Building a Culture of Quality Improvement (QI)

Sarah Price
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National Indian Health Board
Tribal SSSC In-Person Training
1/15/19
Learning Objectives

• Recognize and outline the process of completing a QI project
• Identify which QI tools are appropriate for your own projects
• Understand what a “culture of QI” is, and how to both measure and support this
• Identify components of a comprehensive QI plan based on the PHAB standards and measures
Agenda

• What is QI?
• QI Projects
  • Models
  • Tools for each stage
• Creating a Culture of QI
• National QI Plan Standards
What is QI?

QI is a “defined improvement process” and “measurable improvements”

General structure: collecting baseline data, implementing an intervention, and collecting and analyzing post-intervention data to measure how much improvement has been attained
What is QI?

“What quality improvement in public health is the use of a deliberate and defined improvement process that is focused on activities that are responsive to community needs and improving population health. It refers to a continuous and ongoing effort to achieve measurable improvements in the efficiency, effectiveness, performance, accountability, outcomes, and other indicators of quality in services or processes which achieve equity and improve the health of the community.” (PHAB S&M 1.5)
What is QI

• QI processes insures that decisions are made on needs, focus on the actual root cause of the issue, and are effective in making changes.

Four Basic Principles:
1. Develop a strong customer focus
2. Continually improve all processes
3. Involve employees
4. Mobilize both data and team knowledge to improve decision making
Process of QI

- Defined: A prospective and proactive examination of existing processes and making measurable improvements.
- Self regulating to create a culture of continuous improvement.
- Implemented by staff at all levels.
- Ongoing dynamic process that entails conducting in-depth examinations of problems to uncover root causes, as well as identifying and implementing interventions specifically aimed at addressing the root causes.
- Interventions are monitored by collecting data in quantifiable, numeric terms, to monitor expected outcomes.
- This process seeks to exceed expectations and always sets the bar higher.
QI Projects
QI Projects

Steps:
• Identify Problem (problem statement)
• Create QI Team
• Identify QI Model
  • Plan-do-check-act; Lean model
• Implement Model
  • Identify problem and baseline data (process mapping)
  • Identify Aim
  • Identify factors (root cause analysis)
  • Suggest solution (prioritization tools)
  • Test and evaluate
QI Models: PDCA

PLAN-DO-CHECK-ACT (PDCA) CYCLE
QI Models: PDCA

- Investigate problem
- Baseline data
- Determine root of problem
- Develop potential solutions
QI Models: PDCA

PLAN-DO-CHECK-ACT (PDCA) CYCLE

- Investigate problem
- Baseline data
- Determine root of problem
- Develop potential solutions

- Implement solutions
- Collect data
- “Testing” stage
QI Models: PDCA

- Investigate problem
- Baseline data
- Determine root of problem
- Develop potential solutions

PLAN–DO–CHECK–ACT (PDCA) CYCLE

- Implement solutions
- Collect data
- “Testing” stage

- Compare pre and post data to see if there was improvement
QI Models: PDCA

**PLAN-DO-CHECK-ACT (PDCA) CYCLE**

- **PLAN**
  - Investigate problem
  - Baseline data
  - Determine root of problem
  - Develop potential solutions

- **DO**
  - Implement solutions
  - Collect data
  - “Testing” stage

- **CHECK**
  - Compare pre and post data to see if there was improvement

- **ACT**
  - Act upon what has been learned:
    - Continue intervention
    - Adapt and retest
    - Abandon and return to plan

National Indian Health Board
Assemble the Team

• “Leaders are successful because we know how to work with others”

-Public Health Foundation
Assemble the Team

• Include team members with a variety of perspectives including:
  • Leadership
  • On the ground staff
  • Stakeholders
  • Partners
• Include people from the department that you are focusing on!
Assemble the Team

- Advocate/Champion - Initiates new ideas
- Sponsor - Supports activities
- Team Leader - Leads and participates, handles logistics, takes responsibility
- Facilitator - Suggests process changes, intervenes to keep team moving forward
- Timekeeper - Keeps team on track
- Scribe - records critical data
- Team Members - Includes participants and subject matter experts
Assemble the Team

