Session 65X
Developing an Integrated Capacity Management Strategy for Innovative Change

Presented by:
Tamira Harris
MaryPatricia Sullivan
Developing an Integrated Capacity Management Strategy for Innovative Change

MaryPatricia Sullivan, RN, MSN, CNS
Tamira Harris, PhD, MBA, MSN, CPHQ, CCM

Disclosure of Relevant Financial Relationships

The following faculty of this continuing education activity has no relevant financial relationships with commercial interests to disclose:

• MaryPatricia Sullivan, RN, MSN, CNS

The following faculty of this continuing education activity has financial relationships with commercial interests to disclose:

• Tamira Harris PhD, MBA, MSN, CPHQ, CCM,
  – McKesson – Employee
Faculty

• MaryPatricia Sullivan, RN, MSN, CNS, CNO and Chief Experience Officer, Overlook Medical Center, Atlantic Health System

• Tamira Harris, PhD, MBA, MSN, CPHQ, CCM, Business Advisor, Enterprise Intelligence McKesson Connected Care & Analytics

Learning Objectives

Recognize how an integrated capacity management strategy combining tools, people and processes drives sustainable performance.

Illustrate examples of how using predictive analysis to right-size for demand can help improve quality and safety and drive top of license practice.
Agenda

- Atlantic Health System, Overlook Hospital
- Challenges and Strategic Goals
- Integrated Capacity Management Strategy
- Impact of Cultural Assessment
- Achievements

Atlantic Health System

Size and Scale
- Four hospital system with $1.8B in revenue
- Efficient contracts with largest areas health insurance plans
- Alignment strategies with key physician groups
- Non-union

Quality/Specialized Services
- Gagnon Cardiovascular Institute
- Carol G. Simon Cancer Centers
- Goryeb Children’s Hospital
- Atlantic Neuroscience Institute
- UHC database participant

Market Leader
- Leading market share position, more than double next nearest competitor
- Excellent socio-demographic characteristics
- Currently overseeing 2 ACO’s

At-a-Glance
- 2,114 employees
- 3,168 physicians
- 280 medical residents
- 1,339 licensed beds
- 72,892 admissions
- 7,191 births
- 19,033 inpatient surgeries
- 28,658 same-day surgeries
- 205,898 emergency visits
- 697,416 outpatient visits
VISION
Empowering our communities to be the healthiest in the nation

MISSION
• Deliver high quality, safe, affordable patient care within a healing culture
• Educate, in an exemplary manner, present and future health care professionals
• Innovate through leadership

SHARED VALUES
Professionalism, Respect, Involvement, Dignity, Excellence

Overlook Medical Center

• 24,478 admissions
• 5,917 inpatient surgeries
• 9,279 same day surgeries
• 96,612 ED visits
• Fortune 100 Best Place to Work

U.S. News and World Report
• Best Regional Hospital for Neurology, Neurosurgery, Gastroenterology, GI Surgery, Geriatrics, Gynecology, Nephrology, Pulmonology and Urology
• Neuroscience Institute - Hub for New Jersey Stroke network - treat 40% of state stroke patients
One thing we can all agree on!

“Staff nurses want to come into work every day, they want to practice at the highest level of their license and they want to positively impact patient care. And when we have the right number of nurses taking care of the right number of patients, good things happen.”

— MaryPatricia Sullivan, RN, MSN, CNS
Capacity Management Challenges We Faced

Key issues
Fluctuating volumes
Budget variances
Retention and satisfaction
Agility in managing to strategic plan

Limitations
Physical capacity constraints
Single source of data truth
Opaque processes

Effects
Excessive OT and agency costs
Results in negative variances to annual budgets
Difficulty in achieving accuracy in budgeting/scheduling

The need for timely, data-driven decisions

<table>
<thead>
<tr>
<th>3-5 Years</th>
<th>1-2 Years</th>
<th>1-4 Months</th>
<th>&gt;30 days - today</th>
</tr>
</thead>
<tbody>
<tr>
<td>What do we need to look like under value-based purchasing?</td>
<td>Where can we find more savings without drastic cuts?</td>
<td>How do we staff for unknown peaks and valleys?</td>
<td>What do we need to do to get these patients out by noon?</td>
</tr>
<tr>
<td>What is the next best use for this capacity?</td>
<td>...without hurting care quality, patient satisfaction or staff satisfaction?</td>
<td>What is the downstream impact of this OR schedule?</td>
<td>What can we do today to prepare for tomorrow? For the next shift?</td>
</tr>
</tbody>
</table>

How do we optimally deploy our capital and people resources?
Overlook Strategic Goals

**Desired End State**
- Organizational Transparency

**Desired Competencies**
- Proactive/real-time decision-making
- Improved patient placement
- Ability to address and monitor service line profitability
- Labor analytics

