

CHAPTER

5

**Adding quality measures
in home health**

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Chapter summary

In March 2005, the Commission suggested that additional measures be developed to complement the ones that have already been developed, collected, and used for quality measurement in home health. The current set of measures focuses on the clinical effectiveness of care given to patients whose physical conditions are improving. Adding measures could:

- broaden the patient population covered by the measure set,
- capture safety as an aspect of quality,
- capture an aspect of care directly under providers' control,
- reduce variation in practice, and
- provide incentives to improve information technology.

As a step toward adding new measures to the existing set, we convened a panel of researchers, quality measurement experts, and home health providers to identify best practices. These practices can be translated into measures of the process of care. We asked the panel to focus on fall prevention and wound care because falls and wounds are prevalent

In this chapter

- Strengths and weaknesses of the current measure set
- Gathering best practices
- Translating best practices into process measures

among home health users; the practices are part of the care for patients whose physical condition is not improving, as well as for patients who are improving; and are related to patient safety. We wanted to complement—and not replicate—CMS’s work on best practices in other areas. Panel members gave us examples of best practices, such as developing a standard protocol for contacting a physician when a skin wound does not respond to treatment and determining significant blood pressure changes while the patient is standing to assess the risk of falling.

After identifying best practices, the next step is to create measures based on the practices. For example, a process measure for a blood pressure practice would include a precise description of who should receive the care, at what time and how often the care should occur, a very specific definition of the practice itself, and rules for excluding patients who should not receive the care. Following development, the process measures would be tested against the Commission’s criteria and could be added to home health’s measure set. ■

Strengths and weaknesses of the current measure set

In 2003, the Commission recommended that Medicare use a portion of payments to reward providers who furnish high-quality care or improve the quality of care for their patients (MedPAC 2003). Most of Medicare's payments are neutral or negative toward quality. Where there are good measures of the quality of care, the program should reward the high-quality performance of providers. There are three types of quality measures:

- **Outcome measures**—indicate a change in health status such as the recovery, restoration of function, or survival of the patient following health care.¹
- **Process measures**—indicate whether a specified practice has been applied to a patient.
- **Structural measures**—indicate characteristics of the setting in which care takes place, such as the adequacy of medical equipment, the qualifications of the staff, or the administration of the facility (Donabedian 1966).

The Commission developed a set of criteria for quality measurement to determine whether Medicare could begin linking payment to performance. In home health, we determined that the measures based on currently required patient assessments met those criteria: They are accepted, valid, reliable, and adequately risk adjusted. The data collection burden is minimal because the information needed is already part of the patient assessment tool that is required at the beginning and end of Medicare home health episodes. The measures compare patients' functional score at admission to their score at discharge to determine, for example, the improvement of their ability to walk, dress, and manage their oral medications. The outcomes are adjusted to account for patient characteristics present at the initiation of care that affect the patients' likelihood of improvement, such as diagnosis, comorbidities, overall level of functioning, and health risk behaviors. The measures apply to many patients and relate to areas where there is room for providers to improve their performance. In March 2005, the Commission recommended that the Congress implement a pay-for-performance program in home health, based on measures that passed the Commission's criteria (MedPAC 2005).

Most of the measures in the current, publicly reported set assess improvement in functioning. Only one measure assesses stabilization as an outcome; the remaining measures capture adverse events (Table 5-1, p. 106). The table illustrates that three important organizations—the Agency for Healthcare Research and Quality (AHRQ), the National Quality Forum (NQF), and CMS—have reviewed quality measures for home health and all three have endorsed a core set. The measures with a check mark in the AHRQ column were given a high rating by a group of technical experts and AHRQ uses them in annual reports to the nation on the quality of health care. The NQF used a consensus process among stakeholders to endorse the measures with a check mark in the NQF column. The third column indicates the measures used by CMS in public reporting on home health quality in Home Health Compare. The final column shows that the three organizations are aligned on most of the measures.²

Adding new measures to the currently available outcome measures could broaden the patient population we can assess, expand the types of quality we can measure, capture an aspect of care directly under providers' control, reduce variation in practice, and add incentives to improve information technology. Measure sets should not be static; they should evolve to incorporate new measures and to remove any measures that no longer reflect best practice or have no more room for improvement among providers. Any type of measure—outcome, process, or structure—could be added to expand the current set. We chose to explore new process measures because they can address each of the goals for evolving the set.

