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

Katharine Luther, Lloyd Provost, Pat Rutherford
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 at the System Level

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

4 components

- Setting Breakthrough Performance Goals
- Developing a Portfolio of Projects to Support the Goals
- Deploying Resources to the Projects That Are Appropriate for the Aim
- 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
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
**Juran Trilogy**

![Diagram of Juran Trilogy]

- **Quality Planning**
- **Quality Control (During Operations)**
- **Sporadic Spike**
- **Original Zone of Quality Control**
- **Chronic Waste**
- **Quality Improvement**
- **New Zone of Quality Control**

**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

http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/ImprovementStories/ExecutingforSystemLevelResultsPart3.htm
Addressing Challenges to Limiting to Two Goals

- Keep the goals at an ambitious level with respect to impact and scope. This will help people realize that accomplishing even one or two of these goals would be a substantial achievement.

- Face the reality of past achievements. It is a rare organization that accomplishes even two breakthroughs in performance at the level of the Toyota specifications in a year.
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.
The Intuitive Structure

Very Large System

“Meso-System”

Project

“Meso-System”

Project

“Meso-System”

Project

Project
An Example: Rehospitalization

Rehospitalizations

- Hospitals
- Discharge Planning
- Information Transfer

- Home Health Care
- Pre-Discharge Assessment Payment
- Family Capacity

- Offices
- Post Discharge Visit Payment
- Information Exchange

Tier 1: Big Dot
Tier 2: Portfolio
Tier 3: Projects
<table>
<thead>
<tr>
<th>Area</th>
<th>Shape Demand</th>
<th>Match Capacity and Demand</th>
<th>Redesign the System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital (Macro)</td>
<td>Reduce readmissions</td>
<td>Hospital-wide oversight system for hospital operations looking at seasonal variation and</td>
<td>Single rooms</td>
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<tr>
<td></td>
<td>Reduce admissions for patients with complex needs</td>
<td>changes in demand patterns</td>
<td>Seasonal Swing Units</td>
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<td>Proactively shift EOL care to Palliative Care Programs</td>
<td>Daily and weekly hospital-wide capacity and demand management</td>
<td>Service Line Optimization (frail elders, SNF residents, stroke patients, etc.)</td>
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<td>Surge planning</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>
<td>ED efficiency changes to decrease LOS</td>
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<td></td>
<td>Enroll patients in mental health programs</td>
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<td>(for patients being discharged and for patients being admitted)</td>
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<td>Cooperative agreements with SNFs</td>
<td></td>
<td>Separate flows in the ED</td>
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<td>Cooperative agreements with EMS</td>
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<tr>
<td>Critical Care</td>
<td>Decrease complications/harm (sepsis)</td>
<td>Improve real-time capacity and demand predictions</td>
<td>Decrease LOS</td>
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<tr>
<td>Units</td>
<td>Shift EOL care to Palliative Care Programs</td>
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<td>(timely consults and procedures; aggressive weaning and ambulation protocols)</td>
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<td>Med/Surg Units</td>
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<td>Decrease LOS</td>
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<tr>
<td></td>
<td>Reduce Readmissions</td>
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<td>(case management for patients with complex medical and social needs)</td>
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<td>Proactively shift EOL care to Palliative Care Programs</td>
<td></td>
<td>“Lean” the discharge processes</td>
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<td>Cooperative agreements with rehab facilities, SNFs and nursing homes</td>
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<td>Stagger discharges throughout the day</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>
<td>OR efficiency changes to improve throughput</td>
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<td></td>
<td>Separate flows for scheduled and emergency OR cases</td>
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Portfolio of Projects
# Portfolio of Projects

<table>
<thead>
<tr>
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<th><strong>Match Capacity and Demand</strong></th>
<th><strong>Redesign the System</strong></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>Hospital (Macro)</td>
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<td>Emergency Department</td>
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<td>Critical Care Unit</td>
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<td>Med/Surg Units</td>
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<tr>
<td>Operating Rooms</td>
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**Project Scoping:**
*What is the status of each specific change idea?*

- **Degree of belief that the change will result in improvement**
  - High
  - Moderate
  - Low

- **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:

