The Right Tool For A Successful Project

Presented by Content Expert:
Mary Nickel, RN, MSM
Director, Medical Staff Services/Clinical Quality/Risk Management
Saint Clare’s Hospital, Weston, WI
Presentation Objectives

• Explain various quality tools for use in designing new or revising current processes
• Provide an overview of two quality improvement methodologies
• Identify the steps that lead to a successful project
• Emphasize the importance of ongoing monitoring to sustain the gain
QUALITY TOOLS

- DMAIC
- PDSA
- PATIENT SIMULATIONS
- FMEA
- PROCESS MAPS
- GRAPHS
Designing New or Revising Current Processes

- Process mapping
- Failure Modes and Effects Analysis (FMEA)
- Patient simulations
Process Mapping

- Visual diagram of the steps in a process
- Identifies the roles accountable for each step in a process
- Shows handoffs between steps
- Includes the length of time to complete a step
- Group/team participates in process
Process Mapping - Continued

- Process mapping is initiated:
  - Prior to implementing a new service or process
  - Revising a current process
  - Clarifying a process
  - Defining the “AS IS” state
  - Creating the “FUTURE” state
FMEA

- Proactive, multidisciplinary approach
- Evaluates a process
  - Before implementation
  - Before something happens
- Identifies where a step in the process might fail
  - Mitigate risk
  - Prevent harm
FMEA - Continued

• Questions to ask:
  – Failure Mode – “What could go wrong?”
  – Failure Causes – “Why would the failure happen?”
  – Failure Effects – “What would be the consequences?”
• Assign the Risk Priority Number (RPN)
  – Likelihood of occurrence (1-10)
  – Likelihood of detection (1-10)
  – Severity (1-10)

• Based on the RPN, create an action plan
<table>
<thead>
<tr>
<th>Steps</th>
<th>(What Could Go Wrong) Failure Mode</th>
<th>(Why Would the Failure Happen) Failure Causes</th>
<th>(What Would be the Consequence) Failure Effects</th>
<th>Likelihood of Occurrence (1-10)</th>
<th>Likelihood of Detection (1-10)</th>
<th>Severity (1-10)</th>
<th>Risk Priority Number (RPN)</th>
<th>Actions to Reduce Occurrence of Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# FMEA Skin Breakdown

<table>
<thead>
<tr>
<th>Steps</th>
<th>Failure Mode (What could go wrong)</th>
<th>Failure Causes (Why would the failure happen)</th>
<th>Failure Effects (How will it impact the patient)</th>
<th>Likelihood of Occurrence (1-10)</th>
<th>Likelihood of Detection (1-10)</th>
<th>Severity (1-10)</th>
<th>Risk Priority Number (RPN)</th>
<th>Actions to Reduce Occurrence of Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1: Skin/Risk Assessment:</strong></td>
<td>• Failure to complete • Failure to document • Not within timeframe • Not considered a priority</td>
<td>• Forgetfulness • Time factor • Not assessing whole patient • Different RNs</td>
<td>• Not recognized as having risk • Not getting proper treatment • Did not prevent breakdown • Consults not ordered</td>
<td>6</td>
<td>8</td>
<td>9</td>
<td>432</td>
<td></td>
</tr>
<tr>
<td>Upon Admission (within 2 hours) and every 8 Hours thereafter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2: Braden Scale (Admission)</strong></td>
<td>• Lack of applying interventions based on the Braden Scale</td>
<td>• No purpose • Do not know how to apply the scale</td>
<td>• Lack of implementing critical path - goal not achieved. • Lack of implementing interventions - skin breakdown not prevented</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>576</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3: Critical Pathway</strong></td>
<td>• Pathway not initiated • No purpose • Time factor</td>
<td>• Goal not achieved</td>
<td></td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>150</td>
<td></td>
</tr>
</tbody>
</table>
Patient Simulations

• “Dry-run” of a new or revised process using a process map
• Hands-on approach by direct care staff
• Identifies:
  – Strengths
  – Opportunities for improvement
• Improves quality and safety of care:
  – Timeliness
  – Skills
  – Communication
  – Standardization

This presentation is part of an on-line series, brought to you through a collaboration between the Wisconsin Office of Rural Health and the Wisconsin Hospital Association. Property of the Wisconsin Office of Rural Health.
Patient Simulations - Continued