Unlike measures of functional improvement, process measures could address the quality of ongoing efforts by nurses, therapists, and others to prevent the deterioration of health for patients who are not improving. The NQF (2005) concluded that developing “at least some measures that apply to **all** home health care patients” is a priority area. Measures of preventive processes, such as the steps that home health professionals take to reduce the risk of falling, could apply to all patients and thus broaden the patient population we can assess.

Outcome measures are best at indicating the clinical effectiveness of care. For example, the outcome measure “improvement in walking” indicates whether physical therapy and nursing care provided to patients were effective at increasing the patients' mobility. However, clinical effectiveness is only one of the dimensions of quality of care. The NQF also identified patient safety as

**TABLE
5-1**

The current home health measure set

Measures	AHRQ	NQF	CMS	All three
Improvement in:				
shortness of breath	✓	✓	✓	✓
bladder control	✓	✓	✓	✓
upper body dressing	✓			
bathing	✓	✓	✓	✓
management of oral medications	✓	✓	✓	✓
walking or moving around	✓	✓	✓	✓
status of surgical wounds		✓		
toileting	✓			
getting in or out of bed	✓	✓	✓	✓
pain interfering with activity	✓	✓	✓	✓
confusion frequency	✓			
light meal preparation	✓			
Stabilization in bathing	✓			
Discharge to community		✓	✓	
Any emergency care provided	✓	✓	✓	✓
Emergency care related to wounds		✓		
Emergency care related to medications		✓		
Emergency care for hypo/hyperglycemia		✓		
Increase in number of pressure ulcers		✓		
Acute care hospitalization	✓	✓	✓	✓

Note: AHRQ (Agency for Healthcare Research and Quality), NQF (National Quality Forum).

Source: AHRQ report on home health quality measures for CMS public reporting, March 2003. www.cms.hhs.gov/quality/hhqj/HHQIAHRQ.pdf. Center for Health Services Research 2002, NQF 2005.

an important dimension of quality—as outlined by the Institute of Medicine (2001) in its seminal study—and a priority area for quality measurement in home health. Measuring processes such as fall prevention or wound care could address agencies’ ability to maintain patients safely in their homes and to educate patients to sustain themselves safely, which are important goals of the home health benefit.

Providers reasonably expect to be judged on the quality of aspects of care that they can influence (McGlynn 1997). Process measures capture an aspect of care that is under providers’ control: whether providers take very specific actions in the course of caring for their patients. Process measures indicate whether providers adhere to evidence-based best practices that have been demonstrated to improve the outcomes of care. As such, they are not

influenced by the unique health status of each patient, which is beyond the provider’s control.

If a purchaser such as Medicare were to adopt and use process measures, it could speed the adoption of best practices and reduce some of the variation in care that arises from failures to adhere to best practices. Adherence to best practices involved in care for vulnerable, elderly patients ranged from 52.2 percent for screening to 58.5 percent for follow-up care (McGlynn et al. 2003). The potential for standardization is real: When researchers randomly assigned home health nurses to an intervention group that used evidence-based nursing protocols and education and compared them to a randomized control group of nurses, they found a statistically significant reduction in the variation in the number of visits provided, and no increase in adverse events (Feldman et al. 2004).³

Financial incentives for measuring and reporting care processes could encourage providers to improve their informational capabilities to meet the new data requirements. The data for the current set of outcome measures are collected only at the first and last visits of a patient episode and do not include the practice of care in the interim. Some best practices suggest that patient assessment should continue during the episode and that certain protocols should be integrated into assessment activities. When nurses, therapists, and other home health professionals are encouraged by best practices to assess, record, use, and share more information about the patients' health status during an episode, it will encourage wider use of information technology. Examples include:

- *Electronic medical records.* The use of electronic medical records to store and provide information on a patient's past medical history, lab reports, and medications could greatly enhance the ability of health professionals to make informed decisions regarding care. In addition, electronic medical records could allow an organization to measure the quality of its care in real time rather than waiting for quarterly or annual measurements.
- *Management tools.* For example, patient registries, clinical reminder systems, and computerized patient assessments help providers manage a specific aspect of care.⁴ If nurses used a computer program to help prompt and record patient assessments, it could reduce the burden of recording important clinical information, suggest appropriate tests, and immediately identify patients who need special interventions to address their needs.
- *Patient communications.* Devices used in patients' homes to monitor their health can make it easier for patients to monitor their condition, communicate with caregivers, and identify the need for a medical intervention.

