Putting It All Together: Strategies to Achieve System-Wide Results

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Hospital Flow Professional Development Program
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Cambridge, MA
Session Objectives

After this session, participants will be able to:

- Analyze and identify relevant strategies for creating a plan for executing a sustainable system for patient flow, so that patients receive the right care, in the right place, at the right time.
- Select high leverage strategies and interventions, and prioritize short-term and long-term initiatives to achieve established performance goals.
Key Elements for Breakthrough Improvement

Will to do what it takes to change to a new system

Ideas on which to base the design of the new system

Execution of the ideas

Executing for System Level Results
http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/ImprovementStories/ExecutingforSystemLevelResultsPart3.htm
EXECUTION THEORY
Execution at the System Level

- Achieve breakthrough goals
  - Provide leaders for large system projects
  - Spread and sustain
  - Manage local improvement
  - Develop human resources
  - Provide day-to-day leaders for micro systems
Proposed System for Achieving Breakthrough Levels of Performance

I. Setting Breakthrough Performance Goals
II. Developing a Portfolio of Projects to Support the Goals
III. Deploying Resources to the Projects That Are Appropriate for the Aim
IV. Establishing an Oversight and Learning System to Increase the Chance of Producing the Intended Results

http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/ImprovementStories/ExecutingforSystemLevelResultsPart3.htm
Some Background: The Juran Improvement Trilogy

The Juran Trilogy consists of three types of activities:
- Quality Planning
- Quality Control (or Quality Assurance)
- Quality Improvement

Quality Planning:
- Setting aims
- Selecting improvement projects
- Selecting team and providing resources
FIGURE 4.1 The Juran trilogy diagram. (Juran Institute, Inc., Wilton, CT.)
I. Setting Breakthrough Performance Goals
(IHI “Toyota Specifications”)

- Make goals transformational not incremental
- Expect both Innovation and redesign of processes
- Force identification of system level barriers that need to be addressed to transform health care
II. Developing a Portfolio of Projects to Support the Goals

- Use a “cascade” from the goal to drivers in a series of steps, until projects of reasonable size can be identified.

- The cascade begins with a system-level goal. To provide an informative link between the goal and operations, the goal is accompanied by the means or drivers to accomplish the goal.

- It is the executive team’s responsibility to ensure that the goal is connected to drivers.

- Each of the drivers can be thought of as a goal assigned to one or more persons with its own set of secondary drivers. The person or group responsible for the primary driver is also responsible for establishing the set of associated secondary drivers.
An Example: Avoiding Rehospitalizations

Rehospitalizations

Tier 1: Goal
Tier 2: Portfolio
Tier 3: Projects
Degree of belief that the change will result in improvement:

- **High**
- **Moderate**
- **Low**

**Project Scoping:**

*What is the status of each specific change idea?*

- **Design and Prototype**
- **Testing**
- **Implementation, then Scale-up & Spread**

- **A successful change**
- **Change still needs further testing. There is a risk of implementing or spreading at this stage.**
- **Unsuccessful proposed change**
“Orchestrated” Testing
(for organization’s with multiple hospitals or units)

Coordinate PDSA testing in a system to evaluate ideas for improvement (use factorial designs)  API - 2015
Issues at Each Tier (Examples)

Tier 1: Goal
- Aims of strategic importance to the system as a whole
- “Big Dot” measure of progress
- Executive, Board and Senior Leader engagement
- Vision and the associated structural changes
- Strong linkage to finance
- Learning and mitigation of risks
- Managing the learning, the politics, and the risks

Tier 2: Portfolio
- Understanding “drivers” and causal linkages
- Outcomes of consequence tracked over time
- Middle Management key
- “Connecting the Dots” – putting the learning together
- Continual readjustment of portfolio
- Strong linkage to finance
- Some structural changes (e.g., job roles)

Tier 3: Projects
- Team organization and capacity matter
- Process and outcome tracked over time
- Leaders remove obstacles
- Change concepts help
- Ability to run PDSA cycles
- Temporary infrastructures facilitate progress
Execution at the System Level

- Manage local improvement
- Achieve breakthrough goals
- Develop human resources
- Provide leaders for large system projects
- Provide day-to-day leaders for micro systems
- Spread and sustain
III. Deploying Resources to the Projects in each Portfolio

- Dedicated improvers, e.g. management engineers or quality improvement staff
- Team Leaders: enable at least 30% of the job of managers to be connected to improvement

Selecting potential leaders of improvement:
- **Curiosity:**
- **Capability to move between conceptual thinking and execution:**
- **Quantitative skills:**
- **Ability to work well with all levels of the workforce and professional disciplines**
- **Confidence to link with senior executives:**
- **Ability to be a good communicator**
Other Resources to Allocate for Improvement

- Capital for projects, such as information technology, construction, or new equipment;
- Priority for requests to information technology services;
- Priority for other support services such as finance or human resources; and
- Assignment of analysts or quality improvement specialists to assist the team.
IV. Oversight and Learning System

