AHRQ Annual Highlights 2006

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Introduction

Americans spend nearly $2 trillion on health care each year. U.S. hospitals, physicians, nurses, and other health care providers offer some of the best care in the world, but far too many people still do not receive the quality of care that they expect, deserve, and purchase. The health care system in the United States is working to improve the quality of care. These changes require that health care providers, policymakers, and consumers get accurate, unbiased information in order to make the best decisions along with tools and practices they can use to improve the Nation's health care system.

The Agency for Healthcare Research and Quality (AHRQ), 1 of 12 agencies within the Department of Health and Human Services (HHS), is committed to helping the nation improve our health care system. AHRQ's mission is to improve the quality, safety, efficiency, and effectiveness of health care for all Americans. To fulfill this mission, AHRQ conducts and supports 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 to 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 mission and goals help HHS achieve the objectives set forth in the Secretary's 2006 priority initiatives, especially those of health care transparency, health care technology, value-based health care, Medicaid modernization, personalized health care, prevention, and public health preparedness. This report presents key findings from AHRQ's research portfolio during 2006.

AHRQ's Customers

AHRQ customers include clinicians and other health care providers, such as hospitals and hospital systems; consumers and patients; health care policymakers at the Federal, State, and local levels; purchasers and payers, such as employers and public and private insurers; and medical school faculty. The evidence developed through AHRQ-sponsored research and analysis helps clinicians, consumers, patients, and health care providers make informed choices about what treatments work, for whom, when, and at what cost.

Clinicians who provide direct care and services to patients use AHRQ's evidence-based research to deliver high-quality health care and to work with their patients as partners. AHRQ also provides clinicians with clinical decision-support tools as well as access to guidelines and quality measures. Policymakers, purchasers, and other health officials use AHRQ research to make better informed decisions on health care services, insurance, costs, access, and quality. Public policymakers use the information produced by AHRQ to expand their capability to monitor and evaluate changes in the health care system and to devise policies designed to improve its performance. Purchasers use the products of AHRQ-sponsored research to obtain high-quality health care services. Health plan and delivery system administrators use the findings and tools developed through AHRQ-sponsored research to make choices on how to improve the health care system's ability to provide access to and deliver high-quality, high-value care. AHRQ research helps consumers and patients get and use objective, evidence-based information on how to choose health plans, doctors, or hospitals. In addition, AHRQ can help patients and their families play an active

role in their health care and reduce the likelihood that they will be subject to a medical error. Personal health guides developed by AHRQ help individuals keep track of their preventive care and other health services they receive. AHRQ's goal is to help people become better informed consumers and to be partners in their own care.

Healthcare 411

In 2005, AHRQ created Healthcare 411 to help Americans become informed about the Agency's latest health care research findings, news, and information. This audio newscast features synopses of AHRQ's latest findings and information on current health care topics. The newscasts are distributed through Apple® iTunes®, Yahoo® PodCasts, and other Web sites that provide health information to their customers, patients, students, employees, or health care personnel. They can be heard through a computer or downloaded to a portable digital player such as an iPod®. Examples of newscasts released in 2006 include:

- Medical intern fatigue and errors
- Making surgery safer
- Weighing the benefits and risks of a medication or treatment
- Health care for minority women
- Obesity surgery

For more information on Healthcare 411 and to listen to the newscasts, go to www.healthcare411.ahrq.gov.

Improving the Safety and Quality of Health Care

AHRQ supports research that helps to improve patient safety and the quality of health care. Since 2001, AHRQ has supported research that is focused on reducing medical error and, in turn, improving patient safety. Research projects funded by the Agency identify, develop, test, and implement patient quality and safety measures. Key to reducing medical errors and improving quality is the dissemination and translation of these research findings and methods into practice, as well as the development of strategies to implement promising research and evaluate its impact. In 2006, AHRQ-funded patient safety research projects emphasized teamwork, ways to reduce medical errors, and creating a culture of patient safety within the health care workplace. The use of health information technology (health IT) can accelerate the progress we have made in patient safety and quality during the next decade. AHRQ has also developed tools and resources that measure the quality of health care and disseminates this information to help our stakeholders take action in areas that need improvement. Descriptions of several current initiates follow.

TeamSTEPPS™: Strategies and Tools to Enhance Performance and Patient Safety

AHRQ and the Department of Defense released TeamSTEPPS™, a new evidence-based team training and implementation toolkit that demonstrates techniques of effective communication and other teamwork skills. The new toolkit is designed to optimize team performance and outcomes across the health care delivery system. TeamSTEPPS™ is presented in a multimedia format, with tools to help a health care organization plan, conduct, and evaluate its own team training program. It includes an instructor guide, PowerPoint™ presentations, a DVD, spiral-bound pocket guide, a CD-ROM with printable materials, and a poster to announce TeamSTEPPS™ activities in a heath care organization. More information on TeamSTEPPS™ can be found at www.ahrq.gov/qual/teamstepps.

AHRQ Patient Safety Network (PSNet) provides resources for improving patient safety and preventing medical errors

AHRQ's PSNet (www.psnet.ahrq.gov) is a national Web-based resource featuring the latest news and essential resources on patient safety. The site offers weekly updates on patient safety literature, news, tools, and meetings and a vast set of carefully annotated links to important research and other information on patient safety. Supported by a robust patient safety taxonomy and Web architecture, the AHRQ PSNet provides powerful searching and browsing capability, as well as the ability for diverse users to customize the site around their interests.

Hospital Survey on Patient Safety Culture

Released in 2005, the *Hospital Survey on Patient Safety Culture* (Culture Survey) is a 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 specific patient safety interventions.

Because of increasing interest from hospitals and other facilities that want to use the AHRQ Culture Survey, in 2006 the Agency established the Patient Safety Culture Survey Database as a central repository for survey data. Facilities will be able to compare their patient safety culture survey results with those of other facilities in support of patient safety culture improvement efforts. The database will also produce average scores and percentiles on the survey items and composites to help users assess their own results and identify strengths and opportunities for improvement.

Other examples of how the Culture Survey is being used and adapted include:

- Employees of the Cincinnati Children's Hospital Medical Center completed the survey. The highest-scoring results were in the categories called "teamwork within hospital units" and "hospital management support for patient safety." The lowest areas were for "non-punitive response to error" and "hospital handoffs and transitions." Department heads selected areas to work on with their staff for improvement.
- The University of Pittsburgh School of Medicine adapted AHRQ's Culture Survey to survey nursing home staff as part of ongoing research on patient safety in nursing homes. The effort yielded a 69 percent response rate. Nursing home staff scored significantly worse than hospital staff benchmarks on 5 of the 12 patient safety culture dimensions. These significant differences were reported in nonpunitive response to error, teamwork within units, communication openness, feedback and communication about errors, and organizational learning.
- Northwestern Memorial Hospital in Chicago administered AHRQ's Culture Survey and received a 28 percent response rate among clinicians — four times the rate of a shorter paper survey administered in 2002. Staff voiced concern about handoffs, communication between workgroups, and lack of feedback about reported issues. The survey also highlighted that staff were more uncomfortable with filing reports of adverse events than was previously recognized. The patient safety team focused on strategies to address these concerns including new processes and technical support to improve team training and the institution of new monthly patient safety morbidity and mortality conferences. Northwestern plans to repeat the survey approximately every 18 months.

- The Multnomah County Health Department in Portland, Oregon, used AHRQ's Culture Survey in a project that covers the county's 27 patient care delivery sites, which include primary care health centers, school-based health centers, and the Department of Corrections health program, in addition to clinics serving HIV patients and those with sexually transmitted diseases and tuberculosis. The Corrections Health Quality Improvement Committee has begun working with its management team to identify, prioritize, and initiate performance improvement activities in response to the survey data.

Additional information on the Culture Survey and Database can be accessed at www.ahrq.gov/qual/hospculture/.

AHRQ WebM&M features cases of medical errors and perspectives on patient safety.

AHRQ WebM&M (Morbidity and Mortality Rounds on the Web) is a popular online journal and forum on patient safety and health care quality. This site features expert analysis of medical errors reported anonymously by our readers, interactive learning modules on patient safety, perspectives on safety, and forums for online discussion. CME and CEU credit are available. WebM&M can be accessed at www.webmm.ahrq.gov/.

