

Informational Call September 4, 2019

IHI's Hospital Flow Professional Development Program

Pat Rutherford VP, Institute for Healthcare Improvement

> November 4-8, 2019 Boston, MA

Have Questions?



Why Hospital Flow Is Key to Patient Safety





http://www.ihi.org/communities/blogs/why-hospital-flow-is-key-to-patient-safety

ED Boarding and Mortality



Singer, A. J., Thode Jr, H. C., Viccellio, P. and Pines, J. M. (2011), The Association Between Length of Emergency Department Boarding and Mortality. Academic Emergency Medicine, 18: 1324–1329.

ICU Transfer Delay and Hospital Mortality

- Observational cohort study on medical-surgical wards at 5 hospitals to investigate the <u>impact of delayed ICU transfer</u>.
- A total of 3789 patients met the critical eCART threshold before ICU transfer, and the median time to ICU transfer was 5.4 hours.
 - Delayed transfer (>6 hours) occurred in 46% of patients (n = 1734) and was associated with increased mortality compared to patients transferred early (33.2% vs 24.5%, P < 0.001).
 - In patients who survived to discharge, delayed transfer was associated with longer hospital length of stay (median 13 vs 11 days, P < 0.001)
- <u>Delayed ICU transfer is associated with increased hospital length of stay</u> <u>and mortality</u>. Use of an evidence-based early warning score, such as eCART, could lead to timely ICU transfer and reduced preventable death.

<u>Churpek MM</u>, <u>Wendlandt B</u>, <u>Zadravecz FJ</u>, <u>Adhikari R</u>, <u>Winslow C</u>, <u>Edelson DP</u>. Association between intensive care unit transfer delay and hospital mortality: A multicenter investigation. J Hosp Med.</u> 2016 Nov;11(11):757-762.

The Problem and the Opportunity

Addressing vexing issues of patient flow in hospitals is essential to ensure safe, high quality, patient-centered care. Failure to provide the "right care, in the right place, at the right time" puts patients at risk for sub-optimal care.

Poorly managed hospital flow also adds to the already taxing burden on clinicians and staff and diverts their attention from clinical care. Improving hospital flow is critical lever for increasing value -for patients, clinicians and health care systems. What would success in achieving hospital-wide flow look like at your hospital or health system?



Source: Massachusetts Hospital Profiles, Data Through Fiscal Years 2012-2015, Center for Health Information and Analysis

Average Occupancy Rates (at hospital or unit level) and the Day-to-Day Realities of Managing Patient Flow



System-wide View of Patient Flow of Helps to Avoid Isolated Perspectives and Flow Projects



Wait Times in the Emergency Department - It's a System Problem











Six Ways Not to Improve Patient Flow: A Qualitative Study

- Narrowly focused initiatives reflected a decentralized system and the <u>lack of a coherent</u> system-level strategy for patient flow
- Well-established principles exist for improving timeliness and efficiency -- assess capacity and demand, ascertain and address the causes of variation and streamline care processes.
- Improving efficiencies in isolated areas will not lead to improved hospital-wide patient flow (need to focus on the greatest system constraint and scrutinize how different sub-systems throughout the hospital impact each other)
- Move beyond a proliferation of piecemeal initiatives to a coherent strategy of identifying the greatest constraints, and after the greatest constraint has been addressed move to the next constraint in the system.
- Without a <u>system perspective</u> to inform improvement efforts, the most promising initiatives may become just another dismal entry in 'The How-Not-To Guide' to patient flow

- Based on AHA data, overall nationwide hospital inpatient occupancy was 67.8% (AHA 1991–2011); range was from 33.6% to 74%)
- Once managed efficiently, US hospitals, on average, could achieve an 80–90 percent bed occupancy rate—without adding beds at capital costs of approximately \$1 million per bed.
- As a result of "smoothing" the <u>scheduling of elective surgeries</u>, <u>improving</u> <u>discharge efficiencies</u>, <u>use of advanced data analytics</u> and other interventions to improve flow at CCHMC, the hospital's quality of care improved even as the <u>occupancy rate grew from 76 percent to 91 percent</u>. Hospital officials also report <u>improved overall safety for patients</u> and <u>reduction in stress on the</u> <u>doctors and nurses who treat them</u>.

Guiding the Flock: Simple Rules to Improve Hospital-wide Patient Flow



<u>Guiding the Flock: Three Simple Rules to Improve Hospital-wide Patient Flow</u>. Lloyd Provost and Pat Rutherford, IHI blog post Aug. 7, 2018

Simple Rules to Improve Hospital-wide Patient Flow

We propose the adoption of these three simple rules for governing complex systems for achieving hospital-wide patient flow.