**Primary Goals**
- Improve patient throughput, initially ED
- Match nurse staffing to patient demand

**Enabling Technology**
- Self-serve analytics

The Integrated Capacity Management Model

- Financial Impact: Build data-driven plans and schedules
- Quality Impact: Perform predictive analytics
- Outcomes and Retention Impact: Optimize patient flow, leverage accuracy and transparency to drive quality

Financial Impact: Build data-driven plans and schedules
Quality Impact: Perform predictive analytics
Outcomes and Retention Impact: Optimize patient flow, leverage accuracy and transparency to drive quality
Addressing today’s challenges

1. Improve Productivity
   Align budgetary demands with workload

2. Improve Flow
   Improve the rate at which patients move through the hospital

3. Improve Quality
   Provide the right level of care to each patient

An Integrated Capacity Management Approach

- Forecast demand and plan resources
- Assign workforce to patient care
- Optimize the patient journey
- Monitor flow
- Start discharge early
- Target discharge at admission
- Care reminders
- Respond to real-time variances
- Schedule and flex workforce
Capacity Planning in Healthcare

• Process by which hospitals can effectively determine the resources (beds and staff) required to meet the forecast patient demand over a given time period

Polling Question #1

• Are you using predictive analytics to accurately forecast patient demand and align with staffing and scheduling?
• Answer choices Yes, No, Not Sure
Executive Hospital Overview

Providing Visibility and Hospital Overview
Daily Activities – Ins and Outs

Hourly Admissions and Discharges

*Where are we at with projected discharges? Are there delays? What can we do?*
Engaging Managers and Executives

### Daily Projection Report 0700 - Summary Level

<table>
<thead>
<tr>
<th></th>
<th>Expected</th>
<th>Actual</th>
<th>Variance</th>
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<tbody>
<tr>
<td>Total Cases</td>
<td>319</td>
<td>332</td>
<td>13</td>
</tr>
<tr>
<td>0700 Yesterday</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ununscheduled Patients In</td>
<td>25</td>
<td>64</td>
<td>39</td>
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<tr>
<td>Unscheduled Patients Out</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Total Patients In</td>
<td>36</td>
<td>29</td>
<td>7</td>
</tr>
<tr>
<td>Total Patients Out</td>
<td>22</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>0700 Today to 0700 Tomorrow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monday</td>
<td>332</td>
<td>78</td>
<td>254</td>
</tr>
<tr>
<td>Tuesday</td>
<td>28</td>
<td>51</td>
<td>23</td>
</tr>
<tr>
<td>Wednesday</td>
<td>318</td>
<td>34</td>
<td>284</td>
</tr>
<tr>
<td>Thursday</td>
<td>24</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Friday</td>
<td>20</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Saturday</td>
<td>15</td>
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</tr>
<tr>
<td>Sunday</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>800</td>
<td>125</td>
<td>675</td>
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Predicting Discharge

### Predicted Discharges Report

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<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
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<td>General Surgery</td>
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<tr>
<td>Other Surgery</td>
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<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>50</td>
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<tr>
<td>Pediatrics</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<td>Obstetrics</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<td>ER/CCU</td>
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<td>10</td>
<td>10</td>
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<td>10</td>
<td>10</td>
<td>70</td>
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<tr>
<td>Other Services</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
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<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>490</td>
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</tbody>
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“Seeing” the Numbers - Visibility by the Unit

Proactive Planning / Performance Tracking
### Projection Accuracy

<table>
<thead>
<tr>
<th>Day</th>
<th>1 Day Prior</th>
<th>2 Day Prior</th>
<th>3 Day Prior</th>
<th>4 Day Prior</th>
<th>5 Day Prior</th>
<th>6 Day Prior</th>
<th>Average Accuracy</th>
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</thead>
<tbody>
<tr>
<td>Midnight</td>
<td>14.1%</td>
<td>14.2%</td>
<td>14.3%</td>
<td>14.4%</td>
<td>14.5%</td>
<td>14.6%</td>
<td>14.5%</td>
</tr>
<tr>
<td>Today</td>
<td>14.2%</td>
<td>14.3%</td>
<td>14.4%</td>
<td>14.5%</td>
<td>14.6%</td>
<td>14.7%</td>
<td>14.6%</td>
</tr>
<tr>
<td>24 Hours</td>
<td>14.3%</td>
<td>14.4%</td>
<td>14.5%</td>
<td>14.6%</td>
<td>14.7%</td>
<td>14.8%</td>
<td>14.7%</td>
</tr>
<tr>
<td>48 Hours</td>
<td>14.4%</td>
<td>14.5%</td>
<td>14.6%</td>
<td>14.7%</td>
<td>14.8%</td>
<td>14.9%</td>
<td>14.8%</td>
</tr>
</tbody>
</table>