Recent research findings on patient safety and the quality of health care

- An AHRQ-supported study found that wrong-site surgery is extremely rare, and major injury related to it is even more rare. A wrong-site surgery serious enough to result in a report to insurance risk managers or a lawsuit could be expected to occur approximately once every 5 to 10 years at a single large hospital. Between 1985 and 2004, the number of wrong-site surgeries conducted on limbs or organs other than the spine occurred once in every 112,994 operations.
- A nationwide study found that 83.6 percent of interns reported work hours that did not comply with the Accreditation Council for Graduate Medical Education standards during at least 1 month in the year (July 2003 through May 2004) following implementation. About 67 percent of interns reported working shifts in excess of 30 consecutive hours. Averaged over 4 weeks, 43 percent of interns reported working more than 80 hours a week, and 43.7 percent reported not having 1 day in 7 free from work duties.
- More than one-fourth (27 percent) of 502 critical care nurses reported making at least 1 error, and more than one-third (38 percent) reported making at least 1 near-error over the course of 28-days. The risk for making an error almost doubled when the nurses worked 12.5 or more consecutive hours. Working more than 40 hours per week increased both errors and near-errors. Almost two-thirds of the critical care nurses struggled to stay awake at least once during the study period, and 20 percent fell asleep at least once during their work shift. The risk of falling asleep at work almost doubled when shifts exceeded 8 hours and more than doubled when shifts were longer than 12 hours.

Minnesota used AHRQ products to inform their work on the Adverse Health Events Reporting Law

The State of Minnesota used the AHRQ Patient Safety Network (http://psnet.ahrq.gov) and the AHRQ WebM&M (http://webmm.ahrq.gov) to assist in the development and implementation of Minnesota's Adverse Health Events Reporting Law. Minnesota is the first State in the nation to institute a mandatory adverse health event reporting system. The law requires hospitals and ambulatory surgical centers to report 27 types of "never events"— events that are serious, largely preventable, and of concern to both the public and health care providers — as well as the subsequent findings of root-cause analyses and the corrective action plan. The Minnesota Department of Health publishes an annual public report of the adverse events and the corrective actions at each hospital and ambulatory surgical center in Minnesota. The 2006 Annual Report detailed 106 adverse events and included AHRQ's Consumer Web page (www.ahrq.gov/consumer) as a resource to support consumers in making informed decisions about health care safety and quality. Minnesota's 2006 report is available at http://www.health.state.mn.us/patientsafety/aereport0206.pdf.

Close Call Reporting System reports medical errors that are corrected before reaching the patient

The Close Call Reporting System (CCRS), a patient safety and quality assurance mechanism developed by the University of Texas Center of Excellence for Patient Safety Research and Practice, is currently being used by nine hospitals in Texas and one hospital in New York. Developed through an AHRQ grant, CCRS is a voluntary and anonymous tool designed to gather information about "close calls," which are situations that could have resulted in an accident, injury, or illness, but did not either because of timely intervention or by chance. The system is based on an error reporting system used in commercial aviation, the Aviation Safety Action Program. Through April 2006, 2,750 close calls have been reported via CCRS, and 5 close call alerts have been sent to participating hospitals, the Food and Drug Administration, and the United States Pharmacopeia regarding close calls related to labeling and packaging of medications. Participating hospitals are using the data to inform and guide their own quality improvement efforts.

AHRQ-supported research influences revisions to Health Canada's process for approving names for drugs.

Research conducted by Bruce Lambert, Ph.D., Department of Pharmacy Administration at the University of Illinois at Chicago, focused on how auditory perception of sound-alike names can lead to medication errors. Dr. Lambert showed how similarity increases the risk of drug confusion errors and how errors occur in visual perception, auditory perception, and short-term memory. The information and discussions significantly contributed to Health Canada's policy recommendations. Under the new premarketing policy, Canadian drug manufacturers will now be required to submit a name analysis for new products to demonstrate that the proposed name is not similar to other product names. The new process is expected to avoid confusion between products, reduce the likelihood of medication mix-ups, and improve patient safety in the context of day-to-day use of products

Health Information Technology for Patient Safety and Quality

AHRQ's $166 million health IT initiative funds more than 100 projects throughout the nation, in settings ranging from large health plans and hospitals to small practices, including rural and inner city communities. As leaders of these projects plan and implement various health IT products, they provide a clinic-level window on the pitfalls and opportunities that others will face. AHRQ will synthesize these experiences to create useful findings and tools. The projects also will measure actual benefits from AHRQ's health IT projects, providing evidence for the business case for health IT adoption.

National Resource Center for Health Information Technology

As part of the health IT initiative, AHRQ created the AHRQ National Resource Center for Health Information Technology (the National Resource Center) to help the health care community make the leap into the Information Age. In addition to providing technical assistance, the National Resource Center shares new knowledge and findings that have the potential to transform everyday clinical practice. AHRQ's National Resource Center is committed to advancing our national goal of modernizing health care through the best and most effective use of health IT. Components of the online National Resource Center include:

- Health Costs and Benefits Database Project, a searchable database that contains hundreds of studies and articles on the costs, benefits, and barriers related to health IT implementation.
- Initiatives for Change, which highlights innovative approaches to improving health care quality and safety through health IT. Current features include an overview on health information exchange, details on the Connecting for Health Common Framework (a small set of nationally uniform technical and policy guidelines for health care organizations that share a big objective, that of rapid attainment of widespread information-sharing in support of modern health care practice), and a profile of the Indiana Network for Patient Care (an executive summary that highlights the findings from a pending white paper describing in detail the architecture and development of a successful regional health information exchange.
- the Knowledge Library, with links to more than 6,000 health IT tools, best practices, and published evidence.

For more information on the National Resource Center and AHRQ's health IT initiative, go to http://healthit.ahrq.gov.

Integrating health IT improves communication and reduces costs in a nursing facility

Christian Home and Rehabilitation Center, a skilled nursing facility in rural Wisconsin, implemented findings from an AHRQ-funded project. The project, "Real-time Optimal Care Plans for Nursing Home Quality Improvement," demonstrated the value of integrating standardized documentation and timely feedback reports in the facility by simplifying and reducing the number of forms used to document care by at least half and, in some cases, by as much as 70 percent. Resident information related to activities of daily living - such as bathing, eating, toileting, incontinence episodes, and dressing, as well as behaviors and weight loss - is located in one place and used to generate reports that are provided to the caregivers each week. The incontinence reports led to increased savings at the facility. By reviewing the reports, urinary tract infections were caught before they became medical issues. A reduction in the incidence of pressure ulcers translated to a savings of approximately $26,000 in the first year of full implementation.

New information will help health care providers adopt health information technologies

AHRQ released the report, *Costs and Benefits of Health Information Technology* (AHRQ Publication No. 06-E006), a synthesis of studies that have examined the quality impact of health information technology (health IT) as well as the costs and organizational changes needed to implement health IT systems. Significant improvements in the quality of health care have occurred when utilizing health IT systems, however, these successes have occurred primarily within large health care systems that created their own health IT systems and devoted substantial commitment and resources to these efforts. Smaller medical practices and hospitals that constitute the majority of the nation's health care providers have limited technological expertise and must depend on the purchase of commercial systems. As a result, a majority of health care providers in America have not had the information they need to calculate the impact of health IT implementation on their organizations.

Annual Patient Safety and Health Information Technology Conference

AHRQ sponsored the 2006 Annual Patient Safety and Health Information Technology Conference which brought together the Nation's leading innovators and implementers of on-the-ground solutions for improving health care safety and quality. Nearly 700 people attended. The conference focused on how AHRQ-funded patient safety and health IT projects across the country are:

- Implementing new interventions and technologies that improve care.
- Measuring and managing innovations in everyday clinical practice that reduce medical errors.
- Advancing community health through regional health information exchange.
- Creating a culture of safety across various health care settings.

