

THE ASHP DISCUSSION GUIDE ON

**The  
Pharmacist's  
Role in**

**Quality  
Improvement**



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# The Pharmacist's Role in Quality Improvement



## EXECUTIVE SUMMARY

Providing high-quality, safe medical care is the primary goal of health systems. When the public is alerted to quality failures, such as preventable medication errors resulting in patient harm or death, concerns about the quality of health-care arise. As experts in medication delivery, pharmacists play an integral role in preventing and managing medication errors; however, ensuring safety in the health system is a team effort. Pharmacists need to broaden their responsibilities by taking on roles in quality and performance improvement projects.

Pharmacists are well positioned to assist the healthcare system in improving quality of care, and they are already established as experts in medication management processes. As pharmacists branch out into the quality arena, they will need to expand their knowledge base with respect to quality. This discussion guide is intended to provide health-system pharmacists with the basic tools they need to lead and participate in quality improvement and medication safety initiatives.

## The Case for Pharmacist Involvement

Healthcare delivery is a complex process involving all types of integrated and inter-dependent steps, each of which has the potential to fail. Failure at any point can set off a chain of events that can result in patient injury. Medication ordering, preparation, and delivery are multidisciplinary processes in their own right; multiple checkpoints and safeguards should be in place to arrest errors before the medication reaches the patient. In all healthcare systems, continuous monitoring of medical care processes, including medication management, is critical to the identification and prevention of errors. Most healthcare systems have committees or teams that are charged with identifying and preventing errors, and a pharmacist is, or should be, a core member of the team. In particular, the input and participation of a pharmacist in creating and maintaining the medication management process are essential. Pharmacist leadership and involvement in the medication management process are key to improving safety and efficiency throughout the patient's stay.

As discussed in the 1999 Institute of Medicine report, *To Error is Human: Building a Safer Health System*,<sup>1</sup> medication errors are caused by failure of the system, not by an individual failure. Often, the system at the sharp end of the stick (or needle, as it might be more accurately described) is the medication management system.

Because of their complexity and the many opportunities for breakdown, medication management procedures need to be continuously monitored and improved.

Pharmacists who demonstrate a keen interest in quality improvement are logical choices as the individuals charged with performing quality reviews and implementing improvements to the system. Likewise, healthcare systems that are preparing for or currently undergoing information technology upgrades (e.g., electronic health records and medication administration documentation) would benefit greatly by including a pharmacist in the design and implementation of new technology. Including a pharmacist in system design and implementation makes sense, especially when one considers that it is the pharmacist who is closest to and has the most in depth knowledge of the intricacies of the medication-use system. In many instances, the pharmacist is or was involved in the design and implementation of the healthcare system's current software program for dispensing and billing. Dispensing and billing are two areas at high risk for error and are often audited for compliance by regulatory agencies.

Historically, pharmacist involvement in quality improvement has been limited to participation in monitoring the performance of the medication management system, but that appears to be changing as pharmacists demonstrate success when expanding their roles to include quality and performance improvement initiatives.

## Pharmacist Leadership in Quality Improvement

There are many compelling reasons to not only involve pharmacists in the quality and performance improvement activities of a healthcare system, but also to charge them with taking leadership roles in such activities. Following is a list of reasons that support pharmacist involvement in quality performance improvement activities:

1. Pharmacists are skilled at analyzing complex systems, particularly those that involve medication-related processes, such as ordering, dispensing, and administration. A pharmacist is typically the best source of information about the institution's medication-use system and what the collateral effects would be in the event of changes to that system. Thus, an

experienced pharmacist would be able to lead or complement any process redesign effort involving medications.

2. Pharmacists have a core knowledge of medications, including their adverse effects, interactions, proper dosing, and monitoring parameters. Of healthcare professionals, pharmacists typically have the broadest knowledge base regarding the entire medication management system and are considered to be an authoritative source. This core knowledge would be especially useful when redesigning any system or process that affects timing of medication delivery or administration. It would also prove useful in quality activities for which such expertise is essential, such as peer review.
3. Pharmacists are able to predict and anticipate the likely effects of medications on patients and would be able to recognize an opportunity to standardize a process that might improve quality of care.
4. In many institutions pharmacists are available to provide medical care at all times of the day and night. As a result, they could easily anticipate the effects of any potential change in processes over an entire 24-hour period. Because of their constant presence in the health system, pharmacists would always be available to collect data.
5. Pharmacists manage the institution's drug budget and are cognizant of drug costs. As keepers of the drug budget, pharmacists are typically the institution's source of information concerning ways to best use the institution's resources with respect to medications.
6. Pharmacists generally have good collaborative skills and are comfortable in high-pressure situations.
7. Pharmacists understand the risks inherent in the medication-management process, can identify areas of weakness, and are able to create or redesign systems to improve risk areas.
8. The Institute of Medicine (IOM) advocates the use of a medication safety officer. The pharmacist is a logical choice for the medication safety officer because he or she has a unique body of knowledge with respect to medications and their appropriate use.

