Managing Patient Flow: It Starts at the Front Door

Kirk Jensen, MD, MBA, FACEP
Chief Innovation Officer - EmCare, Inc.
Chief Medical Officer - BestPractices, Inc.
IHI Faculty Member
National Speaker - The Studer Group
Key Principles for Managing Front-Door Flow
Our Goals and Objectives

• A high-level overview of Emergency Department operations
• An Emergency Department that works for your patients, your healthcare team, and for you…
Critical Patient Flow Concepts
In the Emergency Department

6 Concepts for Improving Patient Flow

1. As the point of entry for the largest number of patients, your hospital's front door – the emergency department – is a critical part of the healthcare system and a sound place to begin working on flow.

2. Triage should facilitate and not delay patient care. The prime function of triage should be to evaluate and expedite patient care, not to determine which patients can wait for care.

3. Fast Track is not an area where we see minor cases; Fast Tracking is something we do to move patients through our EDs more efficiently and effectively.

4. The faster simple injuries and illnesses can be evaluated and treated, the better.

5. Keep your vertical patients vertical and moving. Establish a results waiting area and work to increase the rate of bed turns so that patients are only in beds if medically necessary and for as long as medically necessary.

6. Smooth patient flow depends on diagnostic and treatment decisions; the quicker patients get to see a clinician, the quicker they will move through the department.
Getting it Right in Your Emergency Department: ED Service Operations-The Basics

A Classic Emergency Department Change Package:

• Enhanced Triage
• Pull ‘til Full
• Bedside Registration
• A Fast Track on Steroids
• Efficient Ancillary Services
  – Lab and Radiology
• A Results-Waiting Area
• Efficiently Managing Admissions and Discharges
The front door and your front end processes drive flow…
Classic Front-End Flow

KEY
1- Reception
2- Triage
3- Registration
4- Tests
5- Clinician

Blue is forward
Red is retreat
Front-End Redesign-Maintaining Forward Flow

- Reception (1)
- Triage/Registration (2)
- Tests/Clinician (3)

Blue is forward, Red is retreat
Front End Patient Flow: A Portfolio of Options

• Advanced Triage Orders/Treatment Protocols
• Fast-Tracking Low-Acuity Patients:
  – Super-Track (ESI 5’s + simple 4’s)
  – Fast-Track (ESI 5’s, 4’s, and simple 3’s)
• Clinician in Triage:
  – Midlevel Provider in Triage
  – MD in Triage
  – Team Triage (Multi-disciplinary assessment and treatment team)

A Portfolio of Options is available to be deployed as patient volume and demand either requires it or can justify it. The front-end flow tactics(s) are selectively and scientifically implemented at certain hours of the day and days of the week based upon your demand-capacity modeling of incoming patient flow.
Size Matters - General Operational Strategies for Patient Flow by Volume Bands

20,000 Visits Per Year and Below
- No triage, immediate bedding, bedside registration for all
- No Segmentation – Clear signals to identify low acuity patients
- Results waiting

40,000 Visits Per Year
- Quick Look Triage to segment, Quick/Bedside Registration for all
- For ERs with low acuity/low admit: Super Track (9a-11p) with 1-2 MLP with committed resources for lab/rad
- For ERs with high acuity/high admit: Intake Team (9a-11p) with 1 doc, 1 MLP with committed resources for lab/rad
- Results waiting

60,000 Visits Per Year and Above
- Quick Look Triage to segment, Quick/Bedside Registration for all
- Super Track (8a-1a), MD/MLP Intake Team (9a-11p)
- Results waiting
Triage is a process, not a place…
Triage Should Add Value

• Does it...
  – Improve Throughput?
  – Increase Safety?
  – Improve Quality?
  – Increase Satisfaction?
  – Increase Revenue?
  – Decrease Cost?

