

FIGURE 12e-2 Plan-Do-Check-Act cycle. This approach can be used to improve a specific process rapidly. First, planning is undertaken, and several potential improvement strategies are identified. Next, these strategies are evaluated in small “tests of change.” “Checking” entails measuring whether the strategies have appeared to make a difference, and “acting” refers to acting on the results.

A number of specific tools have been developed to help improve process performance. One of the most important is the Plan-Do-Check-Act cycle (Fig. 12e-2). This approach can be used for “rapid cycle” improvement of a process—e.g., the time that elapses between a diagnosis of pneumonia and administration of antibiotics to the patient. Specific statistical tools, such as control charts, are often used in conjunction to determine whether progress is being made. Because most medical care includes one or many processes, this tool is especially important for improvement.

Factors Relating to Quality Many factors can decrease the level of quality, including stress to providers, high or low levels of production pressure, and poor systems. Stress can have an adverse effect on quality because it can lead providers to omit important steps, as can a high level of production pressure. Low levels of production pressure sometimes can result in worse quality, as providers may be bored or have little experience with a specific problem. Poor systems can have a tremendous impact on quality, and even extremely dedicated providers typically cannot achieve high levels of performance if they are operating within a poor system.

Data about the Current State of Quality A study published by the RAND Corporation in 2006 provided the most complete picture of quality of care delivered in the United States to date. The results were sobering. The authors found that, across a wide range of quality parameters, patients in the United States received only 55% of recommended care overall; there was little variation by subtype, with scores of 54% for preventive care, 54% for acute care, and 56% for care of chronic conditions. The authors concluded that, in broad terms, the chances of getting high-quality care in the United States were little better than those of winning a coin flip.

Work from the Dartmouth Atlas of Health Care evaluating geographic variation in use and quality of care demonstrates that, despite large variations in utilization, there is no positive correlation between the two variables at the regional level. An array of data demonstrate, however, that providers with larger volumes for specific conditions, especially for surgical conditions, do have better outcomes.

Strategies for Improving Quality and Performance A number of specific strategies can be used to improve quality at the individual level, including rationing, education, feedback, incentives, and penalties. *Rationing* has been effective in some specific areas, such as persuading physicians to prescribe within a formulary, but it generally has been resisted. *Education* is effective in the short run and is necessary for changing opinions, but its effect decays fairly rapidly with time. *Feedback* on performance can be given at either the group or the individual level. Feedback is most effective if it is individualized and is given in close temporal proximity to the original events. *Incentives* can be effective,

and many believe that they will prove to be a key to improving quality, especially if pay-for-performance with sufficient incentives is broadly implemented (see below). *Penalties* produce provider resentment and are rarely used in health care.

Another set of strategies for improving quality involves changing the systems of care. An example would be introducing reminders about which specific actions needed to be taken at a visit for a specific patient—a strategy that has been demonstrated to improve performance in certain situations, such as the delivery of preventive services. Another approach that has been effective is the development of “bundles” or groups of quality measures that can be implemented together with a high degree of fidelity. A number of hospitals have implemented a bundle for ventilator-associated pneumonia in the intensive care unit that includes five measures (e.g., ensuring that the head of the bed is elevated). These hospitals have been able to improve performance substantially.

Perhaps the most pressing need is to improve the quality of care for chronic diseases. The Chronic Care Model has been developed by Wagner and colleagues (Fig. 12e-3); it suggests that a combination of strategies is necessary (including self-management support, changes in delivery system design, decision support, and information systems) and that these strategies must be delivered by a practice team composed of several providers, not just a physician.

Available evidence about the relative efficacy of strategies in reducing hemoglobin A1c (HbA1c) in outpatient diabetes care supports this general premise. It is especially notable that the outcome was the HbA1c level, as it has generally been much more difficult to improve outcome measures than process measures (such as whether HbA1c was measured). In this meta-analysis, a variety of strategies were effective, but the most effective ones were the use of team changes and the use of a case manager. When cost-effectiveness is considered in addition, it appears likely that an amalgam of strategies will be needed. However, the more expensive strategies, such as the use of case managers, probably will be implemented widely only if pay-for-performance takes hold.

National State of Quality Measurement In the inpatient setting, quality measurement is now being performed by a very large proportion of hospitals for several conditions, including myocardial infarction, congestive heart failure, pneumonia, and surgical infection prevention; 20 measures are included in all. This is the result of the Hospital Quality Initiative, which represents a collaboration among many entities,

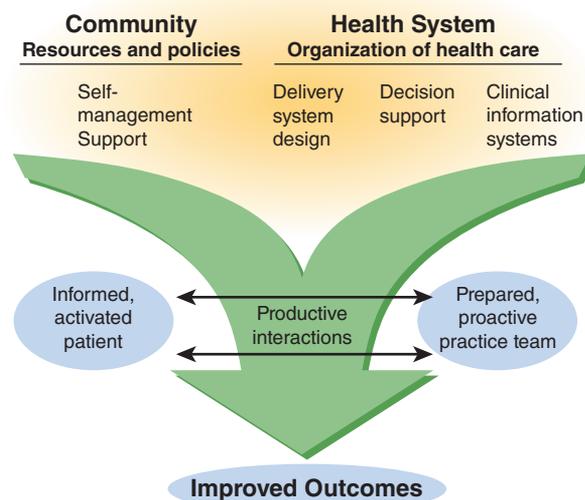


FIGURE 12e-3 The Chronic Care Model, which focuses on improving care for chronic diseases, suggests that (1) delivery of high-quality care requires a range of strategies that must closely involve and engage the patient and (2) team care is essential. (From EH Wagner et al: *Eff Clin Pract* 1:2, 1998.)