#### 2017 Congress on Healthcare Leadership

### Productivity

<table>
<thead>
<tr>
<th>Day</th>
<th>1 Day Prior</th>
<th>2 Day Prior</th>
<th>3 Day Prior</th>
<th>4 Day Prior</th>
<th>5 Day Prior</th>
<th>6 Day Prior</th>
<th>Average Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midnight</td>
<td>27.1%</td>
<td>27.2%</td>
<td>27.3%</td>
<td>27.4%</td>
<td>27.5%</td>
<td>27.6%</td>
<td>27.5%</td>
</tr>
<tr>
<td>Today</td>
<td>27.2%</td>
<td>27.3%</td>
<td>27.4%</td>
<td>27.5%</td>
<td>27.6%</td>
<td>27.7%</td>
<td>27.6%</td>
</tr>
<tr>
<td>24 Hours</td>
<td>27.3%</td>
<td>27.4%</td>
<td>27.5%</td>
<td>27.6%</td>
<td>27.7%</td>
<td>27.8%</td>
<td>27.7%</td>
</tr>
<tr>
<td>48 Hours</td>
<td>27.4%</td>
<td>27.5%</td>
<td>27.6%</td>
<td>27.7%</td>
<td>27.8%</td>
<td>27.9%</td>
<td>27.8%</td>
</tr>
</tbody>
</table>

#### 2017 Congress on Healthcare Leadership
Polling Question #2

- Have you undertaken a cultural assessment before implementing a major initiative?
- Answer choices: Yes, No, Not sure.
Overlook Medical Center: Cultural Assessment

- Open Space Initiative
- Cultural Assessment
- Findings and Actions
- Fresh Perspective
- Hidden Stars

You Can’t Fix Culture

2017 CONGRESS ON HEALTHCARE LEADERSHIP
Building Culture = Achieving Adoption

“It’s like scarly predictable.”

“I love that all the information can be gathered in one place.”

“The biggest thing is how accurate it is and how much you can look at things ahead of time and then make decisions based on that.”

“It’s so nice to have something that I can just jump in, pull up a report, and see the trends of my unit. I love that. I wish more of the applications would do that.”

“It creates transparency … that is the first step in improving processes.”

“It’s so nice to have something that I can just jump in, pull up a report, and see the trends of my unit. I love that. I wish more of the applications would do that.”
### Achievements to Date

<table>
<thead>
<tr>
<th>Data-Driven Culture</th>
<th>Staff Satisfaction</th>
<th>Labor Costs</th>
<th>Efficiency</th>
<th>Operations Based Staffing Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-service analytics at every level</td>
<td>Optimal resource allocation</td>
<td>$700,000 (est) in reduced OT use</td>
<td>2 day reduction in LOS</td>
<td>Expanded resource pool</td>
</tr>
<tr>
<td>Proactive, data-driven behavior</td>
<td>Predictable schedules managed at unit level</td>
<td></td>
<td>Reduced ED wait times</td>
<td>Self scheduling</td>
</tr>
<tr>
<td>Reliance on single source of truth</td>
<td>Balanced workloads</td>
<td></td>
<td>Hold hours halved from est. 4,800 to 2,800 hrs/mo (2015)</td>
<td>Staffing among hospitals</td>
</tr>
<tr>
<td>Transparency</td>
<td></td>
<td></td>
<td>Decreased from 8900 to 1800 (2016)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Saving from flexing units to predicted demand</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$3,400/day 6C Surgical</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$9,931.61 /day Critical Care</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Innovative Bed Utilization “Bed for Sale”</td>
<td></td>
</tr>
</tbody>
</table>

#### 2017 CONGRESS ON HEALTHCARE LEADERSHIP

### Polling Question #3

- Do you currently have an executive-level capacity management/patient flow initiative in place?
- Answer choices: Yes, No, Not sure
Leveraging Data Across Planning Horizons

**Long Term Planning**
- Model impact of network changes, regional plan
- Budget and physical capacity decisions
- Set targets and assumptions (linking plans)

**Weekly & Monthly Planning**
- Manage current variation to plan
- Update forecasts and schedule resources
- Informed decision making

**Daily Planning**
- Unit focus: manage current and projected patients
- Focus on relieving immediate patient flow issues
- Prevent Overtime and Agency for next few days

Responding to real-time demands and variances

- Provides a comprehensive view of key operational metrics: occupancy, ADTs, ALOS, capacity, staffing and patient flow metrics
- Empowers executives and operational managers to identify variances and make proactive decisions
- Increases the transparency of capacity, staffing and patient flow across the organization

Today 24 hour's time
One night recently, I was making night shift rounds, and we were all talking about the solutions, how we’re utilizing them, how we can be more efficient and some of the success stories we’ve already seen around quality.

“One of the nurses called the Integrated Capacity Management strategy a ‘great leveler’— because it breaks down silos.”