9. Pharmacists are the institution's advocates for medication-use safety.
10. Pharmacists already manage and drive change within the medication management system, often for quality of care and/or cost reasons, and are, therefore, accustomed to and often comfortable with, data-collection sources and methods.
11. Pharmacists participate in and sometimes lead drug-related research. They also manage the use of investigational drugs in healthcare institutions.
12. Pharmacists are often charged with developing unbiased evaluations of new medications for use in their institutions.
13. Pharmacists are primarily responsible for ensuring that all medication-related regulations are followed within their healthcare systems. Pharmacists have access to the critical information needed to be in compliance and have a stake in seeing that the regulations are followed.
14. Pharmacists continuously monitor medication-related literature and are comfortable educating other professionals and patients about their appropriate use as well as inspiring others to take action when problems arise.
15. Pharmacists are involved in attaining compliance with regulatory standards regarding medication-related measures. They also understand that better outcomes are likely as a result of such efforts.
16. Pharmacists' constant presence in the healthcare system allows them to participate in prospective activities.
17. Pharmacists have observed first-hand, as have most medical practitioners, the devastating impact that medication errors can have and understand the urgent need to improve when errors occur.

## Challenges and Rewards

There are all kinds of challenges to taking an organized approach to improving the healthcare environment. For one thing, the healthcare system is incredibly complicated—it is multidisciplinary in nature, crossing all professional lines, and it is expensive to manage and analyze. There are both direct (e.g., medication costs, technology upgrades, and software) and indirect (e.g., salaries) costs to

consider. Data collection is difficult because there are multiple data sources from which to collect and analyze data and full-time equivalent support for such projects are often limited.

In spite of the many challenges, there are rewards for pharmacists who participate in or lead a quality improvement activity. Often, more than one objective may be achieved through collaborative quality improvement activities when the department of pharmacy is involved. For example, a simple review of the medication process could be used to identify areas of delay. However, improvements in quality could be an end result. For example, if the time from which orders were written to administration of antibiotics was shortened, it could eventually result in quicker recovery for a patient with an illness, such as sepsis, or prevention of a complication of care, such as surgical site infection. Improving the time to administration could also have other positive, quantifiable effects, such as lightening the patient load in the emergency room or allowing a patient's discharge to occur earlier in the day.

Identifying opportunities to reduce waste within the system should also reduce both direct and indirect patient care costs and medication costs and result in improvements in inventory control and medication use. The long-term effect of such actions may reduce the hospital's drug budget, which could allow dollars saved to be used for other clinical or quality improvement initiatives. If the savings were substantial enough, it could even result in changes or additions to staffing in the pharmacy department.

Better medication management saves money: the healthcare system spends less on providing care to the patient, and the patient is charged less. An efficient financial system is also key; accuracy in billing and crediting is paramount to the system. Often, small improvements to this process will yield dramatic results and savings to the healthcare system. This subject is of great concern to the various regulatory agencies and failure to be exacting will have disastrous results.

Finally, any system analysis and resulting initiatives for improvement should include reducing medical errors. A system free of medication-related errors and adverse effects will result in improved care at the patient level and should remain the bottom-line goal for all quality improvement activities.

## Overview of Common Quality Improvement Initiatives

**National Quality Initiatives.** Both the government and private sector have a keen interest in quality improvement with respect to healthcare in the United States. In the mid-1990s, the Institute of Medicine, a private, nonprofit organizational component of the National Academy of Sciences, convened the National Roundtable on Health Care Quality<sup>2</sup> to evaluate the quality of healthcare in this country. The discussions took place over two years and the conclusion reached was that serious and widespread problems exist in America's healthcare system. Several national quality organizations and initiatives evolved out of this report (see Table 1).

**Local Quality Initiatives.** Every accredited local healthcare system must participate in quality improvement initiatives. Quality improvement is tied to the accreditation process, and, in some cases, reimbursement. The manner in which an institution manages these quality improvement initiatives varies. In some healthcare systems, one multidisciplinary quality improvement committee may oversee several subcommittees with each subcommittee assigned to different projects. In other institutions several different multidisciplinary committees may be created to oversee these projects. Some healthcare systems employ full-time quality improvement personnel. These individuals may work in the quality improvement or risk management department. Still other health systems may hire external consultants to perform quality improvement projects. Each scenario though would involve the pharmacy and medication management directly or indirectly.

Accredited hospitals are required to have performance improvement plans in place. The overall goal of these performance improvement programs is to maintain and support the delivery of safe, quality care. Each performance improvement program should include the following:

- Adherence to standards of care
- Opportunities for improvement, with action plans to implement change strategies
- Strategies for the effectiveness of change strategies
- Involvement of multidisciplinary teams in process improvement

The performance improvement plan should

- Articulate commitment to performance improvement
- Delineate the goals of the performance improvement process
- Specify the authority and responsibilities for performance improvement
- Describe the organizational structure and processes related to the performance improvement program
- Describe the method for improving organizational performance
- Describe the communication and recognition of performance improvement activities

Quality improvement in healthcare today has become a multi-tiered process occurring simultaneously across multiple areas of the healthcare system, with all of the pieces interacting to form one overarching program. The Executive Steering Committee, or its equivalent, holds the ultimate responsibility for ensuring that all of the individual quality improvement activities are moving in the same direction according to the healthcare system's performance improvement plan. Table 2 outlines some of the individual pieces that interact in the overall plan.