Recent research findings on health IT

- Computerized alerts can substantially reduce inappropriate drug prescribing for the elderly for two drug classes: long-acting benzodiazepines and tertiary amine tricyclic antidepressants (TCAs), which can cause problems such as daytime sedation and falls. Besides noting the inappropriate prescription, the alerts also suggest alternatives, such as shorter-acting and less-sedating benzodazepines and secondary amine TCAs or other medications such as buspirone. In this study, the alerts led to a 22 percent decline in inappropriate or nonpreferred prescribing from these two drug classes compared with the month prior to the drug-specific alerts. This reduction was sustained over a 2-year post-alert period and was driven primarily by decreased dispensing of nonpreferred TCAs.
- A handheld personal digital assistant (PDA) that includes a software program to assess gastrointestinal (GI) risk factors prior to prescribing nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen (which increase the risk of GI bleeding) can reduce unsafe prescribing. Physicians whose PDA software advised them to assess patient GI risk factors before prescribing NSAIDs wrote half as many unsafe prescriptions for NSAIDs as physicians whose PDA software did not include the GI risk assessment rule. The GI rule prompted physicians to assess six established risk factors for GI complications from NSAIDs (age, self-assessed health status, diagnosis of rheumatoid arthritis, steroid use, a history of GI hemorrhage or hospitalization for an ulcer, and symptoms with NSAIDs). The program also provided real-time treatment recommendations based on a patient's risk.

Promoting the Use of Evidence

AHRQ supports research in areas that enhance clinical practice by building on the potential for evidence-based approaches to improve health care. Patients, providers, and payers all need information on which treatments work most effectively, whom these treatments work for, under what circumstances, and the risks involved. This information needs to be objective, reliable, understandable, and easily accessible. AHRQ has implemented several initiates to help synthesize and translate evidence-based information on health care effectiveness.

Evidence-based Practice Centers

Under the Evidence-based Practice Centers (EPC) program, AHRQ awards 5-year contracts to institutions in the United States and Canada to serve as EPCs. The EPCs review all relevant scientific literature on clinical, behavioral, and organization and financing topics to produce evidence reports and technology assessments. These reports are used for informing and developing coverage decisions, quality measures, educational materials and tools, guidelines, and research agendas. The EPCs also conduct research on methodology of systematic reviews. With this program, AHRQ became a "science partner" with private and public organizations such as the Center for Medicare & Medicaid Services and the U.S. Preventive Services Task Force. Beginning in 2005, the EPCs began researching and preparing new evidence and technology reports as well as Comparative Effectiveness Reviews (CERs) on medications, devices, and other relevant intervention for AHRQ's Effective Health Care Program.

In 2006, the EPCs released 22 new evidence and technology reports. Examples include:

- *Genomic Tests for Ovarian Cancer Detection and Management.* This report found that many genomic tests that are currently used to diagnose and guide treatment of ovarian cancer are not shown to decrease the number of women who die from the disease or improve their quality of life.
- *Management of Adnexal Mass.* Adnexal masses are enlargements in the area of the ovaries and fallopian tubes that are sometimes a sign of ovarian cancer. The report concludes that it is not possible to estimate how well different diagnostic strategies will work. In particular, the common bimanual pelvic exam is not accurate in detecting adnexal masses or distinguishing benign from malignant masses.
- *Telemedicine for the Medicare Population.* This update of the 2001 report finds increased evidence in favor of telemedicine, though significant gaps still remain in the research. Larger and more comprehensive clinical trials are needed to further determine the benefits of telemedicine in the Medicare population, especially in the promising areas of dermatology, psychiatry, neurology, and home health care.

The American Heart Association uses an AHRQ evidence report to create preventive care recommendations

The American Heart Association (AHA) used AHRQ's Evidence Report/Technology Assessment No. 80, *Results of Systematic Review of Research on Diagnosis and Treatment of Coronary Heart Disease in Women*, to help inform the recent update of AHA's Scientific Statement, Evidence-based Guidelines for the Prevention of Cardiovascular Disease in Women. The evidence report had a direct and substantial impact in formulating recommendations for improving the prevention of women's heart disease in primary care settings and increasing research on cardiovascular disease in women.

The Social Security Administration uses AHRQ evidence reports to revise its policies

The Social Security Administration (SSA) used AHRQ's Evidence Report Series, *Criteria for Determining Disability in Infants and Children* (Nos. 70, 72, and 73), to inform their policies on the evaluation of low birth weight in premature infants and linear and weight-related growth impairments in children. These policies have a direct impact on the process for determining both initial and continuing eligibility for Supplemental Security Income (SSI) benefits and, therefore, eligibility for Medicaid in many States. The SSA used the criteria from the report *Criteria for Determining Disability in Infants and Children: Low Birth Weight* in considering revisions to the policy for determining the most appropriate time at which to evaluate a low birth weight infant's continuing eligibility for SSI benefits.

- *Management of Eating Disorders*. The report concludes that no medications are available that effectively treat patients suffering from anorexia nervosa, but a few behavioral therapies may help prevent a relapse and offer other limited benefits. The review also found evidence that several medications and behavioral therapies can help patients suffering from bulimia nervosa and binge eating disorder.
- *Cesarean Delivery on Maternal Request.* This report examined the use of cesarean delivery in situations where there are no factors, either for mother or child that would make such a procedure medically advisable. The report finds no major differences in the results of a first-time cesarean delivery at the mother's request and a planned vaginal delivery but cautions that the evidence is too weak to warrant a firm conclusion that there are, in fact, no differences.

More information on the EPCs can be found on the AHRQ Web site at www.ahrq.gov/clinic/epcix.htm.

Effective Health Care Program

The Agency's Effective Health Care Program, launched in 2005, focuses strategically on comparing the outcomes, clinical effectiveness, and appropriateness of pharmaceuticals, devices, and health care services. The Effective Health Care Program's primary principle is that all stakeholders should have the best available evidence on which to make decisions about health care items and services.

The Effective Health Care Program has three approaches to research on the comparative effectiveness of different treatments and clinical practices:

- Review and synthesize knowledge through reports prepared by the EPCs.
- Promote and generate knowledge through AHRQ's Developing Evidence to Inform Decisions about Effectiveness (DEcIDE) Network.
- Compile the findings and translate knowledge through the John M. Eisenberg Clinical Decisions and Communications Science Center.

Four new CERs were published in 2006. The reviews use a research methodology that systematically and critically appraises existing research to synthesize knowledge on a particular topic. They also identify research gaps and make recommendations for studies and approaches to fill those gaps. The four CERs are briefly summarized here:

- *Comparative Effectiveness Review, Effectiveness of Noninvasive Diagnostic Tests for Breast Abnormalities*. Four common tests would miss about 4 to 9 percent of cancer cases among women testing negative who have average risk for the disease, with potentially more missed cancers among women at higher risk. The four tests - magnetic resonance imaging, ultrasonography, positron emission

tomography scanning, and scintimammography - would miss a significant number of cases of cancer, compared with immediate biopsy for women at high-enough risk to warrant evaluation for breast cancer.

- *Comparative Effectiveness of Epoetin and Darbepoetin for Managing Anemia in Patients Undergoing Cancer Treatment.* This report found that these drugs show no clinically significant differences between improving hemoglobin concentration or reducing the need for transfusion. Studies directly comparing epoetin and darbepoetin showed no statistically significant difference in the rates of thromboembolic events (blood clotting).
- *Comparative Effectiveness and Safety of Analgesics for Osteoarthritis.* Two classes of drugs commonly used to treat osteoarthritis-NSAIDs and COX-2 inhibitors-present similar, increased risks of heart attack while offering about the same level of pain relief. The exception is the drug naproxen, commonly sold as Aleve® or Naprosyn®, a medication that scientific evidence suggests presents a lower risk of heart attack for some patients than other NSAIDs or COX-2 inhibitors.
- *Comparative Effectiveness of Management Strategies for Renal Artery Stenosis.* The available evidence on renal artery stenosis (RAS) treatments is inadequate to clearly support angioplasty, with or without a stent, over drug therapy. The published literature did confirm that drug therapy and angioplasty both improve blood pressure, and they have similar impacts on slowing down the worsening of kidney function, but actual improvements in kidney function have only been reported in angioplasty studies that lacked direct comparisons with other therapies.