<table>
<thead>
<tr>
<th>TEAM RESPONSIBILITIES</th>
<th>TEAM LEADER</th>
<th>TEAM FACILITATOR</th>
<th>TEAM MEMBER</th>
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</thead>
<tbody>
<tr>
<td>Provide direction and focus to team activities</td>
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<tr>
<td>Ensure productive use of team members’ time</td>
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<td>X</td>
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<tr>
<td>Represent team to clinic management and quality committee</td>
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<td>X</td>
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<tr>
<td>Facilitate team meetings</td>
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<td>X</td>
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<tr>
<td>Ensure balanced participation by all team members</td>
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<td></td>
<td>X</td>
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<tr>
<td>Provide feedback and support to team leader</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Suggest problem-solving tools and techniques</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Offer perspective and ideas and participate actively</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Adhere to meeting ground rules</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Complete assignments on time</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Support implementation of recommendations</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Keep up-to-date on QI training, research and methods</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Manage the team’s time</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Take and distribute minutes of meetings</td>
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<td></td>
<td>X</td>
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</tbody>
</table>
Assemble the Team

Best Practices for you QI Team:
• Set ground rules during first meeting
• Go to each meeting with an Agenda
• Clearly define each team members role
• Create a comfortable environment for idea sharing
• Respect everyone’s time- start and end on time
• Record meeting minutes and action items
# QI Tools: Meeting Planning Sheet

## Meeting/Event Planning Worksheet

### Event/Meeting Overview

<table>
<thead>
<tr>
<th>Name of Meeting</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

### Venue Information

<table>
<thead>
<tr>
<th>Location Details</th>
<th>Contact Information</th>
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<tbody>
<tr>
<td></td>
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</tbody>
</table>

### Agenda

- **What is the goal?** What is the purpose of this meeting?
- **Location/Room:** Room capacity, amenities (seating, lighting, projector, bathroom, accessibility, greenery, contact, etc.)

### Event/Meeting Planning Checklist

<table>
<thead>
<tr>
<th>Event/Meeting Planning Checklist</th>
<th>Old Data</th>
<th>Actions Needed</th>
<th>Person Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preparation/Setup</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Program/Agenda Finalized</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment/Technology confirmed</td>
<td></td>
<td></td>
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<tr>
<td><strong>Logistics</strong></td>
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<td></td>
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</tr>
<tr>
<td>Catering/Drinks/Drinks</td>
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<tr>
<td>Catering/Supplies/Supplies</td>
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<td></td>
</tr>
<tr>
<td>Catering/Decorations/Decorations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Room Setup</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room setup confirmed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Finishing Touches</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Follow-up/Notes/Notes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow-up/Notes/Notes</td>
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</tbody>
</table>
Identify Problem and Goals

- Selecting projects can be influenced by data analysis
  - CHA, Performance Management System
  - Measure 1.3.1 A Data analyzed and public health conclusions drawn
  - Measure 2.2.3 A Complete After Action Reports (AAR)
Identify Problem and Goals

• Baseline data is **vital** for evaluating your QI projects
Identify Problem

• Problem Statement: 40% of cases of lower-risk communicable diseases do not have a complete epi interview on file with the THD within 1 month of notification.
QI Tools: SMART Objectives for Setting Goal

• AIM statement: what do you want to do to fix your problem?
  • As with any goal or objective, AIMs should be SMART (Specific, Measurable, Achievable, Relevant, Timely)
  • WHO will do WHAT resulting in MEASURE by WHEN.
QI Tools: SMART Objectives

• Aim (SMART): By January 2020, 80% of cases of lower-risk communicable diseases will have complete epi interviews on file with the THD within 1 month of notification.
Specific

• WHO will do WHAT?
• Ex. By January 2020, 80% of patient-cases of lower-risk communicable diseases will have complete epi interviews on file with the THD within 1 month of notification.
Measurable

• HOW will we measure when the objective is complete?

• Ex. By January 2020, 80% of patient-cases of lower-risk communicable diseases will have complete epi interviews on file with the THD within 1 month of notification.
Achievable

• Is this possible with the available time and resources?
• Ex. By **January 2020**, **80%** of patient-cases of lower-risk communicable diseases will have complete epi interviews on file with the THD within 1 month of notification.
Relevant

• Will this have the intended results? Forward our mission?

• Ex. By January 2020, 80% of patient-cases of lower-risk communicable diseases will have complete epi interviews on file with the THD within 1 month of notification.