<u>Right Care, Right Place</u>: Patients are placed on the appropriate clinical unit alongside the clinical team with disease- or condition-specific expertise.

<u>Right Time</u>: There should be no delay greater than two hours in patient progression from one hospital unit or clinical area to another, based on clinical readiness criteria. For example, patients should be transferred within two hours from the ED to an inpatient unit, within one hour from a PACU to a surgical unit, and discharge to home or community care within two hours.

Operational Capacity: Teams should ensure each unit or clinical area has operational capacity at the beginning of each day. For example, a unit should have one or two beds available and staffed at 7:00 AM based on patient demand patterns.

<u>The challenge of complexity in health care</u>, British Medical Journal, September 2001 <u>Guiding the Flock: Three Simple Rules to Improve Hospital-wide Patient Flow</u>. Lloyd Provost and Pat Rutherford, IHI blog post Aug. 7, 2018

Simple Rules to Improve Hospital-wide Patient Flow

These simple rules are not intended for judgement or accountability. Rather, they can <u>form the basis for a hospital-wide flow philosophy</u> <u>that unites all staff and departments to a common purpose</u>. They can provide the basis for daily flow huddles to manage safe and timely patient progression throughout the hospital.

The hospital flow oversight team should create a **hospital-wide learning system to understand failure** to achieve these simple rules and develop approaches to **mitigate flow failures and flow delays.**

<u>The challenge of complexity in health care</u>, British Medical Journal, September 2001 <u>Guiding the Flock: Three Simple Rules to Improve Hospital-wide Patient Flow</u>. Lloyd Provost and Pat Rutherford, IHI blog post Aug. 6, 2018

Simple Rules to Improve Hospital-wide Patient Flow



IHI's Framework and Strategies for Achieving Hospital-wide Patient Flow



http://www.ihi.org/resources/Pages/IHIWhitePaper s/Achieving-Hospital-wide-Patient-Flow.aspx?utm_source=ihi&utm_campaign=Flow-WP&utm_medium=rotating-feature-2

Strategies to Achieve System-Wide Hospital Flow



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Shape or Reduce Demand

Changing the Cultural Norm





A national campaign encouraging everyone to have a conversation about their wishes for end-of-life care

Collaboration to ensure health care systems are ready to receive and honor wishes for end of life care



The New York Times



Advanced Illness Planning : Respecting Choices



| Respecting Choices controls the per capita cost of care | | | | | |
|--|---------------------------------------|------------------------|---------------------|--|--|
| | Per capita cost of care | | | | |
| | La Crosse Wisconsin | Statewide Wisconsin | National Average | | |
| Reduces unwanted hospitalizations—percent hospitalized at least once during last six months of life ²⁹ | 59.5% (below 10th percentile) | 67.5% | 71.5% | | |
| Reduces costs of care in last two years of life due to elimination of unwanted treatment ²⁹ | \$48,771 | \$67,443 | \$79,337 | | |
| Decreases hospital care intensity in last two years of life ²⁹ | 0.49 (half the national average) | 0.72 | 1.00 | | |
| Reduces inpatient days in last two years of life ²⁹ | 10.0 days (below 10th percentile) | 13.2 days | 16.7 days | | |
| Reduces hospital deaths ²⁹ | 20.4% | 20.9% | 25.0% | | |
| Reduces percent of decedents seeing 10 or more different physicians during last six months of life ²⁹ | 22.7% (well below 10th percentile) | 31.0% | 42.0% | | |
| Reduces percent of decedents spending seven or more days in ICU/CCU during last six months of life ²⁹ | 3.8% (well below 10th percentile) | 6.8% | 15.2% | | |
| Reduces percent of decedents admitted to ICU/CCU in which death occurred ²⁹ | 9.5% (well below 10th percentile) | 13.1% | 18.5% | | |

Reduces healthcare costs: for each dollar spent on ACP the cost of healthcare is reduced by \$2. The ROI is \$1 for every dollar spent.^{12,30}

http://www.gundersenhealth.org/upload/docs/respecting-choices/Respecting-Choices-return-on-investment.pdf





