

AHRQ Annual Highlights 2008



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Introduction

The U.S. health care system continues to face challenges in improving the safety and quality 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 for translating research into practice. As reflected in the 2007 *National Health Care Quality Report* and *National Healthcare Disparities Report*, the rate of quality improvement appears to be slowing. Overall, the quality of health care improved by an average of 1.5 percent per year between the years 2000 and 2005. This represents a decline when compared with the 2.3 percent average annual rate between 1994 and 2005. Quality in some areas has improved such as counseling to quit smoking. There has been some progress in reducing disparities as reflected in the elimination of the disparity between the rates of black and white hemodialysis patients who had adequate dialysis and reduced disparities in childhood vaccinations. However, measures of patient safety showed an average annual improvement of only 1 percent.

As 1 of 12 agencies within the Department of Health and Human Services (HHS), the mission of the Agency for Healthcare Research and Quality (AHRQ) is to improve the quality, safety, efficiency, effectiveness, and cost-effectiveness of health care for all Americans. The Agency fulfills this mission by developing and working with the health care system to implement information 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 the practice of health care to achieve wider access to effective 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 decisions.
- Ultimately, the Agency's goal is to improve the quality and safety of health care. It achieves this goal by translating research into improved health care practice and policy. Health care providers, patients, policymakers, payers, administrators, and others use AHRQ research findings to improve health care quality, accessibility, and outcomes of care. Disseminating AHRQ's research findings helps support a nation of healthier, more productive individuals and an enhanced return on the Nation's substantial investment in health care. This report presents key accomplishments, initiatives, and research findings from AHRQ's research portfolio during fiscal year 2008.
- The Agency's mission helps HHS achieve its strategic goals to improve the safety, quality, affordability, accessibility of health care; public health promotion and protection, disease prevention, and emergency preparedness; promote the economic and social well-being of individuals, families, and communities; and advance scientific and biomedical research and development related to health and human services. The Agency has a broad scope that touches on nearly every aspect of health care including:
- Clinical practice.
 - Outcomes of care and effectiveness.
 - Evidence-based medicine.
 - Primary care and care for priority populations.
 - Health care quality.
 - Patient safety/medical errors.
 - Organization and delivery of care and use of health care resources.

Toolkit Integrating Chronic Care Model and Business Strategies for Safety Net Hospitals

Improving care for the chronically ill is one of the most pressing health needs of our time. To help more safety net organizations implement the Chronic Care Model effectively and sustainably, AHRQ contracted with Group Health's MacColl Institute, RAND Health, and the California Health Care Safety Net Institute to develop a toolkit. The toolkit, *Integrating Chronic Care and Business Strategies in the Safety Net* is designed to improve patient satisfaction and loyalty; increase staff satisfaction and retention; streamline workflow; enhance efficiency; position practices to capture pay-for performance and quality improvement bonuses; and improve financial return. The toolkit can be found at <http://www.ahrq.gov/populations/businessstrategies>.

- Health care costs and financing.
- Health care system and public health preparedness.
- Health information technology.
- Knowledge transfer.

AHRQ's customers

Clinicians use AHRQ's evidence-based tools and 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, health plans, and health systems 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 get and use objective, evidence-based information on how to choose health plans, doctors, or hospitals. In addition, AHRQ helps consumers 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 people keep track of their preventive care and other health services they receive.

Promoting patient involvement in health care

AHRQ joined with The Advertising Council (Ad Council) in 2008 to launch two new campaigns to encourage consumers to become more involved in their health care. The "Superheroes" and "Real Men Wear Gowns" campaigns complement AHRQ's existing efforts toward improving the safety and quality of health care, including the "Questions are the Answer" (www.ahrq.gov/questionsaretheanswer) campaign launched in March of 2007. The campaigns highlight the work of the U.S. Preventive Services Task Force, which is an independent panel of experts in primary care and prevention sponsored by AHRQ. "Superheroes" was created *pro bono* for the Ad Council by the advertising agency Casanova Pendrill, while "Real Men Wear Gowns" was created *pro bono* by McCann Erickson Detroit.

Superheroes

In March 2008, the Spanish-language national public service campaign, “Superheroes,” was released. The theme features everyday mothers and fathers whose children see them as superheroes and encourages Hispanic adults to be more involved in their health care, especially preventive care. A comprehensive Web site, www.ahrq.gov/superheroes, provides tips on ways to stay healthy, talking with the doctor, recommendations on preventive testing, help in understanding prescriptions, a quiz, and glossary of medical terms as well as links to other resources that provide health information.

Real Men Wear Gowns

This campaign raises awareness among middle-aged men about the importance of preventive

care. “Real Men Wear Gowns” helps men over 40 learn which preventive screening tests they need to get and when they need to get them. Its message is that being a real man means taking care of themselves (and their health) in order to be there for their families in the future. The campaign encourages men to visit a comprehensive Web site (www.ahrq.gov/realmen/) that provides the recommended ages for preventive testing (as well as a list of tests), a quiz designed to assess their knowledge of preventive health care, tips for talking with the doctor, a glossary of consumer health terms, and links to online resources where men can find more medical information.

The public service advertising campaigns include television, radio, print, and Web advertising.

Navigating the health care system

AHRQ director Carolyn Clancy, M.D., presents a series of brief, easy-to-understand advice columns designed to help consumers navigate the health care system, make decisions about their health care, recognize high-quality health care, be an informed health care consumer, and choose a hospital, doctor, and health plan. In 2008, subjects included:

- Helpful Steps To Take After You Get a Diagnosis
- How To Use Hospital Emergency Rooms Wisely
- Tips To Help You Find a Good Doctor
- Simple Steps Can Reduce Health Care-Associated Infections
- Do Your Homework Before You Choose A Hospital
- Smart Choices: How to Choose a Health Plan That’s Right for You
- Your Experience in the Hospital and Why it Matters
- Balancing Treatment Advice: Benefits, Risks, and Personal Choice
- Busting Myths About Health Care Quality
- Asking Questions About Medical Tests
- What to Ask Before Surgery
- Tips for Taking Medicines Safely

The advice columns are on the AHRQ Web site at www.ahrq.gov/consumer/cc.htm.

Guide to help patients on Coumadin®/warfarin therapy

AHRQ released a new consumer publication, *Your Guide to Coumadin®/Warfarin Therapy*. Warfarin is the second most common drug after insulin implicated in emergency room visits for adverse drug events, according to the Food and Drug Administration. This 20-page, easy-to-read patient brochure explains what patients should expect and watch out for while undergoing Coumadin®/warfarin therapy, including potentially dangerous side effects, and how to communicate effectively with their health care providers, as well as tips for lifestyle modifications. It also provides information on remembering when to take the medicine, learning how to stay safe while taking the medicine, maintaining a consistent diet, and alerting health care providers to concurrent drugs and/or supplements patients are taking to avoid any potential adverse interactions. The publication was developed through one of AHRQ's Partnership for Implementing Patient Safety (PIPS) grant projects at Kirkwood Community College. The new booklet can be found online at www.ahrq.gov/consumer/coumadin.htm. It is also featured on the SOS Rx Coalition's Web site, www.mybloodthinner.org.

