When to Apply QI Tools to Support Measurement Activities

These tables were designed to be used alongside the *Public Health Quality Improvement Encyclopedia* and CDC's guidance on developing standardized performance measures, with the goal of integrating quality improvement (QI) methods into other priority health department activities.

These tables suggest ways to apply QI tools to strengthen measurement activities; there are certainly many other options for doing so. In this regard, these tables are a starting place for experimentation, fitting tool selection and application to each unique circumstance, and discovering where multiple tools can effectively work together.

This tool was developed by the Public Health Foundation (PHF) and the National Network of Public Health Institutes (NNPHI), with reviews provided by CDC and several Performance Improvement Managers in CDC's National Public Health Improvement Initiative (NPHII). This should be considered a working document; we welcome comments based on users' experiences using QI tools for various applications in the field.

Please share input and feedback on this tool with Margie Beaudry at mbeaudry@phf.org or 202-218-4415.

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Disclaimer: The guidance provided in this tool is that of the authors and does not necessarily represent the official position of or endorsement by the Centers for Disease Control and Prevention.

	Choosing Measures	Choosing Indicators	Managing Data Quality	Analyzing & Interpreting Data
Purpose & Value	**Identifying the factors that the program aims to impact, and therefore what to measure in evaluating a project**	**Choosing the specific metrics and indicators that reflect performance on target measures**	**Putting safeguards in place to help ensure that data gathered are reliable and valid, and truly represent the target measures**	**Knowing how to "crunch" the numbers and makes sense of trends in the data**
Applicable Tools	• Affinity Diagram • AIM Statement • Brainstorming • Cause and Effect Diagram/Fishbone • Five Whys • Force & Effect Diagram • Pareto Chart • PEST Chart • SMART Matrix • Voice of the Customer	• AIM Statement • Control & Influence Matrix • Force & Effect Diagram • Nominal Group Technique • Prioritization Matrix • Tree Diagram	• Cause and Effect Diagram/Fishbone • Check Sheet • Control Chart • Critical Path Analysis • Flowchart • Gantt Chart • PDCA Cycle • Stop-Start-Continue-Improve Matrix	• Control Chart • Radar Chart • Run Chart • Scatter Diagram • Variation Plot

Alphabetical Guide to QI Tools

Tool or Method	Choosing Measures	Choosing Indicators	Managing Data Quality	Analyzing & Interpreting Data	Page in the *Public Health QI Encyclopedia*	Purpose & Applicability
Affinity Diagram	•				1	Use to group a large number of items into categories. Helpful for breaking down communication barriers and creating shared ownership of results.
AIM Statement	•	•			3	Use to define a problem and provide strategic guidance to a team.
Brainstorming	•				9	Use to generate a large volume of ideas. Can ensure that all voices are heard rather than a dominant few.
Cause and Effect Diagram/Fishbone	•		•		11	Use to organize ideas about potential causes of observed effects. Helps to create of map of multiple causes contribute to an effect.
Check Sheet			•		13	Use to collect data in a systematic fashion. Provides a visual record of observations for detecting patterns, trends or outliers.
Control and Influence Matrix		•			17	Use to choose among indicators those which can be measured (Control) and impacted by the program (Influence).
Control Chart			•	•	21	Use to identify special causes of variation and determine is observed variations can be traced to known causes.
Critical Path Analysis			•		25	Use to ensure interrelated tasks on a project stay on track by estimating completion times.
Five Whys	•				35	Use to determine the root cause or generate different perspectives on a root cause.
Flowchart			•		37	Use to create a picture of all steps for completing a task and identify interactions, wasteful steps, and sources of variation.
Force and Effect Diagram	•	•			43	Use to identify barriers leading to root causes and solutions to those barriers, particularly for large projects.
Gantt Chart			•		47	Use to plan and monitor projects, visualize interdependencies among steps, and identify and eliminate barriers to success.
Nominal Group Technique		•			77	Use to reach consensus by aggregating rankings from individuals. Helps to build commitment and eliminate pressure to conform.

Tool or Method	Choosing Measures	Choosing Indicators	Managing Data Quality	Analyzing & Interpreting Data	Page in the *Public Health QI Encyclopedia*	Purpose & Applicability
Pareto Chart	•				79	Use to prioritize items; pulls the viewer's eye to the critical few when there is a need to narrow the focus.
PDCA Cycle			•		83	Use to ensure continuous improvement when implementing a data collection plan.
PEST Chart	•				87	Use to consider Political, Economic, Social and Technological (PEST) factors in developing an evaluation strategy.
Prioritization Matrix		•			93	Use to consider options in the context of a goal. Allows for pairwise comparison of a large number of options.
Radar Chart				•	105	Use to depict strengths and weaknesses on the same graphic, especially to pinpoint areas for improvement at baseline.
Run Chart				•	115	Use to display performance over time, assess data stability, and pinpoint areas needing improvement.
Scatter Diagram/Plot				•	117	Use to show the how movement of one variable is reflected in movement of another. Pairs well with a Fishbone Diagram.
SMART Matrix	•				121	Use to develop clear, actionable goals and tactics, align plans with overall goals, and create a results-focused plan.
Stop-Start-Continue-Improve Matrix			•		131	Use to give a group a preview of what is going on and surface opportunities to revise a process.
Tree Diagram		•			145	Use to move from the general to the specific and to explain details organized within categories.
Variation (Plot)				•	151	Use to investigate deviations from the expected values, particularly when indicators fall below expected values.
Voice of the Customer	•				153	Use to get a surface and share a clear understanding of what stakeholders and/or customers expect.