Quality Improvement
Principles & Methods

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Learning Objectives

- Explain the fundamental concept underlying modern quality improvement (QI)
- Discuss the principles of quality management
- Outline the model for health care QI
- Compare and contrast different QI approaches:
- Show how QI approaches are applied in different settings
- Give examples of the application of different QI approaches
Agenda

Presentation:

- “Changing systems of health care delivery” as the fundamental concept of improvement
- Principles of quality management
- Methodology for quality improvement
- Spectrum for QI approaches
- Compare different QI approaches
- Discuss the applications of the different approaches
Agenda

Exercise in small groups:
- Use case studies to develop skills in the selection of the different approaches for use in different settings
- Draw conclusions and recommendations from the different approaches
“The Fundamental Concept of Improvement

“Every system is perfectly designed to achieve exactly the results it achieves”

Don Berwick
Principles of Quality Management

- Customer Focus
- Systems View of Work
- Working in Teams
- Scientific Methodology
Principles of Quality Management

- Customer Focus
- Systems View of Work
- Working in Teams
- Scientific Methodology
# Customer Focus

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<thead>
<tr>
<th>Doctors</th>
<th>RNs</th>
<th>Administration</th>
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**Customer Focus**

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**Patient**

(QA logo)
Principles of Quality Management

- Customer Focus
- Systems View of Work
- Working in Teams
- Scientific Methodology
Components of the System of Hypertension Care

- Screening
- Clinical Guideline
- Organization of care
- Health Promotion Program
- Policy / Regulation
- Resources reallocation
Principles of Quality Management

- Customer Focus
- Systems View of Work
- Working in Teams
- Scientific Methodology
Team development
Multidisciplinary teams
Principles of Quality Management

- Customer Focus
- Systems View of Work
- Working in Teams
- Scientific Methodology
The Shewhart Cycle for Learning & Improvement

- Plan
- Do
- Act
- Study
- Test / Implement
The Shewhart Cycle for Learning and Improvement

Adapted from:
T. Nolan et. al.
The Quality Improvement Guide
The Shewhart Cycle for Learning and Improvement

1. Plan
   - Develop a plan of change
   - Collect baseline data
   - Educate and communicate

2. Do

3. Study

4. Act
The Shewhart Cycle for Learning and Improvement

1. Plan
2. Do
   • Test the change
   • Verify that the change is being tested
   • Collect data about the process being changed
3. Study
4. Act
The Shewhart Cycle for Learning and Improvement

1. Plan
   - Verify that the change was tested according to plan
2. Do
   - See if data are complete and accurate
   - Compare the data with baseline data
3. Study
   - Compare actual results with predicted or desired results
4. Act
The Shewhart Cycle for Learning and Improvement

1. Plan
2. Do
3. Study
4. Act
   - Summarize and communicate
   - If the change does not yield the desired results, modify/abandon plan and repeat PDSA
   - Implement a successful change
   - Monitor the change over time
   - Consider implementing the change throughout the system
Quality Improvement methodology

Step 1. Identify

Step 2. Analyze

Step 3. Develop

Plan

Act

Step 4. Test / Implement

Do

Study

Adapted from: T. Nolan et. al. The Quality Improvement Guide
# Four Steps to Quality Improvement

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
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<tbody>
<tr>
<td>1. Identify</td>
<td>Determine what to improve</td>
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<tr>
<td>2. Analyze</td>
<td>Understand the current system</td>
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<tr>
<td>3. Develop</td>
<td>Hypothesize about what changes may yield improvements</td>
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<tr>
<td>4. Test/Implement</td>
<td>Test the hypothesized solution to see if it yields improvement; based on the results, decide whether to abandon, modify, or implement the solution</td>
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Step 4: The PDSA “Shewhart” Cycle for Learning and Improvement

1. Plan
   Develop a plan of change
   Collect baseline data
   Educate and communicate

2. Do
   Test the change
   Verify that the change is being tested
   Collect data about the process being changed

3. Study
   Verify that the change was tested according to plan
   See if data are complete and accurate
   Compare the data with baseline data
   Compare actual results with predicted or desired results