New tools help pharmacies better serve patients with limited health literacy

AHRQ released two new tools to help pharmacies provide better quality services to people with limited health literacy. The first, *Is Our Pharmacy Meeting Patients' Needs? A Pharmacy Health Literacy Assessment Tool User's Guide* (www.ahrq.gov/qual/pharmlit/) can help raise pharmacy staff awareness of health literacy issues, detect barriers that may prevent individuals with limited literacy skills from using and understanding health information provided by a pharmacy, and may help identify opportunities for improving services. The second tool, *Strategies to Improve Communication between Pharmacy Staff and Patients: A Training Program for Pharmacy Staff* (www.ahrq.gov/qual/pharmlit/pharmtrain.htm), includes the use of explanatory slides and small group breakout discussions. Participants role play using handouts before concluding with a question-and-answer session. The tools resulted from a study that was co-funded by AHRQ and the Robert Wood Johnson Foundation and were developed under contract by Emory University. More information about AHRQ's health literacy activities is available at www.ahrq.gov/browse/hlitix.htm.

Comparative Effectiveness

AHRQ was authorized to perform comparative effectiveness research under the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003. Conducted under the Agency's Effective Health Care Program (<http://effectivehealthcare.ahrq.gov/>), and launched in 2005, it 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 developing and translating information on the comparative effectiveness of different treatments and clinical practices:

- Research reviews: comprehensive reviews and synthesis of evidence prepared by the Evidence-based Practice Centers (EPCs).
- New research: reports that cover new evidence and analytical tools produced by AHRQ's Developing Evidence to Inform Decisions about Effectiveness (DEcIDE) Network and the Centers for Education & Research on Therapeutics (CERTs).

Healthcare 411

Healthcare 411 is a news series produced by AHRQ. These weekly audio and video programs feature news and information on current health care topics with synopses of AHRQ's latest research findings. The stories keep consumers, employers, health care providers, researchers, educators, and others informed about the findings of selected AHRQ-sponsored research. Also on this site are links to AHRQ's public service announcements on issues such as quitting smoking, taking medication safely, eating healthy, and the importance of regular visits to a doctor as well as messages encouraging patients to be involved in their health care and ask questions of all their health care providers. In 2008, newscasts released included:

- Health Literacy - People with limited health literacy may not get good results from their health care.
- Give Dad the Gift of a Healthy Reminder - Men are encouraged to visit their doctor for preventive screenings.
- How to Create a Patient Advisory Council - AHRQ releases a guide on how to develop a community-based patient advisory council.
- Tools and Tips for Choosing a Hospital - Unless it's a medical emergency, people often have a choice of where they get their hospital care but how do people pick the right hospital for them?
- English Skills Affect Hispanic Access to Health Care - Less than half of Hispanics who are not comfortable speaking English have a family doctor or visit a community health clinic.
- How to Deal with a Difficult Diagnosis - Being told about a new diagnosis can be a frightening experience - how to make better decisions about health care options.

- Summary guides: short, comprehensive summaries of research findings translated into a variety of useful formats by the John M. Eisenberg Clinical Decisions and Communications Science Center.

Comparative Effectiveness Reviews

Comparative effectiveness reviews (CERs) systematically review and critically appraise 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. Examples of CERs published in 2008 are briefly summarized here:

- *Comparative Effectiveness of Therapies for Clinically Localized Prostate Cancer.* The report indicates that patients who undergo complete prostate removal are less likely to experience urinary incontinence or other complications if the operation is done by an

experienced surgeon in a hospital that does many of the procedures. However, the report also concludes that not enough scientific evidence exists to identify any prostate cancer treatment as most effective for all men. Clinician and consumer summary guides were also developed based on this report.

- *Comparative Effectiveness of Treatments To Prevent Fractures in Men and Women With Low Bone Density or Osteoporosis.* This report compares the effectiveness and risks of six bisphosphonates: alendronate (sold as Fosamax), etidronate (Didronel), ibandronate (Boniva), pamidronate (Aredia), risedronate (Actonel), and zoledronic acid (Zometa). The report also looked at estrogen, calcitonin (a man-made hormone), calcium, vitamin D, testosterone, parathyroid hormone, and selective estrogen receptor modulators. Not

Glossary defines terms in comparative effectiveness research

A Web-based glossary developed through the John M. Eisenberg Clinical Decisions and Communications Science Center offers an important new reference tool for researchers, consumers, clinicians, insurers, and others seeking information about the burgeoning science of comparative effectiveness. The glossary defines 93 terms or phrases, ranging from “adverse effect” to “meta-analysis” to “comparative effectiveness.” In each case, a plain-language definition is followed by an example that illustrates the definition. The glossary also provides links between related terms.

enough scientific evidence exists to establish whether bisphosphonates are better at preventing fractures than estrogen, calcitonin, or raloxifene, according to the report. Clinician and consumer summary guides were also developed based on this report.

- *Comparative Effectiveness of Drug Therapy for Rheumatoid Arthritis and Psoriatic Arthritis in Adults.* For patients with rheumatoid arthritis, combining one well-known, lower cost synthetic drug with one of six biologic medications often works best to reduce joint

swelling or tenderness, according to this report. Researchers reviewed published evidence to compare the benefits and harms of three classes of medications: synthetic disease-modifying antirheumatic drugs (DMARDs), biologic DMARDs, and corticosteroids. The report concluded that combining methotrexate, a synthetic DMARD, with one of the biologic DMARDs works better than using methotrexate or a biologic DMARD alone. The report also found that methotrexate works as effectively as the biologic DMARDs adalimumab and etanercept for patients who have early rheumatoid arthritis. Clinician and consumer summary guides were also developed based on this report.

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 provides research-based health organizations

New Spanish-language consumer guide compares oral diabetes medications

Pastillas para la diabetes tipo 2 is a new consumer guide for Hispanic adults who have type 2 diabetes and need information to help them compare various oral medications for their illness. Based on the report, *Comparative Effectiveness and Safety of Oral Diabetes Medications for Adults with Type 2 Diabetes*, the guide organizes comparative research results according to patients’ concerns and questions and assists them in using research results when talking with health care professionals about their diabetes medicines. It compares 10 generic and 13 brand-name diabetes medications and explains how each works to lower blood sugar, which of them may increase body weight, which may cause side effects such as stomach problems or swelling, and each pill’s potential effect on “bad” and “good” cholesterol. The guide also warns patients to be alert for problems such as hypoglycemia—too-low blood sugar—which can be caused by certain diabetes pills, as well as other potential side effects. In addition, the guide provides an easy-to-understand comparison of the dose and average cost of each generic and brand-name diabetes medication and the appropriate dose when taken in combination.

with access to electronic health information databases and the capacity to conduct rapid turnaround research.

