Marni Mason BSN, MBA

• More than 30 years in private healthcare and public health as clinician, manager and consultant
  – Primary & specialty care clinic nurse and nursing director (15 years)
  – Consultant in healthcare performance measurement and improvement (18 years)
  – Public health performance management – since 2000
  – Surveyor for NCQA (12 years) and Senior Examiner for state Baldrige Quality Award (late 1990s)
  – Consultant for PHAB Standards Development (2008-2009)
Learning Objectives

In today’s learning session, the participants will be able to:

• Describe the principles of Quality Improvement
• Describe the Rapid Cycle Improvement (RCI) Method
• Develop a three-step AIM Statement
• Describe how to use a Gantt Chart for testing improvements
  PDSA cycles
• Apply selected Quality Improvement tools including:
  • Identify how to put all the pieces together to conduct a small
    scale QI project plan
Principles of Quality Improvement

“Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skillful execution; it represents the wise choice of many alternatives.”

William Foster
(many variations attributed to others)
The Quality Environment

• Do you have an organization-wide commitment to assessing and continuously improving quality over time?

  ■ Are your system decisions based on data?
  ■ Do you know if your agency is achieving its goals?

• Do you use data to decide on improvement initiatives and to know if the improvements are successful?
Change vs. Improvement

• W. Edwards Deming stated “Of all changes I’ve observed, about 5% were improvements, the rest, at best, were illusions of progress.”
  – We must become masters of improvement
  – We must learn how to improve rapidly
  – We must learn to discern the difference between improvement and illusions of progress
Principles of Quality Management

1. Know your stakeholders and what they need
2. Focus on processes
3. Use data for making decisions
4. Understand variation in processes
5. Use teamwork to improve work
6. Make quality improvement continuous
7. Demonstrate leadership commitment
1. Know Your Stakeholders

- Identify stakeholders and their needs
  - Sector Mapping
  - Community Assessment
  - Advisory Council Input
  - Survey Data & Focus Groups
  - Force Field Analysis

- Set goals based on stakeholder needs
Bullets refer to examples of organizations and are not a comprehensive listing.
Example of Private Sector

- Consulting Foundations
- Professional Organizations
- Purchasers
- Hospitals
- Home Health Care
- Funding Foundations
  • Rob’t Wood Johnson
- Pharmaceutical Companies
- Health Plans
- Primary/Specialty Medical Groups
- Business and worksite programs
- SNF and Nursing Homes
- Providers
- Ancillary Service Practitioners and Groups
- Media
- Insurance Brokers

Bullets refer to examples of organizations and are not a comprehensive listing.
Example of Community-Based Sector

Service Organizations
- Thousands of community-based agencies: specific partners will be identified in each community

United Way

Community Centers

Senior Centers

Faith-based Community Organizations

Community Health Centers
- Federally Qualified Health Centers
- Migrant Health Centers

American Association of Retired Persons

Youth Associations
- YMCA / YWCA
- Boys & Girls Club
- Boy & Girl Scouts of America
- Campfire Girls and Boys

Community-based Daycare Sites
- All ages
- Birth to 3 childcare

Churches, Temples & Mosques

Youth Sports Associations
- Little League
- Pop Warner
- Soccer, etc

Communities of Color Organizations

Bullets refer to examples of organizations and is not a comprehensive listing.
# Example of Target Populations