Gathering best practices

After reviewing the literature and speaking to many experts in the field, the Commission did not find any process measures for fall prevention or wound care that were already validated and in use. We took the first step in developing process measures by gathering best practices for fall prevention and wound care. Once best practices are identified, they can be translated into process measures.

We convened a panel of researchers, quality measurement experts, and providers to share best practices, focusing on fall prevention and wound care. Although the scope of home health is much broader than fall prevention and wound care, we focused our panel's work on this portion of home health care practice to generate a complete discussion on the specifics of each practice. A failure to limit the scope would not have made good use of our resources. Also, we did not wish to duplicate a current effort by CMS to develop condition-specific process measures. In 2005, CMS modified a contract it had with the Center for Health Services Research at the University of Colorado to review existing process measures and to propose ways to integrate them into the home health quality data collection as appropriate. In addition to considering measures that address pain, depression, medication management, and other broad topics, CMS is looking at process measures for some specific conditions such as heart failure, diabetes, chronic obstructive pulmonary disease, and coronary artery disease. We expect that our work will complement CMS's.

Fall prevention and wound care practices have several important strengths as potential process measures. First, fall prevention can be important for all patients. About one-third of all elderly in the community fall every year; 1 in 10 falls leads to a fracture and 1 in 20 falls requires medical attention (Gillespie et al. 2003). Even falls that do not lead directly to injury can trigger a cascade of mental and physical problems. Second, wounds are widespread among the home health population. Improper care of wounds can lead to long, costly hospital stays. On average, hospitalizations for pressure sores last 13 days and cost nearly \$40,000 (Russo and Elixhauser 2006). Third, both kinds of measures can capture the ongoing care of patients whose function may not be improving and can capture the dimension of patient safety. The panel discussed the strengths and weaknesses of these practices in terms of these criteria: 1) What is the evidence for this practice? and 2) What impact will this practice have on beneficiaries' health status or the ability to remain safely at home? Generally, the panelists agreed that several practices had a strong evidence base and high potential impact.

Fall prevention practices

Table 5-2 (p. 108) includes several of the most promising fall prevention practices. The panelists told us that one of the deficiencies of current practice is in the identification of patients' fall risk. A study of fall risk assessment and

**TABLE
5-2****Fall prevention practices**

Practice	Specifications
Use a standard, multifactor tool	<ul style="list-style-type: none">• Include patients' fall history• Include medication inventory
Use validated techniques to measure fall risk	<ul style="list-style-type: none">• Measure postural hypotension• Measure balance deficits by asking patient to stand on one foot for 10 seconds
Link assessment tool to appropriate follow-up activities	<ul style="list-style-type: none">• Contact physician to review number and type of medications that increase fall risk• Refer patient to a physical or occupational therapist• Initiate gait training, balance training, or strength training

Source: MedPAC analysis of expert panel discussion conducted February 2006.

management practices found frequent failures in practice (Fortinsky et al. 2004). The panelists discussed many practices that related to improved assessment. They emphasized that assessment alone was not enough, but that evidence-based interventions to address risks should be part of the process of care. In other words, reducing falls requires two steps: 1) identifying patients at risk and 2) providing care designed to reduce the factors that may lead to falling. Examples of both good risk assessments and good interventions are in Table 5-2.

Panelists presented strong evidence for the practice of validated techniques to assess fall risk, rather than using unstandardized methods of observation. Members of the panel had tested these practices at their agencies and measured substantial success at reducing the number of falls among their patients. Several panel members noted a recent study that concluded that agencies with low hospitalization rates integrated prompts to make plans for interventions within the fall risk assessment activity (Briggs Corp. 2005). Linking assessment and intervention could be achieved in different ways. For example, a patient assessment program on a nurse's handheld computer could be written to prevent a nurse from moving on to the next question on the patient assessment form if the nurse indicates that a risk was present. The nurse would be required to enter an intervention in the care plan to address the risk (e.g., refer patient to occupational therapist) before the patient assessment program could continue.

