

TEACHING TOOL 1 — FUNDAMENTALS OF QI

To access on-line version of tool, click [here](#).

Reproduced from the Society of General Internal Medicine PW08 Pre-Course (5/12/2004) "Getting Started in Continuous Quality Improvement." Faculty participants: M. Bergen, C. Braddock, S. Dembitzer, E. Holmboe, L. Osterberg, P. Rudd, C. Sharp. No reproduction without permission.

Quality assurance versus quality improvement

The process of traditional quality assurance (QA) starts when some event(s) fall(s) outside of the standard, creating an outlier. The immediate questions are "Who did this? Who allowed it to happen?" The immediate response from management is to conclude, "Bad apple! Get rid of him/her!" The immediate response from employees is to generate the cycle of fear and to worry individually if they are good enough to avoid punishment.

In traditional QA, the following assumptions are made:

1. Identifying and eliminating the "perpetrator(s)" will remove the outlier (the tail of the curve).
2. More inspections and eliminations will suffice to eliminate the tail.
3. What remains will somehow be excellent.

In reality, it is statistically impossible to eliminate the tail. Any reassessment is likely to confirm that the bell-shaped curve after intervention contains new events and individuals associated with outlying levels. The process itself is misdirected.

In contrast, quality improvement (QI) focuses on the average performance: what happens most often rather than what happens relatively rarely. The process of quality improvement seeks to reduce unnecessary variation, shifting the mean response in the desired direction and narrowing the distribution of responses. The goal is to improve the average common event rather than eliminate the rare, outlier event. The process of quality improvement thrives in learning environments that strive to improve the system of care and its processes rather than to focus on identifying and punishing individuals responsible for outlier events. Such environments encourage individuals to ask, "Am I the best that I can be?"

Model for improvement: the PDSA cycle

The Plan-Do-Study-Act (PDSA) cycle is the core model for improvement. When applied to a clinical process, the PDSA cycle pre-supposes the following:

- An explicit model of how the clinical process currently works.
- An enumeration and prioritization of potential steps or sites for interventions to improve the clinical process.
- A set of hypotheses about how one might intervene for process improvement.
- A selection of the top hypothesis (the best intervention to try first).

When an improvement process is well planned and executed, the PDSA cycle provides answers to three key questions:

- What are we trying to accomplish?
- What changes can we make that will result in an improvement?
- How will we know that a change is an improvement?

The PDSA cycle is not a one-time event. The cycle is repeated again and again as waves of small improvements are considered, tested, evaluated and incorporated if effective. The cycle may start with ideas, hunches or theories, but these must always be tested for practicality, impact and acceptability. The cycle involves learning as you go rather than insisting that a perfect or comprehensive plan be in place before the process starts. The changes for each improvement cycle may be small, but the cumulative impact may be large because of the repetitive nature of the cycles.

Quality improvement requires a project team

When conducting QI work, it is important to bear in mind that different stakeholders may have various levels of preparedness and therefore different receptivity to the changes that are involved. A good understanding of the change management principles can be helpful to building an effective QI project team. For individuals who are willing and ready to embrace change, engage them at the earliest possibility in the QI process. For individuals who are less inclined to embrace change right away, gradually bring them on board by involving them in early dialogue to address any questions or concerns they might have about QI.

Team size and composition

Team members are chosen for their fundamental knowledge of the clinical process to be improved as well as for their position as stakeholders who will implement any changes selected by the team. The optimal project team size for maximal participation is five to seven individuals. There are also differences in the composition of a project team, as compared to a committee.

