AHRQ Annual Highlights 2005

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Agency for Healthcare Research and Quality

Advancing Excellence in Health Care

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Introduction

The U.S. health care system is considered by many to be the finest in the world. Americans are living longer, healthier lives, thanks to significant advances in biomedical and health services research. The translation of research findings into clinical practice has raised awareness of the importance of appropriate preventive services—such as timely screenings for cancer, heart disease, and other serious conditions—and the crucial role that sustaining a healthy lifestyle plays in maintaining health and enhancing quality of life.

However, our health care system faces many challenges, including improving the quality and safety of health care, ensuring access to care, increasing value for health care, reducing disparities, increasing the use of health information technology, and finding new avenues to translate research into practice. We have made progress in meeting these challenges, but we can and must do better.

The Agency for Healthcare Research and Quality (AHRQ)—one of the 12 agencies within the Department of Health and Human Services—plays an important role in responding to the challenges faced by our health care system. The Agency's mission is to improve the quality, safety, efficiency, and effectiveness of health care for all Americans and support efforts to translate research into practice. One of the ways we fulfill this mission is to conduct and support health services research that:

- Reduces the risk of harm from health care services by using evidence-based research and technology to promote the delivery of the best possible care.
- Transforms research into practice to achieve wider access of effective health care services and reduce unnecessary health care costs.
- Improves health care outcomes by encouraging providers, consumers, and patients to use evidence-based information to make informed treatment choices/decisions.

The Agency's research agenda is user-driven—that is, AHRQ actively responds to the needs of its customers and we work with the users of our research to help them make measurable differences in the health care system. In 2005, AHRQ's research agenda reflected a shift in the scope and nature of health services research to emphasize the translation of research into practice. Our goal is to make an impact on health care and the health care system. Providers, purchasers, policymakers, researchers, and the public all need evidence-based information that not only identifies problems with patient safety, quality, and disparities in health care, but also offers solutions.

This report presents key findings from AHRQ's 2005 research portfolio. It highlights the advances made and our progress in moving from research to practice.

AHRQ's QualityTools™ Web site promotes access to health care quality information

QualityTools™ is a Web-based clearinghouse for practical, ready-to-use tools for measuring and improving the quality of health care. These tools include Web sites, databases, reports, fact sheets, guides, or other mechanisms that assist health care professionals, policymakers, health plans, employers, patients, and consumers in the development, promotion, or enhancement of health care quality within a practice, organization, or in an individual's daily life. For access to these tools and information, go to www.qualitytools.ahrq.gov.

Improving the Safety and Quality of Health Care

AHRQ supports research on the scope and impact of medical errors, identifies the root causes of threats to patient safety, examines effective ways to make system-level changes to help prevent errors, and evaluates the effectiveness of information technology as a way to reduce errors and increase efficiency. Dissemination and translation of these research findings and methods to reduce errors is also critical to improving the safety and quality of health care. To make changes at the system level, there must be an environment, or culture, within health care settings that encourages health professionals to share information about medical errors and ways to prevent them.

Partnerships in Implementing Patient Safety

In 2005, AHRQ awarded over $9 million for Partnerships in Implementing Patient Safety grants to fund 17 projects over 2 years. These projects will assist health care institutions in implementing safe practice interventions that show evidence of eliminating or reducing risks, hazards, and harms associated with the process of care. The goals of these projects are to:

- Identify the medical errors, risks, hazards, or harms.
- Develop an intervention implementation plan.
- Demonstrate the impact of the intervention on the process of care.
- Determine the efficacy of the intervention for adoption.

The projects focus on safe practice interventions that can be generalized to other settings of care and for use by those who wish to adapt and/or adopt the safe practices interventions to improve patient safety. About half focus on reducing medication errors. Others are focused on applying interventions to improve health care team communications. AHRQ will widely disseminate the tools developed from the projects, including the implementation toolkits, for adaptation and/or adoption by other institutions. These implementation projects will inform AHRQ, providers, patients, payers, policymakers, and the public how safe practice interventions can be successfully implemented in diverse health care settings and lead to safer and better health care for all Americans.

For a complete list of projects, go to www.ahrq.gov/qual/pips.htm.

Patient Safety Network

AHRQ launched the Patient Safety Network (PSNet), a "one-stop" online portal that provides resources for improving patient safety and preventing medical errors. It is the first comprehensive effort to help health care providers, administrators, and consumers learn about all aspects of patient safety. The Web site provides a broad range of information on patient safety resources, tools, and conferences. PSNet users can customize the site around their unique interests and needs by creating a "My PSNet" page. Weekly updates are available to

Hospital Survey on Patient Safety Culture helps providers set priorities

The Palo Alto Medical Foundation in San Francisco administered the Hospital Survey on Patient Safety Culture in September 2005 to 1,180 staff members and received responses from 73 percent of the employees. Palo Alto is using the survey to establish a baseline measurement of employee perceptions to see how their combined efforts for improvement are working. Results of the survey helped establish priorities. For example, 76 percent of those responding had never completed an incident report, an area that Palo Alto will make an immediate priority.

subscribers on patient safety findings, literature, tools, and conferences. PSNet can be found at http://psnet.ahrq.gov.

Advances in Patient Safety: From Research to Implementation

AHRQ released *Advances in Patient Safety: From Research to Implementation*, a 4-volume set of 140 peer-reviewed articles representing an overview of patient safety studies funded by AHRQ and other government agencies. The articles contain information on nearly every dimension of patient safety, including new research findings on medication safety, technology, investigative approaches to better treatment, process analyses, human factors, and practical tools for preventing medical errors and harm. The four-volume set is available online at www.ahrq.gov/qual/advances.

Hospital Survey on Patient Safety Culture

AHRQ partnered with Premier, Inc., the Department of Defense, and the American Hospital Association to release the Hospital Survey on Patient Safety Culture, a new tool to help hospitals and health systems evaluate employee attitudes about patient safety within their facilities. The survey can also be used to track changes in patient safety over time and evaluate the impact of patient safety interventions. It can be found online at www.ahrq.gov/qual/hospculture/.

