The Centers for Medicare & Medicaid Services (CMS) is the nation’s largest purchaser of health care. There are currently 42 million Medicare and 43 million Medicaid beneficiaries being served. CMS is legislatively mandated to assure the quality of health care provided to Medicare/Medicaid beneficiaries. Historically, this was accomplished by using quality assurance (QA) techniques, such as individual case review, to assure that the care provided to a patient/resident met quality of care standards. By its very nature, QA retrospectively evaluates performance against written criteria and focuses on unusual care.

In 1992, CMS introduced the Health Care Quality Improvement Program (HCQIP). This represented a paradigm shift from focusing on individual case review (looking for the “bad apple”) to quality improvement (QI). QI focuses on profiling population-based patterns of disease-specific care in an effort to identify and remove unintentional variation. This paradigm shift occurred because of:

- Lack of proof that case review lead to improved quality of care.
- Evidence of local and regional variations in medical and surgical care.
- Evidence that variations occur due to differences in care not patient/resident characteristics; and
- Evidence that disease-specific guidelines (best practices) can improve health care quality.
**What is Quality?**

You may not be aware of it, but quality plays a big role in your day-to-day life. Did your soda at lunch taste the same today? Did you get to work safely in your car? Was the day care open at the regular time this morning? With quality, there is an underlying expectation that certain things will be done the same way every time.

At a higher level, medical quality is an expectation of consumers and payers of healthcare. If you go to the emergency room with a broken arm, there is a reasonable expectation on your part that you will be treated appropriately. This may seem like a straightforward process, but the opportunities for errors to occur increase as soon as you walk through the door. As a healthcare professional, you know the challenges of coordinating care for multiple residents with multiple staff members. The potential for things to slip between the cracks is there; you have to do your best to minimize them.

This is where healthcare quality improvement comes in. Quality improvement links the action to the reaction. The health service provided to residents impacts the outcome for those residents. To improve health outcomes you have to improve the delivery of services provided. Pop quiz: to improve services provided you need to...

A. Have a wealth of clinical knowledge  
B. Have knowledge about the individual patient/resident  
C. Have good systems  
D. Understand what all of this means first  
E. All of the above

The correct answer is E. Knowledge of the scientific literature is necessary but not sufficient alone in providing quality medical care. Clinical training, experience and knowledge of the individual patient/resident are also essential but they alone are not sufficient to achieving this task. Systems work best when staff at every level have input into how the system will function. Quality care requires the combination of all these elements. Only then can the desired quality outcome be achieved for residents.

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**What is a System?**

A system is a series of linked processes designed to produce a given outcome. While a system may not produce the expected or desired outcome, every system is perfectly designed to obtain the outcome it achieves. “ Trying harder” may achieve some short-term improvement; however, it does not represent a new level of capability. Research indicates that there is no correlation between the attitude of the provider and his/her actual performance. For example, believing that a resident at high-risk for development of pressure ulcers should have prevention strategies in place will not assure that those strategies are implemented. A system must be designed to ensure that the desired clinical care is a routine part of every resident encounter.

Since most variation is not intentional, it goes unidentified, unless measured. As you begin to measure quality, you might choose to focus on areas in your facility that have a significant clinical prevalence, significant morbidity and mortality, significant health care cost, significant effect on the culture of the facility and good science linking specific processes to specific outcomes.
Quality improvement is a continuous journey that can help you to routinely evaluate and improve care delivery. You can begin your journey by answering the following three questions.

**QI Question #1 – What are we trying to accomplish?**

After you choose a topic to measure, the next step is to define the outcomes of interest. The anticipated outcome should be clearly defined and finite in scope. A goal in improving health care quality for residents at high risk for development of a pressure ulcer is unfocused. A more reasonable goal is to assure that all residents admitted without a pressure ulcer do not develop one and that prevention strategies are initiated within two hours of admission. These outcomes are clear, finite and measurable.

Setting explicit and ambitious improvement goals is also very important. For example, an ambitious goal for a pressure ulcer project could be to assure that all residents have a head-to-toe skin assessment within two hours of admission and every seven days thereafter; have a validated risk assessment completed on admission and no less than quarterly thereafter. An ambitious outcome will make it obvious that the current system is inadequate and needs modification.

Using evidence-based practices will assist you in answering questions such as:
- When in the admission process will the skin and risk assessment take place?
- Who will make the analysis and decision for appropriate and immediate interventions?
- Who will apply the interventions?
- What will be the appropriate frequency for follow-up?
- Who will do the education for the resident and family?
- When will this education be done?

**QI Question #2 – How will we know if a change is an improvement?**

If your outcomes are clear and finite, then the measure of improvement is easily identified. For example, if the defined outcome is no new facility acquired (developed in-house) pressure ulcers, then the measure is the percent of new pressure ulcers. Improvement is made when you are closer to the goal at remeasurement than you were at baseline (at the start).