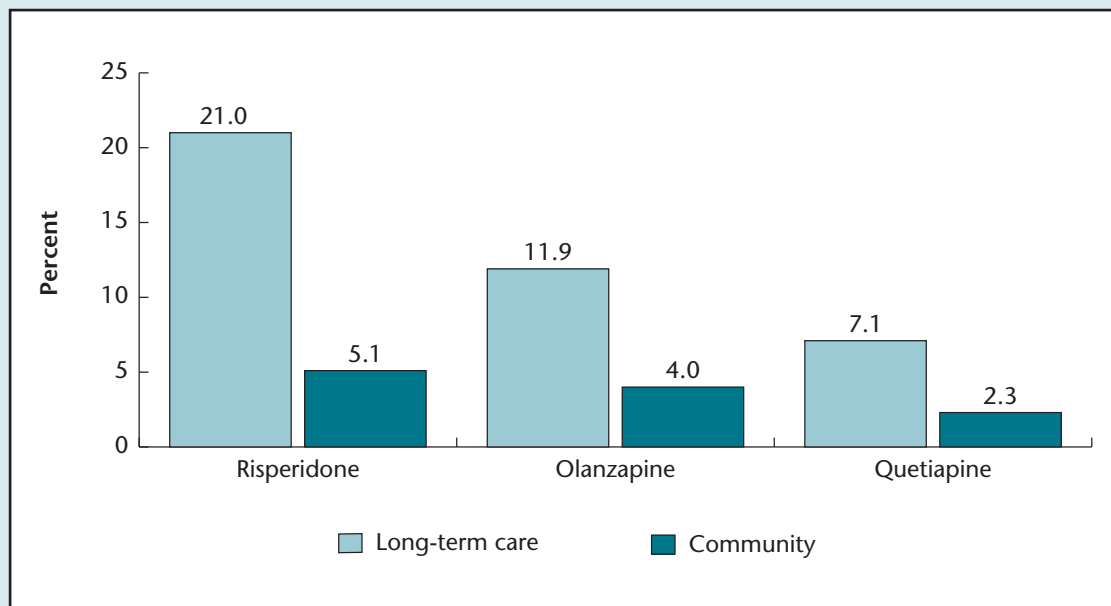
DEcIDE Research Findings

In 2008, AHRQ released the following new research reports:

- Improving Patient Safety and Pharmacovigilance: Methods for Studying Dementia Treatment and Outcomes in Observational Databases.* The study, conducted by the University of Maryland DEcIDE Center, used data from the 2002 Medicare Current Beneficiary Survey to estimate and describe the use of medications to treat Alzheimer's disease and related dementias (ARD) and related behavioral symptoms among Medicare beneficiaries. The report indicates that about 3.4 million Medicare beneficiaries were diagnosed with ARD of whom 58.9 percent resided in the community and 41.1 percent resided in long-term care facilities, with the use of anti-dementia drugs similar across settings.
- Infrastructure to Monitor Utilization and Outcomes of Gene-based Applications: An Assessment.* This report indicates that current public health monitoring systems lack the capability to monitor the use or outcomes of gene-based tests and treatments. The new report is based on research conducted by the RTI International DEcIDE Center and calls for the creation of improved public health surveillance databases and health information technologies to monitor the use of gene-based tests and their impact on patient outcomes.
- Medicare Prescription Drug Data Development: Methods for Improving Patient Safety and Pharmacovigilance Using Observational Data.* Researchers at the RTI International DEcIDE Center developed a data analytic framework and methods for pharmacoepidemiologic

However, the researchers found that the use of atypical antipsychotics was much higher in long-term care settings than in the community (see Figure 1).

Figure 1. Use of atypical antipsychotics among Medicare beneficiaries residing in long-term care facilities and community-dwelling settings, 2002



research on adverse drug events (ADEs) to improve methods for using claims data to examine patient safety and pharmacovigilance issues. The framework they developed can be applied to observational data and the methods readily adopted or adapted for use with Medicaid, employer, insurer, and Medicare claims data to examine specific drug classes and individual drugs for ADEs.

- *Comparative Effects of Classes of Antidepressants on the Risk of Aspiration Pneumonia in the Aged.* Researchers at the University of Pennsylvania School of Medicine DEcIDE Center examined whether antidepressant medications might increase the risk of hospitalization for pneumonia in the elderly. They found that, after adjusting for comorbidity, age, sex, and calendar year, antidepressants do not increase the risk of hospitalization for pneumonia or aspiration pneumonia in the elderly.

DEcIDE Projects in Progress

At the close of 2008, DEcIDE had over 25 research projects in progress. The priority conditions and topics being studied include:

- Breathing conditions
- Cancer
- Diabetes
- Digestive system conditions
- Heart and blood vessel conditions
- Mental health
- Muscle, bone, and joint conditions
- Research methodology

Developing and Promoting the Use of Evidence

AHRQ supports efforts improve health care by building the foundation of evidence for interventions and approaches in clinical practice. 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 supports several initiatives to help synthesize and translate evidence-based information on health care effectiveness.

Evidence-based Practice Centers

Under AHRQ's Evidence-based Practice Centers (EPCs), institutions in the United States and Canada receive multi-year contracts to review all relevant scientific literature on clinical, behavioral, organization and financing topics, methodology of systematic reviews, and other health care delivery issues, and produce evidence reports and technology assessments. The information in these reports is used by Federal and State agencies, private-sector professional societies, health delivery systems, providers, payers, and others committed to evidence-based health care for informing and developing coverage decisions, quality measures, educational materials and tools, guidelines, and research agendas.

Recent research findings from the EPC program

In 2008, the 14 EPCs released 10 new evidence and technology reports. Examples include:

- *Effectiveness of Assisted Reproductive Technology.* Researchers reviewed the evidence regarding the outcomes of interventions used in ovulation induction, superovulation, and in vitro fertilization (IVF) for the treatment of infertility. Interventions for which there was sufficient evidence to demonstrate improved pregnancy or live birth rates included: (a)

administration of clomiphene citrate in women with polycystic ovarian syndrome, (b) metformin plus clomiphene in women who fail to respond to clomiphene alone; (c) ultrasound-guided embryo transfer, and transfer on day 5 post-fertilization, in couples with a good prognosis; and (d) assisted hatching in couples with previous IVF failure. However, there is relatively little high-quality evidence to support the choice of specific interventions.

- *Outcomes of Maternal Weight Gain.* Researchers found overall, strong evidence that supported an association between gestational weight gains and the following outcomes: preterm birth, total birthweight, low birthweight, macrosomia, large-for-gestational-age infants, and small-for-gestational-age infants. To understand fully the impact of gestational weight gain on short- and long-term outcomes for women and their offspring will require that researchers use consistent definitions of weight gain during pregnancy, better address confounders in their analyses, improve study designs and statistical models, and conduct studies with longer followup.
- *Diabetes Education for Children With Type 1 Diabetes Mellitus and Their Families.* This report indicates that there is insufficient evidence to identify a particular diabetes education intervention that is more effective than standard care to improve diabetes control or quality of life or to reduce short-term complications. Successful interventions were heterogeneous and included cognitive behavioral therapy, family therapy, skills training, and general diabetes education.

Topics in progress

The EPCs are currently working on the following topics:

- Complementary and Alternative Medicine in Back Pain Utilization

- Management of Acute Otitis Media, update
- Barriers and Drivers of Health IT Use for the Elderly, Chronically Ill, and Underserved
- Nutrition
- Bariatric Surgery in Women of Reproductive Age
- Management of Chronic Hepatitis B

For more about the Evidence-based Practice Center program, go to www.ahrq.gov/clinic/epcix.htm.

Centers for Education and Research on Therapeutics

The Centers for Education and Research on Therapeutics (CERTs) is a national program that conducts research and provides education to advance the optimal use of drugs, biologicals, and medical devices. The CERTs program, which is administered by AHRQ in partnership with the Food and Drug Administration (FDA), was originally authorized by Congress in 1997 to examine the benefits, risks, and cost-effectiveness of therapeutic products; educate patients, consumers, doctors, pharmacists, and other clinical personnel; and improve quality of care while reducing unnecessary costs by increasing appropriate use of therapeutics and preventing adverse effects and their medical consequences.

Recent research findings from the CERTs program

- Examining 217 blood cultures taken from children, researchers from the University of Pennsylvania CERT found that two common bacteria, *Escherichia coli* and *Klebsiella*, are showing resistance to the broad-spectrum antibiotics called fluoroquinolones. Children are not generally prescribed these drugs, but adults receive the two most common fluoroquinolones: ciprofloxacin and levofloxacin. Researchers were unable to determine risk factors for infection with the resistant bacteria in children.