4. Act
   Summarize and communicate
   If the change does not yield the desired results, modify/abandon plan and repeat PDSA
   Implement a successful change
   Monitor the change over time
   Consider implementing the change throughout the system
Continuous Quality Improvement

Act  Plan  Study  Do

Act  Plan  Study  Do

Act  Plan  Study  Do

Act  Plan  Study  Do
Introduction to QI Approaches

- Why do we have more than one approach?
- What are the different approaches?
- When do we use each approach?
Spectrum of Approaches to Quality Improvement

- Individual Problem Solving
- Rapid Team Problem Solving
- Systematic Team Problem Solving
- Process Improvement

Increasing Complexity
The Spectrum of Quality Improvement Approaches

Increasing Complexity

- Individual Problem Solving
- Rapid Team Problem Solving
- Systematic Team Problem Solving
- Process Improvement
The Individual Problem Solving Approach

1. Identify
   The problem necessitates a rapid response. The problem is characterized by one or more of the following:
   - The problem is apparent
   - Improvements can be achieved by one person

2. Analyze
   Consider the possible causes
   Confirm information through dialogue (if necessary) or readily available data

3. Develop
   Generate simple, obvious, and feasible solutions
   Validate solutions through dialogue (if necessary) or readily available data
4.1 Plan
Choose the most viable hypothesis to resolve the problem
Validate the plan through quick dialogue, if necessary

4.2 Do
Test the hypothesized solution

4.3 Study
Look at the results of the tested change
Verify that the change was tested as planned
See if the change has improved the situation

4.4 Act
Take appropriate action based on the information available

The Individual Problem Solving Approach (Cont’d.)
The Spectrum of Quality Improvement Approaches

- Individual Problem Solving
- Rapid Team Problem Solving
- Systematic Team Problem Solving
- Process Improvement

Increasing Complexity
# The Rapid Team Problem Solving Approach

<table>
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<tr>
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<th>Identify</th>
<th>Analyze</th>
<th>Develop</th>
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</table>
| 1. | Define a specific goal for improvement  
    Decide who needs to be on the problem solving team  
    Achieve group consensus on improvement goals | Analyze available and readily accessible data and information  
    Identify indicators (measures of improvement)  
    Collect data prior to the intervention if necessary | Generate possible interventions  
    Rank interventions according to priority and feasibility  
    If possible, test interventions sequentially (one at a time) |
4.1 Plan
Verify that all baseline data are complete
Make a plan of action for the test
Communicate the change to others; make sure all involved parties understand the change

4.2 Do
Test the intervention
Document modifications made to the intervention or solution
Check that data are complete and accurate

4.3 Study
Verify that the intervention was tested according to the original plan
Compare baseline and follow-up data to measure the impact of the intervention
Compare results with the predicted or desired results

4.4 Act
Take appropriate action based on the results of the study. If the intervention:
  ● Leads to sufficient improvement; return to Step Three to develop a different intervention
  ● Leads to improvement, but is not sufficient; adapt and test the revised intervention
  ● Does not lead to improvement; develop a new intervention

The Rapid Team
Problem Solving Approach (Cont’d.)
The Spectrum of Quality Improvement Approaches

- Individual Problem Solving
- Rapid Team Problem Solving
- Systematic Team Problem Solving
- Process Improvement

Increasing Complexity
# The Systematic Team Problem Solving Approach

| 1. Identify | Choose a chronic, complex, recurring problem  
Define the problem  
Identify who should work on the problem and achieve consensus among the team members |
|-------------|-------------------------------------------------------------------------------------------------------|
| 2. Analyze  | Describe and understand the process in which the problem exists and/or  
Conduct a cause-and-effect analysis and suggest possible root causes of the problem  
Define, collect, and analyze the data and information needed to identify the root cause |
| 3. Develop  | Generate possible solutions that address the root cause(s) identified  
Clearly state criteria for solutions  
Select a solution based on these criteria |
4.1 Plan
Review the objective and design of the solution
Identify potential resistance and communicate the change
Develop a step-by-step list to lay the groundwork
Determine what information is needed to follow up and that baseline data are complete

4.2 Do
Check periodically that the test is going as planned
Document modifications made to the intervention or solution
Check that data are complete and accurate