MaryPatricia Sullivan, RN, MSN, CNS is Chief Nursing Officer and Chief Experience Officer at Overlook Medical Center in Summit, NJ, the region’s top provider of neuroscience care and a founding hospital of Atlantic Health System. She has more than 30 years’ experience in patient care leadership positions. Currently Sullivan is clinically and financially responsible for all inpatient and outpatient care units. As an integral part of Overlook’s senior leadership team, she works to create a healing environment within the system, focusing on healthcare literacy and diversity, and implementing programs that provide for seamless pre-hospitalization, acute care, and post-hospitalization care transitions. A graduate of New England College, Sullivan also holds a bachelor of science degree in nursing from Rhode Island College and a master of science degree in nursing in high-risk women’s healthcare from Loyola University of Chicago.

Contact email: marypatriciaisullivan@atlantichealth.org
Faculty Biography & Contact Info

- **Dr. Tamira Harris** is a senior professional in healthcare leadership. Her professional career includes leadership development, organizational change and transformation, and strategy execution in the health care sector. Her area of expertise is in Emotional Intelligence, Coaching, and Executive Leadership. Her work is based on change leadership, adult learning, transformation and behavioral science.

Dr. Harris has a PhD in Human and Organizational Development, a Masters of Business Administration and a Master of Nursing Science Degree. She is a certified in Emotional Intelligence, Appreciative Inquiry and Mediation.

Contact email: tamira.harris@mckesson.com

Bibliography/References

Integrated Capacity Management for Health Systems:
A Proactive Solution to Today’s Capacity Challenges
Executive Summary

Healthcare executives are facing a perfect storm of changing reimbursement models, decreasing reimbursement and increasing costs. In order to succeed in this environment, hospitals have to increase their efficiency and effectiveness.

In order to succeed in this environment, hospitals have to increase their efficiency and effectiveness.

Specifically, they have to decrease their operating costs by managing capacity using a new approach that simultaneously reduces costs, improves quality of care and increases staff satisfaction.

Historically, most hospitals and health systems have attempted to decrease their operating costs by cutting staff, since labor makes up about 60% of the cost structure. But staff reductions can have a negative impact on care quality and staff satisfaction. In addition, many hospitals and health systems have attempted to decrease their operating costs by managing their labor costs and reducing patient length of stay on a near term basis. Unfortunately, the tools that they have had at their disposal have made it difficult for them to achieve these goals. Specifically, the implementation of staff scheduling and time and attendance systems has enabled operational leaders to automate these processes. However, due to the reliance on forecasting by historical averages, the impact of these systems on reducing labor costs and increasing staff productivity has been limited. Additionally, while the implementation of bed management systems has enabled operational leaders to automate bed management processes, the impact of these systems on reducing length of stay, including avoidable days, has been limited. And none of these systems have resulted in a significant increase in patient safety, quality of care or staff retention.

The primary problem with today’s approach to capacity management is that it is a reactive process. Hospital and health systems do not have the ability to accurately predict their patient demand and staffing requirements on a prospective basis. They do not have the ability to leverage these forecasts to optimize resource allocation. And they do not have the ability optimize staffing and reduce length of stay on a near term basis.

This white paper outlines a proven “Integrated Capacity Management” strategy that empowers healthcare executive and operational leaders to take a proactive approach to managing their supply and demand. Integrated Capacity Management provides healthcare executives and operational leaders with the ability to accurately predict their patient demand and staffing requirements on a prospective basis using predictive analytics.

The primary problem with today’s approach to capacity management is that it is a reactive process.

It provides them with the ability to leverage these forecasts to allocate and optimize resources at every point of the strategic planning, annual planning and real-time decision making process. And finally, it empowers them to optimize staffing and reduce length of stay on a near-term basis by improving organization-wide communication and collaboration. The result is a significant decrease in labor costs and length of stay and an improvement in quality of care, patient safety and staff retention.

No Margin, No Mission

“No margin, no mission” has long been the rallying cry of healthcare leaders who understand that they cannot serve the needs of their communities and patients without at the same time ensuring that their organizations are financially sound. However, a recent study published in Health Affairs found that 55% of for-profit and not-for-profit acute care hospitals were not profitable.2

One of the key reasons that US hospitals and health systems are unprofitable is because they have struggled to develop and implement effective approaches to reducing their operating costs. Historically, most hospitals and health systems have attempted to decrease their operating costs by cutting staff, but staff reductions may have a negative impact on care quality and patient safety. Other hospitals and health systems have attempted to decrease their operating costs by managing their labor costs and reducing patient length of stay on a near term basis. However, the tools that they have had at their disposal have made it difficult for them to achieve these goals.

