



THE RIGHT CARE, RIGHT SETTING, AND RIGHT TIME OF HOSPITAL FLOW



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Madge Kaplan

Director of Communications Institute for Healthcare Improvement



Madge Kaplan, IHI's Director of

Communications, is responsible for developing new and innovative means for IHI to communicate the stories, leading examples of change, and policy implications emerging from the world of quality improvement — both in the U.S. and internationally. Prior to joining IHI in July 2004, Ms. Kaplan spent 20 years as a broadcast journalist for public radio - most recently working as a health correspondent for National Public Radio. Ms. Kaplan was the creator and Senior Editor of Marketplace Radio's Health Desk at WGBH in Boston, and was a 1989/99 Kaiser Media Fellow in Health. She has produced numerous documentaries, and her reporting has been recognized by American Women in Radio and Television, Pew Charitable Trusts, American Academy of Nursing and Massachusetts Broadcasters Association.

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Pat Rutherford

Institute for Healthcare Improvement



Patricia Rutherford, RN, MS, Vice President, Institute for Healthcare Improvement (IHI), is responsible for developing and testing innovations and new models of care in innovations in patientand family-centered care; improving access to the right care, in the right place, at the right time; Transforming Care at the Bedside; optimizing care coordination and transitions in care; and clinical office practice redesign (in primary care and specialty practices). She was Project Director for the Transforming Care at the Bedside initiative, funded by the Robert Wood Johnson Foundation, and she served as Co-Investigator for the STate Action on Avoidable Rehospitalizations (STAAR) initiative, funded by the Commonwealth Fund. Her skills include knowledge of process improvement, innovation, and idealized design; coaching clinicians, staff, and senior leaders in organizations on process improvement; and management of all aspects of large-scale performance improvement initiatives.

You can reach pat at Prutherford@IHI.org

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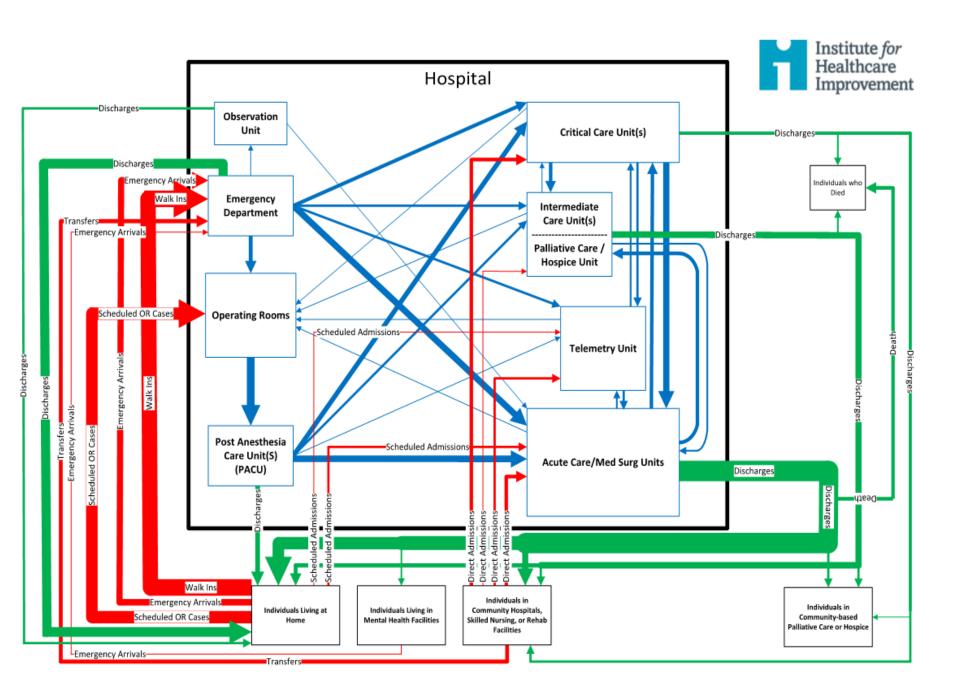
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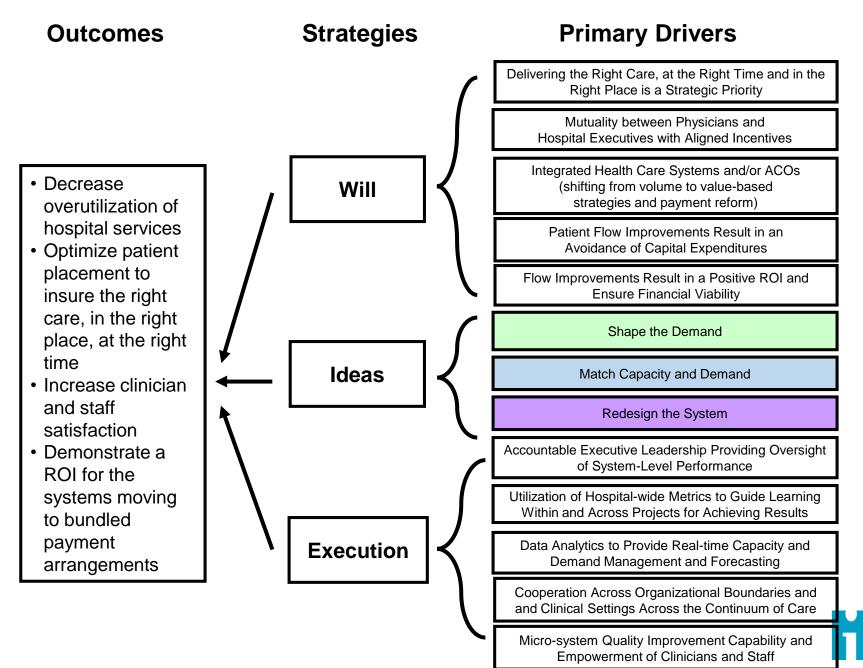
What are your performance goals?