Developing Evidence to Inform Decisions about Effectiveness

The Developing Evidence to Inform Decisions about Effectiveness (DEcIDE) Network is a network of research centers that AHRQ created as part of its Effective Health Care Program in 2005 to generate new knowledge. The DEcIDE Network conducts accelerated practical studies about the outcomes, comparative clinical effectiveness, safety, and appropriateness of health care items and services. The Network comprises research-based health organizations with access to electronic health information databases and the capacity to conduct rapid turnaround research. Initial research focuses on the outcomes of prescription drug use and other interventions for which randomized controlled trials would not be feasible or timely or would raise ethical concerns that are difficult to address. Other DEcIDE network projects may focus on electronic registries, methods for analyzing health databases, and prospective observational or interventional studies.

DEcIDE: Registries for Evaluating Patient Outcomes

The purpose of the Registries for Evaluating Patient Outcomes project is to produce a reference for the design and use of successful registries. The project will produce a Web-based reference document defining standards and best practices. The draft outline, based on the stakeholder comments received in 2006, has been prepared and is scheduled for release in 2007. A draft report is in preparation and will include case studies to illustrate issues and challenges in implementing registries.

DEcIDE Projects in Progress

At the close of 2006, DEcIDE had over 20 research projects in progress. The priority conditions and topics being studied include:

- Arthritis and non-traumatic joint disorders.
- Cancer: quality measures for end-of-life care.
- Chronic obstructive pulmonary disease.
- Dementia including Alzheimer's disease.
- Depression and other mood disorders.
- Diabetes mellitus.
- Ischemic heart disease.
- Stroke and hypertension.
- Methodology for using administrative data, methods to improve safety of medication therapy, and establishing patient registries for evaluating patient outcomes.

Information on the Effective Healthcare Program can be found at www.effectivehealthcare.ahrq.gov.

Centers for Education and Research on Therapeutics

The Centers for Education and Research on Therapeutics (CERTs) program is a national initiative to increase awareness of the benefits and risks of new, existing, or combined uses of therapeutics through education and research. The program consists of 11 research centers and a Coordinating Center and is administered as a cooperative agreement by AHRQ, in consultation with the U.S. Food and Drug Administration (FDA).

In 2006, AHRQ awarded $16 million over the next 5 years to establish four new CERTs:

- Rutgers, the State University of New Jersey in New Brunswick, will work on improving the safe and effective use of treatments for mental health problems.
- University of Iowa in Iowa City will focus on improving the safety and effectiveness of medication use among the elderly.
- University of Texas M.D. Anderson Cancer Center and Baylor College of Medicine in Houston will focus on consumers and strategies to help English- and Spanish-speaking patients take prescription medications appropriately.
- Weill Medical College of Cornell University in New York City will focus on medical devices to help clinicians, regulators, and payers make decisions about how best to use prosthetic orthopedic devices, including total hip, total knee, and shoulder replacement.

Examples of recent research findings from the CERTs program include:

- The chances of a major congenital malformation among infants born to mothers who took angiotensin converting enzyme (ACE) inhibitors during the first trimester of pregnancy were nearly three times as high as in infants whose mothers did not use any hypertension medications. Researchers at the Vanderbilt University CERT in Nashville found that major congenital malformations were diagnosed in 856 (2.9 percent) of infants, and that 203 infants had more than one malformation. Among infants exposed to ACE inhibitors in the first trimester, the proportion born with major congenital malformations was 7.1 percent, compared with 1.7 percent among infants exposed to other antihypertensive medications. AHRQ is sponsoring followup studies on the effects of drug exposures during pregnancy. The research on ACE inhibitors and other related classes of medications, such as the angiotensin receptor blockers, will be conducted through its DEcIDE research network, in consultation with scientists from the Food and Drug Administration.
- The HMO Research Network CERT found that nearly a third of outpatients taking the anticoagulant warfarin were also prescribed another drug that dangerously increased its blood-thinning effect. Yet, when primary care

doctors received computer alerts to such drug-drug interactions at the time of prescribing, the warfarin-interacting medication prescription rate was reduced by 15 percent. Coinciding with the alerts, there was an immediate and continued reduction in the warfarin-interacting medication prescription rate from 3,294 to 2,804 per 10,000 warfarin users per month.

- Pharmacists surveyed by researchers at the Arizona CERT reported an average volume of 1,340 prescriptions per week processed at a rate of nearly 17 prescriptions per hour. Over 85 percent of pharmacies possessed at least one type of technology, with the most predominant type being the countertop tablet/capsule-counting device (62 percent of pharmacies). About 55 percent of community pharmacists surveyed in this study believed that more than 70 percent of the computerized drug-drug interaction (DDI) alerts encountered in the previous week were clinically insignificant. Community pharmacy managers who could customize DDI alerts on their computer system and whose system provided detailed DDI information were more likely to express confidence in the pharmacy's computer system to provide meaningful alerts. Yet half of pharmacists surveyed stated that their computer software did not allow customization of DDI alerts.

More information on the CERTs and their research is available at www.ahrq.gov/clinic/certsovr.htm.

National Guideline Clearinghouse™

The National Guideline Clearinghouse™ (NGC) is a Web-based resource for information on over 2,000 evidence-based clinical practice guidelines. Since becoming fully operational in early 1999, the NGC has had over 30 million visits and now receives over 900,000 visits each month. The NGC helps physicians, nurses, and other health professionals, health care providers, health plans, integrated delivery systems, purchasers, and others obtain objective, detailed information on clinical practice guidelines.

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

United States Preventive Services Task Force

The U.S. Preventive Services Task Force (Task Force) was first convened by the U.S. Public Health Service in 1984. Sponsored by AHRQ since 1998, the Task Force is the leading independent panel of private-sector experts in prevention and primary care. The Task Force conducts rigorous, impartial assessments of the scientific evidence for the effectiveness of a broad range of clinical preventive services, including screening, counseling, and preventive medications. Its recommendations are considered the "gold standard" for clinical preventive services. AHRQ provides technical and administrative support, but the recommendations of the panel are its own. The mission of the Task Force is to evaluate the benefits of individual services based on age, gender, and risk factors for disease; make recommendations about which preventive services should be incorporated routinely into primary medical care and for which populations; and identify a research agenda for clinical preventive care.

- In 2006, AHRQ partnered with United Health Foundation to distribute more than 400,000 copies of the *Guide to Clinical Preventive Services, 2006*, a guide to clinical preventive services recommendations of the Task Force, to clinicians nationwide. The guide contains 53 new or revised recommendations on screenings, preventive medications, and behavioral counseling. The *Guide to Clinical Preventive Services, 2006* is available online at www.ahrq.gov/clinic/pocketgd.htm.

- AHRQ launched the Electronic Preventive Services Selector (ePSS) tool for primary care clinicians to use when recommending preventive services for their patients. The interactive tool can be used on a PDA or desktop computer to allow clinicians to access the latest recommendations from the Task Force. The ePSS is designed to serve as an aid to clinical decisionmaking at the point of care and contains 110 recommendations for specific populations covering 59 separate preventive services topics. A clinician can enter patient characteristics and generate a report with the applicable Task Force recommendations specifically tailored for that patient. The tool is available for download from the AHRQ Web site at www.ePSS.ahrq.gov.
- AHRQ also released the Adult Preventive Services Timeline, a wall chart based on Task Force recommendations that illustrates who needs preventive services and when. The chart is available for downloading from the AHRQ Web site at www.ahrq.gov/ppip/timelinead.pdf.
- Collaborating with the Centers for Disease Control and Prevention and the National Business Group on Health, AHRQ provided scientific consultation and expertise to support the development of *A Purchaser's Guide to Clinical Preventive Services: Moving Science into Coverage. A Purchaser's Guide* provides large employers with information to select, define, and implement preventive medical benefits such as colorectal cancer screening and tobacco use treatment.
- The Task Force released the following new or updated recommendations in 2006:
  - *Screening for Speech and Language Delay in Preschool Children* - current evidence is insufficient to recommend for or against routine use of brief, formal screening instruments (those that can be used in less than 10 minutes) as a means to detect speech and language delay in children up to 5 years of age.
  - *Screening for Developmental Dysplasia of the Hip* - evidence is insufficient to recommend routine screening for developmental dysplasia of the hip in infants as a means to prevent adverse outcomes.
  - *Screening and Supplementation for Iron Deficiency Anemia* - in children aged 6 to 12 months who have no symptoms, the Task Force found that there is insufficient evidence to recommend for or against routine screening for iron deficiency anemia; however, children in this age group who are at increased risk should receive routine iron supplements. The Task Force also recommended that pregnant women should undergo routine screening; however, there was insufficient evidence to recommend for or against routine iron supplementation in non-anemic pregnant women.
  - *Screening for Hemochromatosis* - the Task Force recommends against routine genetic screening for hereditary hemachromatosis in people who are asymptomatic.
  - *Screening for Lead Levels in Childhood and Pregnancy* - the evidence is insufficient to recommend for or against routine screening in children aged 1 to 5 who are at increased risk but have no symptoms. The Task Force recommends against routine screening for children aged 1 to 5 who are at average risk and have no symptoms and in pregnant women who have no symptoms.