### Learning the Lingo: A Guide to Basic Quality Improvement

Many resources that cover the basics of quality improvement both on the Web and in hard copy exist. For example, the American Society for Quality (ASQ) maintains a useful Web site that includes a quick reference glossary on quality terms, acronyms, and key people in the history of quality. The Web site can be accessed at <http://www.asq.org/glossary/index.html>. In addition, the American Society of Health-System Pharmacists (ASHP) maintains a Quality Improvement Resource Center at [http://www.ashp.org/s\\_ashp/cat1c.asp?CID=3864&DID=6552](http://www.ashp.org/s_ashp/cat1c.asp?CID=3864&DID=6552). The resource center includes a glossary, news updates, common acronyms, ideas for getting started in quality improvement, an overview of some of the tools involved, and other topics.

Like most disciplines, the science of quality improvement is undergoing constant change. Many new resources become available every day, and

often incorporate the best elements from earlier quality improvement methods. Following World War II, Japan invited Walter A. Shewhart to come to Japan to teach the methods of quality improvement that he had previously introduced to Western Electric. Because he was too ill to travel, W. Edwards Deming went instead.<sup>18</sup> The method that Deming taught to the Japanese, which was subsequently brought back to the United States, became known as the Plan-Do-Check-Act Cycle (PDCA) or Shewhart Cycle or Deming cycle. Six Sigma is an approach that has evolved using a modified PDCA cycle.

## Overview of the Plan-Do-Check-Act Cycle (PDCA)

The PDCA model for improvement has two parts. The first part starts by asking three questions as a means of identifying ideas for change (“change concepts”). Each of the proposed changes is then tested using the PDCA cycle. Following are the three questions:

### 1. What are we trying to accomplish?

To answer this question, an AIM, or project goal, must be developed. For an AIM to be useful, it needs to describe the process to be improved, to be strategically aligned and critical to the process, and to set a numerical target for improvement that extends beyond current performance. Necessary resources need to be secured at this point in the process.

### 2. How will we know that a change is an improvement?

In order to determine whether a change has led to improvement, a baseline measure must be established. A well-written AIM will define the baseline measure. First, data for the baseline measurement are selected and gathered. Data on balancing measures are also collected. Next, the baseline data are compared with the target and key causes, and sources of variation are determined. The National Quality Measures Clearinghouse (NQMC), a division of the Agency for Healthcare Research and Quality (AHRQ), maintains a database of evidence-based quality measures and measure sets, which are available at <http://www.qualitymeasures.ahrq.gov>.

### 3. What changes can we make that will result in improvement?

Answering this question leads to broad, general ideas and thoughts about change, which are called change concepts. Because these concepts apply to many different situations, they have been cataloged in different sources.<sup>19</sup> ASHP catalogs them in their Quality Resource Center. From here, change strategies, which are specific strategies or tests of change, are developed. Finally, the change is tested using the PDCA cycle.

## Plan, Do, Check, Act (PDCA) Cycle

The second part of the model for improvement puts into action everything that has been planned up to this point. Each test of change is carried out using the PDCA cycle as follows:

- 1. Plan.** Questions are asked and predictions are made. The following details are mapped out: who will make the test, what exactly will they do, when will they do it, where will they do it, and how long will they do it?
- 2. Do.** The change is made following the plan, and data measuring the single change are collected, and, if needed, the balancing measure(s) are determined. Any unexpected problems and observations are documented.
- 3. Check (or Study).** Study the effect of the test change on the single measure and on balancing measures, if necessary, and compare the data with the predictions. Summarize what was learned.
- 4. Act.** Select which change(s) to implement, develop an implementation and/or replication plan, determine additional improvements (additional PDCA cycles), and decide which actions will likely hold the gains.

The PDCA cycle is also known as the Plan-Do-Study-Act cycle and has been incorporated into what is called Rapid Cycle Improvement.

## Six Sigma/Lean Overview

Six Sigma evolved out of the PDCA model and uses a modified PDCA cycle. Some experts consider Six Sigma to be a methodology, while others consider it to be a set of tools.<sup>20</sup> Six Sigma is a data-driven philosophy of quality improvement for eliminating defects. When used to evaluate performance

the process should not produce more than 3.4 defects per million opportunities. The main objective of Six Sigma is to improve processes and reduce variation through improvement projects. To achieve this, two methods are employed: Six Sigma DMAIC and Six Sigma DMADV. Six Sigma DMAIC (define, measure, analyze, improve, and control) is a process designed for existing processes that are falling below expectations or specifications and are looking for incremental improvement. Six Sigma DMADV (define, measure, analyze, design, verify) is used to develop new processes.<sup>21</sup>

Lean systems focus on eliminating all of the all waste and non-value-added activities in a process. Henry Ford articulated the concept when he said, “We will not put into our establishment anything that is useless.”<sup>21</sup> The goal of the exercise is to eliminate unproductive effort and unnecessary investment.