- The HMO Research Network Center for Education and Research on Therapeutics studied a nationally representative group of Medicare beneficiaries and found that implementation of the Medicare Part D drug plan was associated with a small, but significant, decrease in the prevalence of cost-related medication nonadherence (CRN). Nearly a year after implementation of Medicare Part D, the prevalence of CRN had declined by about 15 percent and spending less on basic needs to afford medicines declined by approximately 40 percent, compared to prior years. While CRN did not decrease among individuals who were seriously ill, they did report reductions in foregoing basic needs to afford medication that were similar to those among beneficiaries in good to excellent health.

More information about the CERTs program can be found at <http://www.ahrq.gov/clinic/certsavr.htm>.

National Guideline Clearinghouse™

In 2008, AHRQ's National Guideline Clearinghouse™ (NGC), in conjunction with the AHRQ's National Quality Measures Clearinghouse™ (NQMC), officially began publishing Expert Commentary. Together the two resources published 10 Expert Commentaries, 2 of which were applicable to both the guideline and measures communities. Topics of the NGC-specific expert commentaries covered: guideline development methodology; guideline development challenges and potential solutions; and, clinical practice recommendation gaps in published guidelines. Relating guidelines and quality measures occurred in expert commentary on the patient safety revolution and a successful program to get cardiology guidelines implemented into practice. These commentaries were authored either by members of the NGC/NQMC Editorial Board or by experts the Editorial Board sought out.

The NGC is a Web-based resource for information on over 2,200 evidence-based clinical practice guidelines. Since becoming fully operational in 1999, the NGC has had over 46 million visits and now receives approximately 1 million visits each month. The NGC helps 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

In 2008, the U.S. Preventive Services Task Force (Task Force) continued to provide the “gold standard,” recommendations that are the evidence base for preventive services provided in this Nation. It 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. 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.

Three evidence-based consumer checklists released by AHRQ in 2008 are based in part on Task Force recommendations: *Men: Stay Healthy at Any Age, Your Checklist for Health*; *Women: Stay Healthy at Any Age, Your Checklist for Health*; and *Staying Healthy at 50+*, an accompanying

timeline wall chart that can be posted in both clinical and community settings. *Checklists for Health*, available in English and Spanish, are brochures that adults can take along to medical appointments and are designed to help patients and clinicians engage in discussions about necessary preventive screening tests. Patients can use the checklists to record their screening test history and plan follow-up medical appointments. Both checklists also provide tips about other things to do to stay healthy, such as eating a healthy diet and exercising. The checklists are available on the AHRQ Web site at www.ahrq.gov/ppip/healthymen.htm and www.ahrq.gov/ppip/healthywom.htm. The timeline wall chart is available at www.ahrq.gov/ppip/50plusposter.htm.

The Task Force released the following new or updated recommendations in 2008:

- *Screening for Illicit Drug Use* – concluded that the current evidence is insufficient to assess the balance of benefits and harms of screening adolescents, adults, and pregnant women for illicit drug use.
- *Screening for Chronic Obstructive Pulmonary Disease Using Spirometry* – recommends against screening adults without symptoms of chronic obstructive pulmonary disease using spirometry.
- *Screening for Prostate Cancer* – recommends against screening for prostate cancer in men age 75 and older, and concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening in men younger than age 75.
- *Screening for Lipid Disorders in Adults* – recommends screening men aged 35 and older and women aged 45 and older; for those who are at increased risk for coronary heart disease, men aged 20 to 35 and women aged 20 to 45 should be screened.
- *Screening for Asymptomatic Bacteriuria* – recommends screening for asymptomatic bacteriuria with urine culture for pregnant women at 12 to 16 weeks' gestation or at the first prenatal visit, if later, and recommends against screening for asymptomatic bacteriuria in men and nonpregnant women.
- *Screening for Gestational Diabetes* – concludes that the evidence is insufficient to recommend for or against routine screening for gestational diabetes.
- *Screening for Type 2 Diabetes Mellitus in Adults* – recommends screening for type 2 diabetes in asymptomatic adults with sustained blood pressure (either treated or untreated) greater than 135/80 mm Hg, and concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening asymptomatic adults with blood pressure of 135/80 mm Hg or lower.
- *Screening for Bacterial Vaginosis in Pregnancy* – recommends against screening for bacterial vaginosis in asymptomatic pregnant women at low risk for preterm delivery, and concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for bacterial vaginosis in asymptomatic pregnant women at high risk for preterm delivery.
- *Screening for Newborn Hearing Loss* – recommends screening for hearing loss in all newborn infants.
- *Screening for Congenital Hypothyroidism* – recommends screening for congenital hypothyroidism in newborns.
- *Screening for Phenylketonuria* – recommends screening for phenylketonuria in newborns.

In 2008, the Task Force began releasing a series of short videos online to assist physicians in applying “I statements” (indicating that the current evidence is insufficient to assess the

balance of benefits and harms of the specific service):

- Screening for Prostate Cancer
- Screening for Coronary Heart Disease with Exercise Tolerance Testing in Adults
- Screening and Interventions for Overweight in Children and Adolescents
- When the Evidence is Insufficient, Adult Recommendations
- When the Evidence is Insufficient, Pediatric Recommendations

The videos are available at www.ahrq.gov/clinic/ivideos.htm.

More information on the Task Force as well as copies of reports and guides can be found at www.ahrq.gov/clinic/uspstfix.htm.

Translating evidence into improved care

To speed the implementation of research into practice, AHRQ supports two programs: primary care Practice-Based Research Networks (PBRNs) and Accelerating Change and Transformation in Organizations and Networks (ACTION). PBRNs are composed principally of community-based primary care practices with ten or fewer physicians. Understanding the care provided in these settings is important since over two-thirds of primary care physicians currently work in small (less than ten physician) practices where – despite the recent growth of large HMOs – the majority of Americans continue to receive primary care services. ACTION helps accelerate the translation of research into practice by performing field-based research and promoting rapid-cycle research and implementation by linking large health care systems with top health services researchers.

Primary Care Practice-Based Research Networks

Primary care practice-based research networks (PBRNs) are organized groups of primary care clinicians and practices that work together with

academic researchers to study issues related to health care, including improvement of the quality of care. The 120 primary care PBRNs known to be active in the United States include about 20,000 practices of pediatrics, family medicine, and general internal medicine located in all 50 States. These practices provide care for more than 20 million Americans.

Practice-Based Research Network Resource Center

Since 2002, AHRQ has supported the Practice-Based Research Network Resource Center. The Center manages a national registry of active primary care PBRNs across the country, and provides resources and assistance to registered PBRNs engaged in clinical and health services research.

A National Medication Error and Adverse Drug Event Reporting System for Ambulatory Care (MEADERS)

Through its PBRN Resource Center, AHRQ has supported PBRN researchers and practitioners in the design and testing of a user friendly system for reporting medication errors and adverse drug events observed in primary care practices. Since the system is Internet-based, it can be made accessible to any primary care practice with Internet access, while maintaining tight data security. Analytic tools that allow aggregation of error reports are built into the software. With a single click, practitioners can opt to forward their report to the FDA's MedWatch program. MEADERS was tested in 26 primary care practices that participate in four AHRQ-supported PBRNs. The pilot testing was successful. The practices found the Web site easy to use, and staff and physicians reported over 500 medication errors and adverse drug events. AHRQ expects to make the software available to the public in 2009.

