PERFORMANCE MANAGEMENT AND MEASUREMENT

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Contents

PERFORMANCE MANAGEMENT AND MEASUREMENT

The purpose of this module is to introduce the fundamental concepts of **performance management** and assist an organization to develop a practical strategy for achieving its quality improvement (QI) goals. This module highlights the use of evidence-based **performance measures** to set QI goals and evaluate an organization's progress in meeting them.

Part 1: Overview

Introduction

Since accountability for performance has become increasingly critical in health care, it is necessary for an organization to understand the key drivers behind its performance and demonstrate the results of its work. Performance measurement has many interrelationships with quality improvement (QI), and *focus on the use of the data* is one of the four key principles of QI discussed in the **Quality Improvement** module. Data used for measuring performance provides evidence of how well an organization's system is working currently and what happens when changes are applied. Performance measurement data and QI also support and maximize the usefulness of QI tools. Three important concepts are defined as foundational to a QI data infrastructure:

- *Performance measures* are designed to measure systems of care and are derived from clinical or *practice guidelines*. Data that is defined into specific measurable elements provides an organization with a meter to measure the quality of its care.

- *Performance measurement* is a process by which an organization monitors important aspects of its programs, systems, and processes. In this context, performance measurement includes the operational processes used to collect data necessary for the performance measures.

- *Performance management* is a forward-looking process used to set goals and regularly check progress toward achieving those goals. In practice, an organization sets goals, looks at the actual data for its performance measures, and acts on results to improve the performance toward its goals.

> *Performance measures should be distinguished from clinical guidelines. Clinical or Practice guidelines are systemically-developed statements to assist practitioners and patients in making decisions about appropriate health care for specific clinical circumstances. Attributes of good guidelines include validity, reliability, reproducibility, clinical applicability, clarity, multidisciplinary process, review of evidence and documentation. (1) Performance measures provide an indication of an organization's performance in relation to a specified process or outcome. Practice guidelines that outline the expectations of care around a specific issue or disease state are created by a group of subject matter or clinical experts. Because performance measures and standards of care each serve a different purpose, they are not always identical.*

This module describes in detail why performance measurement is important and provides a step-by-step guide for the performance management process.

What Is Performance Measurement?

Performance measurement is a process by which an organization monitors important aspects of its programs, systems, and care processes. Data is collected to reflect how its processes are working, and that information is used to drive an organization's decisions over time. Typically, performance is measured and compared to organizational goals and objectives. Results of performance measurement provide information on how an organization's current programs are working and how its resources can be allocated to optimize the programs' efficiencies and effectiveness.

Performance measurement is well established throughout health care in the core areas of finance, operations, and clinical care services. For example:

- **Finance**—an organization often measures the efficiency of its accounts receivables (AR); i.e., timely collection of payment for services rendered

- **Operations**—an organization tracks the length of time it takes for a patient to receive an appointment in the practice, or measures patient satisfaction with the care received

- **Clinical Care**—an organization measures how often care is delivered in accordance with evidence-based guidelines, or how effective that care is in improving patient outcomes

There are other examples of performance measurement in health care organizations today. As information technology is widely integrated into health care settings, support for performance measurement will also expand throughout the organization.

Why Does an Organization Need to Measure Performance?

There are a number of reasons why an organization may choose to measure its performance. Performance measurement provides a reliable process to determine if an organization's current system is working well. Also in today's economy, there is a demand for transparency and increasing scrutiny of an organization's business practices. These reasons promote an organization's use of process and outcome data as a means to demonstrate its performance. There are other typical circumstances of why an organization may choose to measure its performance, such as:

- Distinguish what *appears* to be happening from what *is really* happening
- Establish a baseline; i.e., measure before improvements are made
- Make decisions based on solid evidence
- Demonstrate that changes lead to improvements
- Allow performance comparisons across sites
- Monitor process changes to ensure improvements are sustained over time
- Recognize improved performance

There are additional motives for a health care organization to measure its performance:

- Government-accrediting organizations and funding sources rely on performance measurement to prove resources are used effectively and efficiently
- Clinicians use performance measurement to quantify the effectiveness of evidence-based care provided by their care delivery systems
- Organizational leaders use performance measurement to monitor and improve management, clinical care, and support services
- Fund raising is increasingly tied to documented performance

