Hospital Flow Professional Development Program

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Effects of High Utilization and Variability in Demand

- When the Emergency Department is overcrowded –
  - Patients may be diverted to other hospitals (external diversion)
  - Patients leave without being seen
  - Patients with acute illnesses experience delays in treatment
  - Physicians, nurses and staff are overloaded (which often leads to medical errors and burnout of clinicians and staff)
  - Throughput and utilization is decreased
Effects of High Utilization and Variability in Demand (2)

- When hospital census is high –
  - Patients are “boarded” in the ED, waiting to be admitted to a hospital bed
  - Patients have overnight stays in the Post-op Recovery Rooms
  - Patients are admitted to alternative units or ICUs (internal diversions or “off-service patients”)
  - Patients may experience delays in treatment or delays or cancelations of surgery
  - Physicians, nurses and staff are overloaded (which often leads to medical errors and burnout of clinicians and staff)
  - Throughput is decreased (there are delays in transferring patients to appropriate units based on their clinical conditions and in discharging patients)
Hospital Flow: Key Learning To-Date

- Most hospitals are engaged in individual projects throughout the hospital to improve efficiencies and flow, but few have hospital-wide oversight systems to manage overall operations and patient flow throughout the hospital; there is a need for system-wide metrics to assess and manage patient flow at the macro level and in microsystems (OR, ED, ICUs, Med/Surg Units).

- Most hospitals are engaged in multiple efforts to improve flow, but few have shown quantitative results (looking for “bright spots”); need to develop design targets for “ideal” hospital operations and flow.

- Few seem to be linking the “shaping demand” concept of decreasing overutilization of hospital services as a concurrent strategy to improve patient flow through the hospital [decreasing readmissions; proactive palliative care; reducing admissions for patient with complex needs; reducing low acuity ED visits].
Hospital Flow: Key Learning To-Date (2)

- There is a definitive need to simplify, standardize and sequence various matching capacity and demand strategies (variability management and daily real-time capacity and demand strategies).

- Current problems of patient flow in hospitals cannot be solved solely by efforts within the walls of the hospital (need partnerships with primary care, specialty practices, mental health services, community-based care settings and resources, SNFs and nursing homes);

- Demonstrating a ROI for the systems moving to value-based payment models (or ACOs) should help to build will for improvement; avoiding capital expenditures is another incentive.
What are your performance goals?
What would success look like?

Type into the chat box your high level performance goals for your hospital flow initiatives
What are your performance goals? What would success look like?

- Decrease overutilization of hospital services?
  - Reducing delays in treatment, surgery, transfers, discharge, etc.?
  - Decreasing related medical errors and harm to patients?
  - Decreasing ED volume (low acuity patients)?
  - Manage LOS “outliers”?
What are your performance goals? What would success look like?

- Decrease overutilization of hospital services?
  - Reducing delays in treatment, surgery, transfers, discharge, etc.?
  - Decreasing related 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?
  - Decrease external diversions?
  - Decrease internal diversions (“off-service” patients)?
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- Demonstrate a ROI for the hospital or the health system (moving to bundled payment arrangements or ACO)?
  - Is your goal to have a high utilization of your hospital resources (procedures, beds and staff)? What is the right goal?
  - What are the quality and safety balancing measures?
Strategies to Achieve System-Wide Hospital Flow

Outcomes

• Decrease overutilization of hospital services
• Optimize patient placement to insure the right care, in the right place, at the right time
• Increase clinician and staff satisfaction
• Demonstrate a ROI for the systems moving to bundled payment arrangements

Primary Drivers

Will

Ideas

Execution

Secondary Drivers

- Strategic Priority and Aligned Incentives
- Mutuality between Physicians and Hospital Executives
- Integrated Health Care Systems and/or ACOs
- Avoidance of Capital Expenditures
- Positive ROI and Financial Viability
- Shape the Demand
- Match Capacity and Demand
- Redesign the System
- Utilization of Hospital-wide Metrics to Guide Learning Within and Across Projects for Achieving Results
- Accountable Executive Leadership Proving Oversight of System-Level Performance
- Data Analytics to Provide Real-time Capacity and Demand Management and Forecasting
- Micro-system Quality Improvement Capability and Empowerment
Hospital Flow: Strategies for System Optimization