There are five key reasons why these traditional approaches to reducing operating costs have failed to reach their full potential:

1. Lack of accurate, predictive analytics-based forecasts. One of the key reasons why staff scheduling and time and attendance systems have had a limited impact on labor costs and productivity is due to a lack of accurate, predictive analytics-based forecasts that can be used to drive workforce requirements and provide guidance for flexing workforce both in advance and on a real-time basis.

2. Inability to make near time and real time workforce decisions. Most hospitals and health systems do not have tools to make near time and real time workforce decisions based on acuity and occupancy including the number of patients to be cared for and the complexity of each patient.

3. Lack of visibility into the patient journey. Why is that bed not ready for a new patient? Are we regularly evaluating patients with catheters and central lines to help prevent CAUTI and CLABSI? If Mr. Jones is scheduled for discharge today, is there a discharge order yet? These issues are often hidden or difficult for staff to determine, resulting in bottlenecks, quality of care issues and unnecessary clinical and operational steps.

4. Lack of visual tools and indicators. Hospitals and health systems lack visual indicators and tools that can be used to drive communication and collaboration and empower interdisciplinary team members to identify and resolve operational and quality issues.

5. Resistance to change and new processes. Many efforts to improve capacity management processes have been met with significant resistance from senior managers and operational managers. A lack of predictive analytics and tools to facilitate communication, collaboration and transparency have contributed to this challenge.
The Challenge

Why Isn’t the Current Approach to Capacity Management Effective?

Today’s approach to capacity management is a reactive approach focused on attempting to decrease labor costs and reduce length of stay on the day of shift. At a high level, this approach involves the following steps:

- Developing annual plans and budgets by averaging historical volumes and using ratios like 5 to 1 for day shifts
- Developing staff schedules based on core coverage goals
- On the day before a shift, reacting to manual reports from each unit regarding their anticipated staffing needs. These manual reports are typically based on discharges and a subjective assessment of the acuity of patients on each unit
- On the day of shift, completing bed huddles throughout the day to assess current staffing needs; reacting to understaffing by paying overtime premiums or using high-cost agency nurses; and reacting to overstaffing by sending people home
- Monitoring key performing indicators including ED wait times, admission delays, etc.
- Managing averages, including average length of stay

Traditional Approach to Capacity Management

- **Annual Planning**
  - Develop budgets based on historical ratios (e.g., 5:1 for day shifts)

- **6 Weeks Out**
  - Develop staff schedules based on these ratios

- **1 Day Out**
  - Collect manual reports from each unit, such as anticipated staffing needs
  - React to over- or under-staffing

- **Day of Shift**
  - Multiple bed huddles
  - Continue to react to over- and under-staffing
  - Shut off upstream departments
The Clinical and Financial Impacts of Today’s Approach to Capacity Management

The clinical and financial impacts of this reactive approach to aligning healthcare supply and demand are well known to healthcare executives and operational managers. They are also felt by patients. These impacts are described in the article, “Patient Flow in Hospitals: Understanding and Controlling It Better” in the journal Frontiers of Health Services Management. In this article, Drs. Haraden and Resar write, “Patients and providers [have come to] regard waits, delays, and cancellations as an inevitable consequence of receiving care.”4

Patients are “boarded” or “parked” in ED hallways when a bed is not available.
• Patients are placed in off-service beds to move them out of the ED hallways, which “...significantly added to the risk of mortality and morbidity.”
• Patients leave without receiving appropriate care, potentially exacerbating future health system engagement.
• Hospital revenues are reduced.

Financial impacts
• Lost revenue resulting from ED diversions and patients left without being seen
• Lost revenue resulting from the cancellation of elective surgeries
• Suboptimal staff productivity
• An increase in overtime costs
• An increase in agency costs
• An increase in patient length of stay without a commensurate increase in reimbursement

Quality impacts
• An increase in ambulance diversions
• An increase in discharge delays and patient mortality resulting from the boarding of admitted patients in the ED4
• An increase in off services patients
• A decrease in patient safety and quality of care resulting from a lack of alignment between nurse skill and patient acuity
• Poor patient experience

Staff satisfaction and retention impacts
• A decrease in nurse satisfaction resulting from the inability to align patient demand with staffing, including getting called off too often
• A decrease in staff satisfaction resulting from unrealistic staff workloads, including high nurse to patient ratios
• Nurse fatigue and burnout

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The Limitations of Today’s Capacity Management Tools

One of the reasons that hospital and health systems have had to utilize this reactive, ineffective approach to capacity management is because they have not had effective tools to proactively manage their capacity. Specifically, the implementation of staff scheduling and time and attendance systems has enabled operational leaders automate staff scheduling and time and attendance processes. However, the impact of these systems on reducing labor costs and staff productivity has been limited, due to reliance on historical average volumes.

