

# FACT SHEET

## Improving Health Care Quality

Agency for Healthcare Research and Quality • 2101 East Jefferson Street • Rockville, MD 20852



AHRQ is the lead Federal agency charged with supporting research designed to improve the quality of health care, reduce its cost, address patient safety and medical errors, and broaden access to essential services. AHRQ sponsors and conducts research that provides evidence-based information on health care outcomes; quality; and cost, use, and access.

The information helps health care decisionmakers—patients and clinicians, health system leaders, and policymakers—make more informed decisions and improve the quality of health care services.

Every day, millions of Americans receive high-quality health care that helps to maintain or restore their health and ability to function. However, far too many do not. Quality problems are reflected in a wide variation in the use of health care services, underuse of some services, overuse of other services, and misuse of services, including an unacceptable level of errors.

A central goal of health care quality improvement is to maintain what is good about the existing health care system while focusing on the areas that need improvement. Improving the quality of care and reducing medical errors are priority areas for the Agency for Healthcare Research and Quality (AHRQ). AHRQ is working to develop and test measures of quality, identify the best ways to collect, compare, and communicate data on quality, and widely disseminate information about the most effective strategies for improving the quality of care.

### Evidence of Quality Problems

Several types of quality problems in health care have been documented through peer-reviewed research. These include:

- **Variation in services.** There continues to be a pattern of wide

variation in health care practice, including regional variations and small-area variations. This is a clear indicator that health care practice has not kept pace with the evolving science of health care to ensure evidence-based practice in the United States.

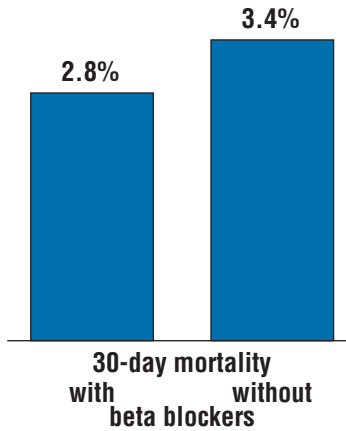
- **Underuse of services.** Millions of people do not receive necessary care and suffer needless complications that add to costs and reduce productivity. Each year, an estimated 18,000 people die because they do not receive effective interventions. For example, a study of Medicare patients who had suffered heart attacks found that only 21 percent of eligible patients received beta blockers. The mortality rate among patients who received beta blockers was 43 percent lower than it was among nonrecipients. Another AHRQ-funded study examined the use of beta blockers before heart bypass surgery and found that patients who received beta blocker therapy before surgery had lower rates of death and fewer complications both during and after surgery than patients who did not receive this therapy.
- **Overuse of services.** Each year, millions of Americans receive health



U.S. Department of Health  
and Human Services  
Public Health Service



### Outcomes of beta blocker use before bypass surgery



Ferguson, Coombs, and Peterson. Preoperative b-blocker use and mortality and morbidity following CABG surgery in North America. *JAMA*, 287(17):2221-7, May 2002

care services that are unnecessary, increase costs, and may even endanger their health. Research has shown that this occurs across all populations. For example, an analysis of hysterectomies performed on women in seven health plans found that one in six operations was inappropriate. A study examining the use of antibiotics for treating ear infections in children on Medicaid found that expensive antibiotics were used far more often than indicated. According to the findings, if only half the prescriptions written in 1992 for more expensive antibiotics had been written for amoxicillin, a less expensive but equally effective antibiotic, Colorado's Medicaid program would have saved nearly \$400,000 that year.

- **Misuse of services.** Too many Americans are injured during the course of their treatment, and some die prematurely as a result. For

example, a study of injuries to patients treated in hospitals in New York State found that 3.7 percent experienced adverse events; 13.6 percent of these events led to death, and 2.6 percent led to permanent disability. About one-fourth of these adverse events resulted from negligence. A national study found that over a 10-year period (1983-1993), deaths due to medication errors rose more than two-fold, with 7,391 deaths attributed to medication errors in 1993 alone.

- **Disparities in quality.** Although quality problems affect all populations, they may be most marked for members of ethnic and racial minority populations. Researchers at the University of Alabama at Birmingham examined the use of thrombolysis (“clot busters”) for patients who had experienced a heart attack and found that while this evidence-based life-saving treatment was underused for all, black Medicare beneficiaries were significantly less likely than whites to receive this treatment.