## Tools for Measuring Quality

Various tools and techniques for continuous quality improvement are used throughout the improvement process. There are tools for displaying information, with each serving a different purpose. The tools are also used to analyze data; however, they cannot be used to make decisions. What the tools provide is information for facilitating decision-making. In effect, tools are used to summarize data, describe a process, identify problem areas, suggest solutions, assess the effects of change, identify customers and their needs, and show process or output variation.<sup>22</sup>

Tools include group process and analytical tools. Group process tools include but are not limited to the following: consensus decision-making tools (e.g., multiple voting, rank ordering, and structured discussion), ground rules, idea-generating tools (e.g., brainstorming and nominal group technique), and opportunity statements. Analysis tools include, but are not limited to, affinity diagrams, cause-and-effect diagrams, decision matrixes, root cause analysis, error or failure modes, effects analysis, flowcharts, force field analysis, histograms, Pareto diagrams, relations diagrams, run charts, scatter plots, and control charts. A brief description of the group process and analysis tools is included in Table 3. Other skill sets and techniques include data-collection planning, feedback and intervention, key quality characteristics and

key process variables, meeting skills, planning tools, project communication, sampling and stratification, understanding customers, and variation and statistical thinking.

Benchmarking is used by health systems to compare their performance with other healthcare systems. When used properly, benchmarking will reveal why another institution’s performance is better than yours. Benchmarking does more than offer comparison numbers. Ways to uncover this knowledge vary, but usually involve team visits to the other institutions to see firsthand how their processes work from start to finish. It uncovers opportunities for change through in-depth evaluation of other practice sites.<sup>24</sup>

There are many data sources available that can be used by continuous quality improvement teams for evaluating potential areas of quality improvement. These data sources include committee reviews, medical records, statistics, patient complaints or comments, reports from third party payers and regulatory agencies, incident reports, root cause analysis reports, accident reports, patient-care conferences, performance improvement reports, patient-care evaluation studies, parent-satisfaction survey results, and external comparative benchmark data.

## Getting Involved

**Where to Start.** One way to become involved and to communicate with peers (i.e., others working in this area) is to join national quality associations. Several of these associations offer free membership online. Members receive free monthly online newsletters and access to tool kits and other materials that are not available to the general public. Many of the national quality associations have national and regional meetings, which offer an opportunity to network as well as get up-to-date information on new ideas and trends in the field.

Multiple areas exist for pharmacist involvement in quality improvement initiatives within the health system. Often, it is just a matter of the pharmacist expressing an interest. The director of pharmacy should have a good grasp of the institution’s overall quality program through his or her involvement on key committees. Obviously, pharmacists are the logical choice for inclusion on any committee charged with quality improvement in the medication-management system.

If there is interest on the part of the pharmacist in being on a committee or quality improvement initiative, it is essential to engender the support of key administrative personnel before the improvement activities begin. Administrators have the authority for the implementation of change and decide where resources will be allocated. Sometimes those involved in quality improvement activities tend to feel that their efforts are unappreciated and unrewarded. However, if the team has the support of the appropriate administrative personnel, that can go a long way toward dispelling those feelings.

If the institution has a quality management (or improvement) department, it is imperative for pharmacy to make the effort to meet with those in the department. All possible opportunities for collaboration should be discussed at length. Since this department likely oversees the institution's quality improvement activities, they also have access to data generated by the healthcare system. This department would also be in charge of submitting data, both mandatory and voluntary, to the various quality organizations (e.g., Joint Commission, Centers for Medicare and Medicaid Services [CMS], Department of Health, Food and Drug Administration, Drug Enforcement Agency). Several of the core measures required by the Joint Commission and CMS have medication components, so it is logical that a pharmacist be involved. They also keep records for the various licensing boards, such as the Board of Pharmacy, and perform the accreditation mock surveys, audits, and education and training for safety for all areas in the healthcare system.

The quality management department shares data with the risk management department, and their systems are usually integrated. Together, these departments have the information needed to identify clinical problems or opportunities for improvements in patient care.

Another potential area of involvement for the pharmacists is at the committee level. Many committees throughout the healthcare system have either direct or indirect influence on the medication management system, including the pharmacy and therapeutics, pain management, education and training, safety, and patient safety committees.

Many potential areas for quality improvement exist within the pharmacy department. Patient discharge counseling, medication reconciliation, medication ordering and supply, throughput including physician computer order entry, robots, and automated dispensing cabinets, safety and timeliness of medication administration, and adherence to accreditation organization standards are just a few of the possibilities. Any process in the pharmacy or healthcare system holds potential for improvement.

## How to Start

Getting involved may take a bit of study. The quality improvement field has its own language, definitions, and taxonomy. ASHP maintains a Quality Resource Center, which is a good place to start in learning about quality improvement. ASHP has also developed and published the ASHP Health-System Pharmacy 2015 Initiative, a comprehensive initiative for improving the practice of pharmacy in healthcare systems. The ASHP Health-System Pharmacy 2015 Initiative sets six major goals and 31 objectives to be achieved by the year 2015 and provides an excellent guide for developing a quality improvement plan within the pharmacy. Answers to the questions such as, what do you want to analyze and why, can be found here. Many additional sources of information are also available (see Table 1 and the additional resources list at the end of this discussion guide). Several of the national quality initiative organizations offer explicit instructions, tool kits, monitoring forms, and more as part of their programs. For example, the Institute for Healthcare Improvement offers a complete package through its 5 Million Lives Campaign, which is available at <http://www.ihl.org/IHI/Programs/Campaign/Campaign.htm>

It would be wise to gain participation on a quality improvement team within the healthcare system that is already established. That way, there would be opportunities both for learning and participation in the quality improvement process. In any event, pharmacists need to become involved in the quality improvement activities because they are an important means of becoming part of the process of improving the quality of care of patients.