30 Day Readmissions: Primary & Secondary Heart Failure 65+



Unnecessary Bed Days

- HOSPITAL CARE: Delays in hospital care and transitions out of the hospital
 - Consults, results of tests, imaging and procedures
 - Comprehensive assessments for post-acute care needs, interdisciplinary and patient/family planning, decision-making and/or transitions out of hospital to community-based care
- COMMUNITY-BASED CARE AND SERVICES: Lack of availability for needed services (lack of capacity or capability in the community settings of care)
 - Palliative Care and Hospice (hospital, community or home)
 - > Community Hospital, LTACs, Skilled Nursing Facilities, Rehabilitation Facilities and Long-Term Care
 - Psychiatric and Mental Health services and/or facilities
 - Home Health Care services
 - Community services (housing, meals, transportation, etc.)
- POLICY AND PAYMENT: Lack of eligibility and/or payment for needed services

Alternative Level of Care: Canada's Hospital Beds, the Evidence and Options

"Current activity-based funding policies' <u>singular focus on hospitals, without</u> <u>commensurate changes in post-acute care</u>, jeopardizes the viability of these policies by exacerbating pressures on bottlenecks in the system. We have discussed <u>three policy options</u> – <u>building more</u>, <u>integrated care and financial</u> <u>incentives</u> – that offer potential solutions. These are not intended to be presented as either/or options; given the complexity of the problem, a solution may well involve a combination of all three.

These three options address how policy makers might alleviate current ALC. However, this paper does not address the <u>complementary issue of reducing</u> <u>"future" ALC (such as by expanding primary care, improving the continuity of</u> care and reducing avoidable hospital admissions), a topic that <u>requires further</u> <u>linkages between community and secondary care providers</u>."

HEALTHCARE POLICY, JASON M. SUTHERLAND, PHD and R. TRAFFORD CRUMP, PHD (University of British Columbia), *Vol.9 No.1, 2013*

Atrius Health ACO: Reducing ED Visits & Admissions

Utilization of emergency rooms, hospitals and drugs tends to be lower than average:

- With <u>Medicaid</u>, demonstrated <u>39% fewer admits/1000</u> on hospital (medical) admissions and <u>37% fewer Emergency Room visits/1000 as compared with the</u> <u>health plan's network</u>.
- With <u>Medicare Advantage</u>, demonstrated <u>12% fewer Emergency Room</u> <u>visits/1000</u> and 5% fewer SNF admits/1000 as compared with the plan's network.
- For a <u>commercial PPO</u> product, 30-day readmission rate that is half of the plan's network rate, and <u>25% fewer Emergency Room visits/1000.</u>
- For a commercial HMO, demonstrated 8% fewer inpatient admits/1000 and 9.5% less Rx scripts/1000.

Reducing Non-Urgent Emergency ED Services

- Extend hours in Primary Care
- Independence at Home (home-based primary care)
- Use of Telemedicine in Emergency Departments
- Urgent Care Centers (many now part of health care systems)
- Retails Clinics
- Paramedics and Emergency Medical Services managing nonemergency calls*
- Community Health Workers connecting frequent ED users with community-based services*
- Coordinated, Intensive Medical, Social, and Behavioral Health Services*

Clostridium difficile Infection Rates in Hospitals

Many hospitals acknowledge that *C. diff* infections are a widespread problem, especially as the CDC estimates that 94 percent of cases occur in hospitals. *C. diff* infections <u>increase patient length of stay</u> by more than 55 percent and may increase the cost of their care by 40 percent or more. More worrying, 500,000 patients are infected annually and 29,000 patients die each year from the drug-resistant superbug, so <u>researchers</u> <u>are focused</u> on finding potential treatments.

Two solutions for hospitals to cut down on the infection risk: make sure staff follow <u>hand-hygiene protocols</u> and <u>establish antibiotic</u> <u>stewardship</u> programs.

"Level-loading" Electively-Scheduled Surgical Cases

- By <u>smoothing the inherent peaks-and valleys of patient flow</u>, and eliminating the artificial variability, that unnecessarily impair patient flow, hospitals can improve patient safety and quality while simultaneously reducing hospital waste and cost.
- CCHMC: <u>scheduling of "itineraries"</u> for patients having surgical procedures
 - Redesign elective surgical schedules to create a predictable flow of patients to downstream ICUs and inpatient units.
 - Simultaneously schedule OR suite rooms and ICU beds (based on predicted length of stay).

http://www.ihoptimize.org/what-we-do-methodology-flow-variability-management.htm Litvak E., Bisognano M. More Patients, Less Payment: Increasing Hospital Efficiency In The Aftermath Of Health Reform . *Health Affairs*, 2011, vol. 30, No. 1, pp. 76-80

Match Capacity and Demand

Scenario Planning

BASELINE SCENARIO

Question: What will our capacity look like at the end of FY2016?