Recent research findings on patient safety and quality of health care

- Interns who worked the traditional 30 consecutive hours every other shift in intensive care units made 36 more serious medical errors than they did on an intervention schedule that limited work shifts to 16 hours and reduced weekly work from about 80 hours to 63. The rate of serious medication errors was 21 percent greater on the traditional schedule than on the new schedule.
- Over 20 percent of the patients admitted to two intensive care units experienced an adverse event. Of the adverse events, 45 percent were preventable and many involved medications—such as giving patients the wrong dose. Over 90 percent of all incidents occurred during routine care, not on admission or during an emergency intervention.
- Real-time safety audits performed during routine hospital neonatal intensive care unit work can quickly detect a broad range of medical errors. The audit system detected 338 errors during a 5-week study period.

AHRQ announces audio newscast series: Healthcare 411

In 2005, AHRQ created a new service to help Americans become informed about the Agency's latest health care research findings, news, and information. It's Healthcare 411—a weekly audio newscast that features synopses of AHRQ's latest findings and information on current health care topics. The weekly newscasts will be distributed through Apple® iTunes®, Yahoo® PodCasts, and other Web sites that provide health information to their customers, patients, students, employees, or health care personnel. Parts of the audio newscasts are also used by the Department of Health and Human Services' new radio service, Healthbeat, and they are distributed to radio stations across the country as well as audio networks within stores such as Giant Food and Wal-Mart. The newscasts can be heard through a computer or downloaded to a portable digital player such as an iPod® at www.healthcare411.org.

Helping consumers understand and get quality health care

In 2005, AHRQ released several publications to help consumers identify high-quality health care and make decisions about the care they receive. These are a part of AHRQ's consumer education

campaign to help people take a more active role in their own health care:

- *Guide to Health Care Quality: How To Know It When You See It* (www.ahrq.gov/consumer/guidetoq). This publication includes steps that consumers can take to improve their quality of care and explains the difference between clinical measures and consumer ratings. It also includes Web sites and telephone numbers for selected organizations and other resources.
- *Next Steps After Your Diagnosis: Finding Information and Support* (www.ahrq.gov/consumer/diaginfo.htm). This booklet is designed to help patients who have been diagnosed with an illness learn more about their condition and treatment options. It includes a list of 10 important questions for patients to ask their doctors, designed to help people understand their disease or condition, how it might be treated, and what they need to know before making treatment decisions. The accompanying video can be viewed at www.ahrq.gov/consumer/nxtstepvid.htm.
- *Having Surgery? What You Need to Know.* This publication is intended to help patients make informed decisions when planning for surgery. It includes questions to help patients obtain needed information on such issues as anesthesia, alternatives to surgery, recovery times, costs, doctor qualifications, second opinions, and more. The publication can be viewed and downloaded at www.ahrq.gov/consumer/surgery/surgery.htm.
- *Tips for Taking Medicines Safely.* (www.ahrq.gov/consumer/chkmedvid.htm). This video Web program features information from AHRQ to help consumers take medicines safely. The video is based on an earlier publication *Check Your Medicines: Tips for Taking Medicines Safely* (www.ahrq.gov/consumer/checkmeds.htm).

For additional consumer publications and resources, visit AHRQ's Web site at www.ahrq.gov/consumer.

Using Health Information Technology to Improve Patient Safety and Quality

For over 30 years, AHRQ has funded and supported the use of health information technology (HIT) to improve health care. Since 2004, over $166 million has been awarded in grants and contracts to help communities, hospitals, providers, and health care systems develop, implement, and evaluate health information technologies. The overall goal is to improve patient safety by reducing medical errors; increasing information sharing between providers, laboratories, pharmacies, and patients; ensuring safer patient transitions between health care settings; and reducing duplicative and unnecessary testing.

AHRQ reaches out to help consumers understand health care quality

In 2005, AHRQ held three consumer town hall meetings in Chapel Hill, Oklahoma City, and Philadelphia. More than 300 participants heard about national and local efforts to improve health care quality. Attendees also received AHRQ's *Guide to Health Care Quality,* which gave them more information on what they can do to become active and informed members of their health care team. A summary of the town hall meeting is available online as an audio podcast at www.ahrq.gov/consumer/podquality.htm. The podcast features AHRQ Director Dr. Carolyn Clancy answering questions about health care quality. Dr. Clancy also discusses preventive care, medical errors, and what people can do to make sure they get quality health care.

AHRQ also created the National Resource Center for Health Information Technology. The resource center will aid grantees and other Federal partners by providing technical assistance and a focus for collaboration. It will serve as a repository for best practices and lessons learned, and offer needed tools to help providers explore the adoption and use of HIT to improve patient safety and quality of care. For more information on AHRQ-funded projects, findings, and resources for planning, implementing, and evaluating HIT, go to http://healthit.ahrq.gov/.

Recent research findings on HIT

- Adding psychotropic medication dosing and selection guidelines to a computerized order entry system improved prescribing and reduced falls among elderly inpatients at one hospital. Use of computerized guidelines increased adherence to recommended daily doses from 19 to 29 percent and reduced prescribing of nonrecommended drugs from 10.8 percent to 7.6 percent of total orders. Patients whose doctors used the guidelines also had a lower in-hospital fall rate.
- Smaller medical groups report lower adoption rates of an electronic health record (EHR) system, noting that cost is the top barrier to implementation. The average purchase and implementation cost of an EHR system is approximately $32,000 and maintenance costs are about $1,500 a month per full-time physician. Medical groups with 20 or more full-time physicians have a 19.5 percent adoption rate compared with 18.9 percent for groups with 11 to 20 full-time physicians, 15.2 percent for groups with 6 to 10 full-time physicians, and 12.5 percent for groups with 5 or fewer full-time physicians.
- While computerized physician order entry (CPOE) is expected to reduce medication errors, systems must be implemented thoughtfully to avoid facilitating certain types of errors. One hospital study found 22 situations in which the CPOE system increased the probability of medication errors. Flaws identified by the study included selection of the wrong patient because of difficulties in reading computer screens, inability to view all of some patients' medications on one screen, delayed entry about the administration of drugs, and computer downtime for maintenance or repair.