TABLE 1.  
**National Quality Organizations and Initiatives**

Organization	Description and Role in Health Care Quality	Quality Initiatives
<b>IOM</b>	<p>Chartered in 1970 as a component of the National Academy of Sciences</p> <p>The mission is to “serve as adviser to the nation to improve health”</p> <p>In 1996, IOM launched an effort focused on assessing and improving the nation’s quality of care and issued a series of quality reports.</p> <p>In 2004, Congress mandated CMS to sponsor the IOM to study “drug safety and quality issues”.<sup>3</sup></p>	<p>Published reports such as</p> <ol style="list-style-type: none"> <li>1. <i>The Urgent Need to Improve Health Care Quality</i></li> <li>2. <i>Crossing the Quality Chasm</i></li> <li>3. <i>To Err is Human</i></li> <li>4. <i>Preventing Medication Errors</i></li> </ol> <p>IOM publishes about 50 reports yearly.</p>
<b>IHI</b>	<p>Founded in 1991 as a not-for-profit organization with a goal of improving healthcare throughout the world.</p> <p>Translated IOM aims into a “no needless list”</p> <ul style="list-style-type: none"> <li>■ no needless deaths</li> <li>■ no needless pain or suffering</li> <li>■ no helplessness in those served or serving</li> <li>■ no unwanted waiting</li> <li>■ no waste<sup>4</sup></li> </ul>	<p><b>100,000 Lives Campaign</b> (12/04–12/06)  purpose was to introduce proven best practices with the “goal of extending or saving as many as 100,000 lives”<sup>3</sup></p> <p><b>5 Million Lives Campaign</b> (12/06–ongoing)  purpose is to “prevent 5 million incidents of medical harm over the next two years”<sup>4</sup></p>
<b>NQF</b>	<p>Created in 1999 in response to the 1998 report of the President’s Advisory Commission on Consumer Protection and Quality in the Health Care Industry to “develop and implement a national strategy for health care quality measurement and reporting.”<sup>5</sup></p> <p>The mission is to improve healthcare for Americans by endorsing consensus-based national standards for measurement and public reporting of healthcare performance data that provide meaningful information about whether care is safe, timely, beneficial, patient-centered, equitable, and efficient.<sup>6</sup></p>	<p>Through 2006 NQF has endorsed more the 300 measures, indicators, events, practices, and other products to help assess quality.<sup>5</sup></p> <p>NQF endorsement has become the “gold standard” for the measurement of healthcare quality.<sup>5</sup></p>
<b>The Leapfrog Group</b>	<p>Launched in 2000 in response to a 1998 discussion of large employers as to how they could influence the quality and affordability of the healthcare they purchase. The 1999 IOM report gave them their initial focus—reducing preventable medical errors.</p> <p>“The Leapfrog Group is a voluntary program aimed at mobilizing employer purchasing power to alert America’s health industry that big leaps in health care safety, quality, and customer value will be recognized and rewarded”<sup>7</sup>.</p>	<p><b>Hospital Quality and Safety Survey</b>  Voluntary survey that asks hospitals to rate themselves on 4 “leaps” or quality and safety practices. Results are available on-line.<sup>7</sup></p> <p><b>Hospital Rewards Program</b>  Measures performance in 5 areas for effectiveness and affordability and rewards hospitals that demonstrate excellence or show improvement.</p> <p><b>Bridges to Excellence</b> is a rewards program focused on quality in doctors’ offices.<sup>7</sup></p>

See page 12 for a list of the national quality organizations and their websites.

Table 1. (continued)

