Applying Quality Improvement Techniques to Analyze Problems and Find Solutions

Jack Moran and Julia Gray
Public Health Foundation

Steps in Performance Improvement

- Organize participation for performance improvement
- Prioritize areas for action
- Explore "root causes" of performance
- Develop and implement improvement plans
- Regularly monitor and report progress

Source: NPHPSP Users' Guide

Organize participation for performance improvement

- Leadership support and role
  - What is leadership's vision, commitment, expectation?
- Build the process strategically
  - Incorporate QI into broader initiatives (MAPP, HP2010)
  - Involve others
  - Statewide coordinating/steering comm. (esp. with multiple instruments)

Prioritize areas for action

- Examine the results
  - What stands out?
  - Comports with your realities?
- Open discussion of findings
  - Expectations vs. results?
- Set priorities
  - Limit the universe of priorities

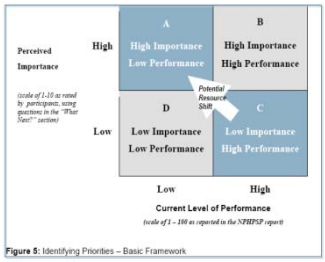


Figure 5: Identifying Priorities – Basic Framework

Explore Root Causes

- Crucial Step
  - Will spend more time on this later…
- Explore the WHY of performance problems
  - Resist jumping to solutions
- Most performance issues can be traced to well-defined systems causes:
  - Policies, leadership, funding, incentives, information, personnel, or coordination

Develop and implement improvement plans

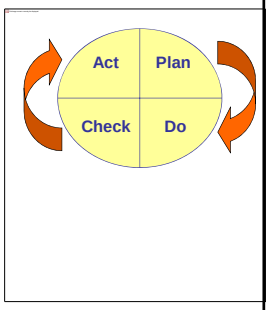
- Remember why we did this in the 1st place
- The search for better outcomes may have many paths, and multiple stops

Regularly monitor and report progress

- Regular reports necessary to chart progress
- Benchmark against self and others
  - Same industry, other industries
- Reports do not have to be computerized (although it helps!), expensive, color…

To Carry Out a Quality Improvement Process, "Plan-Do-Check-Act"

Plan	Plan changes aimed at improvement, matched to root causes
Do	Carry out changes; try first on small scale
Check	See if you get the desired results
Act	Make changes based on what you learned; spread success



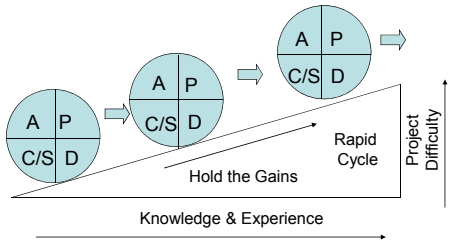
Definition of Quality Improvement in Public Health

"Quality improvement in public health is the use of a deliberate and defined improvement process, such as Plan-Do-Check-Act, which 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."

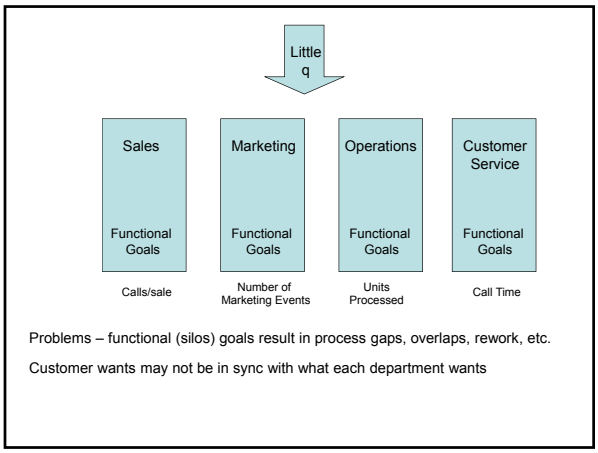
This definition was developed by the Accreditation Coalition Workgroup (Les Beitsch, Ron Bialek, Abby Cofsky, Liza Corso, Jack Moran, William Riley, and Pamela Russo)

We are not a patient people!
Always in a hurry to move on to the next thing.