Promoting the Use of Evidence

AHRQ has a long history of research on enhancing clinical practice and the potential for evidence-based approaches to improve health care. This evidence needs to be understandable, easily accessible, objective, and place the ever-increasing number of scientific studies into context. AHRQ is committed to accelerating the

AHRQ funds new IT system in a hospital designed around patient safety principles

A new IT system was implemented at St. Joseph's Community Hospital in West Bend, WI, a brand-new 80-bed facility designed with an emphasis on patient safety. St. Joseph's is a nonprofit, acute care hospital with more than 6,100 admissions a year. The new hospital is designed around a specific set of safety-focused principles, including better visibility of patients to staff, increased patient involvement with care, reduced staff fatigue, automation where possible, and standardization. Specific adverse events were targeted for prevention through better design, including operative and post-operative complications and infections, medication errors, patient falls, wrong-site surgeries, and MRI hazards. Scheduling, pharmacy, and medication administration are all being automated and centralized in the new IT system and patients will be able to access portions of their medical records from home or from their bedsides as inpatients.

adoption of research findings into practice so that all Americans benefit from advances in biomedical science and health services research.

Evidence-based Practice Centers

Created in 1997, AHRQ's Evidence-based Practice Centers (EPCs) have released over 130 new evidence and technology reports. The reports are intended to inform health plans, providers, purchasers, and the health care system as a whole by providing essential science-based information that can improve the quality of health care. The EPCs systematically review relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate. In 2005, the EPCs released 29 new reports. Some of these reports are highlighted below:

- *Pharmacological and Surgical Treatment of Obesity.* This report concluded that surgery for extremely obese patients who have tried and failed to lose weight with exercise and diet may be more effective for weight reduction. Surgery may help these patients control their blood pressure, diabetes, and other health problems that can result from obesity such as heart disease, musculoskeletal disorders, and sleep apnea.
- *Melatonin for Treatment of Sleep Disorders.* Melatonin supplements taken to treat sleep problems appear to be safe when used over a period of days or weeks, but when used over months or years, their safety is unclear. Researchers also found there is some benefit in using melatonin in the short term to treat delayed sleep-phase syndrome in people with primary sleep disorders. However, melatonin seems to have no effect on sleep efficiency, sleep quality, wakefulness after sleep onset, total sleep time, or time spent in rapid eye movement (REM) sleep.
- *Perinatal Depression: Prevalence, Screening Accuracy, and Screening Outcomes.* This report found evidence indicating that depression is as common in women during pregnancy as it is after giving birth. The report also found that health care providers and patients may not recognize depression during pregnancy because its symptoms, such as tiredness, trouble sleeping, emotional changes, and weight gain, can also occur with pregnancy. Researchers found that psychotherapy and/or antidepressants can be effective in treating women with perinatal depression.
- *Post-Myocardial Infarction Depression.* This report indicates that one in five patients hospitalized for heart attack suffers from major depression. These patients may be more likely than other heart attack patients to need hospital care again within a year for a cardiac problem and are three times as likely to die from a future attack or other heart problems.

For more information on the EPCs and the reports available, go to the AHRQ Web site at www.ahrq.gov/clinic/epc.

AHRQ evidence report leads to use of quality improvement strategies

Bon Secours Health System, a member of the Premier alliance, is using six of the nine quality improvement (QI) strategies outlined in AHRQ's Evidence Report, *Closing the Quality Gap*, as the template for its "Quality First" initiative. AHRQ's QI strategies serve as the platform for quality improvement activities among Bon Secours hospitals. This initiative, a best-practices diffusion program, is being implemented across each of Bon Secours' 13 member acute-care hospitals. The six AHRQ QI strategies included in the program are:

- Provider reminder systems
- Facilitated relay of clinical data to providers
- Audit and feedback
- Provider education
- Organizational change
- Financial incentives, regulation, and policy

United States Preventive Services Task Force

The United States Preventive Services Task Force (USPSTF) is an independent panel of private-sector experts in prevention and primary care sponsored by AHRQ. It conducts rigorous, impartial scientific assessments of the effectiveness of a broad range of clinical preventive services, including screening tests, chemoprevention, immunizations, and counseling. The USPSTF also develops recommendations that are considered the gold standard for clinical preventive services.

In 2005, the USPSTF released *The Guide to Clinical Preventive Services 2005: Recommendations of the U.S. Preventive Services Task Force*. This easy-to-use, 6 x 9-inch pocket guide includes the USPSTF recommendations on prevention and early detection for cancer; heart and vascular diseases; infectious diseases; injury and violence; mental health conditions and substance abuse; metabolic, nutritional, and endocrine conditions; musculoskeletal conditions; and obstetric and gynecological conditions. The pocket guide contains a summary table in the front for quick reference.

Another option for accessing USPSTF recommendations is AHRQ's online personal digital assistant (PDA) program, the Interactive Preventive Services Selector. The program lets users search USPSTF recommendations by patient age, sex, and pregnancy status. The tool, updated frequently with the newest recommendations, can be downloaded to a PDA or used on the Web at http://pda.ahrq.gov.

Some of the new recommendations issued in 2005 by the USPSTF include:

- *Chemoprevention for Hormone Replacement Therapy.* The USPSTF recommends against the routine use of estrogen to prevent chronic conditions such as heart disease, stroke, and osteoporosis in postmenopausal women who have undergone a hysterectomy.
- *Screening for Human Immunodeficiency Virus Infection.* This recommendation states that all pregnant women should be screened for HIV infection, since treatment strategies can dramatically reduce the chances that an infected mother will transmit HIV to her infant.
- *Genetic Risk Assessment and BRCA Mutation Testing for Breast and Ovarian Cancer Susceptibility.* The USPSTF recommends against routine testing for genetic risk of breast or ovarian cancer in the general population. However, physicians should suggest counseling and possible DNA testing for women with specific family history patterns that put them at risk for gene mutations.

To obtain more information about the USPSTF and access its clinical decision support tools and reports, go to www.ahrq.gov/clinic/prevenix.htm.

Effective Health Care Program

In 2005, AHRQ launched its new Effective Health Care Program. Authorized under Section 1013 of the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003, the Effective Health Care Program is designed to help clinicians and patients determine which drugs and other medical treatments work best for certain health conditions. The new program includes three components:

- Comparative Effectiveness Reports will be developed by AHRQ's existing network of 13 EPCs. The EPCs will focus on comparing the effectiveness of different treatments, including drugs, and will identify gaps in knowledge, indicating where new research is needed.
- Developing Evidence to Inform Decisions about Effectiveness (DEcIDE) research centers will carry out accelerated studies, including

research focused on filling the gaps about treatment effectiveness. The 13 DEcIDE centers will analyze data from insurers, health plans, and other partner organizations, including Medicare, to answer questions about the use, benefits, and risks of medications and other therapies.