• What is the result of this intervention?
Timely

- WHEN will the objective be complete?
- Ex. By **January 2020**, 80% of patient-cases of lower-risk communicable diseases will have complete epi interviews on file with the THD within 1 month of notification.
Identify Areas for Improvement

• Tools:
  • Determine where to make a change:
    • Brainstorming
    • Process Mapping
  • Root Cause Analysis:
    • Fishbone Diagram
    • 5 Whys
    • Scatterplot
QI Tools: Brainstorming

• State the agreed-upon brainstorming question in writing.
• Each team member gives an idea in turn. No idea is criticized.
• Write each idea in large, visible letters on a flip chart or other writing surface.
• Continue generating ideas until all are exhausted.
• Review the list and clarify ideas if necessary. Discard duplicate ideas.

- Minnesota Department of Health
QI Tools: Process Mapping

Input at beginning of process

Action taken during process

Yes/no choice

Another step in process

Yes

Report or Write up

no

Another step in process

Input at end of process
QI Tools: Process Mapping

- Laboratory result for lower-risk communicable disease received
  - Yes
    - Is disease reportable case?
      - No
        - Close case and file paperwork in epi system
      - Yes
        - Did patient complete interview?
          - Yes
            - Create epi-interview report
          - No
            - After 14 days - did patient call & complete interview?
              - Yes
                - Call doctor for more information
              - No
                - Call patient for more information
  - No
    - Send patient letter w/ prevention information

National Indian Health Board
After 14 days - did patient call & complete interview?

- Yes: Create epi-interview report
- No: Send patient letter w/ prevention information

Did patient complete interview?

- Yes: Close case and file paperwork in epi system
- No: Call patient for more information

Is disease reportable case?

- Yes: Call doctor for more information
- No: Close case and file paperwork in epi system

Laboratory result for lower-risk communicable disease received

QI Tools: Process Mapping
QI Tools: Process Mapping

Where to Create Flow Chart:

• Pen and paper
• Microsoft Word, PowerPoint, Excel, Publisher
• https://www.draw.io/
QI Tools: Process Mapping

Let’s Practice!
Root Cause Analysis

• Problems are best solved by addressing the *cause* not just by mitigating short term symptoms.
• Helps prioritize solutions so that changes are not “gut” reactions
• Acknowledge that there is often multiple factors that require a multi-pronged solution
  • Alternately, this separates the causes into manageable, bite size pieces
• Limitation: RCA is reactive- it is used to solve problems in existing programs, not predict new ones
Root Cause Analysis

• Systematic process
  • Potential causes and conclusions should ideally be backed up by data or documented evidence
QI Tools: Fishbone Diagram for Root Cause Analysis
QI Tools: Fishbone Diagram for Root Cause Analysis
QI Tools: Fishbone Diagram for Root Cause Analysis

- **Education**
  - Let parents know that vaccine "pain" is only temporary and will protect the child through flu season.
  - Educate doctors and staff of the importance of immunizations.
  - Docs don't know statistics and data — they don't know how low the rates are.
  - Information is not readily available to the public.

- **Resources**
  - Parents get upset about late arrival of flu vaccine and go elsewhere to be vaccinated.
  - Opportunities are missed if vaccine is not available.
  - Lack of adequate supplies are on hand.
  - Population will lose confidence if point of distribution is advertised and no vaccine is available.

- **Physician support and coordination**
  - Physicians and health departments need to be on the same page:
    - start vaccinations at same time
    - encourage vaccinations to specified age

- **Other Physician Issues**
  - Influenza vaccination rates for children ages 6 to 59 months in the West Central public health region are too low.