Differences between a traditional committee and a project team	
<i>Committee</i>	<i>Project team</i>
Representative individuals	Individuals who have gained fundamental knowledge from working in the trenches
Productive capacity = capacity of the single most able member	Synergistic efforts Productive capacity > sum of the capacities of the individual team members
Unequal ownership of group's efforts, group's conclusions or implementation	Team reaches consensus, even if not always in full agreement; all members have ownership of group's conclusions and implementation

Features of a good team

The following key characteristics will affect whether a project team functions well or poorly, regardless of team membership: rules, leadership, decision-making, accountability, and results. A good team also has the following features:

- *It is safe:* team members avoid personal attacks.
- *It is inclusive:* Team members remain open to potential contributors and they value diverse views rather than forming a clique.
- *It encourages open exchange:* All ideas are considered fairly, without prejudice. The team fosters active participation.

- *It seeks consensus*: The team finds a solution acceptable enough that all members can support it. It does not require unanimity or that everyone be totally satisfied.

Additional useful rules for teams

- No complaints can be made unless they are accompanied by suggestions for solutions.
- Input and output are kept within the project team until the team is ready for dissemination.
- Once agreement occurs, the team speaks with one voice.
- Everyone gets his/her say, not his/her way.
- Silence will be judged to mean agreement.
- Meetings start and stop on time and follow a pre-announced agenda.

Discussion techniques

Some groups may benefit from having a formal team facilitator to enforce ground rules and suggest techniques to keep the discussion and process on track. These might include brainstorming, nominal group technique or Delphi methods.

Accountability

Members of effective QI project teams practise three complementary types of accountability:

- Accountability to the team: members follow project team rules and participate in the process.
- Accountability to the team member's constituency: members conduct reality tests of what can and cannot be done and communicate to their peers about the vision of what the team project might accomplish.
- Accountability to senior management: members are responsive to the overall priorities of the institution, resource constraints and the mission of the institution.

Project selection

In project selection, there is a continuum from overly meticulous preparation for action (analysis paralysis) at one extreme to precipitous action (fire, ready, aim) at the other. Two early dangers may also arise — the team may try to do too much (e.g., may try to change the entire system) and/or the team may decide in advance that one particular solution is the only solution that will address the problem.

Optimal results will probably be achieved by selecting a middle position that allows and encourages thoughtful preparation but acknowledges the need to move on to concrete action. At the same time, all potential projects can be classified on the basis of their probable impact (high vs. low) and their ease of implementation (easy vs. difficult).

For your first project, it may be best to select an endeavour that is easy to implement but has a limited impact. Accordingly, one should select a process to improve rather than a system. The process improvement effort then reflects a perceived problem rather than a pre-selected solution.

Some guiding principles:

- Select something meaningful to those doing the work.
- Choose projects where the problems are within the control of the QI team — don't try to solve other people's problems. Ensure that what will be studied is not undergoing change from another source.
- Focus on something that is not undergoing change from another source.
- Ensure the potential project has short-term, measurable parts.
- Aim for incremental change rather than taking on huge projects to achieve "perfection" or projects that have a high cost or high complexity.
- Anticipate complications, hassles, etc.

What to improve (Change management)

There are many possible changes that may lead to improvements (Langley et al 1996). You could choose a goal within one of the six quality domains (safety, effectiveness, patient-centered, timeliness, efficiency, equity). For instance, waste and error can be eliminated by using constraints to guide choices and reminders as alerts or by eliminating repetitions of the same work. Work flow can be improved by minimizing hand-offs among workers or by doing tasks in parallel rather than in series. Inventory can be optimized by standardizing whenever possible.

Health Care Quality Domain	Quality Improvement Opportunity
Health care must be safe	To improve safety of health service
Health care must be effective	To improve workflow, reduce error in handover
Health care should be patient-centered	To improve outcomes for individual patients or populations
Care should be timely	To reduce wait time
The health care system should be efficient	To improve performance of health system
Health care should be equitable	To improve access to health service

Writing an aim statement

Writing an aim statement will help to focus the project team's interest and activities. The aim statement explicitly expresses measurable goals with defined measures, deliverables and timeline. The aim statement should:

- Define the problem to be fixed in clear and concise language.
- Define the project's context, target population and duration.
- Link activities to an outcome (explicit target for success or failure rate).