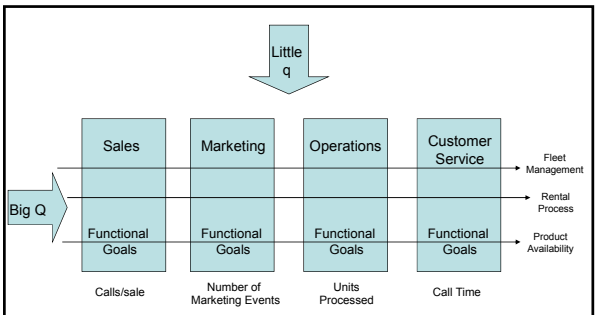
Contrasting Big "QI", Little "qi", and Individual "qi

Topic	Big 'QI' – organization-wide	Little 'qi' – program/unit	Individual 'qi'
Improvement	System focus	Specific project focus	Daily work level focus
Quality Improvement Planning	Tied to the Strategic Plan	Program/unit level	Tied to yearly individual performance
Evaluation of Quality	Responsiveness to a community need	Performance of a process over time	Performance of daily work
Processes	Cut across all programs and activities	Delivery of a service	Daily work
Quality Improvement Goals	Strategic Plan	Individual program/unit level plans	Individual performance plans



Problems – functional (silos) goals result in process gaps, overlaps, rework, etc.

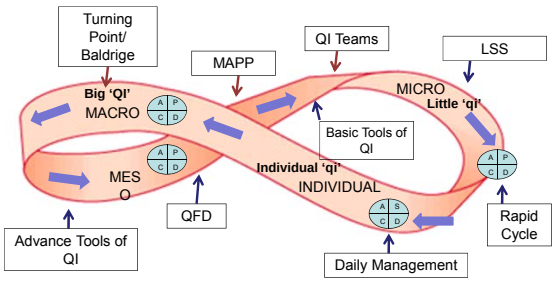
Customer wants may not be in sync with what each department wants



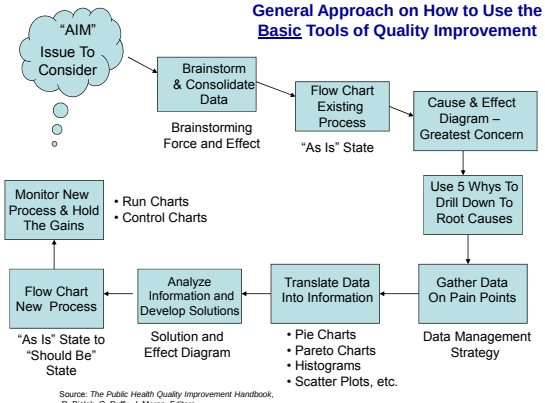
Customer wants may not be in sync with what each department wants

Now the focus is on providing the customer with product knowledge, right cars for their needs, easy access, multiple locations, insurances, and safe vehicles

Continuous Quality Improvement System in Public Health

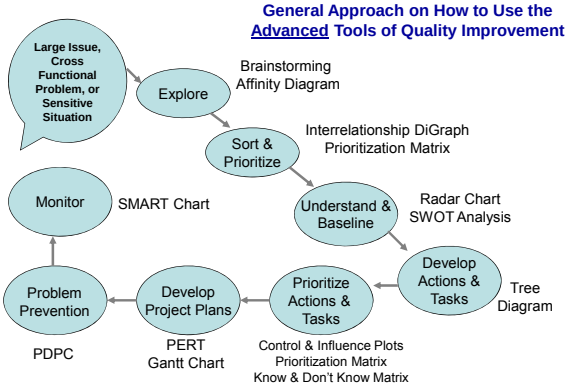


General Approach on How to Use the Basic Tools of Quality Improvement



Source: *The Public Health Quality Improvement Handbook*, R. Bialek, G. Duffy, J. Moran, Editors, Quality Press, © 2009, p.160