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National Indian Health Board
QI Tools: Fishbone Diagram for Root Cause Analysis

Let’s Practice!
QI Tools: 5 Whys for Root Cause Analysis

• Ask yourself why each major factor/cause in the fishbone diagram or scatterplot is present:
  • Why do staff lack understanding of the topic?
    • No training
  • Why don’t we hold trainings?
    • No funding
  • Why don’t we have funding?
    • No grants in this area
  • Why didn’t we apply for grants?
    • Not enough time to apply
  • Why didn’t we have enough time?
    • Applying for grants on training has not been our priority
QI Tools: Scatterplot for Root Cause Analysis

• Scatterplots can be used to compare variables
  • You can use scatter diagram to compare cause and effect identified in the fishbone.
  • Scatter plots show CORRELATION not causation.
QI Tools: Scatterplot for Root Cause Analysis

Institute for Healthcare Improvement; QI Essentials Toolkit
QI Tools: Scatterplot for Root Cause Analysis

Tribal HD Staff’s Knowledge on Subject Compared to Number of Hours of Training Received (p=22)
Brainstorm Solutions

• Tools:
  • Prioritize Solutions
    • Multi-Voting
    • Prioritization Matrix
    • Strategy Grid
  • Set a Plan
    • Benchmarking
Prioritization

• Process to narrow down your options
• Decide where to focus your energy and resources
• Weigh your options against criteria that you decide upon
# Prioritization

## Table 1.1: Commonly Used Prioritization Criteria

<table>
<thead>
<tr>
<th>Criteria to Identify Priority Problem</th>
<th>Criteria to Identify Intervention for Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost and/or return on investment</td>
<td>Expertise to implement solution</td>
</tr>
<tr>
<td>Availability of solutions</td>
<td>Return on investment</td>
</tr>
<tr>
<td>Impact of problem</td>
<td>Effectiveness of solution</td>
</tr>
<tr>
<td>Availability of resources (staff, time, money, equipment) to solve problem</td>
<td>Ease of implementation/maintenance</td>
</tr>
<tr>
<td>Urgency of solving problem (H1N1 or air pollution)</td>
<td>Potential negative consequences</td>
</tr>
<tr>
<td>Size of problem (e.g. # of individuals affected)</td>
<td>Legal considerations</td>
</tr>
<tr>
<td></td>
<td>Impact on systems or health</td>
</tr>
<tr>
<td></td>
<td>Feasibility of intervention</td>
</tr>
</tbody>
</table>
Prioritization

- Staff knowledge/skills
- Leadership buy-in
- Community interest
- Staff support
- Time to accomplish
- Alignment with Strategic Plan/Mission
- Biggest impact on.....?
- Cost in resources
  - $
  - Staff time
## QI Tools: Multi-Voting

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>Round 1 Vote</th>
<th>Round 2 Vote</th>
<th>Round 3 Vote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect and maintain reliable, comparable, and valid data</td>
<td>vvvv</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Evaluate public health processes, programs, and interventions</td>
<td>vvvv</td>
<td>vvv</td>
<td>vvvv</td>
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<tr>
<td>Maintain competent public health workforce</td>
<td>vv</td>
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<tr>
<td>Implement quality improvement of public health processes, programs, and interventions</td>
<td>vvvv</td>
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</tr>
<tr>
<td>Analyze public health data to identify health problems</td>
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<td></td>
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<tr>
<td>Conduct timely investigations of health problems in coordination with other governmental agencies and key stakeholders</td>
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<tr>
<td>Develop and implement a strategic plan</td>
<td>vvvv</td>
<td>vvv</td>
<td>v</td>
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<tr>
<td>Provide information on public health issues and functions through multiple methods to a variety of audiences</td>
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<tr>
<td>Identify and use evidence-based and promising practices</td>
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<tr>
<td>Conduct and monitor enforcement activities for which the agency has the authority</td>
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<tr>
<td>Conduct a comprehensive planning process resulting in a community health improvement plan</td>
<td>vvvv</td>
<td>vvv</td>
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<tr>
<td>Identify and implement strategies to improve access</td>
<td>vv</td>
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</tbody>
</table>

*Red = Round 1 Elimination, Green = Round 2 Elimination, Blue = Round 3 Elimination*
## QI Tools: Prioritization Matrix

<table>
<thead>
<tr>
<th>Options</th>
<th>Criteria 1 (Weight)</th>
<th>Criteria 2 (Weight)</th>
<th>Criteria 3 (Weight)</th>
<th>Criteria 4 (Weight)</th>
<th>Criteria 5 (Weight)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
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<td>Option 2</td>
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<td>Option 3</td>
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<td>Option 4</td>
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</tbody>
</table>
QI Tools: Strategy Grid

- High Impact/Low Cost
- High Impact/High Cost
- Low Cost/Low Impact
- High Cost/Low Impact
QI Tools: SWOT Diagram