- Decrease overutilization of hospital services?
 - Relocate care to more appropriate care settings outside the hospital
 - Decreasing medical errors and harm to patients
 - Manage LOS "outliers"
- Optimize patient placement to insure the right care, in the right place, at the right time?
 - Reducing delays in diagnostic testing, treatments, surgery, transfers, discharges, etc.
 - Decrease external diversions
 - Decrease internal diversions ("off-service" patients)
- Maintain adequate staffing levels to maintain quality and safety?
- Increase clinician and staff satisfaction with hospital operations?
- Demonstrate a ROI for the hospital or the health system?
 - Is your goal to have a high utilization of your hospital resources (procedures, beds and staff)? What is the right goal?
 - When do you consider adding more bed capacity?





Strategies to Achieve System-Wide Hospital Flow



Strategies to Achieve System-Wide Hospital Flow

Delivering the Right Care, at the Right Time and in the Right Place is a Strategic Priority

Mutuality between Physicians and Hospital Executives with Aligned Incentives

Integrated Health Care Systems and/or ACOs (shifting from volume to value-based strategies and payment reform)

Patient Flow Improvements Result in an Avoidance of Capital Expenditures

Flow Improvements Result in a Positive ROI and Ensure Financial Viability

Building Will



Strategies to Achieve System-Wide Hospital Flow

Accountable Executive Leadership Providing Oversight of System-Level Performance

Utilization of Hospital-wide Metrics to Guide Learning Within and Across Projects for Achieving Results

Data Analytics to Provide Real-time Capacity and Demand Management and Forecasting

Cooperation Across Organizational
Boundaries and Clinical Settings Across the
Continuum of Care

Micro-system Quality Improvement Capability and Empowerment of Clinicians and Staff

Execution



Ideas: Shape or Reduce Demand

S1 Relocate care in ICUs in accordance with patients EOL wishes

S2 Decrease demand for Med/Surg beds by preventing avoidable readmissions

S3 Relocate low-acuity care in EDs to community-based care settings

S4 Prevent ED visits and acute care hospital admissions

S5 Decrease artificial variation in surgical scheduling

S6 Decrease demand for hospital beds by reducing hospital acquired conditions

Shape or Reduce Demand



Ideas: Match Capacity Demand

Match
Capacity and
Demand

S7 Data-driven operational management system for hospital-wide patient flow

S8 Real-time demand and capacity management processes

S9 Early recognition of high census and surge planning



Ideas: Redesign the System

S10 Improve efficiencies, LOS and throughput in the OR, ED, ICUs and Med/Surg Units