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

- **Tier 1: Big Dot**
  - 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
  - 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 2: Portfolio**
  - 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
III. Deploying Resources to the Projects that Are Appropriate for the Aim

- 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
Some Options for Developing Leaders of Improvement

- Lead a project with help from a capable colleague or improvement advisor
- Lead a project in a collaborative
- Attend seminars and conferences
- Lead an improvement workshop for those reporting to you
- Join an internal interest group/study groups, for example safety
- Self study
- Rotation into the improvement group for high performers
- Train managers by helping them get business results
- E-learning modules
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
IV. 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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### Aims and Measures

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

<table>
<thead>
<tr>
<th>Project</th>
<th>Resources and Responsibilities</th>
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<tbody>
<tr>
<td></td>
<td>Sponsor</td>
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- Project 1:
  - Sponsor:
  - Lead:
  - Driver:
  - IA skills:

- Project 2:
  - Sponsor:
  - Lead:
  - Driver:
  - IA skills:

- Project 3:
  - Sponsor:
  - Lead:
  - Driver:
  - IA skills:

- Project 4:
  - Sponsor:
  - Lead:
  - Driver:
  - IA skills:

- Project 5:
  - Sponsor:
  - Lead:
  - Driver:
  - IA skills:
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?)
  - Will, Ideas and Execution
- Ideas to Improve Hospital Flow (what reflections have you had regarding new ideas and/or implementation strategies?)
  - Shape Demand
  - Match Capacity and Demand
  - Redesign the System
### Draft Hospital Flow Metrics

#### Hospital Macro
- Average Occupancy Rate
- Readmissions within 1 week of discharge
- Readmissions within 30 days after discharge
- Patient experience (HCAHPS measures related to waits & delays)
- Clinician and staff satisfaction related to workload (ex. NDNQI)
- Number of “off-service” patients
- Number of HACs (ex. falls with injury, VAPs, etc.)

#### Emergency Department
- ED diversions
  - # of diversions
  - hours per month
- Patients who “left without being seen”
- Visits per day
- Average length of stay
  - for patients who are discharged
  - for patients who are admitted
- Door to provider time
- Time from decision to admit to transfer to inpatient unit
- Number of “ED boarders” waiting to be admitted to a hospital bed
- Time from decision to have emergency surgery to OR
- Percentage of ESI level 4 & 5 patients (low acuity)
- Percentage of patients who were admitted
### Draft Hospital 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

Idea

Execution

Primary Drivers

- Strategic Priority and Aligned Incentives
- 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 Providing Oversight of System-Level Performance
- Data Analytics to Provide Real-time Capacity and Demand Management and Forecasting
- Micro-system Quality Improvement Capability and Empowerment

Mutuality between Physicians and Hospital Executives

**Hospital Flow: Strategies for System Optimization**

**Strategies / 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
Primary Drivers
Secondary Drivers
Specific Change Ideas

Shape or Reduce Demand

- 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

Match Capacity and 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 Decrease artificial variation in surgical scheduling
- S5 Decrease demand for surgical beds by reducing hospital acquired conditions
- S6 Reduce ED visits & hospital admissions through delivering appropriate care
- S7 Oversight system for hospital-wide operations to optimize patient flow
- S8 Real-time demand and capacity management processes
- S9 Flex capacity to meet hourly, daily and seasonal variations in demand
- S10 Early recognition for high census and surge planning
- S11 Improve efficiencies and throughput in the OR, ED, ICUs and Med/Surg Units
- S12 Improve efficiencies & coordination of discharge processes
- S13 Service Line Optimization (frail elders, SNF residents, stroke patients, etc.)
- S14 Reducing unnecessary variations in care and managing LOS "outliers"

Redesign the System

- C1 Reliably identify EOL wishes and proactively create and execute advanced illness plans
- C2 Reduce readmissions for high risk populations
- C3 Extended hours in primary care practices
- C4 Develop partnerships with Urgent Care and Retail Clinics
- C5 Enroll patients in community-based mental health services
- C6 Paramedics & EMTs triaging & treating patients at home
- C7 Separate scheduled and unscheduled flows in the OR
- C8 Redesign surgical schedules to create an predictable flow of patients to downstream ICUs and inpatient units
- C9 Decrease complications/harm (HAPU, CAUTI, SSI, falls with harm) and subsequent LOS
- C10 Decrease complications/harm (HAPU, CAUTI, SSI, falls with harm) and subsequent LOS
- C11 Decrease complications/harm (HAPU, CAUTI, SSI, falls with harm) and subsequent LOS
- C12 Increase OR throughput through efficiency changes
- C13 ED efficiency changes to decrease LOS
- C14 Enroll patients in community-based mental health services
- C15 Care management for vulnerable/high risk patient populations
- C16 Advanced planning for transfers to community-based care settings
- C17 Cooperative agreements with rehab facilities, SNFs and nursing homes

