staff*.
- Establish a *results waiting area*.
- Devise a method to *track your patients and your results*.
Patient Flow (Demand) is Predictable and
Capacity (Staff, Space, Supplies, and Service...) is Manageable...

*i.e. …is a management responsibility*
ED Patient Flow is Predictable: Classic ED Patient Flow Curves

Emergency Department Admission Times: 1 Hour Increments

ED Hourly Census And Arrivals

ED Hourly Lab/Radiology Orders

Trend-Star Data: Q-1 FY04 & FY05
ED Patient Flow and Operations is an Example of a Queuing System:
Queue Behavior as a Function Of Utilization

Small changes in utilization can lead to big changes in service and throughput.
Matching Capacity to Demand

Eugene Litvak, PhD, Boston University
Scientific Management
Arrivals vs. Staffing

Arrivals vs. Staffing - TWTF

Hour of Day
# of Arrivals

0.0
1.0
2.0
3.0
4.0
5.0
6.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

# of Arrivals

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0 1 2 3

Average Arrivals
Staffing
Scientific Management Planning for Admissions

Northwest Community Hospital Admissions

Number of Admissions

Hour of Day

Studer Group © 2010
Demand-Capacity Tools and Techniques
## Projecting Utilization: INTAKE TEAM

© 2007, Jody Crane, MD, MBA

### Projected Hourly Volumes

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- = 1/2 Team*1MD,1RN ED Volume Between 3.96 and 6.00 pts/hr
- = 1 team ED Volume Between 6.00 and 12.00 pts/hr
- = 2 teams ED Volume Between 12.00 and 18.00 pts/hr
- = 3 teams ED Volume Between 18.00 and 24.00 pts/hr
- = 4 teams ED Volume Between 24.00 and 30.00 pts/hr

*Team = 1 MD, 1 MLP, 2 RN, 1 Paramedic or tech, 1 Unit coordinator, 1 Patient Liaison, 2 Scribes

*Team = 5 intake beds, 7-8 treatment beds

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**ESI Distribution**

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Please enter the target team
1 MD, 1 MLP, 2RN, + Support
Hardwiring ED Patient Flow
Going Deeper…

Critical ED Patient Flow Concepts
Critical ED Patient Flow Concepts

- The front door and your front end processes drive flow.
- Triage is a process, not a place.
- Get the patient and the doctor together as quickly and efficiently as possible.
- Fast Track is a verb, not a noun.
- Keep your vertical patients vertical and in motion.
- Patients who need few or no resources should not routinely wait behind those patients who need multiple resources—no matter how heavy the ED patient volume...
- For horizontal patients, real estate matters. For vertical patients, speed matters.
- We want to be fast at fast things and slow at slow things.

Kirk Jensen/Thom Mayer
Flow occurs when doctors do “doctor stuff” and nurses do “nurse stuff”

The number one sign of the health of an ED is the relationship between the physicians and the nurses

Good IT won’t fix bad processes-and mediocre IT makes things even worse.

Making people unhappy and then sending them a bill is not a healthy business model.

Satisfaction matters-for you, your team, and your patients.

If the boarding burden is not overwhelming, much can be accomplished by focusing on the front end and the throughput bottlenecks under your control and/or influence…Think TOC and Lean…

If your boarding burden is overwhelming, you are….!@!&%#!

Kirk Jensen/Thom Mayer
A method to segment patients on intake is important for efficient ED patient flow.

Processes, people and places to care for the patient demand in each segment need to be designed and implemented.

Processes, people and places need to work as an integrated system to create an entire ED that works for patients and staff.

Non-urgent patients need to be kept vertical and moving.
Your Emergency Department is the ultimate reality show…
Take a look at your ED:
- Get passionate…
- Get serious…
- Get it done…
References

HARDWIRING FLOW
Systems and Processes for Seamless Patient Care
Thom Mayer, MD, FACEP, FAAP
and Kirk Jensen, MD, MBA, FACEP

LEADERSHIP FOR smooth patient flow
Kirk Jensen, Thom A. Mayer, Shari Welch, Carol Haraden

Endorsed by: INSTITUTE FOR HEALTHCARE IMPROVEMENT
improving patient flow in the emergency department

There are nine strategies hospitals can incorporate to more effectively manage patient flow in the emergency department without sacrificing quality of care.

AT A GLANCE

To improve patient flow in the ED, hospitals should:
- Establish a measure of patient demand by hour, and design a system to handle it
- Appropriately capacitate triage processes and systems
- Use a system for patient segmentation and establish distinct processes for different patient segments
- Consider using team triage, and examine current triage protocols
- Devise a method of tracking patients and results
- Field a willing staff with a burning platform

In a consumer-driven healthcare marketplace, successful patient outcomes and high levels of customer satisfaction define hospital success. Healthcare organizations must deliver excellent and timely care in environments that reward teamwork and quality service. One basic component of this success model is smooth patient flow: the movement of patients through the network of queues and service transitions that characterize modern healthcare.

Weak patient flow systems that produce patient and service backups create poor patient care situations, dissatisfied patients, frustrated employees, and diminished bottom lines. When patients wait for hours, nurses are overloaded, physicians have no available rooms in which to see patients, and test results are long in coming, no one is happy. Improving patient flow can make a tremendous difference in quality of life for patients, healthcare workers, families, and administrators—and can raise the profitability of the hospital.

As the point of entry for the largest number of patients—the hospital's de facto "front door"—the emergency department (ED) is critical to effective
References


- Christensen, Grossman, and Hwang,-*The Innovator’s Prescription*, 2009
References:
The Psychology of Waiting


Christine M. Meade, PHD, Julie Kennedy, RN, BSN, TNS, and Jay Kaplan, MD, FACEP-The Studer Group- JEM 2008