Redesign the System

S11 Improve efficiencies & coordination of discharge processes

S12 Reducing Length of Stay for Patients with Complex Needs



	Shape Demand (reduce bed days; reduce low-acuity ED visits; reduce da-of-week census variation)	Match Capacity and Demand (reduce delays in moving patients to appropriate units; ensure patients are admitted to the appropriate unit)	Redesign the System (reduce bed days, reduce LOS; reduce waits and delays)
Hospital (Macro)	Reduce readmissions Reduce admissions for patients with complex needs Proactively shift EOL care to Palliative Care Programs	Hospital-wide oversight system for hospital operations looking at seasonal variation and changes in demand patterns Daily and weekly hospital-wide capacity and demand management Surge planning	Single rooms Seasonal Swing Units Service Line Optimization (frail elders, SNF residents, stroke patients, etc.)
Emergency Dept	Move patients with low acuity needs to community care settings Enroll patients in mental health programs Cooperative agreements with SNFs Cooperative agreements with EMS	Improve predictions of admissions for various units	ED efficiency changes to decrease LOS (for patients being discharged and for patients being admitted) Separate flows in the ED
Critical Care Units	Decrease complications/harm (sepsis) Shift EOL care to Palliative Care Programs	in prove real-time capacity and demand predictions	Decrease LOS (timely consults and procedures; aggressive weaning and ambulation protocols)
Med/Surg Units	Decrease complications fram Reduce Readmissions Proactively shift EOL care to Palliative Care Programs Cooperative agreements with rehab facilities, SNFs and nursing homes	Improve real-time capacity and demand predictions	Decrease LOS (case management for patients with complex medical and social needs) "Lean" the discharge processes Stagger discharges throughout the day
Operating Rooms	Decrease variation in surgical scheduling Separate flows for scheduled and emergency OR cases	Improve predictions re: transfers to various units	OR efficiency changes to improve throughput





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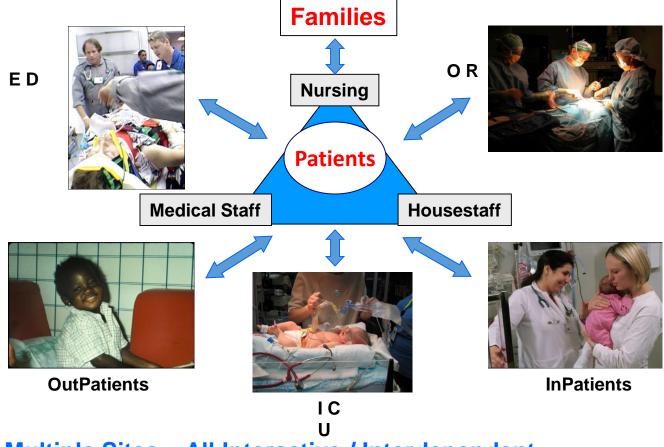
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Uma R. Kotagal, MBBS, MSc, is the senior executive leader for Cincinnati Children's Population and Community health efforts. In this role, she collaborates internally across teams, and externally with local partners, to improve the health of children in the Greater Cincinnati Region. She also serves a broader role as a Senior Fellow at Cincinnati Children's Hospital Medical Center, where she consults on behalf of and is an ambassador for Cincinnati Children's with other organizations. She formerly served as Senior Vice President for Quality, Safety and Transformation and Executive Director of the James M. Anderson Center for Health Systems Excellence at Cincinnati Children's Hospital Medical Center. As director of the Anderson Center, Dr. Kotagal oversaw the transformation of the health care system in Cincinnati and supported the development of Learning Networks. Dr. Kotagal has also served as director of the neonatal intensive care units at the University Hospital and at Cincinnati Children's. Dr. Kotagal is a Senior Fellow of the Institute for Healthcare Improvement, serves on the Board of Directors of the Ohio Children's Hospital Association, and chairs the Quality Improvement Committee of the Children's Hospital Association. Previously, she served as a member of the advisory committee of the Toronto Patient Safety Center and as an associate editor of BMJ Quality and Safety. She is a member of the National Academy of Medicine.