• If Not…Why Not…Change It…Now!
“Name, Rank, and Serial Number…”

- Name
- Limited chief complaint
- Vital signs
- Pain score
- “Sick or Not Sick”
Get the patient and the doctor together as quickly and as efficiently as possible…
Timeliness of care has a strong correlation to patient satisfaction (1,2) with wait time to be treated by a physician having the most powerful association with satisfaction. (3)

1. Bursch B, Beezy J, Shaw R. Emergency department satisfaction: what matters most? 

2. Thompson DA, Yarnold PR, Williams DR, et al. Effects of actual waiting time, perceived waiting time, information delivery, and expressive quality on patient satisfaction in the emergency department.

Time to Physician and Patient Safety

A crowded ED increases risk – there is more than 4x the # of malpractice claims if it takes longer than 60 minutes to see a physician versus under 30 minutes.

Source: Studer Group and CEP
Segment Incoming Patient Flow
Get the patient to the right place, at the right time, with the right treatment

Patient Enters

Patient Sorted

Sick

Doctor To see Now

Not Sick

Immediate bedding in back

Streamlined Care ST/FT/TT/RW
Match Your Service Delivery to Your Incoming Patient Streams

**Triage**

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

- **High Acuity Pathway**
  ESI Levels 1 + 2

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

- **Low Acuity Pathway**
  ESI Levels 5, 4, + some 3s
“We knew you were coming in today…

We just didn’t know your name!”
A Case Study: Modeling Demand-Capacity Prediction and Resource Management

Combined Demand/Capacity

Weekly Impact

<table>
<thead>
<tr>
<th></th>
<th>Avg. Day</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician</td>
<td>42.3</td>
<td>296</td>
</tr>
<tr>
<td>MLP</td>
<td>15.1</td>
<td>106</td>
</tr>
<tr>
<td>Scribe</td>
<td>42.1</td>
<td>295</td>
</tr>
</tbody>
</table>

Main Room

Fast Track

Studer Conferences
“Fast Track” is a VERB, not a NOUN...
“Fast Track” is a VERB, Not a NOUN

What it is…

• A specific, patient-centric service line
• A focused resource that matches capacity to predicted demand
  – Matches hours, space and staff to patient arrival and acuity
• An enthusiastic A Team focused on results
  – Fanatically dedicated to the “7 Rights…”

What it isn’t…

• An overflow unit
• A casual add-on
• A swing shift
• A place for B Team Members
• A retirement home
• An obstacle to care
Front End Patient Flow Service Lines
A Review

• **Fast Track** - 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.
  – 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

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

• **“Team Triage”** - A team of providers utilizing an “intake team” mentality for promptly assessing, treating, and discharging level 3 patients
“Fast Track” Is A VERB, Not A NOUN...

• Code Blue
• Code STEMI
• Code Stroke
• Code Sepsis
• Code Vascular
• Code …
For horizontal patients, it’s about real estate…
For vertical patients it’s about speed…
The more horizontal you are the more you are a patient...

The more vertical you are the more you are a customer...

Make the Customer Service Diagnosis, Treat Accordingly…
Keep your vertical patients vertical and in motion...
Keeping Your Vertical Patients Vertical and in Motion: Optimizing ED Treatment for ESI 5s, 4s, and Select 3s
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...
Patients should be in a bed only if it is medically necessary and only as long as it is medically necessary.

Optimize Bed Capacity AND Utilization…
TABLE TURNS - How many times a table in a restaurant is used to serve a new customer
Bed Turns-How Many Patients a Bed Can Serve per Unit of Time
Be fast at fast things
and slow at slow things...
Fast or Slow?

- 18 y/o basketball player with inversion injury
- 20 y/o with abdominal pain, nausea, vomiting
- 2 y/o with a 1 cm facial laceration
- 20 y/o with a 10 cm laceration
- 17 y/o with scrotal pain
- 50 y/o with back pain, needs a work note
- 50 y/o with hx of renal stones and 10/10 pain
- 50 y/o with hx ASCVD and intense abdominal pain
Flow occurs when doctors do “doctor stuff” and nurses do “nurse stuff”...
Leverage Clinical Talent, Time, and Performance

• The clinical talent should be roving intellects engaged in value-added activities at all times