General Approach on How to Use the Advanced Tools of Quality Improvement



Source: *The Public Health Quality Improvement Handbook*, R. Bialek, G. Duffy, J. Moran, Editors, Quality Press, © 2009, p.190

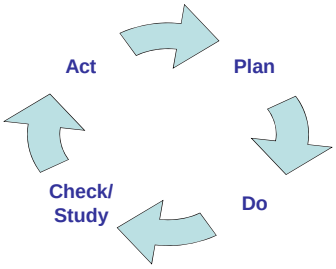
What Is Quality?

- Today the most progressive view of quality is that it is defined entirely by the customer or end user and is based upon that person's evaluation of his or her entire customer experience
- The customer experience is the aggregate of all the *Touch Points* that customers have with the organization's product and services, and is by definition a combination of these

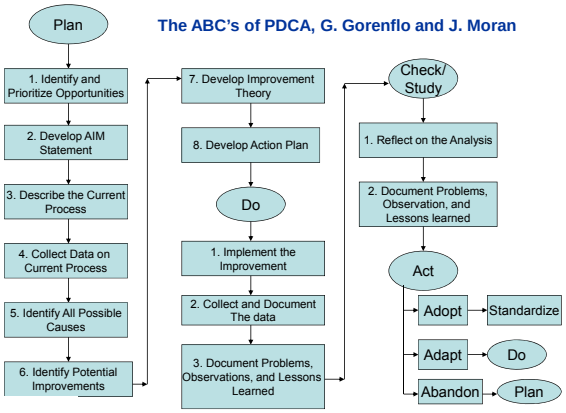
Deming Cycle – PDCA or PDSA

- PDCA was made popular by Dr. Deming who is considered by many to be the father of modern quality control; however it was always referred to by him as the "Shewhart cycle"

Continuous Improvement

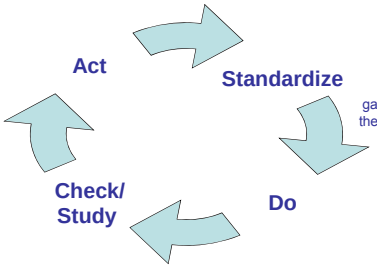


The continuous improvement phase of a process is how you make a change in direction. The change usually is because the process output is deteriorating or customer needs have changed



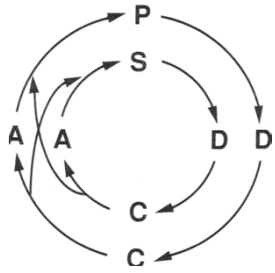
The ABC's of PDCA, G. Gorenflo and J. Moran

Maintenance and Standardization



The Maintenance and Standardization phase of a process is how we hold the gains. If our process is producing the desired results we standardize what we are doing

Integrated Cycle

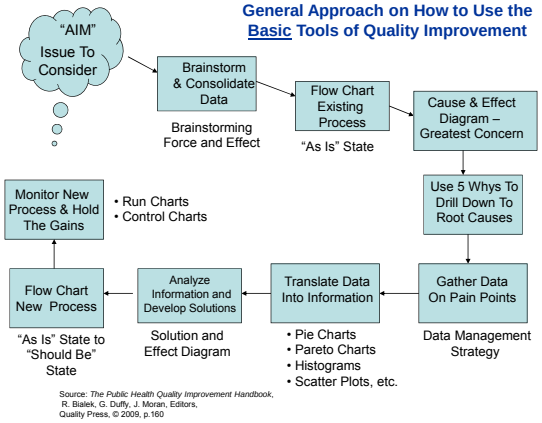


The SDCA and PDCA cycles are separate but rather integrated. Once we have made a successful change we standardize and hold the gain

When the process is not performing correctly we go from SDCA to PDCA and once we have the process performing correctly we standardize Again

This switching back and forth between SDCA and PDCA provides us with the opportunity to keep our process customer focused