You can reach Uma at uma.kotagal@cchmc.org



Hospital Flow - Challenge of Team



Multiple Sites – All Interactive / Interdependent

System Level Measures

ACCESS, FLOW, PRODUCTIVITY

PATIENT AND EMPLOYEE SAFETY CLINICAL EXCELLENCE, OUTCOMES

TEAM WELLBEING PATIENT AND FAMILY EXPERIENCE

3rd next available appointment

% of patients delayed: ED, PICU, PACU

Touch Time for care givers

Adverse drug events

Bloodstream infection rate

Surgical site infection rate

Infection rates: VAP

Serious Safety Events

OSHA recordable injury rate

Codes outside the ICU rate/1,000 days

MRT preventable codes outside the ICU

Standardized PICU Mortality Ratio – Expected/ Actual

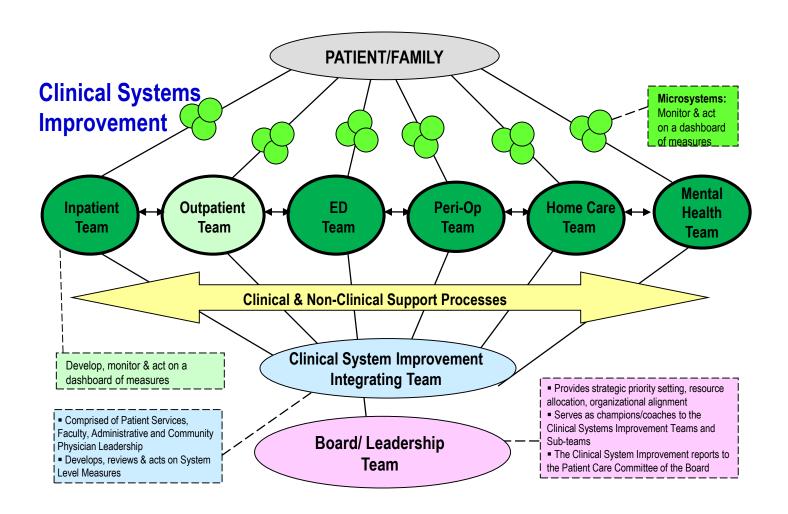
% use of Evidence-Based Care for eligible patients

Clinical and Functional Outcome Improvement Staff Satisfaction

Nursing turnover rate Overall Rating: Patient Satisfaction (best possible)

Patient Satisfaction (0-6)





"Flow" as a Safety Initiative

- Prediction Framework for Safety
- Getting the "Rights" Right
 - Right Diagnosis and Treatment
 - Right Patient in Right Bed Location
 - Right Nursing Staff and Staffing Expertise
 - Disease Specific Expertise
 - Equipment Expertise
- Requires ability to "Predict" future needs, and manage present capacity - control variability
- Operations Management techniques to understand and manage variability are the key to success

Best Care

Somethings to think about that are unique about Flow

- Oversight for Flow Team
- Where to Start
- Capability Building
- Data Analytics
- Project Management





Frederick Ryckman

Cincinnati Children's Hospital



Frederick C. Ryckman, MD has been a practicing surgeon at the University of Cincinnati / Cincinnati Children's Hospital Medical Center since 1984, where he is presently a Professor of Surgery. His interest in operating room management led to a collaboration to reengineer safety, flow management, and care delivery in the OR at CCHMC. Application of this methodology led to substantial improvements in access, utilization, and safety. He is very interested in how effective teamwork and inter professional partnerships, in the operating rooms and clinical spaces, enhances safety and excellent patient care. In Dr. Ryckman's present role as Senior Vice President Medical Operations, he's at the crossroads of patient safety, hospital wide patient flow, and daily operations management. He has had the pleasure of being the Surgical Director of solid organ transplantation leading the liver, small intestine, and multi-visceral transplant services since 1985, and has also served as the ACGME Fellowship director for Pediatric Surgery, and the Clinical Director for Pediatric Surgery Division for eight years.