Strategies

1. **Shape the Demand** (reduce bed days; reduce ED visits; smooth elective surgeries and downstream bed utilization)
2. **Match Capacity to Demand** (reduce delays in moving patients to appropriate units throughout hospital; ensure patients are admitted to the appropriate unit)
3. **Redesign the System** (increase throughput; reduce bed days, manage LOS outliers, and reduce delays and waiting times)
Decrease overutilization of hospital services
Optimize patient placement to insure the right care, in the right place, at the right time
Increase clinician and staff satisfaction
Demonstrate a ROI for the systems moving to bundled payment arrangements

Redesign surgical schedules to improve throughput and to improve smooth flow of patients to downstream ICUs and inpatient units
Separate scheduled and unscheduled flows in the OR
Decrease LOS in ICUs (timely consultations, tests and procedures)
Decrease LOS on Med/Surg Units (case management for patients with complex medical and social needs)
Advance planning for transfers to community-based care settings
Cooperative agreements with rehab facilities, SNFs and nursing homes

1. Proactive advanced illness planning
2. Development of palliative care programs (hospital-based and community-based)
3. Reduce readmissions for high risk populations
4. Extended hours in primary care practices
5. Urgent Care and Retail Clinics
6. Enroll patients in community-based mental health services
7. Paramedics & EMTs triaging & treating patients at home
8. Greater use of clinical pathways and evidence-based medicine
9. Care management for vulnerable/high risk patient populations
10. Decrease complications/harm (HAPU, CAUTI, SSI, falls with harm) and subsequent LOS
11. Redesign surgical schedules to create an predictable flow of patients to downstream ICUs and inpatient units
Shape or Reduce Demand

- Relocate care in ICUs in accordance with patients EOL wishes
- Relocate care in Med/Surg Units to community-based care settings
- Relocate low-acuity care in EDs to community-based care settings
- Decrease variation in surgical scheduling
- Decrease demand for hospital beds by reducing hospital acquired conditions
- Decrease demand for hospital beds through delivering appropriate care

Delivering safe and reliable evidence-based care
### Respecting Choices controls the per capita cost of care

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

**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.\(^{12,30}\)

30 Day Readmissions
Primary & Secondary Heart Failure
UCSF Medical Center Heart Failure Program

Annual Averages
2009 = 24%
2010 = 19%
2011 = 13%
2012 = 12%
2013 = 18%

Goal Line: 16%
Reducing Non-Urgent Emergency ED Services

- Use of Telemedicine in Emergency Departments
- Urgent Care Centers (many now part of health care systems)
- Retails Clinics
- Paramedics and Emergency Medical Services managing non-emergency calls*
- Community Health Workers connecting frequent ED users with community-based services*
- Coordinated, Intensive Medical, Social, and Behavioral Health Services*

Atrius Health ACO: Reducing ED Visits

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

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

ICU Bed Admission Smoothing

Maximum Daily Allowance Based on Simulation Model
Controlled at Scheduling

Short: 61% cases, 27% days
Medium: 26% cases, 37% days
Long: 11% cases, 36% days
Match Capacity Demand

- Oversight system for hospital-wide operations to optimize patient flow
- Flex capacity to meet hourly, daily and seasonal variations in demand
- Real-time demand and capacity management processes
- Early recognition for high census and surge planning
Flex Capacity to Meet Seasonal, Day of the Week and Hourly Variations in Demand

- Can you predict a surge in admissions for patients with medical conditions in the winter months?
  - Use seasonal flex units to manage increases in medical patients during the winter months
- Can you anticipate which units need more bed capacity? (clue – which services consistently have a large number of “off-service patients”)
  - Use data analytics to quantify needs of each service
- Do you have a regular surge of activity mid-week with the hospital census regularly reaching >95% occupancy?
  - Smooth elective surgical schedules (particularly for patients who will require ICU care post-op)
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

Eugene Litvak, PhD, Institute for Healthcare Optimization
Nurse Staffing, Hospital Operations, Care Quality, and Common Sense

1. Staff hospitals 24/7 according to the peaks in both bed occupancy and admissions.
2. Be "creative" by introducing dynamic PNRs that will fluctuate in a synchronous manner with census and admissions.
3. Legislate PNRs.
4. Preserve the status quo and do nothing.
5. Change hospital patient flow management.

Litvak E, Laskowski-Jones, L; Nurse staffing, hospital operations, care quality, and common sense; Nursing, August 2011.
Redesign the System

- Improve efficiencies and throughput in the OR, ED, ICUs and Med/Surg Units
- Service Line Optimization (frail elders, SNF residents, stroke patients, etc.)
- Reducing unnecessary variations in care and managing LOS “outliers”
Managing Discharge when Medically Ready

% Discharged within 2 Hours of Medically Ready

Includes patients on A6C, A6N, A6S, LA1W, B5CA, A3N, A4N, and A6S

Week Start Date (Patients Discharged)
16-Bed MICU
We need more beds!