More information on the Task Force is on the AHRQ Web site at www.ahrq.gov/clinic/prevenix.htm.

Accelerating Change and Transformation in Organizations and Networks

In March 2006, AHRQ awarded contracts to 15 partnerships for the Agency's new Accelerating Change and Transformation in Organizations and Networks (ACTION) program, the successor to AHRQ's Integrated Delivery System Research Network. ACTION is a model of field-based research that fosters public-private collaboration in rapid-cycle, applied research. It links many of the Nation's largest healthcare systems with its top health services researchers. Each ACTION partnership has a demonstrated capacity to "turn research into practice" for proven interventions targeting those who manage, deliver or receive health care services. As a network, ACTION provides health services in a wide variety of organizational care settings to at least 100 million Americans.

The ACTION partnerships span all States and provide access to large numbers of providers, major health plans, hospitals, long-term care facilities, ambulatory care settings, and other care sites. Each partnership includes health care systems with large, robust databases, clinical and research expertise, and the authority to implement health care interventions. ACTION focuses on a wide variety of demand-driven, practical, applied topics that are broadly responsive to user needs and operational interests and which are expected to be generalizable across a number of settings.

More information on ACTION as well as the partnerships can be found on the AHRQ Web site at www.ahrq.gov/research/action.htm

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 or end-of-life care.

National Healthcare Quality and Disparities Reports

The overall quality of the U.S. health care system is improving, but providers are missing chances to help Americans avoid disease or serious complications, according to AHRQ's *2006 National Healthcare Quality Report* (NHQR) and *National Healthcare Disparities Report* (NHDR). The findings from the two annual reports provide updated, congressionally mandated snapshots of the U.S. health care system. AHRQ's reports examine quality and disparities in four key areas of health care: effectiveness of health care, patient safety, timeliness of care, and patient centeredness.

The NHQR tracks the health care system through quality measures, such as what proportion of heart attack patients received recommended care when they reached the hospital, or what percentage of children received recommended vaccinations. The NHDR summarizes which racial, ethnic, or income groups are most likely to benefit from improvements in health care.

Both reports found that the use of proven prevention strategies lags significantly behind other gains in health care:

- Only about 52 percent of adults reported receiving recommended colorectal cancer screenings.
- Only 68 percent of obese adults and 37 percent of overweight children were told they were overweight; blacks, Hispanics, and less educated individuals were less likely to be told.

- Only 48 percent of adults with diabetes received all three recommended screenings - blood sugar tests, foot exams, and eye exams - to prevent disease complications.
- Among people with asthma, 70 percent were taught to recognize early signs of an attack, 49 percent were told how to change their environment, 40 percent were given a controller medication, and 28 percent were given an asthma management plan.
- Only 6 percent of hospice patients did not receive the right amount of pain medicine and only 6 percent received care inconsistent with their stated end-of-life wishes.
- Only 6 percent of hospitalized patients reported communication problems with doctors and 7 percent reported communication problems with nurses. However, 26 percent of hospitalized patients reported problems with communications about medications and 21 percent reported problems with discharge information.

Both reports are available online at www.ahrq.gov/qual/nhqr06/nhqr06.htm and www.ahrq.gov/qual/nhdr06/nhdr06.htm.

State Snapshots

AHRQ released a new interactive Web-based tool for States to use in measuring health care quality. The new State Snapshot Web tool is based on the 2005 NHQR, and it provides quick and easy access to the many measures and tables of the NHQR from each State's perspective. The State Snapshot tool provides valuable information including:

- Tables that rank the 50 States and the District of Columbia on 15 representative measures of health care quality culled from 179 measures contained in the 2005 NHQR.
- Summary measures of the quality of types of care (prevention, acute, and chronic), settings of care (hospital, ambulatory, nursing home, and home health), and clinical areas (cancer, diabetes, heart disease, maternal and child health, and respiratory diseases) for each State.
- Comparisons of each State's summary measures to regional and national performance, as well as comparison to the best performing States.
- Performance meters that show at a glance a State's performance relative to the region or nation.
- Data tables for each State's summary measures that show the NHQR detailed measures and numbers behind the performance meters.

Also, the State Snapshot tool features a special focus on each State's performance in the treatment of diabetes across three areas:

- Quality of diabetes care.
- Disparities in diabetes treatment.
- Cost savings that States might accrue by implementing disease management for diabetes for State government employees.

The State Snapshot tool is available at www.qualitytools.ahrq.gov/qualityreport/2005/state.

Asthma Care Resource Guide

Asthma is a serious chronic respiratory illness that affects a growing number of Americans and disproportionately affects African Americans, children, and low-income individuals. AHRQ, in partnership with the Council of State Governments, released *Asthma Care Quality Improvement: A Resource Guide for State Action* and its companion Workbook. The Resource Guide and Workbook are designed to help State leaders identify measures of asthma care quality, assemble data on asthma care, assess areas of care most in need of improvement, learn what other States have done to improve asthma care, and develop a plan for improving the quality of care for their States.

The resource guide uses data from AHRQ's NHQR and NHDR and Web-based State Snapshots to help inform the Nation and States about the quality of asthma care. The workbook is designed for State policymakers, including officials in State health departments, asthma prevention and control programs, and Medicaid offices. It includes five modules, some of which are targeted to senior leaders responsible for making the case for asthma care quality improvement and taking action. Other modules provide the information necessary for program staff to develop and implement a quality improvement strategy. The goal is for all groups involved in asthma care to work together as a team to improve the quality of asthma care.

Asthma Care Quality Improvement: A Resource Guide for State Action and its companion workbook can be found online at http://www.ahrq.gov/qual/asthmaqual.htm.

Improving Diabetes Care in Communities Collaborative

According to the NHQR and NHDR, only 48 percent of adults with diabetes received all three recommended screenings-blood sugar tests, foot exams, and eye exams-to prevent disease complications. AHRQ estimates about $2.5 billion could be saved each year by eliminating hospitalizations related to diabetes complications. AHRQ formed a new partnership with three of the Nation's leading business coalitions that is designed to help improve the quality of diabetes care within and across communities. The new partnership, Improving Diabetes Care in Communities Collaborative, brings AHRQ together with the Greater Detroit Area Health Council, the MidAtlantic Business Group on Health, and the Memphis Business Group on Health.

The goal of this partnership is to support local communities in their efforts to reduce the rate of obesity and other risk factors that can lead to diabetes and its complications. The partners are working together to ensure that people with diabetes receive appropriate health care services. Each of the coalitions has convened stakeholders, including businesses, providers, health plans, insurers, consumers, and academics, to set priorities in their efforts to improve diabetes care and develop solutions that fit within the community's needs and capabilities. Cross-cutting strategies for addressing diabetes quality improvement include a return on investment calculator for estimating financial returns from disease management, application of the chronic care model, and an employer guide on managing diabetes care with health plans. The strategies and tools developed under the partnership and any lessons learned will be disseminated broadly for communities around the nation to use in improving the quality of diabetes care.

Ensuring the Value in Health Care

According to the most recent data from the Medical Expenditure Panel Survey (MEPS), 85 percent of people under age 65 and 96 percent of the elderly had some expenditure for health care in 2003. About one dollar for every five dollars spent on health care (excluding health insurance premiums), was paid out of pocket by individuals and families. It is vitally important to help Americans achieve access to high-quality, safe, and effective health care, with the best possible outcomes, and help maximize the value realized for each dollar spent.