Answer:

- Budgeted growth of 883 additional discharges at BIDMC in FY16
- Expect 370 incremental discharges (in first year of MetroWest Medical Center deal)
 - 6.4 day average LOS expected
- Closing 14 Obs beds at BIDMC
- Opening 43 new Med/Surg beds at BIDMC by June 2016 (net addition of 29 beds)

WHAT DOES THE FUTURE BED CAPACITY LOOK LIKE BY CLINICAL AREA?

WHAT ARE THE IMPLICATIONS IN TERMS OF CAPACITY PLANNING?

1 Observe Current State

| | Beds | Usable Beds | Average Occupancy Rate | % of Time in Red Zone |
|----------------|------|-------------|------------------------|-----------------------|
| Critical Care | 77 | 77 | 82.1% | 65.3% |
| Med/Surg | 441 | 417 | 92.9% | 96.5% |
| Observation | 32 | 32 | 39.1% | 0.0% |
| Med/Surg & Obs | 473 | 449 | 89. <mark>0%</mark> | 82 <mark>.</mark> 3% |

2 Describe a Future Scenario

| Additional expected discharges per year | 370 |
|---|------|
| Avg LOS (days) of additional discharges [current = 4.1] | 6.4 |
| Critical Care beds added (+) or removed (-) | 0 |
| Med/Surg beds added (+) or removed (-) | 43 |
| Observation beds added (+) or removed (-) | -14 |
| Budgeted increase (+) or decrease (-) in discharges | 626 |
| Organic % growth (+) or decline (-) in discharges | 0.4% |

3 Understand Future State

| | Beds | Usable Beds | Average Occupancy Rate | % of Time in Red Zone | |
|-----------------|------|-------------|------------------------|-----------------------|--|
| Critical Care | 77 | 77 | 84 <mark>.</mark> 8% | 81.2% | |
| Med/Surg | 484 | 457 | 87. <mark>4%</mark> | 71.0% | |
| Observation | 18 | 18 | 71.7% | 12.2% | |
| Nied/Surg & Obs | 502 | 475 | 86. <mark>8%</mark> | 66.2% | |





RN Capacity for Predicted ED Demand



Demand/Capacity Management

What nurse staffing is needed to consistently provide safe and quality care?



Staffing for >95% census/occupancy

Staffing for > average census/occupancy

Why should nurse leaders be "champions" for improving hospital-wide patient flow?

- "Failing to achieve hospital-wide patient flow the right care, in the right place, at the right time — puts patients at risk for suboptimal care and potential harm. It also increases the burden on clinicians and hospital staff and can accelerate burnout." *
- Some of the challenges in providing adequate nurse staffing to meet the fluctuating demands of patient census, acuity and complexity can be simultaneously alleviated by the implementation of strategies to improve the safe and timely patient progression throughout the hospital.
 - $\sqrt{}$ Decreasing census variability due to elective surgical scheduling
 - V Ensuring adequate bed capacity for various clinical services which require specialized nursing skills and competencies to care the clinical and psychosocial needs of specific patient populations.
 - $\sqrt{1}$ Increasing nurses' time in value-added care to ensure safe and effective care of patients
 - $\sqrt{}$ Using advanced data analytics to match capacity (beds and staffing) and long-term, short-term and real-time patient demand

Real-Time Demand and Capacity (RTDC) Management Processes

Four Steps of Real-Time Demand Capacity Management



Figure 1. The four steps of real-time demand capacity management are depicted.

Using Real-Time Demand Capacity Management to Improve Hospitalwide Patient Flow; Resar, R; Nolan, K; Kaczynski, M, Jenson, K; The Joint Commission Journal on Quality and Patient Safety; May 2010, Vol 37, No 5

Results at UPMC

Monthly Accuracy of Discharge Predictions, January 2007–November 2009



Percentage of Patients Who Left Without Being Seen

(LWBS), January 2006–September 2010

Apr-10 Jul-10

Jan-10

Resar, , Roger Resar, M.D.; Kevin Nolan, M.A.; Deborah Kaczynski, M.S.; Kirk Jensen, M.D., M.B.A., F.A.C.E.P., Management to Improve Hospital wide Patient Flow, Joint Commission Journal on Quality and Safety, May 2011 Volume 37 Number 5, pp 218-227

Surge Planning

Green

Reflects an optimally functioning system, a state of equilibrium, homeostasis. Staff describe it as, a good day.