General Approach on How to Use the Basic Tools of Quality Improvement



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The Basic Tools of QI

- Flow Chart
- Cause and Effect Diagrams
- Pareto Chart
- Check Sheet
- Histogram
- Scatter Diagram
- Control Chart

Flow Charting

"If you can't describe what you are doing as a process, you don't know what you're doing"

W. Edwards Deming

Flow Charting

- Flow charting is the first step we take in understanding a process
- Organized combination of shapes, lines, and text
- Flow charts provide a visual illustration, a picture of the steps the process undergoes to complete it's assigned task
- From this graphic picture we can see a process and the elements comprising it
- Shows how interactions occur
- Makes the invisible visible

Flow Chart Benefits

- Creates a common vision
- Establishes the "AS IS" baseline – Current State
- Baseline to measure improvements
- Identifies wasteful steps – activities/waits
- Uncovers variations
- Shows where improvements could be made and potential impacts
- Training tool

Flow Chart People Benefits

- People involved in constructing a flow chart begin to:
  - Better understand the process
  - Understand the process in the same terms
  - Realize how the process and all the people involved, including them, fit into the overall process or business
  - Identify areas for improving the process
  - Become enthusiastic supporters to quality and process improvement

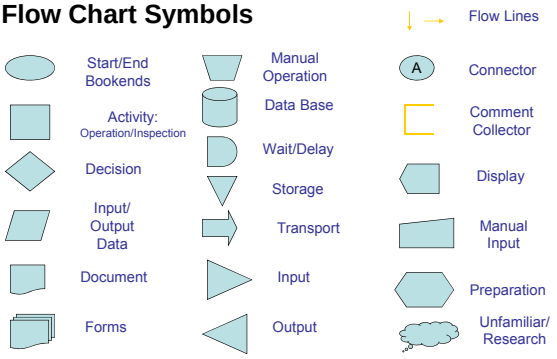
Flow Charting Construction

- Clearly define the process boundaries to be studied
- Define the first and last steps – start and end points
- Get the right people in the room
- Decide on the level of detail
  - Complete the big picture first – macro view
  - Fill in the details – micro view
- Gather information of how the process flows:
  - Experience
  - Observation
  - Conversation
  - Interviews
  - Research
- Clearly define each step in the process
  - Be accurate and honest

Flow Charting Steps

- Use the simplest symbols possible – Post-Its
- Make sure every loop has an escape
- There is usually only one output arrow out of a process box. Otherwise, it may require a decision diamond
- Trial process flow – walk through people involved in the process to get their comments
- Make changes if necessary
- Identify time lags and non-value-adding steps

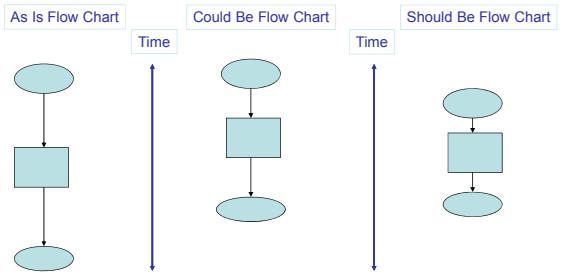
Flow Chart Symbols



Constructing a Flow Chart

- Asking questions is the key to flow charting a process
- For this process:
  - Who is the customer(s)?
  - Who is the supplier(s) ?
  - What is the first thing that happens?
  - What is the next thing that happens?
  - Where does the input(s) to the process come from?
  - How does the input(s) get to the process?
  - Where does the output(s) of this operation go?
  - Is their anything else that must be done at this point?

Adding Time Lines



Analyzing A Flow Chart

- Examine each:
  - Activity symbol – value/cost?
  - Decision point – necessary/redundant?
  - Choke Points – bottlenecks?
  - Rework loop – time/cost?
  - Handoff – is it seamless?
  - Document or data point – useful?
  - Wait or delay symbol – why?/reduce/eliminate
  - Transport Symbol – time/cost/location?
  - Data Input Symbol – right format/timely?
  - Document/Form Symbol – needed/cost/value?