You can reach Dr. Ryckman at Frederick.Ryckman@cchmc.org

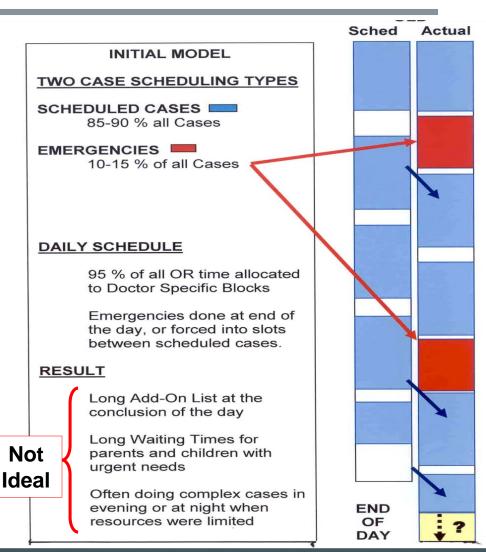
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Traditional Block

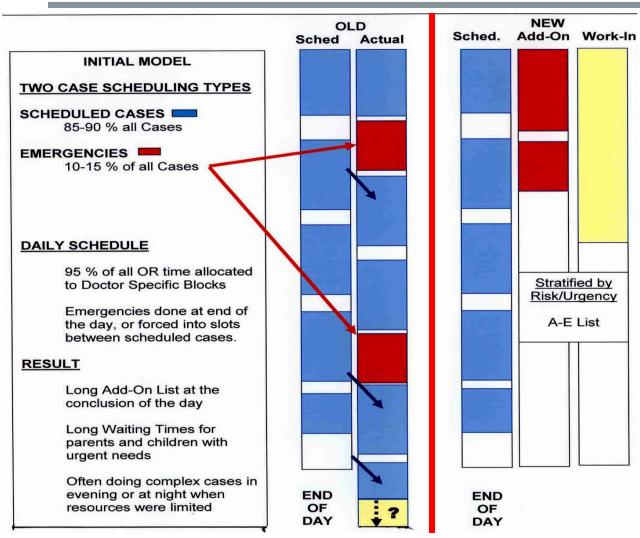
- Reactive System
- Urgent Emergent Cases placed within Block Time as needed
- Elective Case Plan disrupted, prolonged waiting time for elective patients
- Inefficient (Unsafe) Access for Urgent Cases
- Push complex Elective Cases into the late hours
 - Overtime
 - Wrong Team in OR







Block with Urgent Access Assured

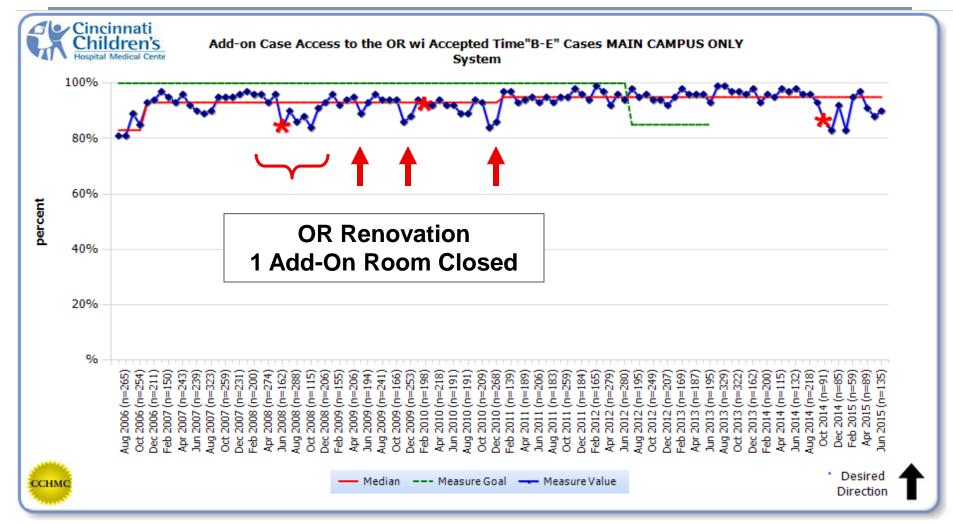


- Predictive system
- Urgent Cases in Defined Rooms with Scheduled Teams
- Resources needed can be modeled
- Care based on Urgency / Medical Need