In addition, the implementation of bed management systems has enabled operational leaders to automate bed management processes. However, the impact of these systems on reducing length of stay, including avoidable days, has been limited. And these systems have not resulted in a significant increase in patient safety, quality of care or staff retention. The following table summarizes the limitations of these tools.
The Solution

Integrated Capacity Management — A Proactive Approach to Today’s Capacity Management Challenges

Integrated Capacity Management enables hospitals and health systems to leverage a range of information, including acuity and productive and nonproductive staffing data to predict patient demand and staffing requirements on a prospective basis. Integrated Capacity Management also empowers operational managers with projected patient demand and staffing requirements as part of an information-driven staffing process. And finally, Integrated Capacity Management empowers the entire care team to make refinements in staffing based on patient acuity and updates to the patient demand and staffing projections on the week and day-of-care.

The foundation of Integrated Capacity Management is a clear understanding of patient demand and resource requirements that enables hospitals to align and manage their resources. The core components of this approach include:

- **Accurate predictive analytics-based forecasts** that can be used to drive workforce requirements and provide guidance for flexing workforce both in advance and on a real-time basis.

- **Real-time and near-time workforce decisions** based upon acuity and occupancy including the number of patients to be cared for and the complexity of each patient.

- **Visibility of the patient journey** from admission to discharge to minimize delays, improve patient throughput and maximize capacity and resources.

- **Visual indicators and tools** used to drive communication and collaboration and empower interdisciplinary team members to identify and resolve operational and quality issues and align the care team.

With the right resources in place to meet patient demand, Integrated Capacity Management ensures that care teams are equipped with the information they need to ensure a patient flows efficiently from admission to discharge, while receiving care that meets quality standards. This approach results in a decrease in labor costs, and improvement in patient safety and quality of care and an increase in staff retention and satisfaction.
Integrated Capacity Management is a more proactive approach to solving the complex challenge of aligning capacity with demand. It provides healthcare decision-makers with a clearer and more accurate view of likely patient demand and smarter tools for allocating resources at every point in the strategic and operational planning and decision making process. This, in turn, enables healthcare organizations to achieve better outcomes for patients, staff and payers.
Overview of Integrated Capacity Management

Integrated Capacity Management (ICM) is built around a clear and rigorously tested understanding of patient demand. This provides the foundation for hospitals to align and manage their resources as efficiently and effectively as possible.

In a health system setting this is primarily the challenge of aligning patient demand and staffing. With labor costs typically exceeding 50% of total expenses, the most effective way to reduce operating costs is to align staffing and capacity with predicted patient demand.6

ICM empowers managers to make better decisions about aligning capacity with demand as part of the strategic planning, annual planning, staff scheduling and daily planning process. ICM empowers executives, senior managers and front line leaders to align staffing, capacity and demand across the continuum of the planning process.

| Transparent view of patient demand and flow for efficient deployment of resources |
|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| **Long Term**                              | **Short Term**                              | **Today**                                   |
| **Staff**                                   | **Develop highly accurate, acuity-informed staffing forecast** | **Smoother schedules for predicted occupancy and acuity** | **Assignable to patients based on acuity** |
| **Patient**                                | **Develop accurate patient demand and forecast through predictive analysis** | **Project near-turn patient demand** | **Monitor daily occupancy projections** | **Manage patient journey, ensure compliance with quality indicators** |
| **Resources**                              | **Develop bed and OR utilization plans** | **Open, close beds based on projected occupancy** | **Optimize throughput through transparency, bed turnover, identify next steps for quality outcomes** |

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The Long-Term, Strategic Perspective
Predicting patient demand using historical data is straightforward. However, predicting patient demand and staffing requirements with the degree of accuracy needed to improve decision-making is much more difficult.

Accurate patient demand forecasts use predictive analytics, including algorithms. These forecasts also rely on clinical input from executives and senior managers to incorporate anticipated changes in length of stay and other factors expected to result from the implementation of clinical and operational programs over the coming year. This also ensures senior managers accept the forecast, including the annual plan based on the forecast.

Integrated Capacity Management can forecast patient demand with 95 to 97% accuracy one month out, and more than 98% accuracy on the day of care.

Operational Planning
The next element of Integrated Capacity Management is the ability to combine patient demand insights with staffing forecasts. This helps drive scheduling and ensures regulatory and contractually obligated nurse-to-patient ratios are met. The challenge is to accurately anticipate workload conditions, consider clinical relevancy and meet staffing variations in real time.

An Integrated Capacity Management approach brings highly accurate and dynamic staffing forecasts directly into a hospital’s system so schedules can be efficiently and effectively created. This results in schedules that balance required staffing with predicted patient acuity, factoring in considerations such as scheduled and unscheduled PTO, training leave, and other typical impacts to scheduling.

Sustainable financial impacts, quality impacts and satisfaction and retention impacts come from better forecasting, better scheduling and the optimal use of overtime premiums and supplemental labor when needed. Managers are able to anticipate clinically relevant workload conditions and then adjust schedules in real-time.