Yellow

Reflects the state of early triggers which identifies and allows the system to initiate early interventions.

Orange

Reflects escalating demand without readily available capacity. In this state aggressive action required to avoid system overload and ultimate gridlock.



Reflects a state of gridlock as a result of system overload. The system should respond by using its organizational Disaster Plan.

| | Green | Yellow | Orange | Red |
|--------|-------|--------|--------|-----|
| Census | | | | |
| Acuity | | | | |
| Other | | | | |
| Staff | | | | |

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Redesign the System

ED Median Total Length of Stay (min)



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Separate Flows for Elective and Non-Elective Surgical Cases

Mayo Clinic Florida

- Surgical volume and surgical minutes increased by 4% and 5%, respectively;
- Prime time use increased by 5%;
- Overtime staffing decreased by 27%;
- Day-to-day variability decreased by 20%;



- The number of elective schedule same day changes decreased by 70%;
- Staff turnover rate decreased by 41%. Net operating income and margin improved by 38% and 28%, respectively

Foundational Elements for ICU Efficiencies and Patient Flow

| Stabilization | Weaning | Mobility | Prevent Complications | End of Life |
|---|---|--|---|---|
| Sepsis protocol Fluid stability Ventilator management | Decrease Vent hours Sedation protocol/ w holiday Weaning criteria – "no MD" | Protocol online Standard workflow Delirium assessment (CAM-ICU) Metrics | VAP, CLABSI protocol FMEA –low volume Renal injury DV ?? | Secure and respect wishes Family meeting in 24 hours Clear follow-up plan |
| | 24-hour weaning, extubating | | - | MEM |

Standardizing Multidisciplinary Rounds

Old Model

Resident or other provider presented case and any updates; other input contributed ad hoc:

- Less experienced nurses often felt uncomfortable jumping in unless resident remembered to ask
- Residents unclear on contribution

Patient Progression Model

Case Manager facilitates discussion prompting each discipline for input on standard, defined elements

 Created clear expectations for participation and care is planned more collaboratively





Discharging Patients when Medically-ready



- Medical-readiness criteria for discharge established at admission
- Nurse at bedside notifies service when medical discharge criteria are met
- Discharge from hospital with 2 hours (> 2 hours = discharge delay)
- Review length of stay and readmissions as balancing measures



Discharging Patients when Medically-ready



Moving Beyond Traditional Case Management Approaches

Inpatient Practices

- Discharge Planning
- Interdisciplinary Rounds
- LOS Rounds (weekly)
- Escalation
- Emergency Department Case
 Management/Social Work
- Payment deals with post acute providers
- Consolidation of Inpatient Case Management and Social Work that resulted in parallel play







Complete Diagnostic Self-Assessment of Current Hospital Flow Performance

> Understand High Leverage Change Ideas to Improve Hospital-wide Patient Flow

> > Prioritize Areas of Focus and Select a Portfolio of Improvement Projects

Hospital Flow Professional Development Program

Delivering the right care, in the right

setting, at the right time

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IHI's Hospital Flow Professional Development Program

is designed for a team or individuals who are tasked with hospital operations, throughput, and ensuring optimal patient flow in the acute care hospital.

- 5-day intensive shared learning and capability building
- 20 leading health care expert faculty presenters
- Leverage opportunities to collaborate with expert faculty and successful hospital leaders to develop or refine a detailed, customized action plan

November 4-8, 2019 | Boston, MA

Hospital Flow Professional Development Program Achieving Hospital-wide Flow: Right Care, Right Place, Right Time

November 4-8, 2019 | Boston, MA

Participants will learn from:

- Expert faculty
- Case study presenters
- Other program participants

Participants will have opportunities to engage in:

- Pre-assessment of current hospital-wide flow performance
- Working sessions with team members
- Exchange of ideas with other program participants & faculty
- Ad hoc faculty coaching

Hospital Flow Professional Development Program

Who should attend?

This program is designed for teams who are responsible for implementing and maintaining operational efficiencies, throughput, and optimizing patient flow in acute care hospitals.

While individual participants will gain value from this professional development program, <u>IHI</u> <u>strongly recommends that hospitals and health</u> <u>care systems consider sending teams of 4 to 8</u> <u>leaders to this program.</u>

Recommended Team Members:

CEOs, COOs, Chief Nurse Executives, Surgeons and Medical Directors, Nursing Directors, Service Line Leaders, Financial Analysts, Quality Improvement Leaders

Have Questions?



Please reach out to <u>krowbotham@ihi.org</u> with any questions about the program