AHRQ is playing a key role in one of the Department of Health and Human Services' Secretary Michael Leavitt's priority initiatives - the Value-Driven Health Care Initiative. The goal of the initiative is to encourage the health care system to provide better quality and better value for our health care dollars. Value is the intersection of cost and quality.

In August 2006, President Bush signed an executive order committing the Federal government to the "four cornerstones" of value-driven care: health information technology, public reporting of provider quality information, public reporting of cost information, and incentives for value comparison. The cornerstones are the center of the initiative, and AHRQ is working closely with the Department and other Agencies to promote and support them.

To accomplish the goals of a value-driven health care system, consumers need transparent and reliable information on the quality and cost of health care services. The public reporting created by the initiative will give consumer what they need to make comparisons and choices based on value, and providers can know how they measure up against accepted standards of care.

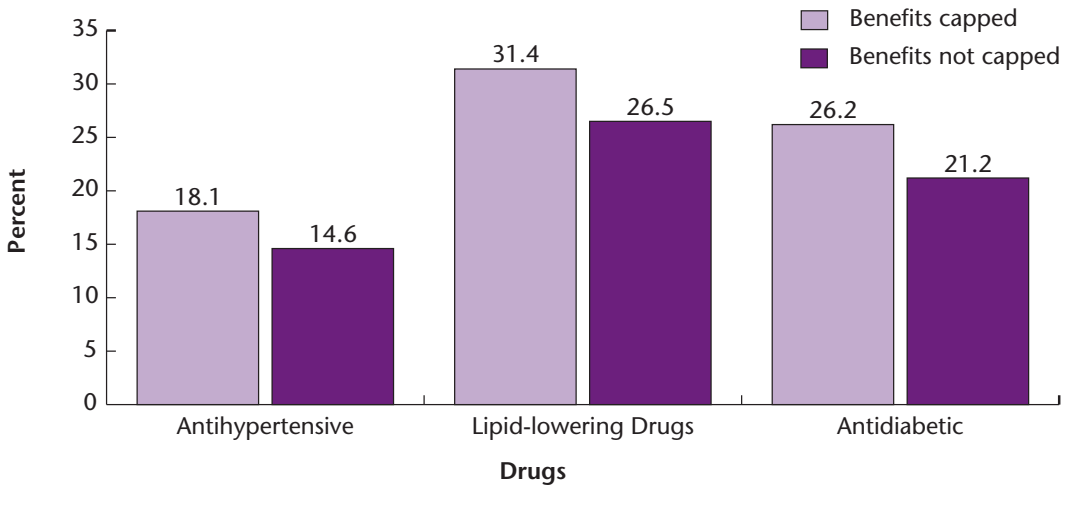
Pay-for-Performance Decision Guide

AHRQ released a new resource to help employers, health plans, Medicaid agencies, and others who are considering starting a pay-for-performance program make decisions about how

Medicare drug benefit caps are associated with lower drug consumption and worse clinical outcomes

A study, supported in part by AHRQ, examined the impact of drug benefit caps on Medicare beneficiaries who had hypertension, hyperlipidemia, or diabetes. Researchers found that limits on drug benefits resulted in negative consequences. Overall, Medicare beneficiaries whose benefits were capped at $1,000 used fewer prescription drugs than those beneficiaries whose benefits were not capped. Beneficiaries receiving long-term drug therapy whose benefits were capped had lower levels of drug adherence (Figure 1). They also had worse physiological outcomes. Those whose benefits were capped, when compared with beneficiaries who did not have caps, had a systolic blood pressure of 140 mm Hg or more (39.5 percent vs. 38.5 percent), LDL cholesterol greater than 130 mg/dl (21.3 percent vs. 19.6 percent), and blood sugar levels greater than 8 percent (19.7 percent vs. 17 percent).

Figure 1. Drug nonadherence in 2003 among Medicare beneficiaries receiving drugs of the same class in 2002



Source: "Unintended consequences of caps on Medicare drug benefits," by John Hsu, M.D., M.B.A., M.S.C.E., Mary Price, M.A., Jie Huang, Ph.D., and others, in the June 1, 2006 *New England Journal of Medicine* 354, pp. 2349-2359.

to design, implement, and evaluate the activity. The free tool, *Pay for Performance: A Decision Guide for Purchasers*, poses 20 key questions that leaders from an employer group, health plan, or other health care purchasing group should ask themselves as they consider a pay-for-performance program. Included are questions such as whether or not to partner with other purchasers, focus on clinicians or hospitals first, make provider participation mandatory or voluntary, how much money to allot to the activity, and how to address provider concerns about risk adjustment for severity of illness. The decision guide also includes special advice for Medicaid agencies and Medicaid managed care plans. Each question is followed by a discussion that includes possible options and potential unintended consequences. To access *Pay for Performance: A Decision Guide for Purchasers*, go to www.ahrq.gov/qual/p4pguide.htm.

Recent Research Findings on Health Care Costs and Improving Performance

- More than half (52 percent) of the Nation's health maintenance organizations (HMOs) used pay-for-performance programs in their contracts with doctors or hospitals in 2005. Researchers found that nearly 90 percent of health plans with pay-for-performance programs included these arrangements as part of their physician compensation and 38 percent included them in their hospital contracts. HMOs that required enrollees to designate a primary care physician as a gatekeeper to specialty services were more likely to use pay-for-performance programs compared with those who did not require this designation (61 vs. 25 percent).
- A new study found no ill effects of HMOs on the health status of the near-elderly (those aged 55 to 64). Patients with chronic health conditions actually fared better upon enrolling in managed care plans. Adults in this age group who had serious and longstanding chronic health conditions were 1.26 times as likely to report very good as opposed to good health when they were enrolled in HMOs. For relatively healthy near-elders, however, being in a particular type of plan-whether HMO, PPO, or fee-for-service-had no bearing on health status.
- Insuring adults in middle to late middle age now could lead to improved health status and reduce costs later in life. A prospective study of adults aged 51 to 61 years found that people who were uninsured at baseline had a 35 percent higher mortality rate than those with private insurance over a 10-year period of time. However, when the outcomes were analyzed over 2-year intervals, individuals who were uninsured at the start of each interval were 43 percent more likely to have a major decline in their overall health, and they were as likely to die as the privately insured. The average annual health care expenditure in 2001 for someone aged 51 to 61 was $12,578 for those in poor health and $6,938 for those in fair health. In contrast, the average annual total health care costs for healthier adults in this same age group were $3,922 for those in good health and $1,791 for those in excellent health.

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

Vermont uses MEPS data to assess options for covering the uninsured.

State officials and legislators working on health reform measures in Vermont used reports containing MEPS data. In May 2006, Governor Jim Douglas signed the Health Care Affordability Act into law. The centerpiece of this legislation is a new program called Catamount Health, which establishes coverage at group rates for uninsured individuals and offers income-related subsidies to help them purchase that coverage. MEPS data that were used in the discussion of this legislation include data on the prevalence of chronic illness among the uninsured; data on insurance coverage, health spending, and demographics to calculate cost impacts for a proposed buy-in to VHAP (which offers coverage for uninsured adults who are not eligible for Medicaid); data to derive the average employer-based health insurance premium costs per worker for Vermont and other states, self-reported health status of insured and uninsured Americans, health services utilization of Americans by insured status, and estimates of the impact of various health reform initiatives in Vermont; and data on firm size and provision of health insurance.

frequently the services are used, the cost of the services, and the methods of paying for those 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 car 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:

- Overall outpatient prescription drug expenses for the U.S. civilian noninstitutionalized population grew from $65.3 billion in 1996 to $177.7 billion in 2003-a 172 percent increase.
- Outpatient prescription drugs' share of all health care spending rose from 12 percent to 20 percent from 1996 to 2003.
- The cost of caring for U.S. adults with diabetes rose sharply between 1996 and 2003, a period in which the number of patients soared from 9.9 million to 13.7 million and the average annual inflation-adjusted treatment costs rose from $1,299 to $1,714. The average annual spending for prescription medicines jumped nearly 86 percent during the time period, from $476 to $883.
- The percentage of employees at large companies who were eligible for health insurance and who enrolled in plans fell from 87 percent in 1996 to 80 percent in 2004, with the steepest decline occurring among employees of large retail firms-from 81.5 percent to 69 percent.
- In 2004,the most expensive average cost for family health insurance coverage - $11,742- was in the District of Columbia and the least- $7,800 - was in North Dakota. The national average cost for family coverage was $10,006.