The panel's conclusions were similar to those in a recent meta-analysis of clinical studies of fall prevention among older adults (Gillespie et al. 2003). The analysis included a review of 62 trials involving over 21,000 elderly people. The analysis found strong evidence that a multifactor assessment tool linked with an intervention program, strength training, balance training, and withdrawal of medication that increases the risk of falling all significantly reduced falls among elderly in the community. A multifactor tool includes environmental, medical, functional, and psychosocial problems rather than focusing on one or a few of these factors. The meta-analysis also found that a home hazard assessment and modification program had a statistically significant effect on the number of falls; however, the panel said that this practice was already standard and consistent among providers of Medicare home health services.

Wound care practices

Table 5-3 includes some of the most promising practices for wound care. In this area of practice, too, the group said that best practices were not followed consistently among all home health agencies. Panelists agreed there was room for improvement and standardization in wound assessment and treatment.

Several panel members said that taking a photograph or digital image of the wound was a substantial improvement in the process of measuring wounds and recording changes. One panelist noted that a photograph was also a very useful tool for communications from home health nurses to physicians. Her agency had a substantial increase in the number of physicians who were willing to change the plan of care when an image of the wound accompanied the change request. Though several panel members thought that the cost of photographs would be prohibitive, several other panel members already used the technology or were familiar with providers who did. Providers who record images of wounds say it is easy to implement this practice.

The treatments and the notification protocols that were suggested by the panel are consistent with AHRQ's best practice guidelines for the treatment of pressure ulcers (AHRQ 1994). The panel discussed both pressure ulcers and surgical wounds and agreed that some treatments and physician contact protocols for pressure wounds also apply to surgical wound care.

Among the assessment practices discussed was use of specific wound measurement tools. Providers on the panel

said that attention to location and size of the wound, depth, drainage, odor, and wound margins are all key elements of the most effective tools. Panelists agreed that rather than requiring the use of a particular assessment tool, best practice guidelines should recommend the features of the tool that should be used.

The panelists shared concern over the wide national variation in wound care. Several noted that practices known to prolong or even prevent wound healing are still the standard plan of care for some patients in some areas. As long as poor wound care practices continue to injure patients or prolong their recovery, the diffusion of best practices will remain critical to improving the health of Medicare beneficiaries.

In some instances, panelists from home health agencies felt that the physicians who give wound treatment orders for the plan of care prevented agencies from implementing better treatments. Panelists thought that some physicians were not familiar with the most recent studies of effective wound care. Establishing wound care best practices—and providing rewards for them—would give agencies the weight of Medicare’s endorsement, clinical evidence, and financial incentives to engage physicians to reconsider the wound care practices they order.

Translating best practices into process measures

The work of the panel could be used to expand the home health measure set by translating the best practices into process measures and validating those measures. Process measures include a precise description of who should receive the care, at what time and how often the care should occur, a very specific definition of the practice itself, and rules to exclude patients who should not receive the care. The process measure would then be tested against the Commission’s criteria for good measures: Is it reliably specified? Is it a valid measure of good practice? Would it require unduly burdensome data collection?

Part of the assessment of these measures could include determining whether the practices they describe are within the scope of the benefit. For example, some panelists questioned whether some fall prevention activities are within the scope of services that home health agencies should provide according to the rules that govern the home health benefit. Many fall prevention techniques

**TABLE
5-3**

Pressure wound care practices

Practice	Specifications
Improve assessment	<ul style="list-style-type: none"> • Assess skin from head to toe • Assess wound at each visit • Photograph wound as part of the record
Improve treatment	<ul style="list-style-type: none"> • Offload pressure ulcers • Maintain moist wound bed as appropriate • Develop a turning schedule or increase mobility as appropriate • Use infection control techniques • Educate caregivers regarding infection control and following turning schedule
Develop physician contact protocols	<ul style="list-style-type: none"> • Contact physician at first sign of infection • Contact physician if wound does not respond to treatment within 2 weeks