Types of Performance Measures

It is useful to categorize performance measures to better understand what systems or processes are measured. An organization may combine different types of measures to provide a complete picture of its underlying systems. There are four types of performance measures:

- **Process measure** quantifies a health care service provided to, on behalf of, or by a patient, that is based on scientific evidence of efficacy or effectiveness. (2)   It quantifies a specific system; e.g., to get a test done or a service performed.
- **Outcome measure** quantifies a patient's health status resulting from health care. (2) In the clinical area, it often measures a patient outcome so it can be compared to a care standard, such as, a patient's test value.
- **Balancing measure** ensures that changes to improve one part of the system are not causing new problems in other parts of the system. (3) It examines another part of the system to ensure that improvements in one area have no unexpected consequences in another.
- **Structure of care measure** quantifies a feature of a health care organization (or clinician) relevant to its capacity to provide health care. (2)

Performance Management

Performance management is a process for setting goals and regularly checking progress toward achieving those goals. It includes activities that ensure organizational goals are consistently met in an effective and efficient manner. The overall goal of performance management is to ensure that an organization and its subsystems (processes, departments, teams, etc.), are optimally working together to achieve the results desired by the organization. Performance management has a wide variety of applications, such as, staff performance, business performance, or in health care, health outcome performance measures.

Because performance management strives to align all the subsystems to achieve results, the focus of performance management should also affect the management of an organization's performance overall. **Figure 1.1** provides an example of a performance measure (cycle time), the process that the organization is measuring, and the benefit the organization might gain in evaluating its performance. While the example is reflective of the patient flow process, an organization often achieves the same benefit when evaluating its staff, business performance, and targets for clinical outcomes.
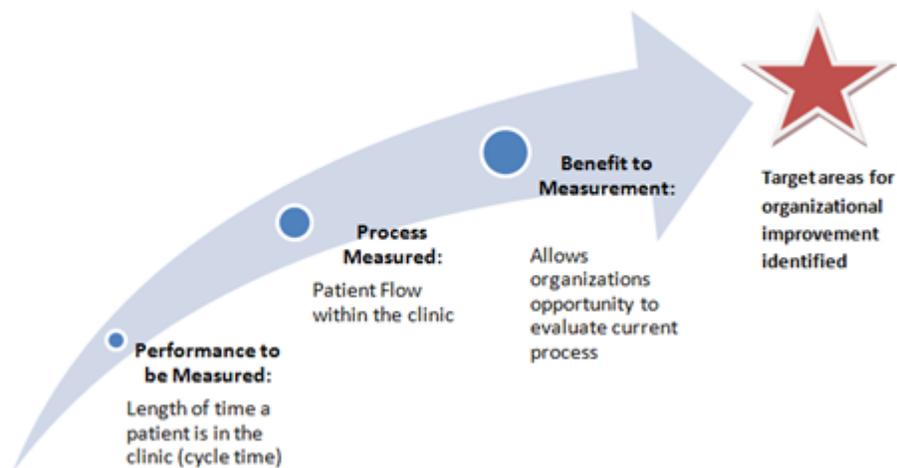
Performance to be Measured:
Length of time a patient is in the clinic (cycle time)

Process Measured:
Patient Flow within the clinic

Benefit to Measurement:
Allows organizations opportunity to evaluate current process

Target areas for organizational improvement identified

Figure 1.1: Examples of Performance and Associated Process Measurements to Monitor and Analyze

An organization can achieve the overall goal of effective performance management by continuously engaging in the following activities:

- Identifying and prioritizing desired results
- Establishing means to measure progress toward those results
- Setting standards for assessing how well results are achieved
- Tracking and measuring progress toward results
- Exchanging ongoing feedback among those individuals working to achieve results
- Periodically reviewing progress
- Reinforcing activities that achieve results
- Intervening to improve progress where needed

One way to design a well-balanced performance management system is to focus on four strategic perspectives derived from the Balanced Scorecard model as shown in **Figure 1.2**. (4) The Balanced Scorecard is a performance management tool to measure whether smaller-scale operational activities are aligned with larger-scale objectives in terms of vision and strategy. The example depicted below shows that focusing on financial outcomes plus the operational aspects of a program or organization, the Balanced Scorecard helps provide a more comprehensive view, which in turn helps an organization act in its best long-term interests. For more information on Balanced Scorecards, access the **Quality Improvement** module**.**

Adapted from Kaplan & Norton

Figure 1.2: Balanced Scorecard

IMPORTANT NOTE: The basic steps for managing an organization's performance are the same for any performance measure targeted for improvement. In keeping with the focus of this toolkit on HRSA Clinical Core Measures, the remainder of this module concentrates on performance management within clinical areas. Clinical examples are provided to illustrate these basic concepts.