C1 Development of palliative care programs (hospital-based and community-based)
C2 Extended hours in primary care practices
C3 Develop partnerships with Urgent Care and Retail Clinics
C4 Paramedics & EMTs triaging & treating patients at home
C5 Separate scheduled and unscheduled flows in the OR
C6 Redesign surgical schedules to create an predictable flow of patients to downstream ICUs and inpatient units
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C11 ED efficiency changes to decrease LOS
C12 Enroll patients in community-based mental health services
C13 Care management for vulnerable/high risk patient populations
C14 Advance planning for transfers to community-based care settings
C15 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 Decrease artificial variation in surgical scheduling
- S5 Decrease demand for hospital beds by reducing hospital acquired conditions
- S6 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 Reduce readmissions for high risk populations
- C3 Extended hours in primary care practices
- 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 Separate scheduled and unscheduled flows in the OR
- C4 Redesign surgical schedules to create predictable flow of patients to downstream ICUs and inpatient units
- C5 Decrease complications/harm (HAPU, CAUTI, SSI, falls with harm) and subsequent LOS
- C6 Reliably use of clinical pathways and evidence-based medicine

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

Secondary Drivers

S7 Oversight system for hospital-wide operations to optimize patient flow
S8 Real-time demand and capacity management processes
S9 Flex capacity to meet hourly, daily and seasonal variations in demand
S10 Early recognition for high census and surge planning

Specific Change Ideas

C7 Assess seasonal variations and changes in demand patterns and proactively plan for variations
C8 Daily flow planning huddles (improve predictions to synchronize admissions, discharges and discharges)
C8 Real-time demand and capacity problem-solving (managing constraints and bottlenecks)
C9 Planning capacity to meet predicted demand patterns
C10 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

- S11 Improve efficiencies and throughput in the OR, ED, ICUs and Med/Surg Units
- S12 Improve efficiencies & coordination of discharge processes
- S13 Service Line Optimization (frail elders, SNF residents, stroke patients, etc.)
- S14 Reducing unnecessary variations in care and managing LOS “outliers”

Specific Change Ideas

- C11 Increase OR throughput through efficiency changes
- C11 ED efficiency changes to decrease LOS
- C11 Decrease LOS in ICUs (timely consults, tests and procedures)
- C11 Decrease LOS on Med/Surg Units (case management for patients with complex medical and social needs)
- C12 Initiate final discharge preparations when the patient is clinically ready for discharge
- C13 Care management for vulnerable/high risk patient populations
- C14 Advance planning for transfers to community-based care settings
- C14 Cooperative agreements with rehab facilities, SNFs and nursing homes

Action Plans
Hospital Flow Professional Development Program

Optional Follow-up Webinar:

April 29, 2016 (12N-1:30PM EDT)

- “Here is what we did….” (need 6 volunteers)
- Discussion about what was done and what was the learning
Improvement Open House

June 8, 2016
September 8, 2016
October/November Dates TBD
$500 per person

For more information or to register:
Jess Siebert
513-803-7173
Jessica.schraer@cchmc.org
Upcoming Programs

- **June 16-17**: Perfecting Emergency Operations Seminar in Washington, DC
  - [http://www.ihi.org/education/InPersonTraining/PerfectingED/PerfectingEDOperationsApril2016/Pages/default.aspx](http://www.ihi.org/education/InPersonTraining/PerfectingED/PerfectingEDOperationsApril2016/Pages/default.aspx)

- **September 7-10**: Respecting Choices Advance Care Planning Summit in Milwaukee, Wisconsin
  - Registration available May 2nd: [www.respectingchoices.org](http://www.respectingchoices.org)