Source: Action SWOT Analysis, developed by the Public Health Foundation, April 2017.
QI Tools: Benchmarking

• Setting realistic goals for improvement for specific timelines
  • Use other similar programs or national standards
  • PHAB can often serve as benchmark
  • Reduces “reinventing the wheel”
Do Stage
Implement Intervention and Collect Data

• Implement on a small scale (pilot) when possible
• Collect data - this can be used in the next stage
Check Stage
Evaluation

“Using the aim statement drafted in **Stage 1: Plan**, and data gathered during **Stage 2: Do**, determine:

• Did your plan result in an improvement? By how much/little?
• Was the action worth the investment?
• Do you see trends?
• Were there unintended side effects?”

Minnesota Department of Health
Evaluation

• Formative evaluation ensures that a program or program activity is feasible, appropriate, and acceptable before it is fully implemented. It is usually conducted when a new program or activity is being developed or when an existing one is being adapted or modified.

• Process/implementation evaluation determines whether program activities have been implemented as intended.

-Centers for Disease Control and Prevention
Evaluation

• Outcome/effectiveness evaluation measures program effects in the target population by assessing the progress in the outcomes or outcome objectives that the program is to achieve.

• Impact evaluation assesses program effectiveness in achieving its ultimate goals.

- Centers for Disease Control and Prevention
QI Tools: Pareto Chart for Evaluation

Pareto Chart Example
QI Tools: Run Chart for Evaluation
Planning for the Future

- Is the intervention worth keeping?
- Does it need changes?
- Would a different intervention be better?
- How else can we solve this problem?
Creating a Culture of QI
What is a Culture of QI?

“Agencies creating a quality improvement culture were more likely to have a history of evidence-based decision-making and use quality improvement to address emerging issues.”

Creating Quality Improvement Culture in Public Health Agencies
What is a Culture of QI?

“When a quality culture is achieved, all employees, from senior leadership to frontline staff, have infused QI into the way they do business daily. Employees continuously consider how processes can be improved, and QI is no longer seen as an additional task but a frame of mind in which the application of QI is second nature.”

-NACCHO
What is a Culture of QI?

A culture of QI can be defined and assessed using these six dimensions which can be assessed on a Likert scale and illustrated on a radar chart:

- **Commitment**—Senior management demonstrates commitment to QI by providing training and expectations for staff participation in QI projects
- **Capability**—Staff are trained to use QI tools and data management skills needed for QI
- **Understanding of Customer Expectations**—Strategies exist to collect, analyze, share, and act on customer feedback
- **Process Focus**—All activities have clear performance criteria
- **Institutionalization**—Use of QI tools and strategies are the organizational norm
- **Empowerment**—Employees closest to the issue feel accountable to make change themselves or be part of a team empowered to make a change

-Public Health Foundation
What is a Culture of QI?

QI Plan:

• Establishes goals and indicators of quality in organization
• Provide regular QI training for staff members
• All departments engaged in regular, formal QI processes
  • Identifies problem areas
  • Regularly holds QI brainstorming sessions with diverse attendance
• Organization maintains records of QI projects
National Standards

• NIHB uses the Standards and Measures 1.5 from the Public Health Accreditation Board (PHAB)
  • These are not only standards but are a great tool for ensuring programs are functioning at a high level with QI at their core.
Public Health Accreditation

• Establishes standards and benchmarks
• Promotes standards that mirror the 10 essential PH Services
Public Health Accreditation

• PHAB Standard 9
• An important component of the performance management system is the implementation of a quality improvement program. This effort involves integration of a quality improvement component into staff training, organizational structures, processes, services, and activities. It requires application of an improvement model and the ongoing use of quality improvement tools and techniques to improve the public’s health. Performance management leads to the application of quality improvement processes. Quality improvement is the result of leadership support. It requires staff commitment at all levels within an organization to infuse quality improvement into public health practice and operations. It also involves regular use of quality improvement approaches, methods, tools, and techniques, as well as application of lessons learned from evaluation.
National Standards

• Reading Standard 9: QI Plan
This presentation has been adapted from resources provided by:

- Public Health Foundation (PHF)
- NACCHO
- Minnesota Department of Health
- Public Health Accreditation Board (PHAB)
- Centers for Disease Control and Prevention
THANK YOU

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