Part 2: Performance Management Process

Successful performance management relies on understanding the foundational concepts that are covered in other modules of this toolkit. It is assumed that readers have an overall understanding of quality principles, understand the basics of performance measurement, and are ready to embrace a quality improvement project within their organization. Performance management concepts presented here allow an organization to systematically manage the performance data required to support QI projects. Links to key concepts are embedded so that readers new to this content can link to the basic concepts before moving forward.

Performance management encompasses a series of steps with some embedded decision points. This part of the module illustrates each step in the performance management process based on the practices of effective health care organizations. The schematic in **Figure 2.1: Process Map**

of Performance Management Pathway provides an overview of the critical steps and flow, which is followed by a detailed description for each step.
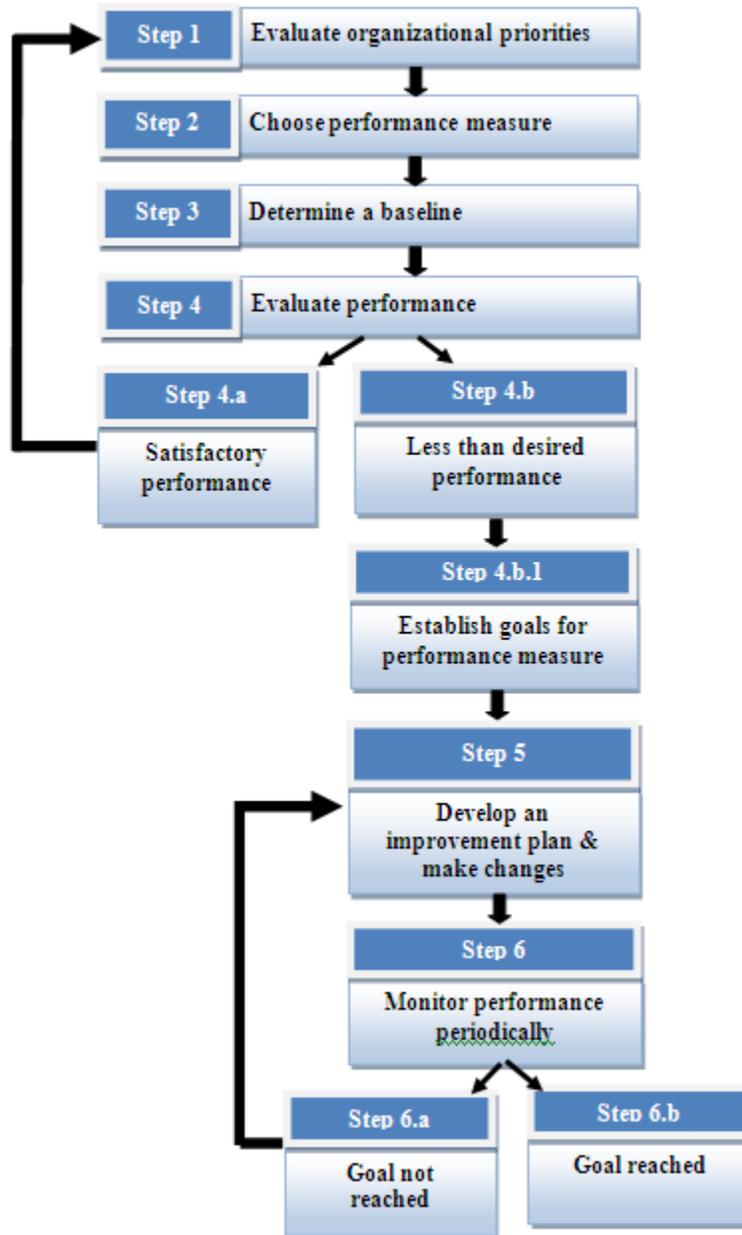
Step 1	Evaluate organizational priorities
Step 2	Choose performance measure
Step 3	Determine a baseline
Step 4	Evaluate performance