Organization	Description and Role in Health Care Quality	Quality Initiatives
<b>Joint Commission</b>	<p>Founded in 1951, the original core measures were released in 2001</p> <p>Joint Commission is a recognized leader with a long proven ability to identify, test and specify standardized performance measures. "It engages in cutting edge performance measurement research and development activities, and has established successful, ongoing, collaborative relationships with key performance measurement entities."<sup>8</sup></p>	<p>Five core performance measure sets have been identified for hospitals</p> <ol style="list-style-type: none"><li>1. acute myocardial infarction</li><li>2. heart failure</li><li>3. pneumonia</li><li>4. pregnancy and related conditions</li><li>5. surgical infection</li></ol> <p>Upcoming care measure sets:</p> <ul style="list-style-type: none"><li>■ children's asthma care, April 2007</li><li>■ critical care, January 2008<sup>9</sup></li><li>■ hospital-based inpatient psychiatric services (HBIPS), Fall 2008<sup>12</sup></li><li>■ venous thromboembolism<sup>9</sup></li></ul> <p>All measures are submitted to the NQF for review and endorsement.</p>
<b>HQA</b>	<p>Created in 2002</p> <p>HQA is a public-private collaboration to improve quality of care by measuring and publicly reporting on that care.</p> <p>The goal is to "identify a robust set of standardized and easy-to-understand hospital quality measures."<sup>10</sup></p>	<p>Beginning 2004, hospitals could voluntarily report data on 10 "starter set" quality performance measures in order to receive the incentive payment established by MMA in 2003.<sup>11</sup></p> <p>In 2005, the set of measures was expanded to 21 measures.</p> <p><b>Hospital Compare</b>, a Web site/Web tool to publicly report information about the quality of care in hospitals based on the 21 measures, debuted 2005.</p> <p>Available at <a href="http://www.hospitalcompare.hhs.gov">www.hospitalcompare.hhs.gov</a> and <a href="http://www.medicare.gov">www.medicare.gov</a></p> <p>The Hospital CAHPS® (HCAHPS) Survey, also known as the CAHPS Hospital Survey provides a standardized instrument and data collection methodology for measuring patients' perspectives on hospital care.</p> <p>Reporting is voluntary and began in late 2006. The first public reporting will be on the <b>Hospital Compare</b> website in late 2007.<sup>11</sup></p>
<b>ASHP 2015</b>	<p>Launched in 2003</p> <p>ASHP 2015 evolved from the ASHP Vision Statement for Pharmacy Practice in Hospitals and Health Systems. It conceptualizes how pharmacy practice should look in the future.<sup>12,13</sup></p>	<p>Health-system Pharmacy 2015, which includes 6 key goals and 31 objectives to be achieved by the year 2015.</p> <p>"Principle themes are that health-system pharmacists will help make medication use more effective, scientific, and safe and will contribute meaningfully to public health in their communities."<sup>13</sup></p>

Table 1. (continued)

Organization	Description and Role in Health Care Quality	Quality Initiatives
<b>CMS</b>	<p>Medicare and Medicaid programs were signed into law in 1965. The MMA was signed in 2003.</p> <p>Mission is to "ensure effective, up-to-date health care coverage and to promote quality care for beneficiaries."<sup>14</sup></p> <p>The CMS vision is to "achieve a transformed and modernized health care system."<sup>14</sup></p> <p>CMS contracts with a private Quality Improvement Organization (QIO) in each state to monitor care to Medicare beneficiaries.</p>	<p>The Quality Initiative, intended to empower consumers with quality of care information and encourage providers to improve the quality of care, was announced in 2001.</p> <p>The Hospital Quality Initiative was launched in 2003. CMS worked with HQA to develop <b>Hospital Compare</b>. The law stipulates that a hospital that does not submit data for the 10 starter set measures will receive a 0.4 percentage point reduction in its annual payment update for FY 2005, 2006, and 2007.<sup>15</sup></p> <p>The Hospital CAHPS (HCAHPS) Survey, also known as the CAHPS Hospital Survey provides a standardized instrument and data collection methodology for measuring patients' perspectives on hospital care. It is implemented under the auspices of HQA. (See HQA section for detail).</p> <p>As part of the Premier Hospital Quality Incentive Demonstration, started in 2003, CMS is exploring pay-for-performance. Hospitals will receive bonuses based on their performance on quality measures. Quality measures were selected for specific clinical conditions:</p> <ul style="list-style-type: none"><li>■ heart attack</li><li>■ heart failure</li><li>■ pneumonia</li><li>■ coronary artery bypass graft</li><li>■ hip and knee replacements.<sup>15</sup></li></ul>
<b>AHRQ</b>	<p>AHRQ is "the health services research arm of the U.S. Department of Health and Human Services (HHS)."</p> <p>It supports research in the areas of "quality improvement and patient safety, outcomes and effectiveness of care, clinical practice and technology assessment, and health care organization and delivery systems."<sup>16</sup></p>	<p>AHRQ sponsors the National Quality Measures Clearinghouse (NQMC), which is a "public repository for evidence-based quality measures and measure sets".<sup>16</sup></p>
<b>NCQA</b>	<p>NCQA was founded in 1990 as a not-for-profit organization dedicated to improving healthcare quality.<sup>17</sup></p>	<p>Health Plan Employer Data and Information Set (HEDIS) is a tool designed to provide purchasers and consumers with the information they need to reliably compare the performance of healthcare plans.</p> <p>HEDIS measures include</p> <ul style="list-style-type: none"><li>■ asthma medication use</li><li>■ persistence of beta-blocker treatment after MI</li><li>■ controlling hypertension</li><li>■ diabetes care</li><li>■ breast cancer screening</li><li>■ antidepressant medication use</li><li>■ immunization status</li><li>■ smoking cessation advice<sup>17</sup></li></ul>