Examples:

- Within the next 12 months, 80% of our patients with diabetes will have documented hemoglobin A1c levels of 8.0%.
- Within 12 months, we shall reduce hospitalizations for our patients with asthma aged 0–14 years to <1/1000 per year.
- Within nine months, we shall achieve >90% “highly satisfied” rating on routinely monitored satisfaction surveys from our patients in the XYZ Clinic regarding access to care, waiting times and service quality.

The aim statement links to reasonable, worthwhile and important goals, providing an issue around which project team members can rally and sometimes including both target and stretch goals compared with a baseline state.

Flow charting the current process

Any human activity that produces an output is a process. Processes tend to be hierarchical, where one step occurs before the next in sequence: $A \rightarrow B \rightarrow C$, etc. Mapping out the process with a flow diagram allows a comprehensive approach because it breaks the whole process up into more manageable and understandable portions without drowning in detail.

The flow diagram is an explicit model of the process. By making it explicit, the project team can share their understanding of the approach the process entails with one another; integrate criticisms, comparisons and suggestions for improvement; and indicate how and when to measure components.

Some guiding principles:

- Flow chart a clinical process, not the entire medical care system.
- Avoid too much detail at this early stage of planning.
- The flow chart of the process should reflect the project team’s mission statement.
- Get all necessary information to ensure that the flow chart contains all the principal steps contained in the existing clinical process.
- Show the process as it actually occurs, not how it should or could be in an ideal state.
- Remember that this is a critical stage of planning: take as much time as needed to get it right.
- Show the flow chart to other front-line people for input and modification as needed.
- Look particularly for areas of error, hand-offs, conflict, confusion, delay, rework loops, hassles and complaints from “customers” about the process.

Measurements

It is important to focus on measurement because what can be measured can be improved. There are three types of measures in quality improvement:

1. Outcome measures

- How is the system performing?
- What is the result?

There are four general categories of outcome measures:

- Measures related to finances or use of resources;
- Clinical quality measures;
- Patient satisfaction measures;
- Measures related to the health status of groups and individuals (the following patient characteristics should be considered: demographics; disease-specific severity factors; socioeconomic factors; lifestyle factors).

The following questions should guide the selection of critical outcome measures:

- What outcome is most important to which groups of patients?
- How are health services evaluated by them?
- What is the consequence of variation in an outcome?

2. Process measures

- Are the steps in the system performing as planned?
- What information is needed to describe practice (e.g. timing, quantity, equipment)?

3. Balancing measures

- Are changes designed to improve one part of the system causing new problems in other parts of the system?

To improve process and outcome:

- Present baseline outcome data, e.g.
 - Patient characteristics, or
 - System/process measures, or
 - Severity-adjusted outcomes, or
 - Trend charts, or
 - Statistical control charts, or
 - Common-cause variation and special-cause variation.

- Consider baseline values for key process factors. This includes variation in practice among individual clinicians.
- Develop preliminary conclusions:
 - Do the outcomes of the groups vary?
 1. Cause and effect diagrams
 2. Process improvements
 - Develop protocols to provide for iterative improvement and to provide ongoing support for clinicians in improving processes of care.

The QI charter

A QI charter is the project plan in a spreadsheet. In this QI charter, the program is identified along with the date when the QI charter is drawn up.

The elements of a QI charter include:

- Goal (as identified in the aim statement);
- Tasks — the breakdown of tasks are determined by answering the three questions related to change (What are we trying to accomplish? How will we know that a change is an improvement? What changes will we make that will result in an improvement?)
- Timelines;
- Roles and Responsibilities;
- Support requirements.

References

Langley GJ, R Moen, KM Nolan, TW Nolan, CL Norman, LP Provost. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*. San Francisco: Jossey-Bass; 2009.

Rogers EM. *Diffusion of Innovations*, 4th ed. New York: The Free Press; 1995.