Step 4.a
Satisfactory performance

Step 4.b
Less than desired performance

Step 4.b.1
Establish goals for performance measure

Step 5
Develop an improvement plan & make changes

Step 6
Monitor performance periodically

Step 6.a
Goal not reached

Step 6.b
Goal reached

Figure 2.1: Process Map of Performance Management Pathway

Step 1: Evaluate Organizational Priorities

The first step ensures that the resources dedicated to manage and measure performance are directed to the organizational strategic goals and mission. The primary reason to measure and manage performance is to drive quality improvement. The dialogue about an organization's priorities should include the community's assessment, the organization's strategic plan, quality management plan, and similar strategic documents. Often, an organization reflects on what is not working well to determine its focus. In some cases, improvement priorities are determined by grant expectations, outside funders, or accrediting agencies. One key component of this first step is that the discussion should focus forward; that is:

- What kind of care does the organization want to provide?
- What community needs should be addressed by the organization?
- How can the organization most efficiently use resources to meet the need?

An organization also needs to consider critical opportunities for improvement from the patient's perspective. For an in depth overview of some critical areas from the patient's perspective, refer to the Committee on Quality of Health Care in America, Institute of Medicine; **Crossing the Quality Chasm: A New Health System for the 21st Century**. This report highlights six focus areas of care that patients consider important:

- *Safety*—avoiding injuries to patients from the care that is intended to help them
- *Effective*—providing services based on scientific knowledge to all who can benefit and refrain from providing services to those not likely to benefit (avoiding underuse and overuse)
- *Patient-centered*—providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions
- *Timely*—reducing waits and sometimes harmful delays for both those who receive and those who give care
- *Efficient*—avoiding waste, in particular, waste of equipment, supplies, ideas, and energy
- *Equitable*—providing care that does not vary in quality because of personal characteristics, such as gender, ethnicity, geographic location, and socioeconomic status [5]

The time that an organization's leaders spend discussing priorities is time well spent. These strategic discussions improve buy-in from key leaders within the organization and encourage reflection from multiple perspectives. An advanced discussion on the importance of evaluating organizational priorities can be found in the **Readiness Assessment and Developing Project Aims** module.

Step 2: Choose Performance Measures

After an organization discusses what is important to measure, the next step is to choose specific performance measures. Understanding that the delivery of care is a number of systems and processes, performance measures serve as indicators for the effectiveness of those systems and processes. Consider the following in selecting performance measures:

- Measure what is important based on the evaluation of an organization's community, population, and priorities as determined in Step 1
- Measure what is required to meet funding or contractual expectations

These first two considerations often overlap. Agencies supporting or funding a health care organization may require specific performance measures. If an organization is currently funded by HRSA, it should review the program's Web site or guidelines for specific requirements when choosing measures of quality performance. Guidelines and program-specific information can be found at the following links:

<div align="center">

BPHC   MCHB   HAB   BHPr   ORHP   OHITQ   ORO

</div>

> **Note:** *If an organization is currently funded by HRSA, some performance measures, including clinical quality measures, may be among those reported to HRSA. An organization should consult its project officer and/or program's Web site and links to Bureau and Office required guidelines and measures for more information:*
>
> BPHC   MCHB   HAB   HSB   BHPr   ORHP   OHITQ   ORO
>
> *General information on HRSA grants including searchable guidelines are available and accessible at the* HRSA Grants Web site.

- Include staff in the measure selection process since staff will be involved in the actual implementation of measurement and improvement activities. Buy-in from staff significantly facilitates these steps.
- Use existing measures, if possible. Clinical performance measures are derived from evidence-based clinical guidelines. Measurement allows an evaluation of an important outcome of care for a designated population of patients, and it is a proxy to understand the effectiveness of the underlying systems of care. Just as there are evidence-based care guidelines for many conditions, there also are established measures that indicate how effectively guidelines are translated to practice. National organizations carefully considered these measures, and it is advisable to adopt an established measure. Examples of general sources for clinical measures include:
  - Healthcare Effectiveness Data and Information Set (HEDIS)
  - AHRQ Clearinghouse of Clinical Measures
  - National Quality Forum
  - National Initiative for Children's Healthcare Quality
- If an organization creates its own measure, consider the characteristics of good performance measures and the IOM framework, ***Envisioning the National Healthcare Quality Report***:

- o *Relevance*: Does the performance measure relate to a frequently-occurring condition or has a great impact on patients at an organization's facility?
- o *Measurability*: Can the performance measure realistically and efficiently be quantified given the facility's finite resources?
- o *Accuracy*: Is the performance measure based on accepted guidelines or developed through formal group decision-making methods?
- o *Feasibility*: Can the performance rate associated with the performance measure realistically be improved given the limitations of the clinical services and patient population?

- Consider using several measures of different types as described above. For example, diabetes care may best be evaluated by including:
  - o Frequency of evidence-based testing (process measure)
  - o Patient blood pressure control (outcome measure)
  - o Patient satisfaction as diabetes care delivery evolves (balancing measure)
  - o Calculation of co-pays regarding clinical monitoring of diabetes care (structural measure)

A hypothetical case story is provided in sections throughout this module. The story depicts the effort of one (fictional) organization named Harper Clinic to choose a strategy for measuring performance improvement. The full case story can be accessed by clicking here.

The Problem

Harper Clinic is a Federally Qualified Health Center (FQHC) that was established as a *new start* last year. The construction proved more challenging than anticipated but the clinic leadership was ready to embark on tackling some of the issues uncovered during the *Community Needs Assessment*. In addition to providing general services for the community, it wants to focus on the sizeable elderly population. Organization-led focus groups determined that geriatric patients have transportation difficulties, which led to challenges in attending clinic appointments and refilling prescriptions.

The organization planned a systematic approach to improve care delivery and outcomes for the geriatric population. "Improve geriatric services" is included as a goal in the strategic plan and the quality improvement plan stated a *focus on clinical outcomes for patients over age 65* during the next year. Based on research and feedback from the focus groups, the QI team proposed changes it wants to make but agreed that measurement should be an important part of any improvement. The QI team lead explored the HRSA Web site and suggested possible performance metrics.

Based on organizational goals and the information from focus group members, Harper Clinic chose to research two measures – Older Adult Immunizations and Hypertension Adequate Control. The team reasoned that immunization measures would allow it to experiment with different strategies to deliver care and consider challenges with transportation and access. It selected the **Hypertension** measure since cardiovascular disease was prevalent in the community and required medication adherence for successful performance. The team looked at the available data in a way that was most helpful. It looked at the **Older Adult Immunization** measures for those 65 and over and calculated the hypertension measure considering the entire patient population with hypertension.

Step 3: Determine a Baseline

Once performance measures are chosen, an organization collects the baseline data for each measure. Baseline data is a snapshot of the performance of a process or outcome that is

considered normal, average, or typical over a period of time and reflects existing care systems. Determining the baseline involves calculating the measure. As an organization assesses where it is before embarking on a QI program, it often finds its data reflects a lower-than-desired performance. This should not cause alarm but rather provide the opportunity to focus QI efforts to improve performance.

Established performance measures include details about the numerator and denominator to calculate the measure. There is guidance for pertinent CPT or ICD-9 codes and patient exclusion criteria. Specifics about calculating a baseline for the quality measures are included in each clinical module.

- **First Trimester Care Access**
  Percentage of pregnant women beginning prenatal care in the first trimester of pregnancy
- **HIV Screening for Pregnant Women**
  Percentage of pregnant women who were screened for HIV infection during the first or second prenatal care visit
- **Breast Cancer Screening**
  Percentage of women 40 to 69 years of age who had a mammogram
- **Cervical Cancer Screening**
  Percentage of women 21 to 64 years of age who received one or more Pap tests
- **Colorectal Cancer Screening**
  Percentage of adults 50 to 80 years of age who had appropriate screening for colorectal cancer
- **Diabetes - HbA1c {Poor Control}**
  Percentage of adult patients 18 to 75 years of age with type 1 or 2 diabetes with most recent hemoglobin A1c (HbA1c) greater than 9 percent (poor control)
- **Hypertension Control**
  Percentage of adult patients, 18 to 85 years of age, with diagnosed hypertension (HTN) whose blood pressure (BP) was adequately controlled (<140/90) during the measurement year

Tip*: *It is wise to be able to explain, teach, and re-evaluate the step-by-step process to calculate the measure for future iterations, and replicate it reliably in the future. Specifically, it is important to record the following for each measure:

- ***Data source***
- ***Collection method***
- ***Frequency of data collection***
- ***Standardized time to collect data as applicable***
- ***Identify staff responsible for measurement and other aspects of the measurement process to create a detailed record.***

Case Story continued...