- Reduced EC – ICU admit time
- Efficient
  - Emergency Center
  - Wards
  - RRT team
  - Sepsis protocol
  - Weaning protocol
  - VAP & BSI prevention
  - Family meetings

- Sepsis Management
  - Stabilization
  - Weaning
  - Complications
  - End-of-Life

- Reliable weaning protocol
- VAP, CR-BSI bundles
- Standardize family meetings

- RRT to reduce floor codes

- Timely
- Safe
- Effective
- Safe
- Patient-centered

- Decreased Length of Stay

Bela Patel, MD and Khalid Almoosa, MD
We have plenty of beds!

**Thank You!**

- VAP/BSI rates Zero - $54,000/$35,000
- EC- ICU 53% to 75% in 4 hrs
  - Hospital LOS decreased 1.5 days $$
- Floor codes decreased 50%
- End of Life ICU stay – decreased 3.3 days
- Mortality decreased by 13%, CMI up 15%
- Occupancy decreased from 94.5% to 85.5%
- Monthly admissions from 89.4 to 104.6
- **$5.1 Million saved**
What are Your Current Projects to Improve Hospital Operations and Flow?

*Type into the chat box your current projects*
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<tr>
<th><strong>Shape Demand</strong> <em>(reduce bed days &amp; ED visits)</em></th>
<th><strong>Match Capacity and Demand</strong> <em>(reduce delays in moving patients to appropriate units; ensure patients are admitted to the appropriate unit)</em></th>
<th><strong>Redesign the System</strong> <em>(reduce bed days, LOS and delays/waiting times)</em></th>
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<tr>
<td><strong>Hospital (Macro)</strong></td>
<td>Reduce readmissions Reduce admissions for patients with complex needs Proactively shift EOL care to Palliative Care Programs</td>
<td>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</td>
</tr>
<tr>
<td><strong>Emergency Dept</strong></td>
<td>Move patients with low acuity needs to community care settings Enroll patients in mental health programs Cooperative agreements with SNFs Cooperative agreements with EMS</td>
<td>Improve predictions of admissions for various units</td>
</tr>
<tr>
<td><strong>Critical Care Units</strong></td>
<td>Decrease complications/harm (sepsis) Shift EOL care to Palliative Care Programs</td>
<td>Improve real-time capacity and demand predictions</td>
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<td><strong>Med/Surg Units</strong></td>
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<td><strong>Operating Rooms</strong></td>
<td>Decrease variation in surgical scheduling Separate flows for scheduled and emergency OR cases</td>
<td>Improve predictions re: transfers to various units</td>
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</table>
Hospital Flow Professional Development Program

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

April 4–7, 2016 | Cambridge, MA

Participants will learn from:
• Expert faculty
• Case study presenters
• Other program participants

Participants will have opportunities to engage in:
• Pre-work and data collection
• Working sessions with team members
• Exchange of ideas with other program participants & faculty
• Ad hoc faculty coaching sessions
• Optional (planning for future IHI programming)

http://www.ihi.org/education/InPersonTraining/HospitalFlowProfessionalDevelopment
Hospital Flow Professional Development Program

Who should attend?
This intensive, four-day program is designed for teams or individuals who are responsible for implementing and maintaining operational efficiencies, throughput, and optimal patient flow in the acute care hospital, including:

- Chief Operating Officers
- Medical Directors
- Chief Nurse Executives
- Nursing leaders
- Service line leaders
- Financial analysts
- Quality improvement leaders

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Hospital Flow Professional Development Program

What you will learn
Designed for a team or individuals who are tasked with hospital operations, throughput, and ensuring optimal patient flow in the acute care hospital, this intensive IHI program helps participants:

- Make sense of the variety of approaches needed to achieve timely, efficient person-centered care
- Gain actionable strategies, skills, and tools that help ensure that demand for hospital service matches capacity — daily, weekly, and seasonally
- Prevent diversions and overcrowding in EDs
- Eliminate waits and delays for surgical procedures, treatments, and admissions to inpatient beds
- Increase the number of patients admitted to the appropriate inpatient unit (based on the patient’s clinical condition)
- Identify opportunities to collaborate with expert faculty and successful hospital leaders to develop or refine a detailed, customized plan of action
- Calculate return on investment

http://www.ihi.org/education/InPersonTraining/HospitalFlowProfessionalDevelopment