Flow Chart Summary Matrix

http://www.phf.org/resourcestools/Pages/Flow_Chart_Summary_Matrix.aspx

Flow Chart Step Number	1	2	3	4	5	6	7	8	Actual Σ	Proposed Σ	Delta +/-
Type of Step	P	D	P	T	W	P	D	S			
1. Touch Point (√)											
2. Cost											
3. FTEs/Person Hrs											
4. Supplies Required											
5. Equipment Required											
6. Space Required											
7. Time											
8. Cost of Quality											
8. Partnerships Needed											
9. Etc											
10. Value added											

Type of Step: P – process, D – decision, T – transport, W – wait, S – storage

Delta = Proposed – Actual – the more negative the subtraction the better – more savings

Flow Charting Exercise

Cause and Effect Diagrams

Cause and Effect Diagrams

Moving from Treating Symptoms

To

Treating Causes

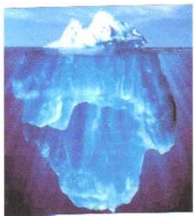
Problem Solving – What we usually see is the tip of iceberg – "The Symptom"

The Symptom →

The Root Causes →

Invisible

Hidden



Problem Solving

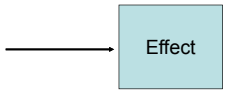
- When confronted with a problem most people like to tackle the obvious symptom and fix it
- This often results in more problems
- Using a systematic approach to analysis the problem and find the root cause is more efficient and effective
- Symptom – sign or indication
- Cause – whatever makes something happen

Cause and Effect Diagrams

- Organizes group knowledge about causes of a problem and display the information graphically
- Resemble a fish skeleton and sometimes called a Fishbone Diagram

Cause and Effect Diagrams - Construction

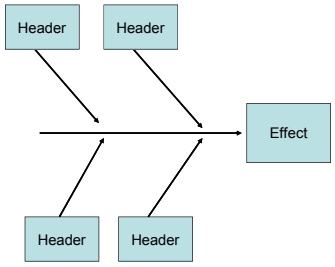
- Write the issue as a problem statement on the right hand side of the page and draw a box around it with an arrow running to it



- This issue is now the effect

Cause and Effect Diagrams - Construction

- Generate ideas as to what are the main causes of the effect
- Label these as the main branch headers

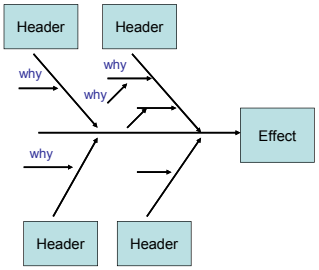


Cause and Effect Diagrams - Construction

- Typical Main Headers are:
  - 4 M's – Manpower, Materials, Methods, Machinery
  - People
  - Policies
  - Materials
  - Equipment
  - Life style
  - Environment
  - Etc.

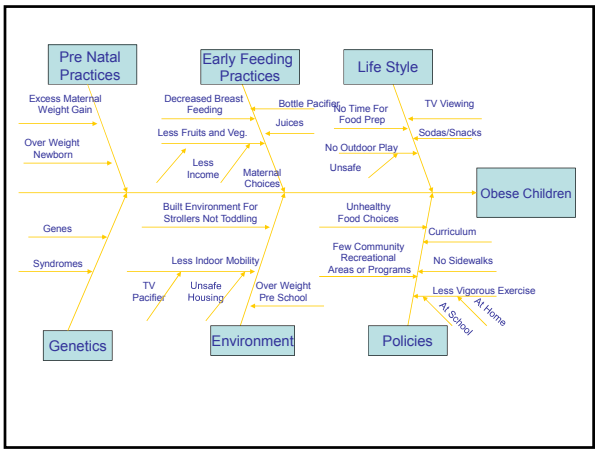
Cause and Effect Diagrams - Construction