The Approach

The clinic used its electronic health record and practice management system to calculate a baseline for each measure. The team found that, for patients 65 and older, the influenza vaccine rate for the last season was 52 percent; the pneumococcal vaccine rate was 44 percent, and the hypertension in control rate for patients between 65 and 85 years of age was 34 percent. It then compared the data with available benchmarks. For vaccine rates, the National Immunization Survey of 2007 indicated rates for influenza vaccine were 69 percent while pneumococcal vaccine rates were 66 percent. NCQA State of Health Care Quality (ncqa.org) stated that blood pressure was controlled in 58 percent of Medicare recipients, closely corresponding to the target population.

Step 4: Evaluate Performance

As **Figure 2.2: Evaluate Performance Map** shows, once the baseline calculation is complete, an organization decides if performance is satisfactory or improvements are needed. To provide context for evaluating baseline data, an organization may choose to compare and benchmark its data against other health care organizations. Benchmarking is a process that compares organizational performance with health care industry best practices, which may include data from local, regional, or national sources. Benchmarking brings objectivity to the analysis of performance and identifies the strengths and weaknesses of a health care organization.
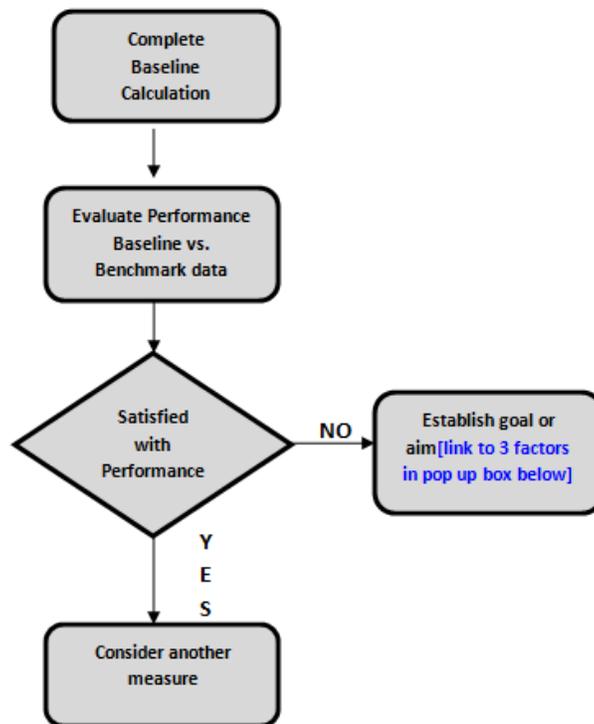

Figure 2.2: Evaluate Performance Map

If an organization is satisfied with its current level of performance, then it may:

- Acknowledge and celebrate its success!
- Put a system in place to monitor performance periodically. The measure was selected because it is important to the organization; check performance periodically to ensure that the underlying systems involved in performance continue to function satisfactorily.
- Consider another performance measure.

If an organization's performance is less than desired, then it may establish an aim for improvement. If new to writing aim statements, read Developing Aim Statements in the **Readiness Assessment and Developing Project Aims** module. Since there is more than one way to establish goals for a performance measure, an organization typically considers the following three factors to inform that decision:

Note to HRSA Reviewers: This box may be depicted to link with graphic above from text box associated with the "NO" in the graphic

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Factor 1: Are there aims already established that should be used? Program requirements or those required by funding agencies may include performance thresholds. It is prudent to choose the aim that requires the highest level of performance if an organization has overlapping requirements with established aims. **An organization currently funded by HRSA should review the program's Web site or program guidance for program-specific requirements.** Guidelines and program-specific information can be found at the following links:

BPHC   MCHB   HAB   HSB   BCRS   BHPr   ORHP   OHITQ
General information on HRSA grants, including searchable guidelines, is available and accessible at the HRSA Grants Web site.