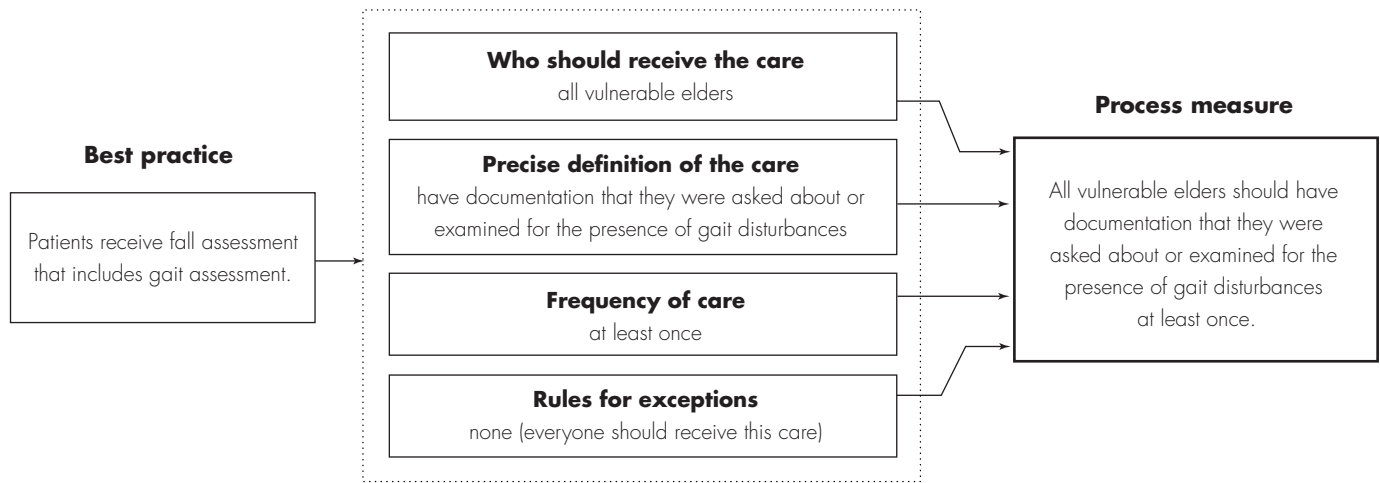
Source: MedPAC analysis of expert panel discussion conducted February 2006.

could occur during regular visits and patient contact, such as patient assessment and education. However, over the course of the days and weeks of an episode of care, home health personnel spend relatively little time in patients’ homes and have limited control over the patients’ environment. They can not physically prevent falls in the same way that an inpatient setting could.

On the other hand, the panelists may have been reacting to the lack of definition of the benefit, which we have noted in previous reports. For decades, administrators and the Congress have struggled with defining the home health benefit. In 1989, “skilled care was explicitly extended beyond specialized services to include judgmental services such as skilled observation, patient assessment and management, and evaluation of patients’ care plans” (Feder and Lambrew 1996). However, coverage is restricted to services that are reasonable and medically necessary to treat an illness or injury. For example, while it may be beneficial to evaluate a diabetic patient’s balance, this evaluation might not be necessary to treat the diabetes that was the primary reason he or she was admitted to home health care. The lack of definition of the benefit raises some questions about whether some good health practices related to safety and prevention are strictly within the scope of the home health benefit.

**FIGURE
5-1**

Example: Translating fall prevention best practice into process measure



Note: The process measure in this example is from Rubenstein et al. 2001.

Source: MedPAC analysis.

Figure 5-1 illustrates the translation from best practice to process measure for the example of a fall prevention best practice. Generally, process measures are the quantifiable details of what should be done, to whom, and how frequently, based on best practices. In the figure, we begin with our panel’s suggestion that best practice for fall risk assessments should include a gait assessment. Details based on that best practice are developed (the center of the figure). Finally, a process measure based on the details is assembled at the far right of the figure (Rubenstein et al. 2001). This process measure would be accompanied by instructions to determine who is a “vulnerable elder” and what “documentation” and “gait disturbances” are. The instructions would be designed to ensure that each agency reports the same care for the same patient population. If the data were consistent from agency to agency, the measure would be considered reliable.

Potential measures must be assessed for reliability and validity. A popular method for reliability testing is measuring two raters’ agreement in describing the same encounters. In the example of the practice of gait assessment, two different nurses or a nurse and a physical therapist might not agree on the kind of clinical activity that constitutes an “examination” of gait disturbances without some additional information to describe the clinical practice.

The validity of process measures could be assessed in several ways. One way is to determine whether evidence links the processes to improved outcomes. Our panel provided clinical information and cited randomized, controlled trials that established these links for the discussed practices. Another way is to assess the measure’s content validity—whether the process to be measured captures the most important aspects of the best practice on which the measure is based, according to expert judgement. A third way is to assess construct validity—whether all the measures within a set are related to the same practice (e.g., whether all of the processes in a set of “fall prevention” measures are related to the practice of fall prevention). If one or two measures within a set do not correlate well with the rest of set, based on statistical analysis, perhaps they are not valid measures of the same type of practice that the other measures capture.