**Table 1.** (continued)

## **National Quality Organizations**

<b>IOM</b>	<b>The Institute of Medicine</b> <a href="http://www.iom.edu/CMS/About%20IOM.aspx?">http://www.iom.edu/CMS/About IOM.aspx?</a>
<b>IHI</b>	<b>Institute for Healthcare Improvement</b> <a href="http://www.ihl.org/IHI/Programs/Campaign/Campaign.htm?">http://www.ihl.org/IHI/Programs/Campaign/Campaign.htm?</a>
<b>NQF</b>	<b>National Quality Forum</b> <a href="http://www.qualityforum.org">http://www.qualityforum.org</a>
<b>The Leapfrog Group</b> <a href="http://www.leapfroggroup.org/about_us">http://www.leapfroggroup.org/about_us</a>	
<b>Joint Commission</b> <a href="http://www.jointcommission.org/PerformanceMeasurement/">http://www.jointcommission.org/PerformanceMeasurement/</a>	
<b>HQA</b>	<b>Hospital Quality Alliance</b> <a href="http://www.cms.hhs.gov/HospitalQualityInits/15_HospitalQualityAlliance.asp">http://www.cms.hhs.gov/HospitalQualityInits/15_HospitalQualityAlliance.asp</a>
<b>MMA</b>	<b>Medicare Prescription Drug, Improvement and Modernization Act of 2003</b>
<b>ASHP 2015—ASHP Health-System Pharmacy 2015 Initiative</b>	<a href="http://www.ashp.org/2015/index.cfm?">http://www.ashp.org/2015/index.cfm?</a>
<b>CMS</b>	<b>Centers for Medicare and Medicaid Services</b> <a href="http://www.cms.hhs.gov">http://www.cms.hhs.gov</a>
<b>AHRQ</b>	<b>Agency for Healthcare Research and Quality</b> <a href="http://www.ahrq.gov">http://www.ahrq.gov</a>
<b>NCQA</b>	<b>National Committee for Quality Assurance</b> <a href="http://web.ncqa.org">http://web.ncqa.org</a>

TABLE 2.

## Example Quality Improvement Programs within an Institution

Department or Committee	Potential Activities
<b>Executive Steering Committee</b>	<p>The Joint Commission mandates Improving Organization Performance (PI) standards. PI 1.10 requires the organization to collect data to monitor its performance in various areas. Medication management is considered one of the high-risk processes on which data must be collected.<sup>8</sup></p> <p>MM 6.20 fits in this area because it requires hospitals to respond to actual and potential adverse drug events and medication errors.</p>
<b>Multiple Departments</b>	<p>The Joint Commission through its ORYX<sup>®</sup> Initiative, CMS, and other organizations (see Table 1) have developed core measures and National Patient Safety Goals (NPSG) that every institution must meet.<sup>8</sup></p> <p>For example, the Surgical Infection Prophylaxis (SIP) measures state that a prophylactic antibiotic must be given within 1 hr prior to surgical incision and must be discontinued within 24 hours after surgery (48 hours for cardiac surgery).<sup>9</sup></p>
<b>Pharmacy Department</b>	<p>Departmental quality improvement for medication ordering, distribution, and administration processes.</p>
<b>Quality Department and others</b>	<p>Medical error review—all medical errors may be reviewed by the department or committee within the department. These may include medication errors.</p>
<b>Medical Ethics Committee, various boards of the healthcare system</b>	<p>Quarterly reports may need to be sent to the Medical Ethics Committee regarding any investigational drugs or other areas of interest.</p>
<b>Pharmacy and Therapeutics Committee</b>	<p>This committee generates and receives many reports including, but not limited to, medication use evaluations, policies and procedures involving medical practice and medication use, peer review, preprinted orders, pharmacist managed protocols and therapeutic interchanges, actual and potential (near miss) adverse drug events, error evaluation and improvement.</p>
<b>Data Reporting</b>	<p>Many of the national quality organizations require either mandatory or voluntary reporting of quality data. Results of these submissions are then available through the organizations' Web sites or other media. Some of the organizations that record and report data include CMS, HQA, AHRQ, IHI—5 Million Lives, MEDMARX, NCQA—HEDIS, and Leapfrog.</p>

TABLE 3<sup>22,23</sup>

## Quality Improvement Tools

Tool	Use
<b>GROUP PROCESS TOOLS</b>	
Multiple voting	Each team member rates, not ranks, the relative importance of choices by distributing a value (e.g., 100 points) across options. Each team member can distribute this value among as many or few choices as desired. This process can be repeated for an agreed upon number of items until the choice is clear.
Rank ordering	Narrows down options through a systematic approach of comparing choices by selecting, weighting, and applying criteria. Forces team to focus on the best things to do to increase the chances for implementation success. Limits team members' hidden agendas.
Ground rules	Explicit agreements about how a team will work together, divide responsibilities, and behave as individuals. Setting ground rules is a process of consciously choosing what a team's norms will be. Ground rules may be set in the following areas: attendance at meetings, assignments between meetings, meeting logistics, conflict management, decision making, promptness to meetings, participation, interruptions (e.g., pagers, phones), and communication courtesies.
Brainstorming	Helps a team to generate many ideas in a short period of time Encourages all team members to participate and may generate previously unconsidered ideas
Nominal group technique	Similar to brainstorming Team members write down as many ideas as possible during the time period and then one is shared with the team Ideas are then discussed and prioritized
Opportunity statements	The problem or process that will be addressed by the team. The team uses changes in important business indicators and customer data to narrow down the project focus and develop a project purpose statement. Example statement: Reduce late medication deliveries on Fridays and Saturdays.
<b>ANALYSIS TOOLS</b>	
Affinity diagram	Planning tool used to clarify and organize ideas generated by brainstorming Organizes ideas into natural groupings based on perceived relationships
Cause and effect diagram (Fishbone diagram)	Shows the relationship between possible causes and effects Helps to identify and organize factors which might contribute to a problem
Decision matrix	Evaluates problems or possible solutions Plots problems or solutions against rating criteria and then assigns a numerical value to each combination Total score helps determine which solution deserves the most attention
Root cause analysis	Evaluates and looks for the factor that caused the nonconformance