- The John M. Eisenberg Clinical Decisions and Communications Science Center, named in honor of the late AHRQ Director, John M. Eisenberg, M.D., will work to improve the communication of research findings to a variety of audiences, including consumers, clinicians, payers, and health care policymakers. The Eisenberg Center will also conduct its own research on the effective, rapid, and efficient communication of research findings into medical practices.

In 2005, AHRQ released its first comparative effectiveness review, *Comparative Effectiveness of Management Strategies for Gastroesophageal Reflux Disease*. This report found that a class of drugs called proton pump inhibitors can be as effective as surgery in relieving the symptoms of gastroeseophageal reflux disease for the majority of patients whose disease is uncomplicated.

For more information on the Effective Health Care Program, go to http://effectivehealthcare.ahrq.gov.

Centers for Education and Research on Therapeutics

The Centers for Education and Research on Therapeutics (CERTs) demonstration program is a national initiative to conduct research and provide education that advances the optimal use of therapeutics (i.e., drugs, medical devices, and biological products). The program consists of seven research centers and a Coordinating Center and is administered as a cooperative agreement by AHRQ in consultation with the Food and Drug Administration. As part of the Effective Health Care Program, in 2005, the CERTs centers began completing seven methodologic projects related to comparative effectiveness under Section 1013 of the MMA.

Research findings from the CERTs for 2005 include:

- Patients with acne who use topical or oral antibiotics for more than 6 weeks are about twice as likely to develop and seek care for an upper respiratory tract infection than patients not using antibiotics.
- The antimalarial drug hydroxychloroquine (HCQ) appears to reduce the risk of new damage to joints, connective tissues, and organs in patients who have systemic lupus erythematosus, especially if they have not yet developed damage when they begin HCQ treatment. Patients receiving HCQ who had no damage had a 45-percent decrease in the risk of damage accrual.
- Using group or individual academic detailing helped increase the use of diuretics or beta-blockers to treat hypertension by 13.2 percent and 12.5 percent (respectively) compared with 6.2 percent for usual care practices that received only a mailed practice guideline.

Additional information on the CERTs program and its findings can be found on the CERTs Web site at www.ahrq.gov/clinic/certsovr.htm.

National Guideline Clearinghouse™

The National Guideline Clearinghouse™ (NGC) is a Web-based resource for information on over 1,800 evidence-based clinical practice guidelines. Since becoming fully operational in early 1999, the NGC has logged over 21 million visits and now receives over 600,000 visits each month. The NGC helps physicians, nurses, and other health professionals obtain objective, detailed information on clinical practice guidelines. Users can access abstracts, link to full-text guidelines where they are available, and generate side-by-side comparisons for any combination of two or more guidelines.

Recent enhancements to the NGC include:

- Palm-based PDA downloads of the complete NGC summary for all guidelines represented in the data base.
- An electronic forum, NGC-L, for exchanging information on clinical practice guidelines, their development, implementation, and use.

For more information about the NGC, go to www.guideline.gov.

Eliminating Disparities in Health Care

AHRQ is leading Federal research efforts to develop knowledge and tools to help eliminate health care disparities in the United States. AHRQ supports and conducts research and evaluations of health care with emphasis on disparities related to race, ethnicity, and socioeconomic status. The Agency focuses on priority populations including minorities, women, children, the elderly, low-income individuals, and people with special health care needs such as people with disabilities, or those who need chronic care or end-of-life care.

AHRQ recently released the *2005 National Healthcare Quality Report (NHQR)* and its companion document, the *2005 National Healthcare Disparities Report (NHDR)*. These reports, issued annually, measure quality and disparities in four key areas of health care: effectiveness, patient safety, timeliness, and patient centeredness.

The *NHQR* employs a wide range of measures, including health care outcomes such as hospital-acquired infections and reductions in deaths from certain diseases. It also measures how well the health care system is using specific treatments known to work most effectively. The *NHDR* compares these measures by race and ethnicity and by income. It also measures access to care, using indicators such as health insurance status and frequency of visits to a physician. This year, for the first time, the report also shows trends in health care disparities from year to year.

Examples of findings in the *NHQR* and *NHDR* include:

- Rates of late-stage breast cancer decreased more rapidly from 1992 to 2002 among black women (169 to 161 per 100,000 women) than among white women (152 to 151 per 100,000), resulting in a narrowing disparity.
- Treatment of heart failure improved more rapidly from 2002 to 2003 among American Indian Medicare beneficiaries (69 percent to 74 percent) than among white Medicare beneficiaries (73 percent to 74 percent), resulting in elimination of this disparity.
- The diseases and populations that showed the most improvement in quality measures are diabetes, heart disease, respiratory conditions, nursing home care, and maternal and child health care. The overall rate of change for these measures was 5.4 percent.
- The five core measures of patient safety improved by 10.2 percent. These core measures included four complications of care (central line-associated bloodstream infection in intensive care unit (ICU) patients; ICU patients who develop ventilator-associated pneumonia; Medicare beneficiaries with postoperative pulmonary embolus or deep vein thrombosis; and Medicare beneficiaries with central venous catheter-associated mechanical complication) and one measure for prescribing medications (the elderly with inappropriate medications).

The reports are available online at www.qualitytools.ahrq.gov.

Diabetes Care Quality Improvement: A Resource Guide for State Action

In partnership with the Council of State Governments, AHRQ released *Diabetes Care*

Quality Improvement: A Resource Guide for State Action and its companion publication *A Workbook for State Action*. Both the *Resource Guide* and *Workbook* are designed to help States assess the quality of diabetes care and develop quality improvement strategies. The *Resource Guide* and *Workbook* provide an overview of the factors that affect quality of care for diabetes, present the core elements of health care quality improvement, assist State policymakers in using the data from AHRQ's 2003 *NHQR* for planning State-level quality improvement activities, and provide a variety of best practices and policy approaches that national organizations, the Federal government, and States have implemented related to diabetes quality improvement.