• The role of the clinical staff is to make diagnostic and treatment decisions and to manage the team and patient flow

• Anything else is non-value added activity…
  – Optimize the MD/MLP/RN mix
  – Scribes to leverage the MDs
  – Patient flow coordinator
  – Board huddles/rounds in the ED
  – Team assignments/geographic zones
  – The right clinical support mix
  – Tailor the hours and staff to the facility and to patient flow
The number one sign of the health of an ED is the relationship between the physicians and the nurses...
ED Docs Must Be…

• Capable of “playing in the sandbox” together
• Team Leaders
• Team Followers
• The strongest advocates for nurses …in the ED…and in your hospital…
"When I was in medical school I spent hundreds of hours looking into a microscope—a skill I never needed to know or ever use. Yet I didn't have a single class that taught me communication or teamwork skills-something I need every day I walk into the hospital.”

Dr. Peter Pronovost
Safe Patients, Smart Hospitals
A Team Based Approach
We can do it…

Sentara Northern Virginia Medical Center:
1. Time to doc evaluation decreased by 60%
2. LWBS decrease from 10% to <1%
Making people unhappy and sending them a bill is not a healthy business model...
If your boarding burden is overwhelming, you are....!@!&%#!
Know Your Data: Beds Occupied by Boarders

Calculated Boarder Census
By Hour of Day

Occupied Beds

7:00  9:00  11:00  13:00  15:00  17:00  19:00  21:00  23:00  1:00  3:00  5:00
Know the Consequences: Effect of Zone Closures on Performance

LWOT %

<table>
<thead>
<tr>
<th>Days with all zones open</th>
<th>Days where one or more zones closed*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1%</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

Discharge LOS

<table>
<thead>
<tr>
<th>Days with all zones open</th>
<th>Days where one or more zones closed*</th>
</tr>
</thead>
<tbody>
<tr>
<td>194</td>
<td>210</td>
</tr>
</tbody>
</table>

Copyright © 2016 Studer Group. Please do not quote or disseminate without Studer Group authorization
Know the Consequences: Demand for Staffed Beds

Average Day, 172 Patient Arrivals

- If all available beds are staffed during peak times (12p-12a), we have sufficient bed capacity.
- If one zone is closed during these peak times, we drop below required bed capacity and performance will falter.
Waiting Time vs. Utilization in a Queuing System

Background

- A “queuing system” is one where customers arrive at undetermined, but normally distributed, times
  - Classic examples include call centers, grocery lines, and emergency departments
- The behavior of these systems is well understood and can be described by two variables
  - Mean arrivals per hour
  - Capacity per hour
- In such a system, waiting time always skyrockets as the number of arrivals per hour approaches the system capacity

Bottom Line: When identifying capacity for a queuing system, it is critical to target a utilization of under 80%

- 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
- For horizontal patients, real estate matters; for vertical patients, speed matters
- The more horizontal you are the more you are a patient... The more vertical you are the more you are a customer...

Kirk Jensen/Thom Mayer, Hardwiring Flow

- Keep your vertical patients vertical and in motion
- Be fast at fast things and slow at slow things
- The number one sign of the health of an ED, OR, PACU, ICU, or hospital floor is the relationship between the physicians and the nurses
- Making people unhappy and sending them a bill is not a healthy business model
- If your boarding burden is overwhelming, you are....!@!&%#!

Kirk Jensen/Thom Mayer, Hardwiring Flow
This is not a job for the faint of heart...
RESOURCES, DATA, BENCHMARKING AND REFERENCES
The Patient Flow Advantage: How Hardwiring Hospital-Wide Flow Drives Competitive Performance

Kirk Jensen/Thom Mayer  FireStarter Publishing,  January 2015

Section 1 — Framing the Flow Mandate
Chapter 1: Why Flow Matters
Chapter 2: Defining Flow: Establishing the Foundations
Chapter 3: Strategies and Tools to Hardwire Hospital-Wide Flow
Chapter 4: Lessons from Other Industries