### Findings from Recent Research on Health Care Quality

AHRQ and its predecessor agencies—the Agency for Health Care Research and Quality and the National Center for Health Services Research and Health Care Technology Assessment—have been conducting and supporting research on quality for more than two decades. Following are some examples of findings from recent AHRQ-supported research on quality and quality improvement.

- **Atrial fibrillation.** Thousands of Medicare patients with atrial fibrillation can benefit from a new

## AHRQ-supported research demonstrates overuse of preoperative testing

A recent study by AHRQ-funded researchers found no differences in outcomes between patients who did and did not undergo routine preoperative testing before cataract surgery. Cataract surgery is the most common operation among the elderly in the United States. In 1996, Medicare beneficiaries had about 1.5 million cataract operations. Routine medical testing before cataract surgery is estimated to cost Medicare \$150 million each year.

Cataract surgery is usually an outpatient procedure, and rates of illness and death associated with the procedure are very low. This large randomized study involved nearly 20,000 elective cataract operations in 18,189 patients at nine surgical centers. The overall rate of complications, both during and after surgery, was the same for both groups (31.3 per 1,000 operations). The researchers conclude that routine preoperative testing confers no benefit on patients having cataract surgery

HIV patients and their doctors. Half of all HIV-infected people in the United States—especially blacks, Hispanics, injection drug users, and people with low education—never talk about end-of-life care with their doctors. Such discussions could improve physicians’ understanding of the care their patients do and do not want when they are very ill and close to death.

## Making Quality Count

Following are examples of AHRQ-supported research now in progress that focuses on improving health care quality:

- **Bringing evidence-based medicine to the hospital bedside.**

Researchers at the University of Iowa are carrying out a 3-year randomized study at 12 hospitals in Iowa, Missouri, and Illinois to evaluate the effectiveness and cost-effectiveness of implementing an evidence-based acute pain management guideline for hospitalized elderly hip fracture patients. The intervention targets

quality improvement tool developed with support from AHRQ.

Researchers found that their new CHADS2 method for predicting risk of stroke in patients with atrial fibrillation is more accurate than existing methods. CHADS2 may be especially helpful for identifying low-risk patients who, by taking aspirin, can avoid the office visits, expense, and side effects associated with warfarin, which carries a risk of bleeding.

- **Underuse of hip replacement surgery in Hispanic patients.** Even when they have insurance, elderly Hispanics undergo far fewer hip replacement operations than elderly non-Hispanic whites. This study of Hispanics aged 65 or older in Texas, New Mexico, Arizona, and Illinois found that they were less than one-third as likely as non-Hispanic whites of the same age to undergo total hip replacement, an operation that can alleviate pain and improve physical function and quality of life in patients with severe osteoarthritis. According to the researchers, underuse of hip replacement surgery

by the large and growing U.S. Hispanic population could have important consequences for Medicaid because the resulting excess disability could increase long-term custodial costs.

- **End-of-life discussions.** Findings from this AHRQ study can be used to improve end-of-life care and promote more effective use of health care resources by encouraging discussions between terminally ill

## New severity measure for hospitalized pneumonia patients

Hospitalized pneumonia patients who have abnormal vital signs, mental confusion, or problems with eating or drinking in the 24 hours prior to discharge are more likely than other pneumonia patients not to be able to resume normal activities on discharge. Also, they face a greater chance of readmission or death.

AHRQ-supported researchers at Mount Sinai School of Medicine developed a simple severity-of-illness measure that can be used by clinicians to judge whether it is safe for a patient to be discharged from the hospital. The measure uses information from the five vital signs that are checked several times a day in hospitalized patients (temperature, heart rate, blood pressure, respiratory rate, and oxygen levels in the blood), as well as assessment of the patient’s mental status and ability to eat and drink.

Patients in this study who were discharged with two or more unstable factors had a five-fold greater risk of readmission or death. Using this instrument, the researchers found that one in five of the patients they studied had been discharged “medically unstable.”

both nurses and prescribing physicians and includes training, computerized learning modules, the use of opinion leaders, the use of feedback and reminder cards, and system interventions for modifying chart forms and institutional policy. The goals are to determine whether a multidimensional organizational intervention alters nurse and physician behaviors and whether institutional barriers to change are reduced.