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>Age</th>
<th>Racial/ethnic Communities</th>
<th>Socio-economic/low literacy</th>
<th>General Population</th>
</tr>
</thead>
</table>
| Diagnosed | Public: | • Center for Medicaid & Medicare Services (CMS)  
• DOH -- CDRRP/DPCP  
• Public Hospital Districts  
• Tribal Associations  
• Veteran’s Admin.  
• Dept. of Defense  
• Medicaid  
• DOH-Chronic Disease Risk Reduction (CDRRP)  
• DOH- Diabetes Prevention & Control Program (DPCP)  
• Tribal Assns.  
• Indian Health Services | • DOH-Chronic Disease Risk Reduction (CDRRP)  
• DOH- Diabetes Prevention & Control Program (DPCP)  
• Dept. of Veterans Affairs  
• Maternal Support Services | • Centers for Disease Control & Prevention (CDC)  
• Office of Insurance  
• Governor/Legislature  
• Dept. of Corrections  
• Public Employees Benefit Board  
• Local Health Jurisdictions |
|          | Private: | • Qualis Health  
• Health plans  
• Media  
• Inland NW Business Coal.  
• Alternative health providers  
• Home health  
• Student health centers  
• Community Health Plans of WA – (CHPW)  
• Association of Black Health Care Professionals  
• Association of American Indian Physicians “Move It” program | • Molina health plan  
• Community Health Plans of WA (CHPW)  
• Disease management vendors  
• Critical access hospitals  
• Home Health  
• Washington Health Foundation | • Professional orgs  
• Pharmaceutical. Co  
• Medical Supply Co.  
• Purchasers  
• Disease mgt  
• Hospitals  
• Critical access hospitals  
• Primary/specialty groups |
|          | Community: | • Amer. Diabetes Assoc.  
• Juvenile Diabetes Research Foundation (JDRF)  
• Senior centers  
• Service organizations  
• Community Aging Service Providers  
• Communities of color organizations  
• Amer. Diabetes Assoc. (ADA)  
• CHOICE Health  
• Commu. Health Centers (CHCs) | • CHOICE Health  
• Commu. Health Centers (CHCs) | • Commu. Health Centers  
• Amer. Diabetes Assoc. (ADA)  
• Nutrition & Cultures  
• Disease Management Education Centers |
|          | Academic: | • WSU Extension  
• Focused research programs, e.g. SEARCH for Diabetes in Youth  
• WSU Extension  
• Focused research programs, e.g. SEARCH for Diabetes in Youth | • WA StateUniv. Extension | • Allied health training  
• UW Med school  
• Bastyr University  
• Nursing Schools  
• Private Universities  
• Pharmacology Schools  
• Community Colleges  
• Tribal Colleges |
Force Field Analysis

• Why use it?
  – To identify the forces and factors in place that support or work against the solution of an issue or problem so that the positives can be reinforced and/or the negatives eliminated or reduced.

• What does sit do?
  – Presents the positives and negatives of a situation so that they can be compared
  – Forces people to think about all aspects of making a desired change a permanent one
  – Encourages honest reflection and that people to agree about the relative priority of factors on each side of the “balance sheet”

PH Memory Jogger pg. 63
How to Build a Force Field Analysis

• Draw a large letter “T” on a flip chart
  – Above the top of the T write the issue or problem
  – To the far right of the top of the T, write a description of
    the ideal situation the team would like to achieve

• Brainstorm the forces that are driving toward the ideal situation.
  – Forces may be internal or external and should be listed on
    the left side of the vertical line below the T.

• Brainstorm the forces that are restraining movement toward the ideal situation.
  – Forces may be internal or external and should be listed on
    the right side of the vertical line below the T.
Fear of Public Speaking

*Ideal state: To speak confidently in any situation*

+ **Driving Forces**
  - Increases Self Esteem
  - Helps Career
  - Communicates Ideas
  - Contributes to a plan/solution

Restraining Forces –

- Past Embarrassments
- Afraid to Make Mistakes
- Lack of Knowledge on the topic
- Afraid People will be Indifferent
Practice - Force Field Analysis

- Topic: Driving Forces and Restraining Forces to conducting a successful QI project in my health department
Force Field Analysis

*Please Note: positive driving forces amplitudes have not been substantiated by quantitative data

<table>
<thead>
<tr>
<th>Initiating and Maintaining Breastfeeding for up to 12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driving Force (Positive)</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Infant Nutrition</td>
</tr>
<tr>
<td>Infant Immunity</td>
</tr>
<tr>
<td>Infant Weight</td>
</tr>
<tr>
<td>Low Cost</td>
</tr>
<tr>
<td>Bonding</td>
</tr>
<tr>
<td>Return to Pre-Partum Weight</td>
</tr>
<tr>
<td>Long-term Obesity Prevention</td>
</tr>
<tr>
<td>Breast Cancer Prevention</td>
</tr>
<tr>
<td>CV Disease Prevention</td>
</tr>
<tr>
<td>Child Abuse Prevention</td>
</tr>
</tbody>
</table>
Optimizing the Chance of Success

• Once the Force Field Analysis has been constructed:
  – Prioritize the driving forces that can be strengthened
  – Identify restraining forces that would allow the most movement toward the ideal state if they were removed
  – Achieve consensus through discussion or by using ranking methods like Multivoting or Nominal Group Process
  – Remember that it is often more helpful to remove barriers than to push the positive forces to create positive change
2. Focus on Work Process

• 85% of poor quality is a result of poor work processes, not of staff doing a bad job
• Processes often “go wrong” at the point of the “handoff”
• Attend to improving the overall process, not just one part—some of the most complex processes are the result of creating a “work around”
Measure processes that are:

- **High-risk**
  - Health Alerts, Drinking Water, CD Investigations
- **High-volume**
  - WIC, Food Safety, OSS, Immunizations
- **Problem-prone**
  - Emergency Preparedness
Measurement Tools

• Logic Models
• High level flow charts [6-12 steps] initially
  – Identify customer-supplier relationships
• More detailed flow charts as project unfolds
  – Client flow, information flow, materials flow, decision making flow
• Use for process redesign
• Use for adapting or adopting best practices
The Logic of Public Health

- We inspect restaurants
  - # of inspections
  - Conditions in the restaurant don’t create unsafe food
    - # of critical violations
      - Public is sold food that is safe to eat
        - % of critical violations corrected within 24 hours
          - So that
            - There are fewer incidents of foodborne illness
              - So that
                - Rate of foodborne illness

QI Principles, Methods and Tools
March 3, 2010
Logic Model: Any Public Health Program

**Inputs**
- Resources
- Activities

**Outputs**
- Short Term Outcomes
- Intermediate Outcomes
- Long Term Outcomes

**Resources**
- Money
- Staff

**Activities**
- Program Development
- Program Planning
- Materials Development, Distribution

**Outputs**
- Informed, Targeted Program
- Appropriate, Targeted Materials

**Outcomes**
- Improved knowledge, beliefs, attitudes
- Improved Behaviors
- Improved Quality of Life
- Reduced Mortality
- Reduced Morbidity
## MOBILIZATION INTERVENTIONS

### INTERVENTIONS
- Train community members in a body of information
- Converse & facilitate
- Assessment & share data information
- Educate Policymakers
- Educate Community members &/or Policymakers about scope & severity of situation
- Come to an agreement about the purpose and goal of community development
- Coalition building

### INDIVIDUAL AND FAMILY - LEVEL OUTCOMES
- INCREASED KNOWLEDGE, AND AWARENESS
  - Increased awareness among (1) policymakers
  - Increased prioritization of chosen issues
  - Increased public knowledge/awareness
  - Increased surveillance of risk behaviors among children
  - Increased empowerment of people/communities to do their own problem solving (2)
  - Increased recognition of risk behaviors among children
  - Increased policymaker’s awareness about risk behaviors among children

### COMMUNITY AND SYSTEM - LEVEL OUTCOMES
- CHANGES IN POLICIES, SERVICE SYSTEMS, RESOURCES, PUBLIC NORMS AND WILL
  - Increased or changed resources & services
  - Increased policies that promote/support healthy communities (5)
  - Increased public norms
  - Increased public will, (i.e., re: healthy communities)

### POPULATION - LEVEL OUTCOMES
- CHANGES IN HEALTH STATUS AND REDUCE SCOPE & SEVERITY OF HEALTH RELATED PROBLEMS
  - Reduced risk factors and increased protective factors for diseases and injuries
  - Absence of vaccine-preventable disease
  - Increased political will
  - Reduced communicable disease in communities
  - Reduction of vaccine-preventable diseases

### IMPROVE THE HEALTH OF THE COMMUNITY
### IMPROVE INDIVIDUAL AND FAMILY LIFE COURSE
Logic Models (Many Shapes/Sizes)

- Boxes and arrows (rows or columns)
- Connect what we do every day (activities) to why we do it (outcomes)
- Must contain inputs, activities, outputs, and short, intermediate and long term outcomes
Components of a Logic Model

**Inputs:**
- The things you start with
- The things you do every day

**Example:** Money, Staff, Meetings, Report Developing

**Outputs**
- Short Term Outcomes
- Intermediate Outcomes
- Long Term Outcomes
Components of a Logic Model

Outputs:
What you get as a result of the resources and activities you put “in”; Not an end in itself

Examples: Number of diesel school buses replaced or retrofitted with new emission control technology.
Components of a Logic Model

Outcomes:
What we really want to happen
Why we are doing this program
Examples: Improved knowledge, Behavior change, Improved health status
3. Use Data to Make Decisions

- Use performance assessment data to target improvement
- Use data analysis tools to develop information
- Analyze data to identify root cause
- Use data to monitor performance outcomes
Use Data to Make Decisions

Conceptual Tools
- Affinity Diagram
- Brainstorming
- Process Flow Chart
- Interrelational Diagraph
- Matrix Diagram
- Tree Diagram
- Cause and Effect Diagram