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 38 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.

Outpatient Data Initiatives

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 2006, 21 States contributed ambulatory surgery data for a combined total of 16 million discharges in over 2,900 facilities (mostly hospital-based but including some free-standing sites). In addition, 17 States contributed outpatient emergency department data, for a combined total of 24 million discharges in 2,400 hospitals.

HCUP Statistical Briefs

In 2006, AHRQ launched a new series of Web-based publications, the HCUP Statistical Briefs containing information from HCUP. These publications provide concise, easy-to-read information on hospital care, costs, quality, utilization, access, and trends for all payers (including Medicare, Medicaid, private insurance, and the uninsured). Each Statistical Brief covers an important health care issue. For example:

- Hospital stays of obese patients increased by 112 percent between 1996 and 2004, rising from 797,000 to 1.7 million. Women accounted for about 82 percent of all patients admitted for treatment of their obesity. Hospital costs for patients admitted for obesity treatment were an average of $11,700 per stay.
- Hospital admissions for breast cancer fell by a third between 1997 and 2004. The hospitalization rate for women with breast cancer dropped from 90 per 100,000 women to slightly fewer than 61 per 100,000 women during the period, and the number of hospital stays for the disease declined from about 125,000 to 90,000. In 2004, mastectomies accounted for 70 percent of breast cancer surgeries in the hospital.
- Nearly 8 percent of patients age 85 and older who are hospitalized for influenza do not survive the disease. This death rate is more than twice the 3 percent for hospitalized patients aged 65 to 84. More than 21,000 people were hospitalized specifically for influenza in 2004 - a 62 percent decrease

Bariatric surgery is emerging as the leading method of weight loss among Americans who are morbidly obese

Data from the Nationwide Inpatient Sample of the Healthcare Cost and Utilization Project for 1998 and 2003, show that from 1998 to 2003, the total number of bariatric surgeries increased by more than 740 percent from 13,386 to 112,435. National hospital costs for bariatric surgeries increased by more than 10-fold from $173 million in 1998 to $1.74 billion in 2003, with the largest cost increase among the privately insured. On the other hand, long-term health benefits may outweigh the costs of bariatric surgery. One meta-analysis found that diabetes (for which care cost nearly $11,000 per person with diabetes in 2002) was resolved in 77 percent of patients who received bariatric surgery, cholesterol problems were improved in 70 percent, and hypertension was resolved in 62 percent of patients.

Source: "National trends in the costs of bariatric surgery," by William E. Encinosa, Ph.D., Didem M. Bernard, Ph.D., and Claudia A. Steiner, M.D., M.P.H., in *Bariatrics Today* 3, pp. 10-12, 2005.

from 2003, but double the number of hospitalizations in 2001.

- The first Federal analysis in a decade of sickle cell disease hospitalizations shows that admissions of adults remained stable from 1997 to 2004. In 2004, approximately 83,000 hospital stays were for adults and 30,000 were for children. Patients spent about 5 days in the hospital, at an average cost of $6,223 per stay. Total hospital costs were nearly $500 million overall in 2004.
- Falls were the most frequent cause of injury hospitalizations, accounting for over 38 percent of injury stays. There were 474,000 hospital stays for falls among patients age 65 and older-this age group made up about two-thirds of hospital stays for falls. Nearly 15 percent of injury-related stays resulted from motor vehicle traffic accidents and about 12 percent resulted from poisonings.

For more information about HCUP and to view the Statistical Briefs, please visit www.hcup-us.ahrq.gov/.

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, 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.
- 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 occurring 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. 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.

The State of Connecticut used AHRQ's PQIs to assess its health care system.

The Connecticut Office of Health Care Access (OHCA) used AHRQ's *Prevention Quality Indicators (PQIs) for its databook, Preventing Hospitalizations in Connecticut: Assessing Access to Community Services, FYs 2000-2004*. The databook uses all 16 of AHRQ's PQIs to assess the quality of the State's health care system outside the hospital setting. Comparing State acute care hospital discharge data to national data provided by AHRQ, OHCA found that Connecticut had a better record of preventable hospitalizations for 15 of the 16 PQIs. Of particular significance is the databook's conclusion that preventable hospitalizations are increasing in the State, underscoring the need for timely intervention. Hospitals, community health centers, and local departments of public health are using this information to design community outreach services, particularly those for the care and management of chronic illnesses such as diabetes and asthma. Local providers are also incorporating data into grant applications for disease management programs, chronic illness awareness education, and increased specialist care at community health centers. The databook is available at:

www.ct.gov/ohca/lib/ohca/publications/acsc_databook00-04.pdf.

Pediatric Quality Indicators Software

In 2006, AHRQ released the Pediatric Quality Indicators (PedQIs). The PedQIs are indicators of children's health care that can be used with inpatient discharge data. They are designed to help hospitals examine both the quality of inpatient care and the quality of outpatient care that can be inferred from inpatient data, such as potentially preventable hospitalizations. The module consists of 13 provider-level indicators, such as accidental puncture or laceration and postoperative respiratory failure, plus 5 area-level indicators, including admission rates for children with asthma, gastroenteritis, perforated appendix, and urinary tract infections as well as diabetes short-term complication rates. 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 develops and supports the use of a comprehensive and evolving family of standardized surveys that ask consumers and patients to report on and evaluate their experiences with health care. These surveys cover topics that are important to consumers, such as the communication skills of providers and the accessibility of services. CAHPS® originally stood for the Consumer Assessment of Health Plans Study, but as the products have evolved beyond health plans, the name has evolved as well to capture the full range of survey products and tools.

CAHPS® Hospital Survey Chartbook

In 2006, CAHPS released the CAHPS® Hospital Survey Chartbook, which presents summary-level results from the CAHPS® Hospital Survey, commonly referred to as H-CAHPS. H-CAHPS was tested by 254 hospitals across the country in 2005. A total of 84,779 people responded to the survey. Highlights of the survey results presented in this report include:

- High ratings for hospital care by a majority of survey respondents: 56 percent rated their hospitals either "9" or "10" on a 10-point scale where "0" is the "worst possible hospital" and "10" is the "best possible hospital."

- Highest scores for communication with doctors and nurses: 87 percent and 81 percent reported that doctors and nurses (respectively) always treated them with courtesy and respect.
- Lowest scores for communication about medications and discharge information: 26 percent reported that hospital staff never described possible side effects of new medications in a way they could understand, and 24 percent reported that hospital staff never talked with them about whether they would have the help they needed when they left the hospital.
- High to moderate scores for pain management: 77 percent reported that hospital staff always did everything they could to help with pain; however, only 64 percent reported that their pain was always well controlled when they needed pain medication.

In January 2006, the U.S. Office of Management and Budget (OMB) officially approved the use of the CAHPS Hospital Survey. OMB's approval allows the Centers for Medicare & Medicaid Services and the Hospital Quality Alliance to begin national implementation of the instrument.

CAHPS® In-Center Hemodialysis Survey

In November 2006, the CAHPS® Consortium, in cooperation with the Centers for Medicare & Medicaid Services (CMS), released the CAHPS® In-Center Hemodialysis Survey for public use. This standardized questionnaire was designed to help dialysis facilities and End Stage Renal Disease (ESRD) Networks assess and improve the experiences of their patients with in-center hemodialysis.

CAHPS® 4.0 Version of Health Plan Survey

CAHPS® Health Plan Survey 4.0, the newest version of the questionnaire that first put the CAHPS® program on the map, was released in 2006. The survey has been revised after careful testing and solicitation of stakeholder input by the CAHPS® Consortium and the National Committee for Quality Assurance (NCQA). Like all CAHPS® surveys, the Health Plan Survey 4.0 assesses those aspects of care for which the patient is the best or only judge, and has undergone rigorous testing and analysis by the CAHPS® grantees in order to ensure its reliability.

These products and additional information on CAHPS® can be found on the Web site at www.cahps.ahrq.gov/.