- Rescue 1 simulations
- Trauma simulations
- Stroke simulations
- Chemotherapy simulations

This presentation is part of an online series, brought to you through a collaboration between the Wisconsin Office of Rural Health and the Wisconsin Hospital Association. Property of the Wisconsin Office of Rural Health.
Quality Improvement Methodologies

- Plan, Do, Study, Act (PDSA)
- Define, Measure, Analyze, Improve, Control (DMAIC)

This presentation is part of an on-line series, brought to you through a collaboration between the Wisconsin Office of Rural Health and the Wisconsin Hospital Association. Property of the Wisconsin Office of Rural Health.
• Dr. W. Edwards Deming
• Total Quality Management (TQM)
• Three key elements of TQM:
  1. Focus on the customer
  2. Employee involvement
  3. Continuous improvement
ACT
Adopt the change.
Or abandon it.
Or run through the cycle again, possibly under different environmental conditions.

PLAN a change or a test aimed at improvement.

DO (carry) it – preferably on a small scale.

STUDY the results.
What did we learn?
DMAIC

- Motorola – Six Sigma strategy
  - Inspired by Dr. Deming, TQM
  - 3.4 DPMO (Defects per million opportunities)
- Improve manufacturing processes
- Eliminate defects
- Eliminate waste
- Increase customer satisfaction
- Data-driven
<table>
<thead>
<tr>
<th>STEP</th>
<th>GOAL</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFINE</td>
<td>• Define the project’s purpose and scope</td>
<td>• A clear statement of the intended improvement and how it will be measured, along with background on the process and the <em>Voice of the Customer</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEASURE</td>
<td>• Focus the improvement effort by gathering information on the current situation</td>
<td>• A more focused problem statement and baseline process sigma</td>
</tr>
<tr>
<td>ANALYZE</td>
<td>• Identify deep causes and confirm them with data</td>
<td>• A theory that has been tested and confirmed with data</td>
</tr>
<tr>
<td>IMPROVE</td>
<td>• Develop, test, and implement solutions that address deep causes</td>
<td>• Planned, tested actions that should eliminate or reduce the impact of the identified root causes</td>
</tr>
<tr>
<td></td>
<td>• Use data to evaluate the solutions and the implementation plans</td>
<td>• Before-and-after data analysis that shows how much of the original gap was closed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A comparison of the plan to the results</td>
</tr>
<tr>
<td>CONTROL</td>
<td>• Maintain the gains by consistently implementing the new work methods or processes</td>
<td>• Documentation of the new method</td>
</tr>
<tr>
<td></td>
<td>• Anticipate future improvements and preserve the lessons from this effort</td>
<td>• Training in the new method</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A system for monitoring its consistent use and checking results</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Completed documentation and communication of results, lessons learned, and recommendations</td>
</tr>
</tbody>
</table>

*Source: Scholtes, P. R., Joiner, B. L., & Streibel, B. J., 2003*
Steps that Lead to a Successful Project – Identify a Project

- Identify an improvement project
  - Data supports improvement is needed
  - Process not working as intended – many workarounds
  - Not meeting customer expectations
  - Aligns with an organization’s initiatives
- Supported by leadership
Steps that Lead to a Successful Project – Select a Team

• Select a team – 6 to 8 team members
  – Champion to support the project
    • Defines the problem
    • Sets the project’s goals
    • Establishes the charter
  – Leader
    • Prepares and plans for meetings, i.e. developing an agenda prior to each team meeting
    • Facilitates meetings
    • Provides updates to champion
  – Staff closest to the process/customer
    • May need diverse talents/knowledge, i.e. IT
Steps that Lead to a Successful Project – First Meeting

• At first meeting:
  – Champion “sets the stage”
    • Share charter
    • Defines the problem
    • Identifies the goals
  – Leader
    • Creates an agenda
    • Introduces team members
      – Conduct an ice breaker
    • Establish ground rules with team
Steps that Lead to a Successful Project – Team Meetings

• Leader
  – Plans and prepares for each meeting
  – Chooses and explains methodology
    • PDSA or DMAIC
  – Selects “tools” for the project
  – Encourages all team members to participate
  – Determines responsibilities of team members related to team tasks