B-E Case Access - % Successful

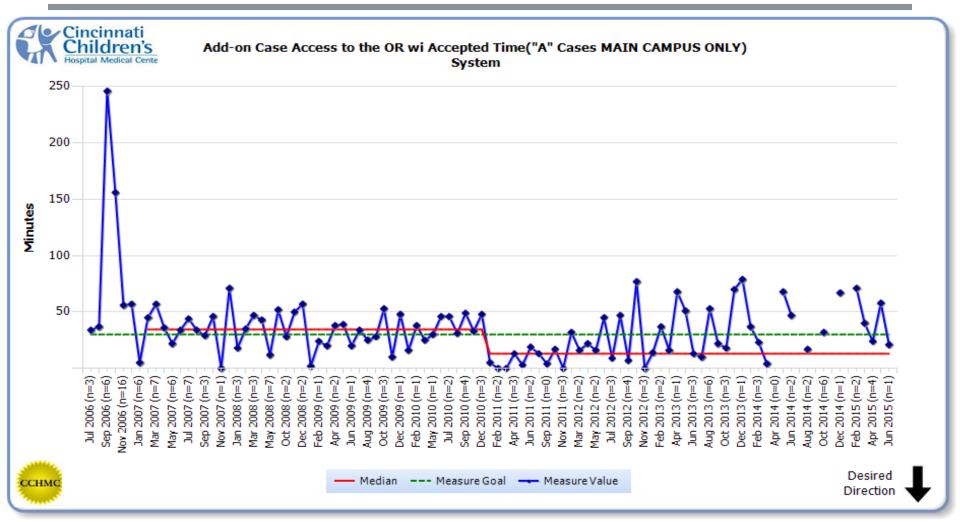


Last update: 08/07/2015 by: Amy Anneken





"A" Case Access Times – Target 30 Minutes

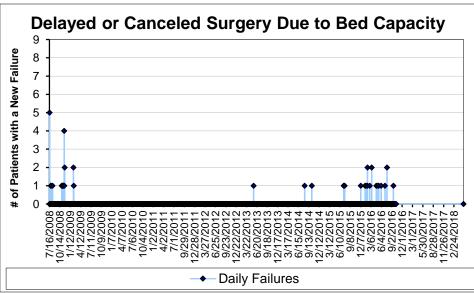


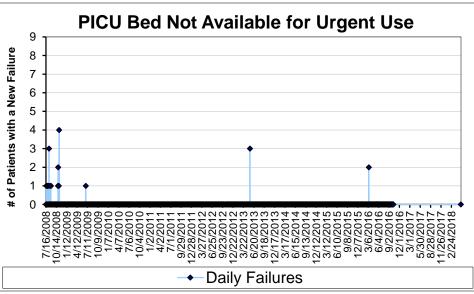
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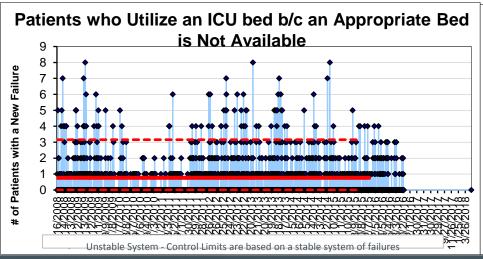