Factor 2: How does the system currently perform? The baseline reflects the current status quo. The larger the desired change, the more the underlying systems have to change. Some organizations choose to set aims that indicate a percentage of improvement expected over their baseline, while others choose aims that reflect their desired performance, regardless of their baseline performance.

Factor 3: Does the aim statement meet the essential criteria of *SMART*?

- **S**pecific
- **M**easurable
- **A**cceptable
- **R**ealistic to achieve
- **T**ime-bound with a deadline

Case Story continued...

Performance Evaluation

The clinic staff decided there was room for improvement in all three measures. It considered the current performance, what others were able to achieve, and what improvement could be accomplished during the next year. The staff wrote the following aim statement:

Harper Clinic is dedicated to the improved health of elder residents in our community. To that end, we will implement the Care Model to improve care and achieve the following aims by March 30, 2009:

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1. *Percentage of patients 65 years and older who have received influenza vaccine during flu season, September 1, 2008 through February 28, 2009 will be >65 percent.*
2. *Percentage of patients ≥ 65 years of age who have ever received a pneumococcal vaccine will be >65percent.*
3. *Percentage of patients 18-85 years of age with a diagnosis of hypertension (HTN) and whose blood pressure (BP) was adequately controlled (<140/90) during the measurement year will be >50 percent.*

Senior leadership approved the goals and allocated resources to support the efforts. Since immunization systems are similar, regardless of antigen administered, improvement efforts could be managed in the same way. Two quality improvement teams were created to work on two QI projects:
1. Older Adult Immunization rate focusing on both influenza and pneumococcal vaccine rates
2. Older Adult Hypertension control

Step 5: Develop a Plan and Make Changes to Improve Performance

If an organization previously worked to improve quality, it is likely there is an established approach for improving quality already. A *QI plan* is a strategy for identifying and implementing specific changes in processes that may result in improved performance. Information on developing a QI plan can be found in the **Developing and Implementing a QI Plan** module.

For specific information about changes that resulted in improvements in other organizations for each HRSA Core Clinical Measure, see the respective module:
- **First Trimester Care Access**
- **HIV Screening for Pregnant Women**
- **Breast Cancer Screening**
- **Cervical Cancer Screening**
- **Colorectal Cancer Screening**
- **Diabetes - HbA1c {Poor Control}**
- **Hypertension Control**

These changes need to be tested by the team. An advanced discussion on testing changes can be found in the **Managing Data for Performance Improvement** module.

The case story continued...

The Improvement Journey

Each team began its work by process-mapping current systems of care and researching key changes that worked for other organizations faced with same or similar challenges. The teams tested small changes in their daily work and met weekly to discuss improvements and barriers and what to test next. On the third Tuesday of each month, the teams received updated calculations of the performance measure(s) to analyze and discuss at their team meetings. Since it was not time for flu vaccines, performance did not initially change on the influenza vaccine measure. The team was heartened that changes, such as, vaccine prompts and patient outreach that steadily increased the rates of pneumococcal immunization each month. The geriatric hypertension team faced more challenges in achieving improvement. Patients were not always able to attend clinic visits due to transportation challenges. That prevented timely blood pressure readings and care opportunities. Since many patients lived in the large assisted-living facility, the clinic staff arranged transportation in collaboration with *Special Transit*, a community-based nonprofit that provided on-demand shuttle service for individuals with special needs. The team also started monthly group visits with input from a willing patient. It opened VIP appointment slots for those over 65 years and allowed additional flexibility when rides were available. In addition, an in-service was held for care team members to update them on best practices for elderly hypertension care. A care team member performed outreach to patients struggling to meet their target BP to support the patient self-management effort.

Note: The "Improvement Journey" within this case study provides examples of how a team used various types of performance measures, both process and outcome, to broadly assess its systems of care.

Step 6: Monitor Performance Over Time

A critical part of QI is to measure when changes occur. In the same way data for the baseline measurement is calculated, periodic calculations of performance measures should be accomplished. For an organization actively engaged in improvement work, this is often monthly. As performance is measured over time, a trend develops. It is important to use the same methodology to collect and calculate the data each time. For general information about data collection and sampling, refer to the **Managing Data for Performance Improvement** module.