The *Resource Guide* and *Workbook* are available online at www.ahrq.gov/qual/diabqualoc.htm.

National Health Plan Learning Collaborative To Reduce Disparities and Improve Quality

AHRQ launched a new partnership designed to help reduce disparities in health care for people with diabetes and other conditions. "The National Health Plan Learning Collaborative To Reduce Disparities and Improve Quality" is the first national effort to go beyond research and actively tackle racial and ethnic inequities in health care service delivery. Over 3 years, the collaborative is testing ways to improve the collection and analysis of data on race and ethnicity, matching those data to the existing Health Plan Employer Data and Information Set Quality Measures, developing quality improvement interventions that close the gaps in care, and producing results that can be replicated by other health insurers and providers serving Medicare, Medicaid, and commercial populations. This collaborative brings together nine of the Nation's largest health insurance plans: Aetna, CIGNA, Harvard Pilgrim Health Care, HealthPartners, Highmark Inc., Kaiser Permanente, Molina Healthcare, UnitedHealth Group (UnitedHealthcare, Ovations, and AmeriChoice), and WellPoint, Inc., as well as several other organizations.

Developing Tools and Data for Research and Policymaking

Efforts to improve the quality and efficiency of health care and reduce disparities in the United States must be based on a thorough understanding of how the Nation's health systems work and how different organizational and financial arrangements affect health care. AHRQ has a broad portfolio of data on costs, access to health care, quality, and outcomes that can be used for research and policymaking.

Medical Expenditure Panel Survey

The Medical Expenditure Panel Survey (MEPS) is the only national source of annual data on the specific health services that Americans use, how frequently the services are used, the cost of the services, and the methods of paying for those

How MEPS data are used in the private sector

RTI International, an independent research organization, has developed a software-based tool using data from AHRQ's MEPS program. The tool, called the Obesity Cost Calculator, was developed for the National Business Group on Health (NBGH). It enables NBGH member organizations to to determine their obesity-related costs by accurately quantifying the increase in obesity-related costs for people who are obese, but not eligible for bariatric surgery and those who are obese and eligible for bariatric surgery. Based on the cost information produced by the calculator, a variety of interventions can be evaluated for costs and benefits.

services. MEPS is designed to help us understand how the growth of managed care, changes in private health insurance, and other dynamics of today's market-driven health care delivery system have affected, and are likely to affect, the kinds, amounts, and costs of health care that Americans use. MEPS provides the foundation for estimating the impact of changes on different economic groups or special populations such as the poor, elderly, veterans, the uninsured, or racial/ethnic groups. For example:

- Data from 2004 show that white non-Hispanics under the age of 65 make up about 65 percent of the U.S. population and almost 50 percent of the population who are uninsured.
- In 2003, wage earners who earned low hourly wages were at greater risk for being uninsured. Only 53 percent of workers earning less than $10 per hour obtained job-related coverage, in contrast to 93 percent of workers earning $15 or more per hour.
- In 2002, about 95 percent of families had some health care expenses, and the total expenses for these families averaged $6,928.
- Since 1996, expenditures for prescribed medicines purchased by the elderly in the U.S. community population increased 116 percent, from $23.1 billion total reported in 1996 to $49.9 billion reported in 2002.
- In 2002, 30.8 percent of families with an elderly member had out-of-pocket expenses that accounted for greater than 5 percent of family income, compared with 6.8 percent of families without an elderly member.

More information on MEPS can be found online at www.meps.ahrq.gov.

Healthcare Cost and Utilization Project

The Healthcare Cost and Utilization Project (HCUP) is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by AHRQ. HCUP databases bring together the data collection efforts of 39 State data organizations, hospital associations, private data organizations, and the Federal government to create a national information resource of patient-level health care data. HCUP includes the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information beginning in 1988. These databases enable research on a broad range of health policy issues, including cost and quality of health services, medical practice patterns, access to health care programs, and outcomes of treatments at the national, State, and local market levels.

The largest growth in HCUP has been in outpatient data initiatives—the acquisition of additional State Ambulatory Surgery Databases and State Emergency Department Databases, partnership discussions about improving outpatient data collection and measurement of the quality of outpatient care, and dissemination of outpatient data and its capacity. In 2005, 22 States contributed ambulatory surgery data for a combined total of 13.7 million visits in 2,410 facilities (mostly hospital-based but including some free-standing sites). In addition, 17 States contributed outpatient emergency department data, for a combined total of 17.8 million visits in 1,035 hospitals.

Recent findings from HCUP data are as follows:

- The number of hospital admissions for HIV infection in the United States declined from a high of 149,000 in 1995—just before approval of life-prolonging protease inhibitor drugs—to 70,000 admissions in 2003. During the same period, the percentage of AIDS patients who died in the hospital dropped by 32 percent—from a death rate of 12.5 percent in 1995 to 8.5 percent in 2003.
- In 2002, 5 of the top 10 conditions for hospitalization were due to cardiovascular

disease: coronary atherosclerosis, congestive heart failure, chest pain, heart attack, and irregular heart beat.

- In 2002, about 30 percent of patients had hypertension in addition to another diagnosis.
- The aggregate total billed for hospital care has increased significantly from 1997 to 2002 for each of the four major payer categories, with the largest increases in charges seen for Medicaid and the uninsured:
  - 29 percent increase for Medicare.
  - 47 percent increase for Medicaid.
  - 31 percent increase for private insurers.
  - 39 percent increase for the uninsured.

For more information on HCUP databases and software, go to www.ahrq.gov/data/hcup.

AHRQ Quality Indicators

AHRQ has developed an array of health care decisionmaking and research tools that can be used by audiences such as program managers, purchasers, consumers, researchers, government agencies, and others. One tool, the AHRQ Quality Indicators (QIs), is widely used to highlight potential quality concerns, identify areas that need further study and investigation, and track changes over time. The AHRQ QIs are a set of indicators organized into three modules, each of which measures quality associated with the delivery of care occuring in either an outpatient or an inpatient setting:

- Prevention Quality Indictors (PQIs) are ambulatory care-sensitive conditions that identify adult hospital admissions that evidence suggests could have been avoided, at least in part, through high-quality outpatient care.
- Inpatient Quality Indicators (IQIs) reflect quality of care for adults inside hospitals and include: inpatient mortality for medical conditions; inpatient mortality for surgical procedures; utilization of procedures for which there are questions of overuse, underuse, or misuse; and volume of procedures for which there is evidence that a higher volume of procedures may be associated with lower mortality.
- Patient Safety Indicators (PSIs) also reflect quality of care for adults inside hospitals, but focus on potentially avoidable complications and iatrogenic events.