- Input the cascaded set of goals, means, and projects and the associated measures and logic.
- Monthly review of a subset of the projects at the business level
- Quarterly review of projects from each of the businesses by the CEO
- Rebalancing every quarter if necessary: Takes sequential thinking to a system/organizational level
Oversight and Learning System: Purpose of Project Review

- To provide encouragement and recognition of the project teams;
- To learn whether the project was on track, or was likely to fall short of the aim;
- To develop action plans for getting projects back on track; and
- To decide whether the project should be modified in some way or stopped.
Oversight of Strategic Priorities

- Monthly project report – all measures on time series charts
- Steering team includes senior management
- Quarterly reports to board and full senior leadership
- Vertical alignment through quarterly meetings per year with business units
- Resourced adequately
Oversight and Learning

- Make clear connections to strategic direction
- Set the pace with monthly and quarterly one-hour and two-hour reviews
- Expect succinct and effective explanations of progress and obstacles from the team
- Rebalance as appropriate every 90-120 days
- Extract common themes from among projects (a learning organization)
Organization Linkage of Processes at Appropriate Level of Detail
## Portfolio of Projects

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<thead>
<tr>
<th>Project</th>
<th>Areas of Focus</th>
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### Aim and Measures for each Project

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<tr>
<th>Project</th>
<th>Primary Outcome</th>
<th>Process, intermediate outcomes, or short term</th>
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## Portfolio of Projects

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<tr>
<th>Project</th>
<th>Sponsor</th>
<th>Resources and Responsibilities</th>
<th>Lead</th>
<th>Driver</th>
<th>IA skills</th>
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Action Planning

- Diagnostic Measures and Setting Goals (from pre-work)
  - What are your current QI Projects to improve hospital flow?
  - What are you measuring? Current performance?
- “Bright Spots” and Major Challenges
- Strategies to Achieve System-Wide Hospital Flow (what reflections have you had regarding proposed strategies? action plans?)
  - Will / Ideas / Execution
- Ideas to Improve Hospital Flow (what reflections have you had regarding new ideas and/or implementation strategies? action plans?)
  - Shape Demand / Match Capacity and Demand / Redesign the System
<table>
<thead>
<tr>
<th>Hospital Macro</th>
<th>Emergency Department</th>
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<tbody>
<tr>
<td>• Average Occupancy Rate</td>
<td>• ED diversions</td>
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<tr>
<td>• Readmissions within 1 week of discharge</td>
<td>• # of diversions</td>
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<tr>
<td>• Readmissions within 30 days after discharge</td>
<td>• hours per month</td>
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<tr>
<td>• Patient experience (HCAHPS measures related to waits &amp; delays)</td>
<td>• Patients who “left without being seen”</td>
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<tr>
<td>• Clinician and staff satisfaction related to workload (ex. NDNQI)</td>
<td>• Visits per day</td>
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<td>• Number of “off-service” patients</td>
<td>• Average length of stay</td>
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<td>• Number of HACs (ex. falls with injury, VAPs, etc.)</td>
<td>• for patients who are discharged</td>
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<td>• for patients who are admitted</td>
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<td>• Door to provider time</td>
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<td>• Time from decision to admit to transfer to inpatient unit</td>
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<td>• Number of “ED boarders” waiting to be admitted to a hospital bed</td>
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<td>• Time from decision to have emergency surgery to OR</td>
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<td>• Percentage of ESI level 4 &amp; 5 patients (low acuity)</td>
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<tr>
<td></td>
<td>• Percentage of patients who were admitted</td>
</tr>
</tbody>
</table>
# Hospital-wide Flow Metrics

## Critical Care Units
- Average Census
- Average Length of Stay
- Number of “LOS outliers” per month
- Number of decedents spending 7 or more days in the ICU in the last 6 months of life
- Number of ICU diversions due to lack of capacity (# of “off-service patients”)
- Nursing Overtime
- Number of HACs
- Delays in Transferring Patients to Med/Surg Units

## Med/Surg Units
- Average Census
- Average Length of Stay
- Number of “LOS outliers” per month
- Nursing Overtime
- Number of HACs
- Median discharge time (or discharge profile)

## Operating Rooms
- Number of emergency cases by day
- Number of scheduled cases by day
- Percentage of OR utilization
- Number of changes from schedule for Elective Surgical Cases
- Actual and Scheduled Start Times for Elective Surgical Cases
- Nursing Overtime
  - OR
  - PACU
- Number of overnight PACU patients
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

Strategies

- Will
- Ideas
- Execution

Primary Drivers

| 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 |
| Shape the Demand |
| Match Capacity and Demand |
| Redesign the System |
| 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 |
Action Plans for Will and Execution

- Building Will
- Building Execution Capacity and Capability
Primary Drivers

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

Driver Diagram: Ideas to Improve Hospital Flow

Outcomes
- Shape or Reduce Demand
- Match Capacity and Demand
- Redesign the System