**Table 3.** (continued)

Error/failure modes effects analysis	Recognizes and evaluates potential failures of processes Identifies actions that could eliminate the failure
Flowchart	Shows the steps of a process and how the steps interact Can be used to describe and document any process Particularly useful for complex processes
Force field analysis	Analyzes what aids or hinders an organization in reaching an objective Factors both aiding and hindering an objective's achievement are listed
Histogram	Summarizes a large set of data and shows how those data vary Displays the amount of variance in an easily understood way
Pareto diagram	Shows the frequency of an event Rank orders and compares events within a process Allows decisions to be made based on importance or priority
Relations diagram (interrelations diagram)	Depicts the relationship among factors in a complex situation
Run chart	Shows how a variable changes over time Identifies patterns of performance and trends
Control chart	Similar to a run chart, but has statistically calculated controls from the data set Helps to identify when changes need to be made by identifying common and special causes
Scatter plot	Shows a relationship between two sets of data Does not imply cause and effect, but correlations—how does one variable change with a change in the other?

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## ADDITIONAL RESOURCES

### Books

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## Organizations/Web Links

Agency for Healthcare Quality & Research (AHRQ)  
[www.ahrq.gov](http://www.ahrq.gov)

American College of Emergency Physicians (ACEP)  
[www.acep.org/webportal](http://www.acep.org/webportal)

American Hospital Association (AHA)  
[www.aha.org](http://www.aha.org)

American Society for Healthcare Risk Management (ASHRM)  
[www.ashrm.org](http://www.ashrm.org)

American Society for Quality (ASQ)  
[www.asq.org](http://www.asq.org)

American Society of Health-System Pharmacists (ASHP)  
[www.ashp.org](http://www.ashp.org)

ASHP maintains a Quality Improvement Resource Center at  
[http://www.ashp.org/s\\_ashp/cat1c.asp?CID=3864&DID=6552](http://www.ashp.org/s_ashp/cat1c.asp?CID=3864&DID=6552)

The ASHP Health-System Pharmacy 2015 Initiative is located at  
<http://www.ashp.org/2015/index.cfm?>

Centers for Disease Control and Prevention (CDC)  
[www.cdc.gov](http://www.cdc.gov)

Centers for Medicare and Medicaid Services (CMS)  
[www.cms.hhs.gov](http://www.cms.hhs.gov)

Maintains QualityNet as part of its services at  
<http://www.qualitynet.org/dcs/ContentServer?cid=1120143435363&pagename=QnetPublic%2FPage%2FQnetHomepage&c=Page>

Medicare Quality Improvement Community (MedQIC), developed by CMS is available at  
<http://medqic.org/dcs/ContentServer?pagename=Medqic/MQPage/Homepage>

Federal Aviation Administration (FAA)  
[www.faa.gov/safety](http://www.faa.gov/safety)

Guide to Managing for Quality  
<http://erc.msh.org/quality/index.cfm>

Health Insight  
[www.healthinsight.org](http://www.healthinsight.org)

Hospital Quality Alliance (HQA)  
[http://www.cms.hhs.gov/HospitalQualityInits/15\\_HospitalQualityAlliance.asp](http://www.cms.hhs.gov/HospitalQualityInits/15_HospitalQualityAlliance.asp)

Human Factors and Ergonomics Society (HFES)  
[www.hfes.org](http://www.hfes.org)

Illinois Hospital Association  
[www.ihatoday.org](http://www.ihatoday.org)

Institute for Healthcare Improvement (IHI)  
[www.ihi.org](http://www.ihi.org)

Institute for Safe Medication Practices (ISMP)  
[www.ismp.org](http://www.ismp.org)

Institute of Medicine (IOM)  
[www.iom.edu](http://www.iom.edu)

Joint Commission  
[www.jointcommission.org](http://www.jointcommission.org)

Josie King Foundation  
[www.josieking.org](http://www.josieking.org)

Leapfrog Group  
[www.leapfroggroup.org](http://www.leapfroggroup.org)

Metropolitan Chicago Healthcare Council (MCHC)  
[www.mchc.org](http://www.mchc.org)

National Committee for Quality Assurance (NCQA)  
<http://web.ncqa.org>

National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP)  
[www.nccmerp.org](http://www.nccmerp.org)

National Patient Safety Foundation  
[www.npsf.org](http://www.npsf.org)

National Quality Forum (NQF)  
[www.qualityforum.org](http://www.qualityforum.org)

National Quality Measures Clearinghouse (NQMC)  
[www.qualitymeasures.ahrq.gov](http://www.qualitymeasures.ahrq.gov)

United States Department of Human and Health Services—Hospital Compare  
[www.hospitalcompare.hhs.gov](http://www.hospitalcompare.hhs.gov)

United States Department of Veterans Affairs—VA National Center for Patient Safety (NCPS)  
[www.patientsafety.gov](http://www.patientsafety.gov)