The AHRQ QIs are being used for national, State-level, and hospital-level public reporting and tracking:

- AHRQ's *National Healthcare Quality and Disparities Reports* and their derivative products incorporate many PQIs and PSIs for tracking and reporting at the national level.

AHRQ's Quality Indicators document quality of care for Medicare beneficiaries

The Medicare Payment Advisory Commission (MedPAC) used the Quality Indicators to evaluate the quality of care for Medicare's 40 million beneficiaries. MedPAC applied mortality measures from the Inpatient Quality Indicators to calculate mortality for such conditions as pneumonia, acute myocardial infarction, stroke, and congestive heart failure. To evaluate patient safety in the hospital, MedPAC used AHRQ's Patient Safety Indicators to identify adverse events. Applying the Prevention Quality Indicators, they studied the trends in the rates of potentially preventable hospital admissions. The Chairman of MedPAC, Glenn Hackbarth, testified before the Subcommittee on Health of the House Committee on Ways and Means on March 18, 2004. His testimony, titled "Improving Quality through Medicare Payment Policy," identified AHRQ as the source of the tools needed to document and follow critical markers of the quality of care delivered to Medicare beneficiaries.

Selected IQIs and composite measures are planned for inclusion in future reports.

- The demand for information to better inform consumers has increased, specifically demand for standardized hospital-level comparative data as a result of concern over quality and patient safety in the hospital setting. Currently, there are eight States that report some or all of the AHRQ QIs: Texas, New York, Wisconsin, Massachusetts, Oregon, California, Utah, and Florida. Kentucky and Iowa are both planning to publicly report the AHRQ QIs in the next year or so.

More information on the AHRQ QIs can be found on the Web site at www.qualityindicators.ahrq.gov/.

Consumer Assessment of Healthcare Providers and Systems

The Consumer Assessment of Healthcare Providers and Systems (CAHPS®) program is a multi-year AHRQ initiative. Originally, CAHPS referred to AHRQ's Consumer Assessment of Health Plans Study; that name was changed in 2005 to reflect the evolution of the program from its initial focus on enrollees' experiences with health plans to a broader focus on experiences with various aspects of the health care system. AHRQ first launched the program in October 1995 in response to concerns about the lack of good information about the quality of health plans from the enrollees' perspective.

Over time, the program has expanded beyond its original focus on health plans to address a range of health care services and meet the various needs of health care consumers, purchasers, health plans, providers, and policymakers. The first stage of this program is referred to as CAHPS I. The second, current stage, is referred to as CAHPS II.

In 2005, development and evaluation of the CAHPS Hospital Survey (known as H-CAHPS or Hospital CAHPS) was completed. The CAHPS Hospital Survey is a standardized survey of the experiences of adult inpatients with hospital care and services.

For more information on the CAHPS, go to www.cahps.ahrq.gov/.

Most Medicare patients get access to needed care

The CAHPS Health Plan Survey 3.0 results for 2004 and 2005 in the commercial, Medicaid, State Children's Health Insurance Program, and Medicare Managed Care sections show that 83 percent of Medicare enrollees in 2005 responded to questions about access to needed care as "not a problem." In contrast, questions related to getting care quickly received the least positive responses—only 58 percent of Medicare enrollees responded "not a problem" to these questions.

HIV Cost and Services Utilization Survey

The HIV Cost and Services Utilization Survey (HCSUS) was the first study to examine the health status and health care use of a nationally representative sample of adults infected with HIV. Data from HCSUS have been used to address a number of policy-relevant issues, such as variation in access to antiretroviral therapy. Recent findings from the HCSUS show:

- More than one-third (36 percent) of HIV-infected parents fear transmitting HIV to their children, and 42 percent fear catching an infection from their children. Avoidance of behaviors such as kissing, sharing utensils, or hugging was especially prevalent among Spanish-speaking parents (78 percent) vs. those who spoke English (23 percent).
- The Ryan White Comprehensive AIDS Resources Emergency (CARE) Act provides funds for comprehensive care for vulnerable individuals with HIV infection in all 50 States. Researchers analyzed data from the HCSUS to examine whether the CARE Act

clinics differed from other HIV clinics in the characteristics of their patients and their organization, staffing, and services. Overall, patients seen at the CARE Act centers received more comprehensive care than did patients at other HIV clinics.

HIV Research Network

The purpose of the HIV Research Network (HIVRN) is to collect and analyze timely data on HIV health services and to implement strategies to improve the quality of care delivered to all people with HIV disease. Policymakers, service providers, and patients need to know how often people with HIV infection receive specific services and what factors are related to receiving more or fewer services. They also need to know about effective methods, procedures, and processes for improving the quality and safety of care provided to HIV patients. Indeed, one of the major goals of the HIVRN is to examine patient safety and other quality-related issues. The HIV community is an important place in which to study safety issues, and the network provides an excellent opportunity to improve the safety and quality of HIV care within the network and then across the country. Patients with HIV disease have compromised immune systems that leave them with a diminished capacity to combat infections, untoward consequences of drug reactions, and harm resulting from medical errors.

The HIVRN includes an active intranet on which members exchange information on best practices instituted to minimize the risk of errors. All participating sites are regularly surveyed to obtain information on quality-improvement mechanisms that have been instituted for patients with HIV and methods found to be successful at one site are shared with other members of the HIVRN.

HIVnet is a tool that provides information on inpatient and outpatient utilization by people with HIV disease based on data collected by the HIVRN. These statistics are derived from 12 medical practices that provided comprehensive resource utilization data for 2000.

In September 2005, AHRQ sponsored the publication of a supplement to the journal *Medical Care* that features seven new empirical studies on health care for people with HIV disease. Five of the seven studies were based on data from AHRQ's HIVRN. The studies examined data for both adults and children on hospitalizations, inpatient and outpatient visits, prophylaxis for opportunistic illnesses, and the impact of highly active antiretroviral therapy.