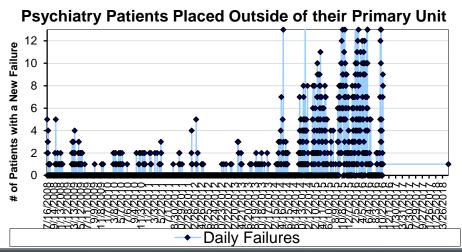


Critical Flow Failures













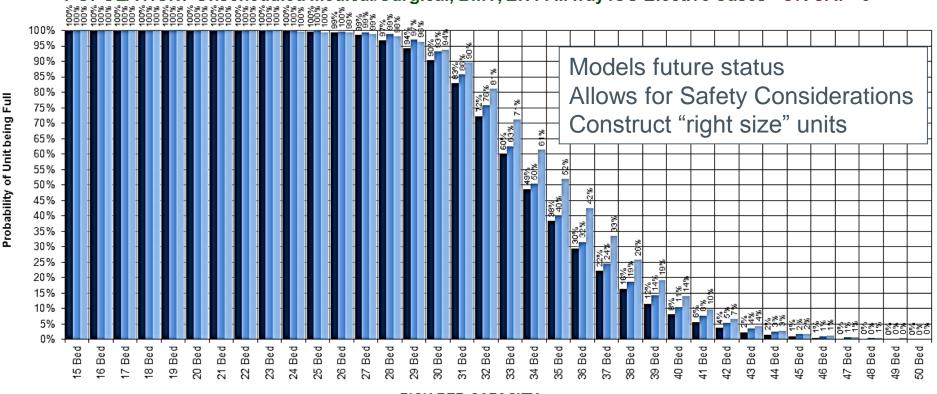
Sample Output – Probability of Full Unit

YEAR 2-7 Forecasted PICU Bed Needs - Mid-Range/Most Likely

Bed Needs for PICU - Probability of a Full Unit

20 Replications of a 425 Period (60 Day Warmup) - Mean Probability

POPULATION: Unscheduled Medical/Surgical, BMT, ENT Airway ICU Elective Cases+ OR CAP=3



PICU BED CAPACITY

■YEAR 2: Probability of a Full Unit at X Beds

■ YEAR 5: Probability of a Full Unit at X Beds

■ YEAR 7: Probability of Full Unit at X Beds





Staffing Prediction – Proactive Planning

- Data to Front Line Leaders Updated daily
- Right Staff for the Right Patients
 - Correct Number and Competency
 - Flexible with Changing Environment
 - Prediction of Needs Be Prepared Be Resilient



Weekly Census Prediction Report

Last Exec: 10/12/2016 9:56:21 AM

v	Vednesday	PICU	ŀ	11	NICU	Complex Airway	TCC	C	BDI			Med	fical				Surgical		Overflow	
1	10/12/2016	B5CC	В6НІ	AGC	B4	B5CA	A3S	BMT	HemOnc	A4C1	AGN	A6S	A7C1	A7C2	A7NS	A3N	A4N	A4S	Overflow	╟
To (# of	tal Capacity Beds on Unit)	35	25	17	59	11	24	36	32	12	24	24	11	9	41	22	24	24		l
	Actual Midnight Census	31	24	17	55	10	23	25	32	11	15	16	10	7	33	17	13	15	0	╟
	OR electives	1	0	2	0	10	1	0	0	0	0	0	0	0	3	4	0	4	0	lŀ
	OR add on	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	l
p s	ED	3	0	0	0	1	1	0	0	0	7	6	0	0	6	3	2	3	0	ľ
Predicted	Sleep Study	0	0	0	0	0	0	0	0	0	0	0	0	5	2	0	0	0	0	
Pre	Direct Admits	0	1	0	1	1	0	0	0	0	2	1	0	0	1	1	2	1	0	
	EEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Other	2	3	3	0	1	1	1	2	0	1	1	0	1	2	0	1	0	0	
	Infusions	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	
Predic	ted Discharges	3	1	4	0	3	0	1	3	0	7	7	2	3	8	6	3	3	0	
Pred	icted Demand	34	27	18	56	20	26	25	31	11	18	17	8	10	42	19	16	20	0	
Predicte	d Unit Occupancy	34	25	17	56	11	24	25	31	11	18	17	8	9	41	19	16	20	0	

Over Capacity					
Unit	Pts				
B6HI	2				
A6C	1				
B5CA	9				
A3S	2				
A7C2	1				
A7NS	1				

Over Capacity					
Services	Pts				
PICU					
Н	3				
NICU					
Complex Airway	9				
TCC	2				
CBDI					
Medical	2				
Surgical					
Overflow					