This comprehensive approach results in a patient demand forecast reliable for annual, quarterly, daily and shift planning purposes. In fact, this approach can result in 95 to 97% accuracy one month out, and more than 98% accuracy on the day of care.

The ability to predict patient demand and staffing requirements on a prospective basis allows health care decision makers to forecast arrivals and patient flow over multiple time spans. They can then translate this anticipated activity into the right level of facility (beds, supplies) and staffing requirements.

Overall, the Integrated Capacity Management approach transforms reactive decision making into a proactive one.
Short-Term Adjustments
Integrated Capacity Management is about smoothing schedules a week ahead of time, and adjusting staffing numbers and skill-mix to meet any revisions to the demand and acuity forecast. Tools like self-service scheduling provide staff the opportunity to play a direct role in achieving balance.

On The Day-Of-Care
On the day-of-care, Integrated Capacity Management enables staff to be more proactive in decision making because patient demand and required workforce have already been carefully aligned. Additionally, transparency systems are in place to allow staff to identify and rectify unanticipated events as they arise.

Frontline leaders have the ability to quickly and easily assess patient acuity unit by unit, as well as across the entire organization, ensuring the right staff are assigned to the right patients at the right time. Acuity measurement tools are critical — they offer the flexibility to customize care classification patient requirements while taking into account staff skill, knowledge and experience.

Senior managers can also quickly understand where resources have been allocated across the hospital, and rebalance those resources to meet immediate needs. Mobile tools allow every team member to identify schedule and patient-flow issues – such as an unexpectedly open shift or dirty beds that need to be turned – for speedy resolution, ensuring proper staffing, minimizing length of stay, and maximizing patient flow velocity.

In The Moment
Integrated Capacity Management provides at-a-glance, real-time insight into patient flow, patient quality needs (such as identifying fall risks or making daily needs assessments of central lines), and even patient location within the hospital (such as when a patient is in the cardiac cath lab or imaging). Care teams and supporting services work together more efficiently, delivering care that allows patients to be discharged earlier.

With these tools, managers can become more proactive about bed management by identifying blockages and improving patient flow. Patient stays can be shortened by streamlining admissions and discharges, and synchronizing care staff, e.g., technicians, transport staff, and environmental services. Everyone contributes to the optimal care of the patient, and the most efficient operation of the hospital.
Behavior changes involving operational and clinical processes are better facilitated by using graphic indicators to make them visible and remind staff to meet new targets and make them aware of new interventions. Reduced process variation and risk is achieved by increasing compliance with protocols, objectives and response time targets.

This exceptional visibility empowers executives and senior managers to better support their teams.

The High-Level View
Finally, with an Integrated Capacity Management approach, executives and senior managers gain a high level view into the entire process of operational decision making. This involves providing a combined view of all capacity issues and opportunities. It allows senior managers to review specific metrics, including census, admissions, discharges, average length of stay, acuity, bed availability, patient flow blockages, clinical risk, staffing, productivity and pay.

This exceptional visibility empowers executives and senior managers to better support their teams. They can help manage positive and negative variances in capacity, driving overall improvement in hospital performance. They also gain insights to use as part of the strategic, annual and continuous planning processes.

The benefits of Integrated Capacity Management
Compared to conventional staffing and bed management, Integrated Capacity Management positively impacts finances, quality, satisfaction and retention.

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<tr>
<th>Conventional Staffing and Bed Management</th>
<th>Integrated Capacity Management</th>
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<td>• Uses technology focused specifically on supply data</td>
<td>• Use sophisticated algorithms that produce real-time forecasts across the enterprise</td>
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<td>• Bases patient demand and acuity needs on retrospective averaging</td>
<td>• Accurately predicts patient demand and acuity based on real-time data, ensuring right staff with right patient</td>
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<td>• Impacted by uncontrollable variables and artificial variation</td>
<td>• Enables proactive identification and resolution of issues</td>
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<td>• Employs manual processes to assess staffing, acuity and resource needs</td>
<td>• Provides visual and technological tools for optimal resource allocation, including overall staffing needs and start-to-finish transparency into the patient journey</td>
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<td>• Utilizes an average best fit approach</td>
<td>• Facilitates precise scheduling and staffing</td>
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Conclusion

In order to succeed in today’s environment, hospitals have to increase their efficiency and effectiveness. Specifically, they have to reduce their operating costs while at the same time improving their quality of care and staff retention. Integrated Capacity Management provides healthcare executives and operational leaders with the ability to achieve these goals by transforming their approach to capacity management with a more comprehensive, proactive approach. The net result is a significant decrease in labor cost and an improvement in quality of care, patient safety and staff satisfaction and retention.
"Staff nurses want to come into work every day, they want to practice at the highest level of their license and they want to positively impact patient care. And when we have the right number of nurses taking care of the right number of patients, good things happen."