For more information on the HIVRN and HIVnet, go to www.ahrq.gov/data/hivnet.htm.

Ensuring the Value in Health Care

Health care costs in America continue to rise. According to the most recent data from MEPS, total health care expenses in 2003 were $895 billion compared with $810 billion in 2002—an increase of 10.5 percent. Health insurance premiums increased 9.2 percent in 2003. The average annual total premium for single coverage was $3,481 compared with $3,189 in 2002. Family coverage averaged $9,249 compared with $8,469 in 2002.

Given the increasing costs of health care, it is vitally important to help Americans achieve wider access to high-quality health care and become more efficient in providing that care. The goal is to provide safe and effective health care, with the best possible outcomes, at the lowest possible cost. AHRQ directs many of its activities toward improving efficiency through the design of systems that assure safe and effective treatment and reduce waste and cost. For example:

- Data from HCUP show that with appropriate primary care for diabetes complications, the Nation could save nearly $2.5 billion in

hospital costs, with significant potential savings obtained in Medicare ($1.3 billion of total costs) and Medicaid ($386 million of total costs).

- Women who live in areas with a high number of managed care organizations (HMOs) were nearly twice as likely to have recently received a mammogram or Pap smear and were 58 percent more likely to have had a recent clinical breast exam than women in areas with low managed care penetration.
- Among adult ICU patients who died during their hospital stay, those who had ethics consultations had fewer hospital days and lower hospital costs compared with patients who did not have a consultation (an average of 8 days vs. 11 days, and $24,938 vs. $30,184, respectively). Researchers estimate that an ethics consultation practice would reduce treatment costs in a hospital with 40 ICU beds by $157,380 per year.

Preparing for Public Health Emergencies

AHRQ supports research assessing and improving the ability of the U.S. health care system to respond to public health emergencies that result from natural, biological, chemical, nuclear, and other disasters. These research projects examine an array of issues related to clinicians, hospitals, and health care systems, including the need to establish linkages among these providers with local and State public health departments, emergency personnel, and others preparing to respond to events that have the potential to cause mass casualties.

Here are examples of tools now available as a result of AHRQ research:

Emergency Preparedness Resource Inventory

This Web-based tool can help local, regional, and State planners compile customized inventories of health care and emergency resources to prepare for incidents, estimate gaps, and support future resource investment decisions. The resource inventory helps first responders figure out where emergency equipment and medicines are located, how much is available, and whom to contact to obtain those resources. The Emergency Preparedness Resource Inventory software tool and accompanying supporting documents can be found online at www.ahrq.gov/research/epri.

The Decontamination of Children: Preparedness and Response for Hospital Emergency Departments

This 27-minute video trains emergency responders and hospital emergency department staff to decontaminate children after being exposed to hazardous chemicals during an

In the wake of Hurricane Katrina . . .

Tools from the report, *Use of Former (Shuttered) Hospitals to Expand Surge Capacity*, were released on the AHRQ Web site immediately after Hurricane Katrina struck. The tools gave emergency responders and public health officials useful, practical resources for opening shuttered hospitals during the emergency. The report and its tools can also be used to assess existing facilities to meet future needs. Material posted included separate, fill-in-the-blank checklists for chief administrators, facilities experts, medical personnel, security experts, equipment and supply experts, and medical gas system verifiers to use in evaluating a facility. It also contains checklists that help emergency planners assess and fulfill management and staffing needs and determine any additional expertise required, as well as a list of supplies and equipment needed for operation of a reopened facility. The report can be found online at www.ahrq.gov/research/shuttered.

Real-time population health monitoring technology can detect abnormal trends in diseases

The Massachusetts Department of Public Health (MDPH) is using technology from the Automated Epidemiologic Geotemporal Integrated Surveillance (AEGIS) system, a project supported through AHRQ's Bioterrorism and Emergency Preparedness Research Program. AEGIS, which acquires and processes clinical data to detect abnormal patterns of disease in the population, is a leading-edge population monitoring system. Front-line clinicians are generally better at recognizing individual cases than patterns of cases over time and across a geographic region. AEGIS augments the capabilities of the alert clinician by monitoring these larger trends. While traditional surveillance systems rely on voluntary reports from providers to acquire data, AEGIS acquires data continuously through fully automated routines. Real-time population health monitoring technology is useful not only for the detection of bioterrorism, but also for general public health monitoring, clinical medicine, quality improvement, patient safety, and research.

attack or other disaster. It provides a step-by-step demonstration of the decontamination process in real time and trains clinicians about the nuances of treating infants and children, who require special attention during decontamination procedures. A short clip of the video is online at www.ahrq.gov/research/decontam.htm.

National Hospital Available Beds for Emergencies and Disasters (HAvBED) system

This report explores the feasibility of a national real-time hospital-bed tracking system to address a surge of patients during a mass casualty event. The report includes a discussion of the components of the HAvBED system, including the communications protocol, database, and Geographic Information System; a virtual tour of the system; standardized hospital bed definitions to provide uniform terminology for organizations tracking bed availability; reviews of existing bed-tracking systems; and conceptual and technical recommendations. The report is available online at www.ahrq.gov/research/havbed.

Looking to the Future

In the coming months and years, AHRQ will continue to focus on ways to improve the quality, safety, and cost-effectiveness of health care in America. In 2006, we will pursue an ambitious research agenda. Examples of key programs follow.

Patient Safety and Quality Improvement Act of 2005 and Patient Safety Organizations

The Patient Safety and Quality Improvement Act of 2005 amended the Public Health Service Act to encourage a culture of safety in health care organizations. It provides legal protection of information voluntarily reported to patient safety organizations (PSOs). To encourage health care providers to work with the PSOs, the Act provides Federal confidentiality and privilege protections. The Act prohibits the use of these analyses in civil, administrative, or disciplinary proceedings and limits their use in criminal proceedings. AHRQ is developing plans to help implement the Act as a science partner to the PSOs and health care providers. The Agency's goals are to advance the methodologies that identify the most important causes of threats to patient safety, identify best practices for

addressing those threats, and share the lessons learned as widely as possible.