- **Evidence-based reminders in home health care.** These researchers are comparing the effectiveness of two alternative information-based strategies intended to improve provider performance and promote adherence to evidence-based guidelines among home health care nurses. The study employs a randomized design that assigns nurses to one of two treatment groups or a control group (usual care). Nurses in the basic intervention group receive “just in time” e-mail reminders highlighting six condition-specific practices they should follow for patients with either heart failure or cancer pain. Nurses in the augmented intervention group receive the same e-mail reminders along with additional information and consulting services from an expert peer.
- **Understanding variability in community mammography.** This community-based, multicenter observational study involves a unique collaboration among three geographically distinct breast cancer surveillance programs in the States of Washington, New Hampshire, and Colorado. The investigators are collecting breast cancer outcomes and interpretive data on more than

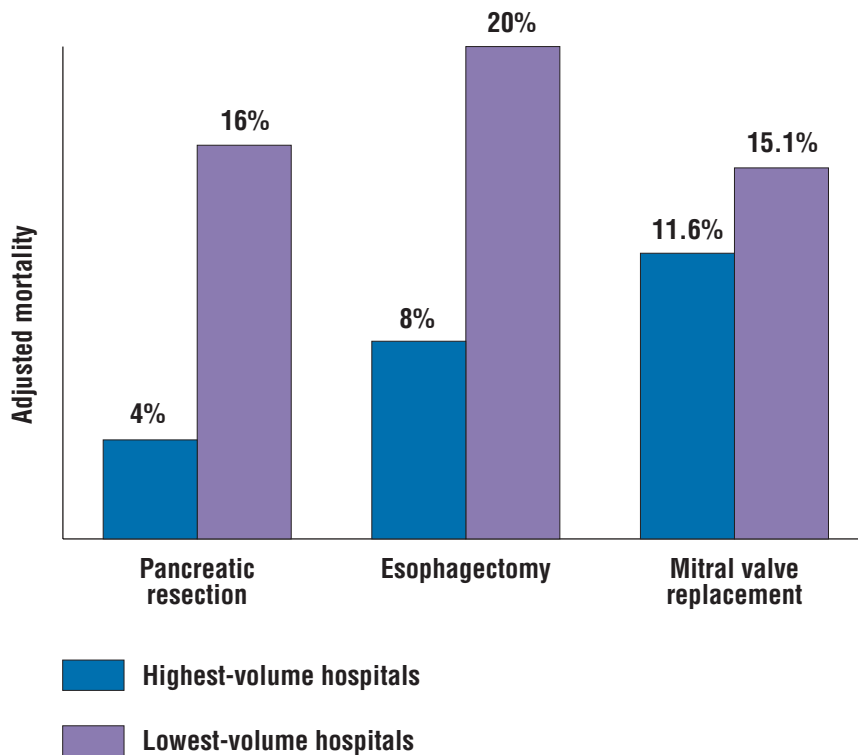
500,000 mammograms from 91 facilities and 279 radiologists. The goal is to identify reasons for variability in the interpretation of mammograms and determine how the quality of mammography can be improved.

- **Racial and ethnic variation in medical interactions.** In this 5-year program, researchers at the Baylor College of Medicine and the Houston VA are developing and testing interventions to improve doctor-patient communication patterns to reduce racial and ethnic disparities in use and outcomes. Both clinicians and patients are participating in the project, which also includes an information dissemination component to translate research findings into practice as rapidly as possible.
- **Otitis media: Parent education to avoid antibiotic use.** Acute otitis media (AOM) continues to be a major child health problem. The average child experiences 2.6 AOM episodes per year in the first 2 years of life. The overuse of antibiotics for AOM has led to the emergence of multi-drug resistant pathogens, even though research has shown that 80 to 90 percent of children with AOM will recover without antibiotics. This randomized controlled trial is evaluating the safety, efficacy, cost to parent, and acceptability of an intervention consisting of parent education, nonantibiotic symptomatic therapy, and careful followup of children with mild AOM. The goal is to establish the safety of withholding antibiotics from children with mild AOM and change parents’ expectations about universal antibiotic treatment of AOM.