—MaryPat Sullivan, RN
CNO/Chief Experience Officer
Overlook Medical Center
Summit, N.J.

The C-suite at Overlook Medical Center in Summit, N.J., had an objective to improve clinical outcomes and reduce labor costs. They identified three key initiatives to achieve this objective: streamline throughput, engage staff and improve resource utilization for cost reduction. As they worked to accomplish their objective, the medical center achieved something far greater than the clinical and executive staff could have expected: a cultural transformation.

Targeting Throughput, Engagement and Costs
Situated on the edge of the Watchung Mountains in northern New Jersey, Overlook, part of the Atlantic Health System, is a 504-bed, nonprofit teaching hospital located in a residential area. Because of its unique location, it is difficult for the health system to grow in size, despite increasing patient numbers, according to MaryPat Sullivan, RN, Overlook’s CNO and chief experience officer. “As a result, throughput was a challenge,” she says.

At the same time, the medical center wanted to improve staff engagement regarding scheduling and resource utilization. The idea was to help nursing staff gain more control over their work environment, which could quickly become overwhelming due to a patient census Sullivan describes as volatile.

“We’ve budgeted for an average of 335 patients per day, and we range anywhere from 260 to 420 patients, so planning for us is complicated,” she explains.

Sullivan and her team needed a solution that allowed staff to forecast patient throughput. In addition, they wanted to empower executives and all patient care staff—from nursing to pharmacy to environmental services—with readily available information to ensure the highest quality, most efficient patient journey.

“The C-suite executives needed a dashboard to monitor throughput to see how we’re assisting patients with transitions throughout the organization,” Sullivan says. “The staff wanted to know information such as, ‘What could patient census look like on any given unit one week, four weeks, eight weeks or 12 weeks out?’ We needed to accurately forecast to strategic and near-term timelines and manage to actual census in real time.”

Implementing Strategy for Results
To help leaders address these challenges, Overlook implemented the McKesson Integrated Capacity Management strategy. This strategy uses three integrated solutions to move patients successfully through the system with the care they need in the time allotted by the Centers for Medicare & Medicaid Services. The McKesson Capacity Planner provides predictive analytics to align patient demand with capital and physical resources; McKesson Performance Visibility enables transparency for length-of-stay reduction, improved patient flow and quality performance; and ANSOS One-Staff workforce management facilitates accurately deployed staff, based on patient demand and acuity and staff scheduling needs.

Since implementation of the ICM strategy, Overlook has completely transformed its bed-round process. Previously, the
nursing staff at Overlook would meet several times throughout the day to discuss patient status.

Now, using capacity management, nursing has instant access to complete real-time patient status, saving valuable time and improving throughput. Additionally, aligning forecast capacity with real-time demand provides nursing with greater control, improving staff satisfaction.

Having predictive data that can be accessed by both clinical staff and the executive team creates unrivaled transparency within the organization, empowering staff, according to Tamira Harris, PhD, CPHQ, business advisor, McKesson. “Staff can use information at their fingertips to make changes, and they have the confidence to do so with highly accurate data,” she reports. “This reduces last-minute shuffling in the staffing office.”

Since implementing an ICM strategy, Overlook has seen improvements, including $3,400 estimated daily labor cost savings from flexible nursing units, $9,931.61 per day savings in critical care and $250,000 savings from reduced overtime.

In addition, the medical center has drastically improved boarded patient hours in its ED. According to Sullivan, prior to using an ICM strategy, Overlook was averaging approximately 9,000 boarded patient hours per month, which resulted in overtime, poor patient experience and staff dissatisfaction. At press time, the organization has decreased boarded patient hours by 80 percent, to just over 1,800 boarded patient hours.

A “Great Leveler”
An unintended, yet welcomed, consequence of implementing the strategy, say Sullivan and Harris, is the way it has brought clinical staff and leadership together, transforming the organization’s culture.

“The solutions that enable this strategy provide a single source of truth,” Harris says. “Everybody sees and shares the same information and understands what everybody else is talking about. It’s a powerful mechanism for building relationships between staff and executives.”

One of the nurses at Overlook perhaps put it best, recalls Sullivan. “One night, I was making night shift rounds, and we were all talking about the solutions, how we’re utilizing them, how we can be more efficient and some of the success stories we’ve already seen around quality,” Sullivan says. “One of the nurses called the Integrated Capacity Management strategy a ‘great leveler’ — because it breaks down silos.”

To learn more about McKesson’s Integrated Capacity Management strategy, download the white paper Integrated Capacity Management for Health Systems: A Proactive Solution to Today’s Capacity Challenges from http://content.mckesson.com/ICMWPLPSocial.