Once developed, process measures could enhance the current quality measure set in five key ways. They would expand the applicable patient population and expand the scope of quality to include safety. They would measure an aspect of care that the provider controls and provide an incentive to improve information technology use. Finally, they would help current best practices diffuse. These improvements represent a step forward in the evolution of quality measurement for home health, a step that the

Commission has concluded is necessary to maintain all measure sets. We encourage CMS to use measurement development experts to translate fall prevention and wound care best practices into process measures and to validate those measures.

The home health measure set must continue to evolve. Ongoing research can create or validate new measures of all types or refresh measures currently in the set. Process measures should be added, altered, or dropped if new guidelines have stronger evidence, better outcomes, or provide more cost-effective alternatives. ■

Endnotes

- 1 Outcomes are often divided into several subtypes, including mortality, adverse events (e.g., infections), and patient experience (e.g., whether the patient understands how to use medical equipment at home).
- 2 AHRQ anticipates that it will use CMS's current publicly reported set of measures in its next series of reports (Moy 2006).
- 3 All of the patients in this research had a congestive heart failure diagnosis. The outcomes measured included physician and emergency department use, hospital admission, condition-specific quality-of-life measures, patient satisfaction, and survival at 90 days. Physician use, emergency department use, and patient mortality remained the same in the intervention group. Hypothesized improvements in the other outcomes did not occur.
- 4 These management tools are often embedded in an electronic medical record; however, they are also available on their own.

References

- Agency for Healthcare Research and Quality. 1994. *Clinical practice guidelines 15: Treatment of pressure ulcers*. <http://www.ncbi.nlm.nih.gov/books>.
- Briggs Corporation. 2005. *Briggs national quality improvement/hospitalization reduction study*. West Des Moines, IA: Briggs Corporation.
- Center for Health Services Research, University of Colorado Health Services Center. 2002. *OASIS and outcome-based quality improvement in home health care: Research and demonstration findings, policy implications, and considerations for future change*, vols. 1–4. Denver, CO: Center for Health Services Research.
- Donabedian, A. 1966. Evaluating the quality of medical care. *The Milbank Memorial Fund Quarterly* 44, no. 3: 166–203.
- Feder, J., and J. Lambrew. 1996. Why Medicare matters to people who need long-term care. *Health Care Financing Review* 18, no. 2 (Winter): 99–112.
- Feldman, P. H., T. R. Peng, C. M. Murtaugh, et al. 2004. A randomized intervention to improve heart failure outcomes in community-based home health care. *Home Health Care Services Quarterly* 23, no. 1: 1–23.
- Fortinsky, R. H., M. Iannuzzi-Sucich, D. Baker, et al. 2004. Fall-risk assessment and management in clinical practice: Views from healthcare providers. *Journal of the American Geriatrics Society* 52, no. 9: 1522–1526.
- Gillespie, L. D., W. J. Gillespie, M. C. Robertson, et al. 2003. Interventions for preventing falls in elderly people. *The Cochrane Database of Systematic Reviews*, 4.
- Institute of Medicine. 2001. *Crossing the quality chasm: A new health system for the twenty-first century*. Washington, DC: National Academies Press.
- McGlynn, E., S. Asch, J. Adams, et al. 2003. The quality of health care delivered to adults in the United States. *New England Journal of Medicine* 348, no. 26: 2635–2645.
- McGlynn, E. 1997. Six challenges in measuring the quality of health care. *Health Affairs* 16 (May/June): 7–21.
- Medicare Payment Advisory Commission. 2005. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2003. *Report to the Congress: Variation and innovation in Medicare*. Washington, DC: MedPAC.
- Moy, Ernest. 2006. Telephone conversation with Sharon Bee Cheng, March 31.
- National Quality Forum. 2005. *National voluntary consensus standards for home health care*. Washington, DC: NQF.
- Rubenstein L. Z., C. M. Powers, and C. H. MacLean. 2001. Quality indicators for the management and prevention of falls and mobility problems in vulnerable elders. *Annals of Internal Medicine* 135, no. 8 (October): 686–693.
- Russo, C. A., and A. Elixhauser. 2006. *Hospitalizations related to pressure sores*. Washington, DC: AHRQ.