### Hospital volume and surgical mortality



Source: Adapted from Birkmeyer, Siewers, Finlayson, et al. Hospital volume and surgical mortality in the United States. *NEJM* 346(15):1128-37, 2002.

- **Benefits of regionalizing surgery for Medicare patients.** In this ongoing study, researchers at Dartmouth Medical School are using Medicare data and data from AHRQ's National Inpatient Sample (NIS) to investigate the potential benefits of regionalizing patients who have certain high-risk procedures. For example, in the April 11, 2002 issue of the *New England Journal of Medicine*, they reported a 12 percentage point difference in survival for patients being treated for cancer of the pancreas at high- and low-volume hospitals. Only 4 percent of patients treated at the highest volume hospitals died, compared with 16 percent at the lowest volume

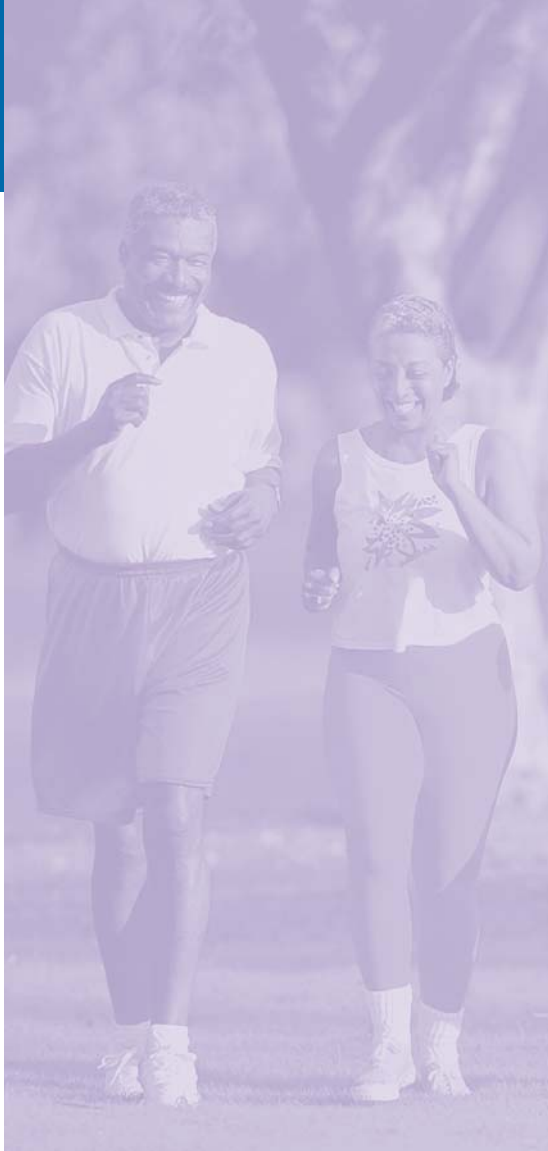
hospitals. Indeed, they found that elderly patients undergoing treatment for any one of 14 high-risk cardiovascular or cancer operations were more likely to survive if they were treated in high-volume hospitals.

### Future Research

Priorities for future research on quality and quality improvement—particularly the overuse, underuse, and misuse of health care services—include:

- Identify which financial and organizational factors promote quality and how different payment methods, financial incentives, and organizational factors affect the behavior of health care





organizations, providers, purchasers, and patients.

- Design and implement new care processes that enable patients to act as co-managers of their health care, particularly for chronic illnesses.
  - Identify telecommunications applications that will enhance patients' access to information and patient-provider communication.
  - Identify effective information technology tools and systems that alert providers in real-time to the critical information they need to provide safer, high quality care.
  - Implement and evaluate strategies to improve quality of care for people with disabilities.
- Identify and address factors that promote adoption of promising quality improvement strategies (e.g., patient self-management) by all who would benefit.

### **More Information**

To find out more about AHRQ-funded research on health care quality, visit our Web site at [www.AHRQ.gov](http://www.AHRQ.gov) or contact Katherine Crosson, M.P.H., C.H.E.S., at 301-594-6856 or via e-mail to [kcrosson@ahrq.gov](mailto:kcrosson@ahrq.gov).



AHRQ Pub. No. 02-P032  
September 2002