Primary Drivers
- 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

Secondary Drivers
- 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

Specific Change Ideas
- C1 Reliably identify EOL wishes and proactively create and execute advanced illness plans
- C1 Development of palliative care programs (hospital-based and community-based)
- C2 Improve transitions and reduce readmissions for high risk populations
- C3 Extended hours in primary care practices & home-based primary care
- C4 Develop partnerships with Urgent Care and Retail Clinics
- C4 Enroll patients in community-based mental health services
- C3 Paramedics & EMTs triaging & treating patients at home
- C5 Redesign surgical schedules to create a predictable flow of patients to downstream ICUs and inpatient units
- C6 Decrease complications/harm (HAPU, CAUTI, SSI, falls with harm) and subsequent LOS
- C7 Reliably use of clinical pathways and evidence-based medicine
- C8 Assess seasonal variations and changes in demand patterns and proactively plan for variations
- C9 Daily flow planning huddles (improve predictions to synchronize admissions, discharges and discharges)
- C8 Real-time demand and capacity problem-solving (managing constraints and bottlenecks)
- C10 Planning capacity to meet predicted demand patterns
- C11 High census protocols to expedite admissions from the ED and manage surgical schedules
- C12 Increase OR throughput through efficiency changes
- C12 ED efficiency changes to decrease LOS
- C12 Decrease LOS in ICUs (timely consults, tests and procedures)
- C12 Decrease LOS on Med/Surg Units (case management for patients with complex medical and social needs)
- C13 Initiate final discharge preparations when the patient is clinically ready for discharge
- C13 Flipped “home-based” discharge planning
- C13 Care management for vulnerable high risk patient populations
- C14 Advance planning for transfers to community-based care settings
- C14 Enhanced community and home-based services
- C14 Cooperative agreements with rehab facilities, SNFs and nursing homes
Ideas to Improve Hospital Flow >> Portfolio of Projects

Secondary Drivers

- 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
- S7 Reduce ED visits & hospital admissions through delivering appropriate care

Specific Change Ideas

- C1 Reliably identify EOL wishes and proactively create and execute advanced illness plans
- C1 Development of palliative care programs (hospital-based and community-based)
- C2 Improve transitions and reduce readmissions for high risk populations
- C3 Extended hours in primary care practices & home-based primary care
- C3 Develop partnerships with Urgent Care and Retail Clinics
- C3 Enroll patients in community-based mental health services
- C3 Paramedics & EMTs triaging & treating patients at home
- C4 Enhanced population health care management and coordination of care for high-risk and socially complex populations
- C4 Enhanced SNF and home-based care services (HHC, Hospital at Home)
- C5 Separate scheduled and unscheduled flows in the OR
- C5 Redesign surgical schedules to create a predictable flow of patients to downstream ICUs and inpatient units
- C6 Decrease complications/harm (HAPU, CAUTI, SSI, falls with harm) and subsequent LOS
- C7 Reliably use of clinical pathways and evidence-based medicine

Shape or Reduce Demand

Action Plans
Ideas to Improve Hospital Flow >> Portfolio of Projects

**Secondary Drivers**

S8 Oversight system for hospital-wide operations to optimize patient flow

S9 Real-time demand and capacity management processes

S10 Flex capacity to meet hourly, daily and seasonal variations in demand

S11 Early recognition for high census and surge planning

**Specific Change Ideas**

C8 Assess seasonal variations and changes in demand patterns and proactively plan for variations

C9 Daily flow planning huddles (improve predictions to synchronize admissions, discharges and discharges)

C8 Real-time demand and capacity problem-solving (managing constraints and bottlenecks)

C10 Planning capacity to meet predicted demand patterns

C11 High census protocols to expedite admissions from the ED and manage surgical schedules.

**Action Plans**
Ideas to Improve Hospital Flow >> Portfolio of Projects

**Secondary Drivers**

- S12 Improve efficiencies and throughput in the OR, ED, ICUs and Med/Surg Units
- S13 Improve efficiencies & coordination of discharge processes
- S14 Service Line Optimization (frail elders, SNF residents, stroke patients, etc.)
- S15 Reducing unnecessary variations in care and managing LOS “outliers”

**Specific Change Ideas**

- C12 Increase OR throughput through efficiency changes
- C12 ED efficiency changes to decrease LOS
- C12 Decrease LOS in ICUs (timely consults, tests and procedures)
- C12 Decrease LOS on Med/Surg Units (case management for patients with complex medical and social needs)
- C13 Initiate final discharge preparations when the patient is clinically ready for discharge
- C13 Flipped “home-based” discharge planning
- C13 Care management for vulnerable/high risk patient populations
- C14 Advance planning for transfers to community-based care settings
- C14 Enhanced community and home-based services
- C14 Cooperative agreements with rehab facilities, SNFs and nursing homes

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

- 28th Annual National Forum on Quality Improvement in Health Care: December 4-7, 2016 in Orlando, FL

- Improvement Coach Professional Development: January 12, 2017 in San Francisco, CA

- Patient Safety Executive Development Program: March 2-8, 2017 in Cambridge, MA

- Hospital Flow Professional Development Program: May 1 – 4, 2017 in Cambridge, MA