PBRN Research in Progress

AHRQ has awarded master contracts to 10 PBRN's or PBRN consortia and the participating

networks have received funding for 12 task orders. Two examples of projects carried out under PBRN task orders are:

- The North Carolina Network Consortium is conducting a comparative analysis of the costs incurred by eight primary care practices in North Carolina in the process of collecting and reporting performance data. The study also focuses on the barriers and facilitators to practices as they begin to report quality-related information.
- The Oklahoma Physicians Resource/Research Network developed and pilot tested simple internet and telephone-based resources to assist small primary care practices prepare for the expected patient surge in the event of a pandemic influenza outbreak. The materials, produced in English and Spanish, are designed to allow practices to provide their patients with information about caring for themselves while sheltering in place and complete automated initial triaging concerning the need to be seen by a clinician. AHRQ expects to make the tools available to the public in 2009.

For more information on PBRNs and their research projects, go to <http://pbrn.ahrq.gov>.

Accelerating Change and Transformation in Organizations and Networks

Accelerating Change and Transformation in Organizations and Networks (ACTION) was begun in 2006 as the successor to AHRQ's Integrated Delivery System Research Network. ACTION is a 5-year 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 of ACTION's 15 partnerships 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. ACTION has over 150 collaborating organizations in all States. The partnerships 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.

From 2006 through 2008, ACTION partnerships received 59 awards totaling \$30.6 million. AHRQ funding focused primarily on health IT, patient safety, prevention, and the organization of health care delivery. During this time, ACTION has promoted "rapid-cycle" implementation research, dissemination, and uptake of evidence-based and highly promising products, strategies, and findings. Two examples of ACTION projects include creating a pill card to help people take their medications correctly and reducing methicillin-resistant *Staphylococcus aureus* (MRSA) infections in hospitals.

How to Create a Pill Card

About 25 percent of Americans do not take medicines as prescribed, often because they don't understand how to do so. Researchers at Emory University developed pill cards using pictures and simple phrases to show each medicine, its purpose, how much to take, and when to take it. Free, online instructions were developed to give step-by-step instructions to patients or caregivers to create a pill card using a computer and a printer. To date, there have been over 10,000 Web hits and 1,000 downloads of the Pill Card Manual from the Web site available at www.ahrq.gov/qual/pillcard/pillcard.htm.

MRSA Infection Reduction in Indianapolis Hospitals

More than 5,000 patients die as a result of MRSA infections in hospitals annually, resulting in over

\$2.5 billion excess health care costs. Indiana University developed and implemented a novel approach to reduce MRSA in ICUs in several hospital systems in Indianapolis. They significantly improved surveillance, hand hygiene, contact isolation, and achieved an average 60 percent reduction in MRSA infections in intervention units and 20 percent reduction in control units.

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

Improving the Safety and Quality of Health Care

In support of its mission to improve the quality, safety, efficiency, and effectiveness of health care, AHRQ supports research and develops successful partnerships that help generate and implement the knowledge and tools required for long-term improvements in health care. Finding ways to eliminate medical errors and improve patient safety have been an integral part of the Agency's research agenda since 2001. AHRQ-funded research projects and partnerships identify, develop, test, and implement patient safety and quality measures.

Patient Safety Organizations

In February 2008, HHS published a proposed regulation which detailed the establishment and implementation processes for Patient Safety Organizations (PSOs). PSOs are entities that collect and analyze patient safety events reported by health care providers. These organizations will help improve the quality and safety of health care as providers can voluntarily report patient safety events to PSOs without fear of new tort liability. In addition, the PSOs allow for clinicians and health care organizations to voluntarily share data on patient safety events more freely and consistently within a protected environment. Under the proposed regulation,

AHRQ Patient Safety Network (PSNet)

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. Its Patient Safety Primers (<http://psnet.ahrq.gov/primerHome.aspx>) guide users through key concepts in patient safety with each primer providing background and context and highlighting relevant content from AHRQ PSNet and AHRQ WebM&M.

PSOs can collect, aggregate, and analyze data and can provide feedback to help clinicians and health care organizations to improve health care quality. Strong confidentiality provisions are the key to voluntary reporting, and breaches of these confidentiality provisions may result in the imposition of civil monetary penalties.

AHRQ coordinates the development of Common Formats for event reporting to PSOs. On August 29, 2008, AHRQ published the availability of Common Formats (Version 0.1 Beta) for patient safety event reporting in the *Federal Register*. Common Formats describe the technical requirements and reporting specifications that allow health care providers to collect and submit standardized information regarding patient safety events. AHRQ is currently receiving public comment and feedback on the Common Formats. AHRQ awarded a task order to the National Quality Forum for convening an expert panel to review the feedback received on the Common Formats.

The expert panel began meeting in September, 2008. De-identified information sent to the Network of Patient Safety Databases using the Common Formats will be used to develop reports for AHRQ's annual *National Healthcare Quality Report*.

On October 8, 2008, AHRQ released Interim Guidance that outlines the statutory requirements for entities to be listed as a PSO. AHRQ will administer the rules for listing qualified PSOs. HHS anticipates release of the final regulation on PSOs to occur before the end of 2008.

Partnerships in Implementing Patient Safety

AHRQ has released an array of toolkits designed to help doctors, nurses, hospital managers, patients, and others reduce medical errors. The 17 toolkits were developed through AHRQ's Partnerships in Implementing Patient Safety (PIPS) program and correlate with the Joint Commission's National Patient Safety Goals, which promote system wide improvements in patient safety. In developing the toolkits, researchers examined best practices in a variety of health care settings, including small rural facilities, large urban hospitals, health clinics, and hospital emergency departments.

While some of the toolkits focus on identifying high-risk practices, others are designed to help health professionals reduce medication errors or other patient harms. Examples of the kinds of interventions that the toolkits promote include:

- “Your Guide to Preventing and Treating Blood Clots” – an easy-to-read consumer brochure that helps consumers spot and prevent dangerous blood clots called deep vein thrombosis or DVT. Hundreds of thousands of Americans develop DVT each year and many die from complications. The guide is being marketed to consumer groups and clinicians as a patient education tool.
- “Preventing Hospital-Acquired Venous Thromboembolism: A Guide for Effective Quality Improvement” – a 50-page guide to help hospital-based clinicians prevent DVT in their facility. It offers tools and sample forms to support a prevention effort as well as step-by-step instructions on building a collaborative improvement model in the hospital setting. Both the consumer and physician guides were released in coordination with *The Surgeon General's Call to Action on Deep Vein Thrombosis and Pulmonary Embolism*.
- “Door to Doc” – this AHRQ-funded project focused on improving patient flow in the emergency department to expand treatment capacity and improve patient safety by helping to reduce or eliminate patients leaving without treatment. The “Door to Doc” (D2D) was developed and implemented in eight Banner Health hospitals. The D2D program, conjointly developed by Banner Health and Arizona State University, improves the safety of care for patients in the emergency department by reducing the time patients wait to be seen by a physician.

More information can be found at www.ahrq.gov/qual/pips.

Patient Safety Improvement Corps

The Patient Safety Improvement Corps (PSIC) is a partnership program between AHRQ and the Department of Veterans Affairs (VA). The PSIC program content includes a number of topics, tools, and methods designed to help participants reduce medical error and improve patient safety. By 2008, one or more teams had been trained in every state in the United States. The 2007-08 PSIC included teams from 21 states, Puerto Rico, and HHS's Health Resources and Services Administration. Additional information on the PSIC can be found at <http://www.ahrq.gov/about/psimpcorps.htm>.