Numerical Tools
- Check Sheet
- Bar Chart
- Histogram
- Pareto Chart
- Control Chart
- Run Chart

[See Goal/QPC PH Memory Joggers]
Use Data to Make Decisions

• Brainstorming for root causes—theory generation relies on divergent thinking, no idea is a bad one...
  – What can go wrong in the process we are studying?
    • Problems in hand-offs between steps
    • Problems in execution within steps
  – Look at machines, materials, methods, measurements, and people
Cause-effect or Fishbone Diagram

Exercise: Constructing a Fishbone Diagram

• Organizes and displays theories
• Encourages divergent thinking
• Demonstrates the complexity of the problem
• Encourages scientific analysis (rule-out)

Turn to page 23 in the PH Memory Jogger.
Generate Causes for Categories

- Machinery/Equipment
  - Ovens Too small
- People
  - Drivers Get Lost
  - People don't Show up
- Methods
  - Poor Handling of Large orders
  - Poor dispatching
- Materials
  - Run out Of ingredients

Late pizza deliveries on Fridays & Saturdays
Fishbone Diagram*

- **Why use it?**
  - To allow a QI team to identify, explore and display possible causes related to a problem to discover its root cause
  - Generate causes for a specific problem through brainstorming (without preparation) or results of data collection before the building the fishbone diagram

- **What does it do??**
  - Focuses on the content of the problem rather than the history or the differing personal interests of team members
  - Creates a snapshot of the collective knowledge and consensus of a team around a problem
  - Builds support for the resulting solutions
  - Focuses the team on causes, not symptoms or solutions

*PH Memory Jogger page 23, Goal/QPC
How to Build a Fishbone Diagram

- Use a large sheet of paper such as a flip chart, butcher paper or a white board
- Draw a rectangle in the middle of the right-hand side
- Write the problem statement in the rectangle (not a solution!)
- Draw a horizontal line across the middle of the paper from the left-hand side to the middle of the rectangle (like a backbone)
- Draw 4-5 angled lines outward from the backbone (like ribs)
- Label each ribs with a major cause category (see Memory Jogger for suggested categories- page 25)
- Place the brainstormed or data-based causes in the categories
- Ask repeatedly, for each cause, “Why does that happen?” or “What could happen?”
Practice – Fishbone Diagram

• Topic: Why an employee is late to work
Example of Fishbone (Lake)

WIC Client Redemption of Farmer’s Market Coupons

WIC clients do not redeem all of the farmer’s market coupons

People
- Knowledge Deficit
- Client has more distractions in the summer
- Language
- Preferences
- Personal
- Cultural

Access
- Limited WIC Providers
- Locations
- Customer Service
- Hours
- Small dollar value
- No change is given

Methods
- Distribution
- Frequency
- Timing
- Limited supply
- Staff explanations of Farmer’s Market option

Materials
- Limited WIC Providers
- Locations
- Customer Service
- Hours
- Small dollar value
- No change is given
Testing Potential Root Causes

- Once the Fishbone Diagram has been constructed, the team should interpret or test for root cause(s) by one or more of the following:
  - Look for causes that appear more than once within or across categories
  - Choose most likely root causes through an unstructured consensus or a more formal process like Multivoting or Nominal Group Process
  - Collect data on selected causes to determine relative frequencies
  - Use an analysis tool, like a Pareto Chart, to identify root cause
Five Whys?*

• What is it?
  – A process of asking “Why?” at least 5 times in a row

• When is it used?
  – When people do not truly understand the situation, or when a deeper understanding is necessary

• Why? (the Five Whys?)
  – Causes people to use higher order thinking skills
  – Cuts through layers of bureaucracy to find the true meaning
  – Causes people to challenge their current situation or problem
  – Helps people understand root causes or problems
  – Helps people clarify motivation

Five Whys – the process

- Identify a problem, situation, or concept to be studied
- Ask “Why?” this particular condition exists
- Each time the question “Why?” is answered, ask “Why?” again
- Continue to ask “Why?” until everyone involved is satisfied they have arrived at the root cause
Practice – Five Whys

• Topic: Why an employee’s car breaks down or doesn’t start on regular basis
4. Understand Variation

- Sources of variation include: machines, materials, methods, measurements, people, environment
- **Common cause variation** occurs if the process is stable—variation in data points will be random and obey a mathematical law—it is said to be in statistical control, with a large number of small sources of variation
- Reacting to random variation in a process that is stable/in statistical control, it is called tampering and leads to further complexity, increasing variation and mistakes
Understand Variation