Preparing for Public Health Emergencies

AHRQ supports research and the development of models, tools, and reports to assess, plan, and improve the ability of the U.S. health care system to respond to public health emergencies that result from natural, biological, chemical, nuclear, and other infectious disease events. These initiatives focus on 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 management personnel, and others preparing to respond to events that have the potential to cause mass casualties.

In 2006, AHRQ released two new resources for emergency response planners and health care providers:

- *Pediatric Terrorism and Disaster Preparedness: A Resource for Pediatricians.* This resource is intended to increase awareness of the unique needs of children and encourage collaboration among pediatricians, State and local emergency response planners, health care systems, and others involved in planning and response efforts for natural disasters and terrorism. The publication provides an overview of the role of national,

Computer model helps States predict health care staff required during public health emergencies.

The Vermont Department of Health relied on an AHRQ computer model to help forecast public health staffing needs in the event of a major public health emergency. The AHRQ tool, called the Bioterrorism and Epidemic Outbreak Response Model (BERM), helps health officials predict the number and type of staff needed to dispense drugs and triage patients after a bioterrorism attack or during a disease epidemic. The model was developed by Nathaniel Hupert, MD, MPH, Assistant Professor of Public Health and Medicine at Weill Medical College of Cornell University. The AHRQ tool helps estimate requirements for numerous staff categories, including nurses, pharmacists, EMS personnel, doctors, clinic greeters, security guards, and traffic monitors. The BERM tool also helps health officials estimate how much extra time would be needed to treat special populations, such as children, non-English speakers, and people with disabilities. The BERM tool is available on at www.ahrq.gov/research/biomodel3/.

regional, and local emergency response systems before, during, and after disasters and terrorism events. The pediatrician's role in collaborating with this infrastructure and local emergency departments, schools, and daycare facilities is highlighted. Children's emotional and mental health needs are also described, including the treatment of post-traumatic stress disorder, depression, and behavioral problems that often result from these incidents. The resource is available online at www.ahrq.gov/research/pedprep/resource.htm.

- *Providing Mass Medical Care With Scarce Resources: A Community Planning Guide*. This guide provides community planners, as well as planners at the institutional, State, and Federal levels, with valuable information to help plan for and respond to a mass casualty event (MCE). This planning guide examines MCE response and preparedness challenges across a wide range of health care settings and provides recommendations for planners in specific areas. The guide can be found online at www.ahrq.gov/research/mce.

In January 2006, AHRQ also sponsored a Web conference, "Strategies and Tools for Meeting the Needs of Children." This Web conference explored key issues surrounding the preparedness planning for the care of children.

AHRQ report assists health system in reopening shuttered hospital after Hurricane Katrina

CHRISTUS Schumpert Health System of Shreveport, Louisiana, drew on an AHRQ report, *Use of Former ("Shuttered") Hospitals to Expand Surge Capacity*, when it reopened 29 acute care hospital beds in the wake of Hurricane Katrina, which struck the region August 29, 2005. These acute care beds are in CHRISTUS Schumpert's Bossier facility, which had previously operated primarily as a scaled-down provider of rehabilitation services. The AHRQ report gives emergency responders and public health officials useful, practical tools for opening shuttered hospitals when an emergency is underway or as a part of community preparedness planning efforts. It provides information including lists of supplies and medications needed by stable medical/surgical patients and checklists to assess facility readiness, staffing needs and levels, and patient transport readiness. The report also contains a tool kit with a list of supplies and equipment needed for operation of a reopened facility.

It highlighted innovative research, tools, and models that can be used in developing effective preparedness strategies for addressing the unique needs of children. The presentations given during the Web conference are available on the AHRQ Web site at http://www.ahrq.gov/news/ulp/btpediatric/.

To learn more about all AHRQ-supported research, tools, and activities related to bioterrorism and public health emergency preparedness, visit the AHRQ Web site at www.ahrq.gov/browse/bioterbr.htm.

Looking to the Future

In 2007, AHRQ will continue its mission to improve the quality, safety, and cost-effectiveness of health care in America with a focus on prompting greater uptake and use of its tools and research. Examples of key programs and initiatives follow.

Questions are the Answer Campaign

AHRQ has joined with the Ad Council to launch a national public service advertising campaign designed to encourage adults to take a more proactive role in their health care. The campaign entitled "Questions Are the Answer: Get More Involved With Your Health Care" will be launched during national Patient Safety Awareness Week in March 2007 and will run for 1 year. The campaign will encourage all patients and caregivers to become more active in their health care by asking questions and will be supported through media advertising and a Web site where consumers can obtain tips on how to help prevent medical mistakes and become a partner in their health care.

AHRQ is also working with the Ad Council to encourage preventive health care in the Spanish-speaking population.

Annual *State Snapshots*

In 2006, AHRQ will release its annual *State Snapshots*, an application that helps State health leaders, researchers, consumers, and others understand the status of health care quality in individual States, including each State's strengths and weaknesses. The 51 State Snapshots - every State plus Washington, D.C. - are based on 129 quality measures, each of which evaluates a different segment of health care performance. While the measures are the products of complex statistical formulas, they are expressed on the Web site as simple, five-color "performance meter" illustrations. The data, drawn from AHRQ's 2006 *National Healthcare Quality Report*, come from various data sources that cover multiple years. Preliminary findings show that some shortcomings in health care quality are widespread. On average, for example, States reported that only about 59 percent of adult surgery patients insured by Medicare receive appropriate timing of antibiotics.

NHQRnet and NHDRnet

The release of the annual *State Snapshots* will be complemented by the launch of NHQRnet and NHDRnet, a pair of new, interactive Web-based tools for searching AHRQ's storehouse of national health care data. These online search engines will allow users to create spreadsheets and customize searches of information in the 2006 *National Healthcare Quality Report* and the 2006 *National Healthcare Disparities Report*.

Health Care Report Card Compendium

A new Web tool that demonstrates a variety of approaches for health quality report cards will be released in 2006. The new Health Care Report Card Compendium will be a searchable directory of over 200 samples of report cards produced by a variety of organizations. The samples will show

formats and approaches for providing comparative information on the quality of health plans, hospitals, medical groups, individual physicians, nursing homes, and other providers of care.

Improving Patient Safety Through Simulation Research

In April 2006, AHRQ issued its Request for Applications to fund $2.4 million in grants for research and evaluation of simulation as a strategy to improve the safe delivery of health care. Such projects would include research that involves team training, the effects of implementing health IT, the use of "standardized patients," and the impact of virtual reality across diverse settings of care.

Ambulatory Safety and Quality Grant Program

AHRQ announced in December 2006 that the Agency will fund up to $26 million in new research projects to improve the safety and quality of ambulatory health care. These projects will focus on the development of health IT to assist clinicians, practices, and systems improve the quality and safety of care delivery and medication management; the development of health IT to assist clinicians, practices, and systems measure the quality and safety of care in ambulatory care settings; projects to support proactive risk assessments and model risks and known hazards that threaten patient safety; and demonstration projects that will explore the use of health IT and related policies and practices to establish and enhance patient-centered care.

CAHPS®

New Items for People with Mobility Impairments

The CAHPS® Consortium is developing a set of survey items that would allow survey sponsors to assess the experiences of adults age 18-64 who have a mobility impairment with health care services. The Consortium expects to release this item set for public use by early 2007.

CAHPS® III RFA Published

In 2006, AHRQ published the Request for Applications (RFA) for CAHPS® III. The scope of work for CAHPS® III differs from that for CAHPS® I and II in that there is a greater emphasis on two areas: quality improvement projects and research on reporting survey results to consumers, purchasers, and other audiences. Developing new surveys and maintaining existing surveys continue to be a part of the work, as does disseminating and promoting CAHPS® products. AHRQ intends to commit $4.5 million annually to CAHPS® III.

Value-Driven Health Care Initiative

AHRQ will play a central role in creating Chartered Value Exchanges throughout the country. Under the initiative, Chartered Value Exchanges are seen as the focal points of health care transformation. They will comprise multi-stakeholder organizations which will bring together a community's purchasers, health plans, providers, consumers, and other interested stakeholders to implement meaningful changes at the local level where health care is actually delivered. For more information about Chartered Value Exchanges, please www.hhs.gov/valuedriven.

In Conclusion

The evidence developed through ARHQ-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 through improved quality of care and patient outcomes and value gained for what we spend.

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