Patient Safety Culture Surveys

As part of its goal to support a culture of patient safety and quality improvement in the Nation's health care system, AHRQ sponsors the development of patient safety culture assessment tools for hospitals, nursing homes, and medical offices. In 2006, the Agency introduced the Patient Safety Culture Survey Database as a central repository for survey data so that hospitals and their units could determine how well they were doing in establishing a culture of safety in comparison to other hospitals or hospital units. Health care organizations can use these survey assessment tools to assess their patient safety culture, track changes in patient safety over time, and evaluate the impact of specific patient safety interventions. Subsequent surveys include the Hospital Survey on Patient Safety Culture, Hospital Survey on Patient Safety Culture: 2007 Comparative Database Report, and Nursing Home Survey on Patient Safety Culture. The Medical Office Survey on Patient Safety Culture will be available by the end of 2008.

Additional information on the Patient Safety Culture Surveys can be accessed at www.ahrq.gov/qual/hospculture/.

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

TeamSTEPPS was developed by the Department of Defense in collaboration with AHRQ.

AHRQ WebM&M

AHRQ WebM&M (Morbidity and Mortality Rounds on the Web) is a popular online journal and forum on patient safety and health care quality that features expert analysis of medical errors reported anonymously by readers, interactive learning modules on patient safety, perspectives on safety, and online discussions. Continuing medical education and continuing education unit credits are offered. WebM&M can be accessed at www.webmm.ahrq.gov/.

TeamSTEPPS is an evidence-based teamwork system training curriculum aimed at optimizing patient outcomes by improving communication and other teamwork skills among health care professionals. It includes a comprehensive set of ready-to-use materials and training curricula necessary to integrate teamwork principles successfully into a health care system.

TeamSTEPPS is now a part of the Centers for Medicare and Medicaid Services (CMS) 9th Scope of Work for all Quality Improvement Organizations.

Three-day train-the-trainer sessions under the TeamSTEPPS National Implementation Project commenced in 2008 at four Team Resource Centers: Duke Medical Center, Durham, North Carolina; Carilion Clinic, Roanoke, Virginia; University of Minnesota Fairview Medical Center, Minneapolis, Minnesota; and Creighton University Medical Center, Omaha, Nebraska. These initial trainings will create a national network of master trainers, who will in turn offer TeamSTEPPS training to frontline providers in hospitals and other health care settings throughout the country. This training will be offered until September 2009.

More information on TeamSTEPPS can be found at <http://teamstepps.ahrq.gov/index.htm>.

Institute of Medicine Study on Resident Work Hours

The findings of this study on resident work hours and the effect resident fatigue has on patient safety will be released in early December 2008. This study was directed by Congress and funded by AHRQ. The findings of this study will focus on four areas: synthesis of the current evidence base on graduate medical trainees hours and works schedules and their impact on safety; identification and development of strategies, practices, interventions and tools that can be used to implement reasonable work hours; analysis of both the potential benefits and harms of updating work hours and

schedules; and short- and long-term recommendations for action by various stakeholders and interim strategies and policies for implementing these recommendations. More information on the study is available at <http://www.iom.edu/>.

Advances in Patient Safety

In September 2008, AHRQ released a four-volume publication—*Advances in Patient Safety: New Directions and Alternative Approaches*—building and expanding upon the growing body of evidence for reducing medical errors and improving patient safety. Considerable breadth of content is covered in the 115 papers, including reporting systems, taxonomies and measurement, risk assessment, safety culture, process improvement, system redesign, patient involvement, teamwork, simulation, human factors, tools and practices, health information technology, and medication safety.

Handbook for Nurses

Nurses play a vital role in improving the safety and quality of patient care – not only in the hospital or ambulatory treatment facility, but also in community-based care and the care performed by family members. It is important for nurses to know what proven techniques and interventions they can use to enhance patient outcomes. To help address this need, AHRQ, with additional funding from the Robert Wood Johnson Foundation, published *Patient Safety and Quality: An Evidence-based Handbook for Nurses* a comprehensive handbook for nurses on patient safety and quality.

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

- Potentially preventable medical errors that occur during or after surgery may cost employers nearly \$1.5 billion a year, according to new estimates by AHRQ researchers. Using AHRQ's Patient Safety Indicators to identify medical errors, the

study found that insurers paid an additional \$28,218 (52 percent more) and an additional \$19,480 (48 percent more) for surgery patients who experienced acute respiratory failure or post-operative infections, respectively, compared with patients who did not experience either error. The study also found that 1 of every 10 patients who died within 90 days of surgery did so because of a preventable error and that one-third of the deaths occurred after the initial hospital discharge.

- A study finds that most physicians reported they had been involved in an error, and the majority agreed that they should report errors to improve patient safety. However, only 30 percent of physicians agreed that current systems to report patient safety events were adequate. Almost all (95 percent) physicians agreed that they needed to know about errors in their organization to improve patient safety. When asked what would increase their willingness to formally report error information, they said they wanted information to be kept confidential and non-discoverable, evidence that the information would be used for system improvements and not punitive action, the reporting process to take less than 2 minutes, and review activities to be confined to their department.
- Medical residents with depression made significantly more medical errors than their nondepressed peers. Residents with depression made 6.2 times as many medication errors per resident month as residents who were not depressed. In addition, residents who were depressed or burnt out reported poorer health than peers who did not have these problems. The findings indicate that mental health may be a more important contributor to patient safety than previously suspected.
- The Prescription Drug User Fee Act (PDUFA), which became law in 1992, sought to speed

up the process of bringing new drugs to market by giving the FDA additional resources while setting deadlines of 6 months for consideration of priority-rated drug applications (drugs deemed therapeutically novel by the FDA) and 12 months (now 10 months) for other new drugs. A study that focused on new drugs approved from 1990 to 2001 found that 310 drugs had a total of 96,751 serious adverse drug reactions (ADRs) within 2 years after FDA approval—including 57,511 that required hospitalization and 17,797 that resulted in death. Mean review times for these drugs showed a declining pattern over the sample period. For example, new drugs approved from 1990 to 1992 had an average review time of 31 months while drugs approved in 1996 to 2001 had a mean review time under 17 months. A 10-month reduction in review time was associated with a 12 percent increase in serious ADRs reported during the first 2 years after FDA approval, an 11 percent increase in ADR hospitalizations, and an 11 percent increase in ADR deaths.

- Identifying drug prescriptions that are stopped within 45 minutes of the initial prescribing is an inexpensive and quick way to detect prescribing errors. An analysis of medication orders entered into a computerized physician order entry (CPOE) system at an urban hospital and discontinued within 2 hours revealed that of 114 rapidly discontinued orders by 75 physicians during a 24-day period, two-thirds of medication orders discontinued within 45 minutes were deemed inappropriate (for example, wrong dose or drug). In addition, 55 percent of medication orders discontinued within 2 hours were deemed inappropriate.
- Sending automated e-mails to patients after they are prescribed new drugs may help detect and prevent adverse drug events.