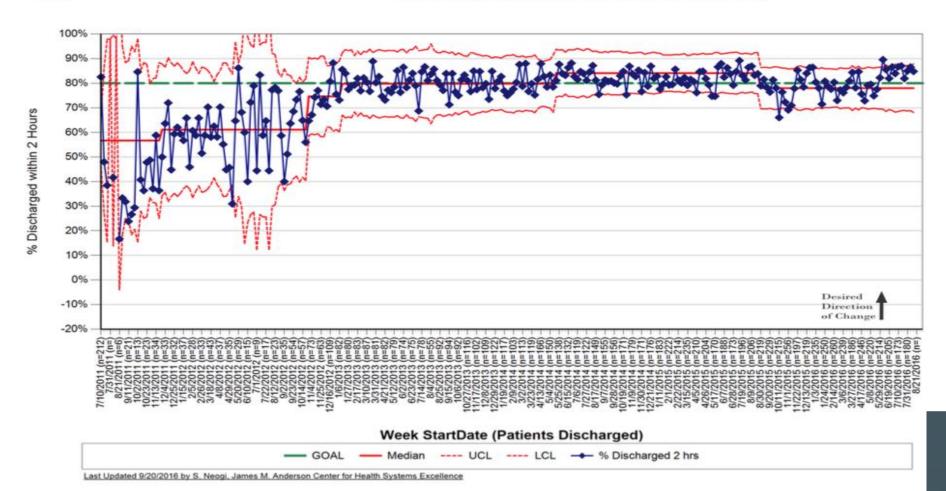
Discharge when Medically Ready

All Units



Managing Discharge when Medically Ready

% Discharged within 2 hours of Medically Ready



Upcoming Programs on Flow:

Hospital Flow Professional Development Program

Delivering the right care, in the right setting, at the right time



May 1-4 Cambridge, MA

For more information, visit IHI.org/Hospital-Flow

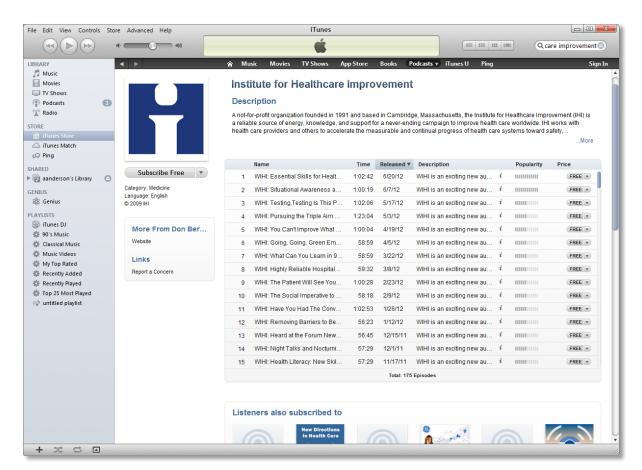
What You'll Learn

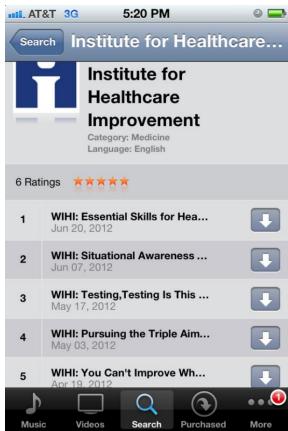
- Make sense of the variety of hospital-wide strategies and approaches needed to deliver the right care, in the right place, at the right time
- Assess the current state of patient flow and identify major opportunities for improvement
- Implement actionable strategies, skills, and data analytics that help ensure that hospital capacity can meet the demands for hospital services — daily, weekly, and seasonally – to:
 - Prevent diversions and overcrowding in EDs
 - Eliminate waits and delays for surgical procedures, treatments, and admissions to inpatient beds
 - Redesign surgical scheduling to improve throughout and to improve patient flow to intensive care units (ICUs) and inpatient units
 - Reduce the need for regular surge plans and excessive overtime
 - Increase the number of patients admitted to the appropriate inpatient unit, based on a patient's clinical condition
 - Utilize case management strategies to reduce the length of stay for "outliers"
 - Decrease inpatient volume by implementing proactive palliative care programs and strategies to reduce readmissions
 - Calculate the return on investment
- Leverage opportunities to collaborate with expert faculty and successful hospital leaders to develop or refine a detailed, customized plan



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- March 23, 2017
 - What We're Learning about Patients with Complex Needs
- April 6, 2017
 - Who's Your Healthcare Proxy?
- April 20, 2017
 - Creating Age-Friendly Health Care Systems