Expansion of the Effective Health Care Program

In 2005, the Effective Health Care Program focused initially on issues of special importance to Medicare. Section 1013 of the MMA authorizes the Secretary of Health and Human Services to regularly consider priority areas for research under this Section. In 2006, the priority list will be updated to include Medicaid and the State Children's Health Insurance Program (SCHIP). A listening session was held in early 2006 to solicit input on research priorities for the Effective Health Care Program, including an open forum in which participants gave oral comments on suggested topics for study and the structure of the priority lists (e.g., disease/condition, type of intervention, affected population, etc.). An online link was available until March 15, 2006, allowing people to suggest additional priority conditions, which will be considered for inclusion in the priority conditions list in 2006–2007. Although only those conditions nominated by March 15, 2006 will receive consideration, people can continue to make nominations for priority conditions at any time through the Web site at http://effectivehealthcare.ahrq.gov/.

In 2006, three projects within the DEcIDE network will develop methodological tools for analyzing pharmaceutical data that result from implementation of Part D (the prescription drug benefit program) of the MMA. The major goals of these projects are to develop: (1) an evidence-based approach to standardizing drug prescription statistics and outcome measures of the safety of drugs; (2) algorithms for identifying usage patterns; and (3) a data system and empirical framework for identifying and capturing adverse drug events.

Registries for Evaluating Patient Outcomes

Registries for Evaluating Patient Outcomes is a DEcIDE Network project that will produce a reference guide to help health care organizations design and operate successful patient registries to track the outcomes of medical treatments, including drugs. The guide will be online and reside on both the AHRQ and Centers for Medicare & Medicaid Services (CMS) Web sites. It will define standards and best practices, criteria for evaluating registries and the quality of their data, and guidance on how registry data can be used to conduct valid scientific research. The proposed document outline can be found on AHRQ's Web site at http://effectivehealthcare.ahrq.gov.

Innovations Clearinghouse

AHRQ is creating the Innovations Clearinghouse, an online searchable database and repository of innovations in health service delivery. Its purpose will be to capture effective methods of disseminating and sustaining improvements in the delivery of health care. The clearinghouse will serve as a forum for learning about innovation and change by providing a national-level, publicly accessible mechanism for obtaining objective, detailed information on health care innovations and tools and promote their dissemination, replication, adaptation, and use.

CAHPS Hospital Survey

In January 2006, the U.S. Office of Management and Budget (OMB) approved the use of the CAHPS Hospital Survey, and national implementation plans are proceeding. A short "dry run" of the survey implementation will be conducted with participating hospitals to give hospitals and vendors first-hand experience in collecting and transmitting the survey data (without public reporting of results). National

implementation of the CAHPS Hospital Survey is scheduled for fall 2006. Hospitals across the country will begin using this survey and voluntarily reporting data to the CMS, which plans to initiate public reporting of those results in late 2007.

Ambulatory CAHPS

The CAHPS Consortium is refining and expanding the family of ambulatory care surveys to be more attuned to the needs of sponsors and variations in health care markets. The content and structure of the Health Plan Survey is being streamlined to focus the core questionnaire more on essential health plan functions, such as customer service, denial of service, and complaints and appeals. A new survey, CAHPS Clinician and Group Survey will be finalized by the spring of 2006 and asks patients about their recent experiences with physicians and other staff. The CAHPS People with Mobility Impairments Survey asks adults with mobility impairments about their experiences with health care and services. The CAHPS American Indian Survey is being developed in collaboration with the Choctaw Nation Health Service and asks adult American Indians about their experiences with Choctaw Nation health care facilities.

Accelerating Change and Transformation in Organizations and Networks

The Accelerating Change and Transformation in Organization and Networks (ACTION) program is the successor to AHRQ's Integrated Delivery System Research Network (IDSRN). ACTION's purpose is to promote innovation in health care delivery by accelerating the development, implementation, dissemination, and uptake of demand-driven and evidence-based products, tools, strategies, and findings. ACTION is composed of 15 partners and their collaborators who will build on the success of the IDSRN. ACTION is a 5-year program.

Pay for Performance

Early in 2006 AHRQ will produce two new products on pay for performance. Each employs a creative approach to meeting the needs of practitioners in the field. The first expedites the cycle of research so purchasers have quicker access to findings on pay for performance, and the second is being developed in collaboration with purchasers, who have identified pressing questions for researchers to address.

- In collaboration with the editor of *Medical Care Research and Review*, AHRQ engaged a multidisciplinary team of guest editors in an experiment to expedite the transfer of research on quality-based payment to public and private purchasers. The effort involves aggressive, systematic outreach to research teams across the country in an attempt to identify earliest findings, some based on partial data, appropriate for peer review and translation. From conceptualization to publication the project will take only 15 months.
- AHRQ will develop *Pay-for-Performance: A Decision Guide for Purchasers*. The *Decision Guide* is designed for use by public and private purchasers of health care services, including health plans, who are considering sponsorship of a pay-for-performance initiative. Twenty decisions, identified by 10 public and private purchasers, form the outline of the *Decision Guide*. For each of these key design decisions, the *Decision Guide* offers options as well as any available theoretical and empirical evidence.

Pilot Learning Network on Quality-Based Purchasing

AHRQ is sponsoring a pilot Learning Network on the topic of quality-based purchasing for 11 public and private purchasers who are poised to implement a quality-based payment scheme or a public report card. The pilot Network, which

will roughly span a 1–1/2 year period, will feature opportunities to learn from research evidence as well as from peers' promising practices via a coordinated series of in-person workshops, Web-casts, audio conferences, and Listservs®. Members of the Learning Network (two from each participating employer coalition and Medicaid agency) will learn about the:

- State of health care quality in their respective States.
- Science of quality measurement and quality measurement options.
- Evidence to guide pay-for-performance scheme design.
- Evidence to guide the development of public report cards.
- Evaluation strategies to capture the impact of a payment or report card initiative.

In Conclusion

The evidence developed through AHRQ-sponsored research and analyses helps everyone involved in patient care make more informed choices about what treatments work, for whom, when, and at what cost. Health care quality is improving, but much more remains to be done to achieve optimal quality. AHRQ will continue to invest in successful programs that develop and translate useful knowledge and tools so that the end result of the Agency's research will be measurable improvements in health care in America, gauged in terms of improved quality of life and patient outcomes, lives saved, and value gained for what we spend.

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