Section 2 — Advanced Flow Concepts
Chapter 5: Emergency Department Solutions to Flow: Fundamental Principles
Chapter 6: Advanced Emergency Department Solutions to Flow
Chapter 7: Hospital Systems to Improve Flow
Chapter 8: Hospital Medicine and Flow
Chapter 9: Real-Time Demand and Capacity Management

Section 3 — Frontiers of Flow
Chapter 10: Hardwiring Flow in Critical Care
Chapter 11: Smoothing Surgical Flow
Chapter 12: Acute Care Surgery and Flow
Chapter 13: Integrating Anesthesia Services into the Flow Equation
Chapter 14: The Role of Imaging Services in Expediting Flow
Chapter 15: The Future of Flow
Hardwiring Flow
Systems and Processes for Seamless Patient Care

Thom Mayer, MD, FACEP, FAAP
Kirk Jensen, MD, MBA, FACEP

- 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
Strauss and Mayer's Emergency Department Management

- By Robert W. Strauss MD, Thom A. Mayer, MD
- Kirk B Jensen, MD, MBA, FACEP, Associate Editor
- Publisher: McGraw-Hill Professional
- Publication date: January 2014
- Thom Mayer, one of two chief editors, co-authored 20+ chapters
- Rob Strauss, one of two chief editors, co-authored 20+ chapters
- Kirk Jensen, one of two associate editors, co-authored 11 chapters as well as serving as section editor of the Operations: Flow section.
- Stephanie Baker co-authored a chapter on Patient Throughput
Patient Flow: Reducing Delay in Healthcare Delivery, Second Edition:

1. Modeling Patient Flows Through the Healthcare System, RANDOLPH HALL, DAVID BELSON, PAVAN MURALI AND MAGED DESSOUKY
2. Hospital-wide System Patient Flow-ALEXANDER KOLKER
3. Hospitals And Clinical Facilities, Processes And Design For Patient Flow MICHAEL WILLIAMS
4. Emergency Department Crowding-KIRK JENSEN
5. Patient Outcomes Due to Emergency Department Delays- MEGHAN MCHUGH
6. Access to Surgery and Medical Consequences of delays BORIS SOBOLEV, ADRIAN LEVY AND LISA KURAMOTO
7. Breakthrough Demand-Capacity Management Strategies to Improve Hospital Flow, Safety, and Satisfaction-LINDA KOSNIK
8. Managing Patient Appointments in Primary Care-SERGEI SAVIN
9. Waiting Lists for Surgery-EMILIO CERDÁ, LAURA DE PABLOS, MARIA V. RODRÍGUEZ-URÍA
10. Triage and Prioritization for Non-Emergency Services-KATHERINE HARDING
11. Personnel Staffing and Scheduling-MICHAEL WARNER
13. Using Simulation to Improve Healthcare: Case Study-BORIS SOBOLEV
15. Forecasting Demand for Regional Healthcare-PETER CONGDON
16. Queueing Analysis in Healthcare-LINDA GREEN
17. Rapid Distribution of Medical Supplies - MAGED DESSOUKY, FERNANDO ORDÔÑEZ, HONGZHONG JIA, AND ZHIHONG SHEN
18. Using a Diagnostic to Focus Hospital Flow Improvement Strategies ROGER RESAR
19. Improving Patient Satisfaction Through Improved Flow-KIRK JENSEN
20. Continuum of Care Program- MARK LINDSAY
21. A Logistics Approach for Hospital Process Improvement-JAN VISSERS
22. Managing a Patient Flow Improvement Project-DAVID BELSON
Table of Contents

Foreword Gautam G. Bodiwala

Part I. Leadership Principles:
1. Leadership in emergency medicine Robert L. Freitas
2. Identifying and resolving conflict in the workplace Robert E. Suter and Jennifer R. Johnson
3. Leading change: an overview of three dominant strategies of change Andrew Schenkel
4. Building the leadership team Peter Cameron
5. Establishing the emergency department’s role within the hospital Thomas Fleischmann