**QI Question #3 – What change will result in an improvement?**

Once the topic is selected, outcomes are defined and measurement is determined, the next step is to identify process changes that will potentially help you improve your stated outcomes and achieve your goal. To identify potential process changes, analyze the current process and look for problems and potential solutions. This leads you into the quality improvement cycle.

The PDSA cycle, which stands for Plan, Do, Study and Act, helps you to test your new ideas and refine them as appropriate (figure 1).

**PLAN**

During the planning phase, possible problems preventing you from achieving your goal and potential solutions to the problems are identified. Several tools are useful in the planning phase including brainstorming the Cause and Effect Diagram and the Process Flow Chart.

Brainstorming is a tool for generating, categorizing and choosing among ideas in a group of people to identify possible root causes and solutions to problems. Using this technique has a number of benefits:
- It allows every member of the group to participate
- It encourages many people to contribute, instead of just one or two people

Using evidence-based practices will assist you in answering questions such as:
- When in the admission process will the skin and risk assessment take place?
- Who will make the analysis and decision for appropriate and immediate interventions?
- Who will apply the interventions?
- What will be the appropriate frequency for follow-up?
- Who will do the education for the resident and family?
- When will this education be done?
• It sparks creativity in group members as they listen to the ideas of others
• It generates a substantial list of ideas, rather than just the few things that first come to mind; categorizes ideas creatively; and allows a group of people to choose among ideas or options thoughtfully

The Cause and Effect Diagram (figure 2) also known as an Ishikawa or “fishbone” diagram, is a graphic tool used to explore and display the possible causes of a certain effect. Use the classic fishbone diagram when causes group naturally under the categories of Materials, Methods, Equipment, Environment and People. Use a process-type cause and effect diagram to show causes of problems at each step in the process.

A cause and effect diagram has a variety of benefits:
• It helps teams understand that there are many causes that contribute to an effect
• It graphically displays the relationship of the causes to the effect and to each other
• It helps to identify areas for improvement

The next step in the planning phase is to determine process changes needed to improve outcomes. The Process Flow Chart (figure 3) is a technique designed to determine the “as is” process by creating a step-by-step picture of the current process. Once complete, identifying and removing all nonvalue-added process steps is possible. This almost always saves time and improves quality. Next, identify process steps to modify and determine the modifications to be made in the process. Focus on changes that have the greatest potential for improvement based on good science linking process to improved clinical outcomes.

The last step in the planning phase includes baseline data measurement. Baseline data is needed to measure any improvement produced by process changes. Prior to data measurement, the data collection tool must be designed and tested. When designing the tool consider how to define a “case.” What are the inclusion and exclusion criteria, and how should data be collected and analyzed? When testing the tool, focus on two questions:
• Does the tool collect the desired data?
• Is the collected data really needed to determine improvement?

Then, train staff to use the data collection tool and collect data from a random sample or a 100 percent sample of residents (if less than 30 residents). You will want to record unexpected events that occur during the data collection because this information will be useful in the next phase.
DO

The do phase is focused on implementing your process improvement. These modifications should be implemented once the baseline data is collected, the process steps for improvement are identified and planned process step modifications have been determined. Initially, the intervention is implemented for a short period of time on a small scale or trial basis.

STUDY

When the timeframe for the initial trial is completed, the team should study the results of the intervention. This is done by:

1. Collecting follow-up data from a random or 100 percent sample
2. Analyzing the results to see if target goals have been achieved
3. Making necessary changes to interventions

Two tools important in the study phase are the Run Chart and the Pareto Chart. The Run Chart (figure 4) compares data over time, giving a picture of the degree of improvement. This chart creates a picture of what is taking place. It is useful in analyzing patterns for potential improvement and in checking improvement after changes in the system are introduced.

The Pareto Chart (figure 5) is a tool that helps you see the relative frequency of problems within a system. It helps determine the importance of each problem and rank vital issues in terms of significance. Both techniques can be used in the planning phase when analyzing baseline data and in the study phase when analyzing the effects of the changes implemented.

ACT

The act phase is focused on implementing a modified or refined intervention and/or implementing additional interventions to achieve established goals. The PDSA cycle is repeated over several cycles until the interventions achieve the desired goals and is applied to the whole population.
The use of several small cycles implemented in a rapid fashion is known as rapid cycle improvement. This process is an important and effective tool in quality improvement. It allows the group to try things quickly, see what works and change what does not work. It is simpler to implement because it does not require extensive changes at once throughout the entire nursing home. It also provides for “early wins” that motivate the group to continue the process until goals are eventually achieved.

Leadership is critical in implementing a quality improvement project. The key management and, when possible, physician provide leadership by:

- Encouraging a culture of quality
- Participating in the process directly
- Focusing on the system as a problem that needs change
- Empowering staff to identify potential problems
- Empowering staff to find potential solutions

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Figure 6

Repeated Use of the PDSA Cycle

Learning from data

Changes that result in improvement

Ideas and Theories

Resources


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