- **Special cause variation** arises because of specific circumstances which are not part of the process all the time and may or may not ever recur—if the recurrence is periodic, clues to the root cause may emerge.
- Variation can be shown in control charts with mean and standard deviation.
- Control charts are pictures of trend data with an extra feature—the range of variation built into the system.
Understand Variation

- A sentinel event is a special cause variation requiring root cause analysis
- Examine specific incident(s) of special cause variation and make changes to a single element only after very careful analysis
- Need to investigate special cause variation before making any conclusions about performance level
- *Failure to distinguish between common and special cause variation can be hazardous to organizational performance!*
5. Use Teamwork

- QI efforts need buy-in from all stakeholders
- Creative ideas are needed
- Division of labor is needed
- Process often crosses functions
- Solution generally affects many
Use Teamwork

• Teams should develop a clear charge and support resources
• Teams should adopt working agreements (cell phone etiquette to decision procedures)
• Teams should assign roles of facilitators and recorders
• Team process has predictable stages that are useful to keep in mind: Forming, Storming, Norming, Performing
Affinity Diagram*

• Why use it?
  – To allow a QI team to creatively generate a large number of ideas/issues and organize in natural groupings to understand the problem and potential solutions.

• What does it do??
  – Encourages creativity by everyone on team
  – Breaks down communication barriers
  – Encourages non-traditional connections among ideas/issues
  – Allows breakthroughs to emerge naturally
  – Encourages ownership of results
  – Overcomes “team paralysis”

*PH Memory Jogger page 12
How to Build an Affinity Diagram

– Phrase the issue under discussion in a full sentence and write at the top of full size flip chart paper
– Distribute 3 x 5 post-it notes to each participant
– Follow the rules for brainstorming
– Have each participant write their ideas on the Post-Its, one idea per sheet in large letters, 4-7 words each
– Have participants place their Post-Its on Flip Chart
– Facilitator assists group to sort Post-Its into 5 – 10 related categories
– For each category create a title or heading
– Review categories and ideas to rearrange, if necessary
Practice – Affinity Diagram

- Topic: What are the factors in a good meeting facility?
Uptake of Vaccines Example (Kittitas, WA)
6. Make QI Continuous

- QI is a system-wide approach to assessing and continuously improving quality of the processes and services over time
  - See inter-relationships, not parts
  - Understand the flow of work, not the one-time snapshot
  - Detail the work processes
  - Determine cause and effect relationships
  - Identify points of highest leverage
  - Improve and innovate, not just change for change’s sake
PDCA/PDSA Cycle definition

• The Plan Do Check/Study Act Cycle is a trial-and-learning method to discover what is an effective and efficient way to design or change a process.

• The “check” or "study" part of the cycle may require some clarification; after all, we are used to planning, doing/acting. It compels the team to learn from the data collected, its effects on other parts of the system, and under different conditions, such as different communities.
Learning and Improvement Cycle

**Act**
- What changes are to be made?
- Next cycle?

**Plan**
- Objective
- Questions and predictions
- Plan to carry out the cycle (who, what, where, when)
- Plan for data collection

**Do**
- Carry out the plan
- Document problems and unexpected observations
- Begin analysis of the data

**Study**
- Complete the data analysis
- Compare data to predictions
- Summarize lessons

**DATA REPORT**

**WORK PLAN**

**DOCUMENTATION OF CHANGE - MINUTES**

**REVISE LOGIC MODEL**

**Getting Principles, Methods and Tools**

March 3, 2010
Ongoing PDSA Cycles
Make QI Continuous

• Use conclusions from data analysis to identify areas for improvement

• Charge QI team and provide support
  – Provide QI training
  – Develop AIM statement
  – Use tools to understand root causes
  – Use data for baseline and analysis
  – Design process improvement to address root causes

• Train staff on the process improvement
Adopt or Adapt Model Practices

• Use data to identify need for improvement

• Identify exemplary practices in:
  – Other local and state health departments,
  – CDC and other national organizations,
    [www.naccho.org/topics/modelpractices](http://www.naccho.org/topics/modelpractices)
  – Other industries

• Describe your process (Logic Model or Flow Chart)

• Study the exemplary practice process

• Adopt or adapt as appropriate
7. Demonstrate Leadership Commitment

- Build a QI culture
- Connect the organization’s strategic plan to performance improvement
- Know and use quality principles
- Encourage all staff to use quality improvement in daily work
- Reward improvements
- Assure adequate QI
What questions do you have?