Part II. Management Principles:
6. Strategies for clinical team building: the importance of teams in medicine Matthew M. Rice
7. Quality assurance in the emergency department Philip D. Anderson and J. Lawrence Mottley
8. Emergency department policies and procedures Kirsten Boyd
10. Emergency department staff development Thomas Fleischmann
11. Costs in emergency departments Matthias Brachmann
12. Human resource management Mary Leupold
13. Project management Lee A. Walls, Leana S. Wen and Sebastian N. Walker
14. How higher patient, employee and physician satisfaction lead to better outcomes of care Christina Dempsey, Deirdre Mylod and Richard B. Siegrist, Jr
15. The leader’s toolbox: things they didn’t teach in nursing or medical school Robert L. Freitas

Part III. Operational Principles:
16. Assessing your needs Manuel Hernandez
17. Emergency department design Michael P. Pietrzak and James Lennon
18. Informatics in the emergency department Steven Horng, John D. Halamka and Larry A. Nathanson
19. Triage systems Shelley Calder and Elke Platz
20. Staffing models - Kirk Jensen, Dan Kirkpatrick and Thom Mayer
22. Observation units Christopher W. Baugh and J. Stephen Bohan
23. Optimizing patient flow through the emergency department - Kirk Jensen and Jody Crane
24. Emergency department overcrowding Venkataraman Anantharaman and Puneet Seth
25. Practice management models in emergency medicine Robert E. Suter and Chet Schrader
26. Emergency nursing Shelley Calder and Kirsten Boyd
27. Disaster operations management David Callaway
28. Working with the media Peter Brown
29. Special teams in the emergency department David Smith and Nadeem Qureshi
30. Interacting with prehospital systems Scott B. Murray
31. Emergency medicine in basic medical education Julie Welch and Cherri Hobgood
32. Emergency department outreach Meaghan Cussen
33. Planning for diversity Tasnim Khan

Index.
Improving Patient Flow in the Emergency Department

Kirk Jensen
Jody Crane

AT A GLANCE

To improve patient flow in the ED, hospitals should:

- Establish a team that is trained to implement and design a process and schedule.
- Implement a system that captures processes and
- Discipline for patient utilization.
- Standardize processes to ensure consistency.
- Communicate changes prior to implementation.
- Remove the barriers to patient flow.
- Fully support the processes.

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

In a emergency-driven healthcare setting, quick patient turnover and high-level customer satisfaction are critical to hospital success. The ability of hospitals to deliver excellent care and timely care improvements that

improve patient satisfaction and quality of care. The basis of improvement of this process is about a smooth patient flow. The cornerstone of process through the work

of operational service organizations that deliver the quality of care.

Wide patient flow means the patient process and service benchmarked. Lean

Lean management of a process allows teams to better understand and improve the process. The benefit of a patient flow can be measured in differences in quality of care for patients, healthcare workforce, and

performance. Teams can set goals and create the productivity of the hospital.

As one of the ways for the hospital’s network of processes, the hospital should create an effective patient flow. This patient flow in the ED is driven by the

metrics and the steps that are essential for improving the organization from the standpoint of patient satisfaction. In the ED, it’s also about

developed and established hospitals, creating the hospital in mind with

processes and procedures that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are

improvement processes that identify patient management and focusing on

improvement. These, in turn, are part of the ED’s performance and success. These are
Leadership for Smooth Patient Flow:
Improved Outcomes, Improved Service, Improved Bottom Line

Kirk B. Jensen, MD, FACEP
Thom A. Mayer, MD, FACEP, FAAP
Shari J. Welch, MD, FACEP
Carol Haraden, PhD, FACEP

The heart of the book focuses on the practical information and leadership techniques you can use to foster change and remove the barriers to smooth patient flow.

You will learn how to: Break down departmental silos and build a multidisciplinary patient flow team Use metrics and benchmarking data to evaluate your organization and set goals Create and implement a reward system to initiate and sustain good patient flow behaviors Improve patient flow through the emergency department—the main point of entry into your organization The book also explores what healthcare institutions can learn from other service organizations including Disney, Ritz-Carlton, and Starbucks. It discusses how to adapt their successful demand management and customer service techniques to the healthcare environment.