Researchers examined actions patients took after receiving automated e-mail messages asking them about new medications they were prescribed. Of 267 patients, 128 responded to the initial e-mail, 77 percent opened the initial e-mail within a day of its being sent, and 13 percent sent responses. Patients asked about drug effectiveness, drug-related side effects, and the dose. In return, 68 percent of physicians responded to the patients' e-mails, usually within a week. Typical responses included asking questions, providing information, writing a new prescription, or changing the dose. During chart reviews, physicians identified 17 adverse drug events that were brought to light because of the e-mail exchanges.

Using Health Information Technology to Improve Patient Safety and Quality

AHRQ has worked for many years to harness the power of health information technology (health IT) to improve the health of all Americans. By developing secure and private electronic health records and making health information available electronically when and where it is needed, health IT can improve the quality of care, even as it makes health care more cost-effective. More than \$210 million in grants and contracts fund over 100 projects to support and stimulate investment in health IT. The goals of AHRQ's health IT initiative are to:

- Improve the safety and quality of prescription drug management via the integration of utilization of medication management systems and technologies.
- Improve the delivery and utilization of evidence-based care in ambulatory settings.
- Improve the delivery of patient centered care in ambulatory care settings, including specific focus on transitions of care, personal health

National Conference on Reducing Diagnostic Error in Medicine

AHRQ and the American Medical Informatics Association co-sponsored the first national meeting dedicated to diagnostic errors in medicine May 31-June 1, 2008, in Phoenix, Arizona. The meeting's goals were to summarize the current state of the field and approaches to reducing diagnostic errors, examine the role of clinical decision-support systems in addressing diagnostic errors, identify and discuss ongoing research on diagnostic errors, stimulate creative thought directed at reducing harm from diagnostic errors, and establish a community of stakeholders interested in reducing diagnostic errors. In addition, experts explored both system-related contributions to errors and cognitive origins.

records, and improved patient-provider communication and decision-making.

- Foster the development, deployment, and reporting of measures of safety and quality in ambulatory care settings and across high risk transitions in care.

Clinical Decision Support Technologies Contracts

AHRQ awarded \$5 million for two new health information technology contracts that will focus on the development, adoption, implementation, and evaluation of best practices using clinical decision support. Clinical decision support helps health professionals make informed patient care decisions. The Brigham and Women's Hospital in Boston and Yale University School of Medicine in New Haven, CT, were selected to incorporate clinical decision support into widely used health IT products, demonstrate cross-platform utility, and establish lessons learned for clinical decision support implementation across the health IT vendor community. The projects will focus on translation of clinical guidelines and outcomes related to preventive health care and treatment of patients with multiple chronic illnesses.

National Resource Center for Health Information Technology

The AHRQ National Resource Center for Health Information Technology (NRC) continued to be an important resource for the health care

community in 2008. Much of the research and lessons learned from AHRQ's health IT initiative is conducted and coordinated through the NRC. The NRC helps facilitate adoption of health IT by disseminating the latest health IT tools, best practices, and research results. In 2008, the NRC added tools to help health care organizations plan for, implement and evaluate health IT.

Improving Pediatric Safety and Quality with Health Information Technology

Under the AHRQ-funded grant "Improving Pediatric Safety and Quality with Healthcare IT," the Partners Quality Improvement Group developed pediatric rules and reminders and created pediatric visit templates for the ambulatory environment. These pediatric reminders and templates are currently in use in the Partner's electronic health record, known as the Longitudinal Medical Record.

Health IT Survey Compendium

Surveys are useful tools for collecting both quantitative and qualitative data when evaluating health IT projects. However, developing and validating surveys can be difficult, time-consuming, and costly. Individuals and organizations interested in evaluating health IT applications can benefit from using surveys that have been developed and validated by others. The NRC has compiled a set of publicly available surveys to serve as a reference. The surveys have been categorized in

four ways: survey type, technology, care setting, and respondent type.

Health IT Bibliography

The Health IT Bibliography is a collection of carefully selected, high quality resources for health care and information technology stakeholders searching for information on how health IT can transform care delivery processes and improve quality, safety, and efficiency. A mixture of both peer-reviewed articles from professional journals and Web-based resources from highly respected health care and IT organizations are available. Summaries of each item are also provided. This resource is designed to be dynamic, growing with the health IT community to include new knowledge, resources, and technologies.

Additional Tools and Resources

Other resources that continued to be supported in 2008 at AHRQ's NRC include:

- Health IT Evaluation Toolkit - provides guidance on how to evaluate health IT. Example measures relevant to quality, safety, and efficiency are provided along with suggested data sources and the relative costs to collect the measures.
- Health IT Costs & Benefits Database Project - a searchable database that contains the results of a literature search on the relative costs and benefits of health IT.
- The Health Information Privacy and Security Collaboration Toolkit provides guidance for conducting organization-level assessments of business practices, policies, and State laws that govern the privacy and security of health information exchange.
- HIE Evaluation Toolkit - provides guidance on how to evaluate health information exchange.
- Time and Motion Database - enables organizations to measure the impact of

health IT systems on clinical workflow through the collection of time-motion study data.

- Health IT Literacy Guide - the *Accessible Health Information Technology (IT) for Populations with Limited Literacy: A Guide for Developers and Purchasers of Health IT* provides health IT developers with structure, strategies, and other resources for the development of health IT technologies for populations with limited literacy.

Medication Management

In collaboration with the CMS Office for e-Health Standards and Services, AHRQ successfully delivered the evidence which led to adoption of three new standards for electronic prescribing, as required by the Medicare Modernization Act of 2003. The evidence was generated by AHRQ grantees using CMS funding, and their efforts were evaluated by AHRQ's National Resource Center for health IT. The products of those projects formed the basis for the CMS Report to Congress which detailed the readiness of the adopted standards, as well as the status of several other standards which were tested but found to be unadoptable in their current state.

Health IT Implementation Stories

AHRQ-funded health IT projects are helping to revolutionize everyday clinical practice. Following are the stories and lessons learned from some of these pioneering projects.

- *Holomua Project to Improve Transitional Care in Hawaii*—this project is developing a master visit registry (a form of health information exchange) to improve the coordination of care between hospitals and community health centers for Hawaii's vulnerable populations. Master Visit Registry (MVR) helps doctors locate a patient's history of visits, shows what type of care they received, who provided the care, which facility they

visited, the type of visit, and diagnosis. The MVR allows facilities to share timely, accurate patient information, even if the patient isn't able to provide a medical history. In addition, the registry will help participating facilities develop policies and procedures that improve the coordination and continuity of health care as patients transfer between different locations. As of the summer of 2008, the system contained data on 450,000 patient visits from the previous year with roughly 220,000 patients.