4.3 Study
Determine if the criteria for success were met
Compare baseline and follow-up data to measure the impact of the intervention
Note any unforeseen problems that may have occurred or resistance to change encountered

4.4 Act
Take appropriate action based on the results of the study. If the intervention:
- Leads to sufficient improvement, implement the solution; responsibility for on-going monitoring can be delegated to another group
- Leads to improvement, but is not sufficient, modify and test a revised solution
- Does not lead to improvement, abandon the solution and develop a new one

The Systematic Team Problem Solving Approach (Cont’d.)
The Spectrum of Quality Improvement Approaches

- Individual Problem Solving
- Rapid Team Problem Solving
- Systematic Team Problem Solving
- Process Improvement
The Process Improvement Approach

1. Identify
   - Choose a key process or service delivery line that is high risk, high volume, problem prone, and visible to customers and management
   - Identify who will be on the team
   - Develop indicators and set up a monitoring system if data are not sufficient

2. Analyze
   - Analyze the on-going monitoring data to determine where the problems exist
   - Charter an ad hoc team if necessary
   - Understand the current process using data and tools, if needed

3. Develop
   - Develop interventions based on the findings of the analysis conducted by the Process Improvement or ad hoc team
4.4 Act
Take appropriate action based on the results of the study. If the intervention:
- Leads to sufficient improvement, implement the solution; continue to monitor and improve the process
- Leads to improvement, but is not sufficient, modify the solution and re-test
- Does not lead to improvement, abandon the solution and develop a new one

4.1 Plan
Make sure that all involved people understand the change clearly
Verify that baseline data are complete

4.2 Do
Implement the intervention
Document modifications made to the intervention or solution
Check that data are complete and accurate

4.3 Study
Verify that the intervention was tested according to the original plan
Compare baseline and follow-up data to measure the impact of the intervention
Note any unforeseen problems that may have occurred or resistance to change encountered
Comparison of the quality improvement approaches for each step

<table>
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<th>Rapid Team Problem Solving</th>
<th>Systematic Team Problem Solving</th>
<th>Process Improvement</th>
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<tbody>
<tr>
<td>Individual Problem Solving</td>
<td>Individual decision making for a small problem that is not interdependent on others</td>
<td>An ad hoc team identifies an intuited or obvious problem based on intuition, observation, and existing data</td>
<td>A permanent team addresses a core process or issue in a large process or system</td>
</tr>
<tr>
<td>Analyze</td>
<td>Relies on individual analysis, using existing data, observation, and intuition</td>
<td>Generally requires minimal analysis using mainly existing data and group intuition</td>
<td>The team examines the problem to try to identify its root causes; existing data and/or data collection is used</td>
</tr>
<tr>
<td>Develop</td>
<td>The change is usually minor and not interdependent on others</td>
<td>A series of small changes</td>
<td>Generally a large change that addresses the root cause of the problem</td>
</tr>
<tr>
<td>Test and Implement</td>
<td>“Trial and error” approach to testing</td>
<td>Many small to medium tests in similar systems</td>
<td>Generally requires extensive testing before implementation</td>
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</table>
Collaborative improvement method

Select Topic

Expert Meeting

Develop Framework & Changes

Planning Group

Participants

Prework

LS 1 → LS 2 → LS 3

Dissemination and spread

Support

E-mail
Visits
Phone
Assessments
Senior Leader Reports

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Adapted Collaborative Improvement Model

Define → Analyze → Develop → Plan → Do

Support to Teams

Test & Implement

Act

Study

Support to Teams

Planning Meeting → Team Meeting 1 QI Training → Team Meeting 2 Content Training → Team Meetings 3, 4, 5 Facilitated Experience Exchange on Changes → Final Meeting
Choosing a QI Approach

- Does the problem exist in a core process? [Yes/No]
  - Yes: Process Improvement
  - No: Can one person solve the problem? (not interdependent) [Yes/No]
    - Yes: Individual Problem Solving
    - No: Is the problem complex or recurring? [Yes/No]
      - Yes: Systematic Team Problem Solving
      - No: Rapid Team Problem Solving