“This book marks a milestone in the ability to explain and explore flow as a central, improvable property of healthcare systems. The authors are masters of both theory and application, and they speak from real experiences bravely met.”

Donald M. Berwick, MD
President and CEO
Institute for Healthcare Improvement (from the foreword)

ACHE + Institute for Healthcare Improvement
The Hospital Executive’s Guide to Emergency Department Management

Kirk B. Jensen, MD, FACEP
Daniel G. Kirkpatrick, MHA, FACHE

Table of Contents:
Chapter 1: A Design for Operational Excellence
Chapter 2: Leadership
Chapter 3: Affordable Care Act Impact—What Healthcare Reform Means for the ED
Chapter 4: The Impact of Specialized Groups and Populations on the ED
Chapter 5: Fielding Your Best Team
Chapter 6: Improving Patient Flow
Chapter 7: Ensuring Patient Satisfaction
Chapter 8: Implementing the Plan
Chapter 9: Culture and Change Management
Chapter 10: Patient Safety and Risk Reduction
Chapter 11: The Role and Necessity of the Dashboard
Chapter 12: Physician Compensation: Productivity-Based Systems
Chapter 13: Billing, Coding, and Collections
Chapter 14: The Business Case
HcPro April 2014
Real-Time Demand Capacity Management and Hospital-Wide Patient Flow

In 2004, the Joint Commission issued its first accreditation standards—effective January 1, 2005—for managing patient flow.1

The current Leadership Standard, L.D.04.03.11, states, “The hospital manages the flow of patients throughout the hospital.”

When first issued, the standard served as a call to action for hospitals to focus more formally on patient flow issues. Yet, many hospitals still lack the processes and structures to admit or transfer patients to an inpatient bed on a timely basis. This often results in emergency department (ED) overcrowding, because the beds are being used by patients waiting to be admitted. Such overcrowding has been shown to have an adverse effect on patient outcomes and the well-being of health care workers.2

To address the Joint Commission standard, many hospitals established flow committees to identify the major barriers to patient flow and then embarked on improvement projects focused on these barriers. In our observations, three issues affecting the results from this approach have surfaced, as follows:

1. The improvement projects selected are often not connected to the true bottlenecks identified at the time that problems with patient flow occur.
2. The changes that result from the projects may optimize only part of the system but may not optimize flow throughout the hospital.

Background: The Joint Commission’s accreditation standard on managing patient flow, effective January 2005, served as a call to action for hospitals, yet many hospitals still lack the processes and structures to admit or transfer patients to an inpatient bed on a timely basis. In 2007 the University of Pittsburgh Medical Center (UPMC) at Shadyside, a 526-bed tertiary care hospital, began testing and implementing real-time demand capacity management (RTDC) at an initial pilot site. The hospital had identified improved patient flow as a strategic goal in 2002, but a series of patient flow projects failed to result in improvement.

Implementing RTDC: Standard processes for the four RTDC steps—Predicting Capacity, Predicting Demand, Developing a Plan, and Evaluating a Plan—and standard structures for unit bed huddles and the hospital bed meetings were developed. The neurosurgery (NS) service line’s ICU and stepdown unit were designated as the first pilot sites, but work was quickly spread to other units.

Results: Improvements were achieved and have been sustained through early 2011 for all measures, including (1) the unit-based reliability of discharge predictions; (2) overnight holds in the postanesthesia care unit; a problem eliminated two months after RTDC work began; (3) the percentage of patients who left without being seen (LWBS).
Chapter 8

Improving Hospitalwide Patient Flow at Northwest Community Hospital

Karen Colby, M.S., R.N.; CN.A.A.-B.C.

From a systems standpoint, hospitals have inputs (patients coming to the hospital), throughput (patients being treated or admitted), and outputs (patients being released). Flow is defined as the movement of these patients into, through, and out of the hospital. How efficiently this movement is accomplished determines the rate of flow through the hospital, if not throughout the entire health care system.