- For each main cause category brainstorm ideas as to what are the related sub-causes that might effect our issue
- Use the 5 Why's technique when a cause is identified
- Keep repeating the question until no other causes can be identified
- List the sub-cause using arrows

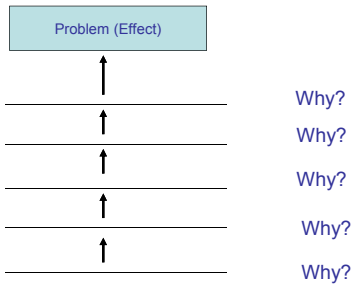


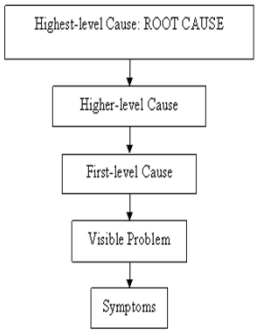
Selecting Items to Investigate

- When the Cause and Effect Diagram is finished it is time to decide what few areas should be focused on to develop solutions to solve the effect
- Some are obvious – low hanging fruit
- Some require some research using the other QI tools such as:
  - Pareto Diagrams
  - Run Charts
  - Surveys
  - Histograms
  - Etc.



5 Why's Technique





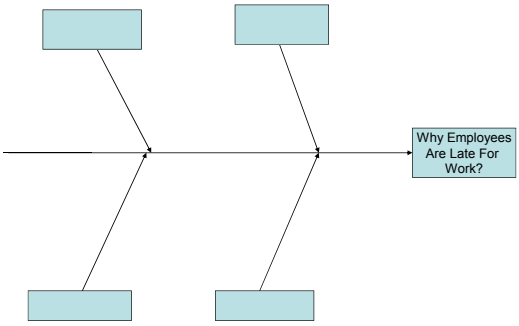
Root Cause Analysis Rating Form

Potential Root Cause	Impact on the Problem					
	Improved Quality	Reduced Costs	Improved Customer Satisfaction	Others	Total Score	Ranking

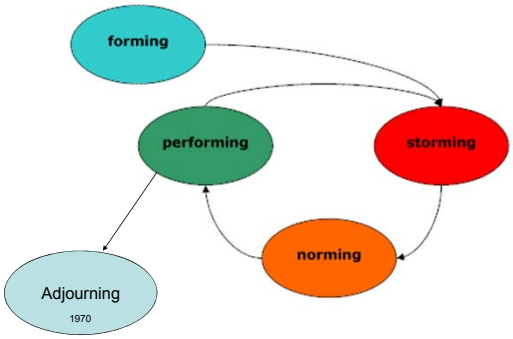
Impact Scoring Scale: Low = 1, Medium = 3, High = 5

Cause and Effect Exercise

Cause and Effect Diagram

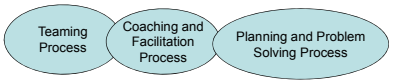


Stages Of Team Development



Bruce Tuckman, 1965

Three Step Process for Healthy Teams



Top Ten Reasons Teams Fail

1. AIM Statement
2. Team Charter
3. Team Members
4. Problem Solving Process
5. Rapid Cycle
6. Team Maturity
7. Base Line Data
8. Training
9. Root Cause Analysis (RCA)
10. Pilot Testing

For More Information

NPHPSP User Guide (CDC)
http://www.cdc.gov/NPHPSP/PDF/UserGuide.pdf

Michigan QI Handbook
http://www.accreditation.localhealth.net/MLC-2%20website/Michigans_QI_Guidebook.pdf

Public Health Memory Jogger
http://www.phf.org/resourcestools/Pages/Public_Health_Memory_Jogger_II.aspx

The Public Health Quality Improvement Handbook
http://www.phf.org/resourcestools/Pages/PublicHealthQIHandbook.asp

Applications and Tools for Creating and Sustaining Healthy Teams
http://www.phf.org/resourcestools/Pages/Applications_and_Tools_for_Creating_and_Sustaining_Healthy_Teams.aspx

Thank you for your time and attention

Questions?