• Team members
  – Participate
  – Complete assigned responsibilities
Steps that Lead to a Successful Project – Metrics and Analysis

• What does the data say?
  – Before the improvement
  – After the improvement

• Various tools
  – Pareto
  – Run chart
  – Control chart

This presentation is part of an on-line series, brought to you through a collaboration between the Wisconsin Office of Rural Health and the Wisconsin Hospital Association. Property of the Wisconsin Office of Rural Health.
• Vilfredo Pareto - 80/20 rule (80% of effects come from 20% of causes)
• Shows detail in categories
• Analyze for frequency of problems
PATIENT SATISFACTION - TOO MUCH NOISE

Number of Complaints

- Alarms - equipment
- Call lights
- Staff talking
- Pagers
- Elevators
Run Chart

- Displays data over time
- Analyze for patterns/trends in data points
  - Shifts
  - Trends
  - Cycle
  - Outliers
  - Same value
Utilization Review
Average Length of Stay
July 2008 thru February 2009
Goal = \leq 5.13 Days

Average length of stay

- **Oct**: 3.00 days
- **Nov**: 4.00 days
- **Dec**: 3.50 days
- **Jan**: 2.50 days
- **Feb**: 3.00 days
Control Chart

- Dr. Walter Shewhart
- Study sources of variation
  - Common causes
  - Special causes
- Shows if process is in statistical control
  - Upper control limit
  - Lower control limit
- Analyze for:
  - Outliers
  - Shifts
  - Trends
  - Cycle
  - Same value

This presentation is part of an on-line series, brought to you through a collaboration between the Wisconsin Office of Rural Health and the Wisconsin Hospital Association. Property of the Wisconsin Office of Rural Health.
Identification of New Cases of Influenza & Mgmt of Outbreaks

Percentage of Influenza Cases

Oct07 Nov07 Dec07 Jan08 Feb08 Mar08 Apr08

UCL=0.427
\bar{U}=0.225
LCL=0.024
Steps that Lead to a Successful Project – Pilot Testing

• Tested improvements identify:
  – Any gaps in the process
  – Unplanned/unanticipated events
  – Necessary revisions in the process
  – Additional education/training needed for process rollout
Steps that Lead to a Successful Project – Operationalize

- Embed quality and safety into operations through standardizing and hardwiring:
  - Standardize
    - Policies and procedures
    - Equipment, supplies, materials standardized
    - Education/training
    - Timeframes for completing processes
    - Documentation requirements
Steps that Lead to a Successful Project – Operationalize

- Hardwire
  - Script any communications
  - Reinforce new behaviors
  - Communicate results of new projects
  - Hold staff accountable
  - Celebrate successes
Steps that Lead to a Successful Project - Communication

- Over communicate
  - Project updates
  - Lessons learned
  - Results
  - Success stories
Sustain the Gain

- Create a control plan to assure that process performs as expected:
  - Assign responsibility – identify who owns the process and will manage the process
  - Determine monitoring frequency of improvement plan
    - Data collection and reporting of results
  - Establish plan when the process is not performing as expected or behaviors start to revert

- Maintain a log of lessons learned
  - Assists with other projects
In Summary

- Described various quality strategies
  - Process mapping
  - FMEA
  - Patient simulations
- Provided an overview of two quality improvement methodologies
  - PDSA
  - DMAIC
In Summary - Continued

• Identified steps that lead to a successful project
  – Identifying the project
  – Selecting the team
  – Having the first team meeting
  – Ongoing meetings
  – Metrics and analysis
  – Communication

• Emphasized the importance of monitoring to sustain the gain
  – Importance of the control plan
References


For More Information

Mary Nickel  
St. Clare’s Hospital, Weston, WI  
P: 715-393-2521  
E: mary.nickel@ministryhealthcare.org

Wisconsin Office of Rural Health  
Kathryn Miller  
Rural Hospitals & Clinics Program Manager  
P: 800-385-0005  
E: kmiller9@wisc.edu

Wisconsin Hospital Association  
Dana Richardson  
Vice President, Quality Initiatives  
P: 608-274-1820  
E: drichardson@wha.org