Many factors control the flow within the hospital. First, barriers to entry may slow or stop the flow. In the emergency department (ED), for example, the inability to get patients admitted contributes to a patient flow backlog that strains staff and causes long waits, sometimes compromising quality of care or necessitating diversion. In the ICU, transfers of patients to the floor can be delayed by the unavailability of beds, keeping patients waiting for needed ICU space. Patients often must be moved to less than ideal places because the system is not flowing smoothly, compromising the quality of patient care. Second, barriers to exit can slow or stop the flow as well. If a patient is not discharged in an efficient and timely way, a needed and valuable space is rendered unavailable for longer than is necessary, creating backups throughout the system. Paradoxically, barriers to exit help create the barriers to entry. If inpatients cannot get out, new patients cannot get in.

As the venerable and ever-interesting Yogi Berra once said, “People don’t go there anymore. It’s too crowded.” Although this maxim may probably only make sense to Yogi, it is, in fact, the incentive for hospitals to work on improving patient flow and throughput. In the health care industry, patient service and patient safety are paramount. In the current economic and reimbursement climate, collecting every dollar earned and minimizing costs to survive. The service and safety companies, as well as the loss of income derived from hospitals going on bypass or diversion, or from patients leaving before being seen, or from prolonged inpatient stays, simply cannot be tolerated. Furthermore, although it may not be rocket science, optimizing patient flow is surprisingly analogous—to get from launch to landing quickly and safely. Throughput as a science has been around since quantum, or waiting lines, were first analyzed by A.K. Erlang in 1913, in the context of telephone facilities.1

Industries as diverse as airlines, trucking, and fast-food drive-through have since made use of queuing theory, computer simulation, and smoothing demand to maximize throughput and optimize resource allocation. Despite its proven ability to better serve customers, reduce costs, and improve safety, health care has been slow to jump into the science of operations management (OM).
The Definitive Guide to Emergency Department Operational Improvement

X₃₂ Healthcare

Where analytics and innovation meet to define the future of healthcare

The Definitive Guide to Emergency Department Operational Improvement

Employing Lean Principles with Current ED Best Practices to Create the “No Wait” Department

Joseph Crane and Charles E. Noon

Studer Conferences

Copyright © 2016 Studer Group. Please do not quote or disseminate without Studer Group authorization.

© Kirk B. Jensen, MD, MBA, FACEP
EmCare® Door-to-Discharge™

Emergency Department and Hospital Medicine Outsourcing

Partnerships address challenges head-on with a combination of proven strategies and creative tactics.
The Improvement Guide and Rapid-Cycle Testing

Langley GL, Nolan KM, Nolan TW, Norman CL, Provost LP.

*The Improvement Guide: A Practical Approach to Enhancing Organizational Performance (2nd edition).*

References


• Full Capacity Protocol. www.viccellio.com/overcrowding.htm


References: The Psychology of Waiting


- Norman, D. A. (2008) -- The Psychology of Waiting Lines. The PDF version is an excerpt from a draft chapter entitled "Sociable Design" for a new book- [the psychology of waiting lines](http://www.jnd.org/dn.mss/the.psychology.of.waiting.lines)

Patient Segmentation by Acuity

ESI 5-Level Triage System:
- Easy
- Highly Reliable
- Allows for quick patient segmentation

Benchmarking Resources

Where to find data

Your neighbors
  • Call and/or visit

ACEP
  • http://www.acep.org

Premier
  • www.premier.com

VHA
  • www.vha.com

ED Benchmarking Alliance
  • www.edbenchmarking.org

UHC
  • www.uhc.org

Be sure to compare hospitals with similar acuity and similar volume…
EVALUATION REMINDER:
We want your feedback to get better. Please remember to take the session evaluation. Thank you!

Kirk Jensen, MD, MBA, FACEP
Chief Innovation Officer, EmCare
Chief Medical Officer, BestPractices
kjensen@best-practices.com
Next Presentation:

Diagnose then Treat : Finding the Right Flow Efficiency Model

Dan Smith, MD, FACEP
Studer Group Medical Director