Changes that improve the underlying critical pathway often reflect improved performance on the measure. An organization may choose to continue its improvement efforts as it moves toward its target or goal for the performance measure. An organization that is not experiencing improvement may reflect on the trend data and use the opportunity to re-evaluate its approach. All changes do not result in improvement and reflection on other change opportunities may be required to get improvement back on track.   Most organizations continue to test changes and make improvements until their aims have been achieved. Additional information on tracking and analyzing data can be found in the **Managing Data for Performance Improvement** module.

The case story continued...

Spreading Lessons Learned

The quality improvement teams continued in this way until March 30, 2009. By that time, the goal of immunizing patients over age 65 years for pneumococcal was exceeded—a performance rate of 68 percent was achieved! Progress was made in the other areas although insufficient to reach their aims. Influenza vaccine rates increased to 58 percent and hypertension-in-control increased to 41 percent. Although patients under 65 were not specifically targeted, system improvements helped that group as well, and rates of hypertension control increased 15 percent over the baseline.   The organization celebrated improvement in pneumococcal vaccine rates and continues to monitor those on an annual basis to ensure lasting improvement. The good work on the influenza vaccine rate and the hypertension-in-control rate was also acknowledged, but work continued. Harper Clinic also decided to evaluate the current rates of breast cancer and colorectal screening. Once the baseline was calculated and compared to benchmarks, the organization was prepared to adopt another measure as part of its overall quality improvement strategy. Harper Clinic continued to use the systemic approach of performance management to improve care and health outcomes for an important segment of its community. The clinic's scope was broadened as resources allowed coverage for chronic disease and preventive care for all ages.

Part 3: Case Story

To gain insight into how one QI team approached performance measurement, review the hypothetical case story highlighting the fictional organization, Harper Clinic, and its approach to determining and applying QI efforts to improve vaccination rates and hypertension control in its geriatric population.

Part 4: References

1. Field MJ, Lohr, KN Insitute of Medicine Committee to Advise the Public Health Service on Clinical Practice Guidelines, clinical practice guidelines: directions for new programs. Washington DC: National Academy Press, 1990: 52-77
2. National Quality Measures Clearinghouse: http://www.qualitymeasures.ahrq.gov
3. Institute for Healthcare Improvement: http://www.ihi.org
4. The Balanced Scorecard by Kaplan & Nortan: http://www.balancedscorecard.org
5. Crossing the Quality Chasm: A New Health System for the 21st Century (2001) Institute of Medicine (IOM), pg. 39-40

Part 5: Additional Resources

Note: Keywords for searching each site are shown in italics.

1. AAFP Quality Improvement Tools and Resources (American Academy of Family Physicians) - Quality Improvement (QI) Tools and Resources on topics such as *Performance Measurement and Pay for Performance.*
2. American College of Physicians - Extensive resources and tools on PM and QI.
3. Clinical Microsystems – Toolkits highlighting "*Measuring What Matters".*
4. IHI *(Institute for Healthcare* Improvement) - *Improvement Tracker* tools available for download as well as educational resources on *Measurement, Data Collection and Performance Measurement.*
5. *Joint Commission - Extensive i*nformation and *resources on Performance Measurement* including *Performance Measurement Initiatives* in hospitals as w*ell as ambulatory care settings.*
6. NCQA (National Committee on Quality Assurance) - Technical and educational resources on Quality Measurement.
7. U.S. Department of Health and Human Services (DHHS) - A list of Federal and State government initiatives focused on performance measurement.
8. Vanderbilt Medical Center (VMC) - offers a variety of tools, resources, and online educational opportunities, including *Quality Improvement Courses* supporting *performance measurement* and overall *Quality Improvement..*
9. *Quality* of Health Care in America, Institute of Medicine; Crossing the Quality Chasm: A New Health System for the 21st Century.
10. National Quality Center (www.nationalqualitycenter.org) - offers a variety of tools and resources including audio training sessions providing an introduction to Performance Measurement and a Guide to Performance Measurement a comprehensive guide for HIV with transferable concepts.
11. Public Health Foundation. Turning Point Survey on Performance Management Practices in States: Results of a Baseline Assessment of State Health Agencies. Seattle, WA: Turning Point National Program Office at the University of Washington, 2002.