- *Electronic Vision Rehabilitation Record (EVRR®)*—this project is helping to provide data describing quality or outcomes of treatment in rehabilitation care for the visually impaired. A unique computerized record system developed and implemented by New York-based Lighthouse International with funding from AHRQ—the Electronic Vision Rehabilitation Record (EVRR®)—is the first Web-enabled electronic record system that is focused on best practices of care for people who are visually impaired. Eventually, EVRR® will register patient data and track functional outcomes, allowing providers to demonstrate the impact of their services to funders and payers and advance the standard of care. Under the AHRQ grant, EVRR® is being implemented by Lighthouse in the New York City area; the Central Association for the Blind and Visually Handicapped in Utica, NY; and the Iris Network in Portland, ME. In addition, EVRR® is licensed by the Canadian National Institute for the Blind for use throughout Canada.
- *The MidSouth eHealth Alliance (MSeHA)*—MSeHA aims to improve patient care and reduce costs through eliminating duplicate or unneeded tests, reducing hospital stays, and decreasing emergency department utilization through health information exchange. The MSeHA currently exchanges data among 9 hospitals, 15 ambulatory clinics, and the University of Tennessee Medical Group in the region. Physicians in the emergency departments of these hospitals can view patient data through a secure, Web-based browser that provides a real-time data feed to the hospitals and clinics. To date, the exchange has generated more than 2.1 million patient records. Each day, the MSeHA handles about 33,000 patient records and 800,000 lab results. Project leaders are still busy figuring out how to measure the project's return on investment, but estimate that the data exchange is saving local emergency departments about \$500,000 per year.
- *Enhancing Quality Utilizing Information Technology in Patient Care (EQUIP)*—the Alliance of Chicago Community Health Services is a unique partnership that is blazing a trail for EHR implementation among a group of safety net providers. The Alliance encompasses 29 sites in Chicago's Near North Side that provide care to about 100,000 people during 350,000 encounters a year. With funding from the Health Resources and Services Administration, AHRQ, and other sources, the Alliance has deployed a sophisticated, customized EHR system that provides evidence-based decision-making support to clinicians and aggregates population data for chronic disease management. To date, 10 sites representing 4 health centers are using the new system which can be accessed anywhere at anytime via the Internet. Improved workflow documentation is helping providers figure out how to do their jobs more efficiently. Trend data already indicate modest improvements in health status and adherence to practice guidelines since the conversion.

- *Picture Archiving and Communications System (PACS)*—a \$1.4 million grant to Maine Medical Center from AHRQ has helped to expand the PACS network to other hospitals in the State. To date, the PACS has been extended to seven hospitals and numerous outpatient imaging centers, making it possible for these organizations to share images with radiologists and physicians at other locations, thereby helping to save time, money, and improve patient care. Using the system, medical staff can begin to diagnose patients without waiting for records to arrive or performing additional, unnecessary tests. Smaller hospitals that can't afford a full PACS system on their own or hire the support staff it takes to maintain such systems now have access to these images without having to maintain the system or pay for the associated on-going system support costs. In turn, patients get the benefits of having a team of radiologists at many hospitals review their records.

Recent research findings on health IT

- Web-based electronic health records that allow patients to communicate with their providers about laboratory test results, medications, and care plans may help meet patients' needs. Providing patients with online medical record services that were integrated with clinical care was associated with Web site access, use, and patient satisfaction. Patients most used the site to review medical test results, medication refills, after-visit summaries, and patient-provider clinical messaging. Patients were satisfied or very satisfied with medication refills (96 percent), patient-provider messaging (93 percent), and medical test results (86 percent).
- Researchers used time-motion techniques to compare prescribing times at three ambulatory care sites that used paper-based prescribing, desktop, or laptop e-prescribing. They concluded that use of desktop or laptop computers for e-prescribing for outpatients would not disrupt prescriber or staff

AHRQ 2008 Annual Conference

Plenary and concurrent sessions on health IT held at AHRQ's 2008 Annual Conference covered topics ranging from health IT in the clinical setting used by providers to developing systems for health IT in patients' homes. Findings from recent studies and how health IT is being used to enhance performance, quality, and patient safety were presented. Topics included:

- Using Health IT to Enhance Inter-Provider Communication to Improve Care
- Improving Quality of Care for Vulnerable Populations Through Health IT
- e-Prescribing: Enabling Change and Measuring Impact
- Clinical Decision Support Tools for Ambulatory Settings
- Using Health IT to Improve Medication Management
- Considerations in Design of Health IT for In-Home Use
- Enabling Transitions in Care Through Health IT
- Design of Patient-Centered Health IT
- Enabling Chronic Disease Care Through Health IT
- Improving Patient-Clinician Communication Through Consumer Health IT

workflow, when carefully implemented. Among 27 prescribers studied, the mean time spent to write an e-prescription was only 12 seconds longer than written prescriptions. Since the clinicians ordered an average of nine prescriptions during an observation period of 3.5 hours, this amounted to an additional 3 to 5 minutes of clinicians' time for e-prescribing over written prescribing. This small increment in time can be justified if e-prescribing improves the safety and quality of patient care.

- Less than one in five office-based medical practices have adopted electronic health records (EHRs). Of 847 practices that responded to a survey, only 18 percent were using EHRs. The adoption rate for EHRs was significantly lower for specialty-only practices (14 percent). The researchers found that 74 percent of the EHR practices used electronic visit notes, followed by online lab test results and medication lists (both 64 percent). The majority of practices without an EHR (52 percent) had no plans to implement one in the foreseeable future, with solo practices being the least likely to implement the technology (70 percent had no plans). Lack of adequate funding was cited as a barrier to implementation by 42 percent of the non-EHR practices.
- Researchers found that 57 percent of medication errors made in family physicians' offices could have been prevented by electronic medical records or computerized physician order entry. A study of adverse drug events reported by more than 440 family physicians and staff from 52 practices found that of 194 reported medication errors, 70 percent were prescribing errors, 10 percent were medication administration errors, 10 percent were documentation errors, and 3 percent were monitoring errors. Overall, 16 percent of the errors resulted in temporary harm. The two most commonly reported

medication errors were related to medication dose and selection, followed by the actual prescription itself and communication issues. The most common reasons for these error types included incorrect dose, incorrect drug selection, patient contraindications to the prescribed drug, communications problems with the pharmacy, and insufficient information on the prescription.

- Large (more than 150 beds) and medium (26-150 beds) hospitals tend to have more advanced health IT capacity than small hospitals (25 or fewer beds), regardless of their affiliation with a health care system. In contrast, small hospitals owned by multihospital systems have more health IT capacity than small independent hospitals. The mean EMR adoption stage was significantly different between small (0.85), medium (1.53), and large (1.79) hospitals. The level of EMR adoption did not differ among medium and large hospitals that belonged to a hospital system or were independent. However, small hospitals that were owned by a multihospital system had a significantly higher EMR adoption level than small independent hospitals (1.08 vs. 0.77). Given that most hospitals with 25 or fewer beds are located in rural areas, this study presents important findings for small rural hospitals.

More information on AHRQ's health IT initiative, toolkits, and copies of reports can be found at <http://healthit.ahrq.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,

socioeconomic status, and geographic variation. 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

Released in early 2008, significant findings from the *National Healthcare Quality Report* (NHQR) and its companion report, the *National Healthcare Disparities Report* (NHDR), were reported in AHRQ's *Annual Highlights* for 2007. Overall, findings from the reports indicate that while the quality of health care is continuing to improve, the rate of improvement appears to be slowing. These reports are mandated by Congress and are read widely by policymakers, health care analysts, public health advocates, health insurers, journalists, and consumers. Data from the reports are also available on the AHRQ Web site through NHQRnet (<http://nhqrnet.ahrq.gov>) and NHDRnet (<http://nhdrnet.ahrq.gov>).

Some significant findings from the reports show that:

- About one-fourth of Americans aged 65 and older with disabilities reported using at least one prescription drug deemed inappropriate for persons his or her age. Only about half as many (13 percent) elderly people without disabilities used inappropriate drugs. Older people with disabilities who never finished or stopped at high school were more likely to use potentially inappropriate drugs than those who went on to college.
- Only about 1 in 10 adult Americans have all the skills needed to manage their health care proficiently. These skills, known collectively as health literacy, include weighing the risks

and benefits of different treatments, knowing how to calculate health insurance costs, and being able to fill out complex medical forms.

- The hospitalization rate for diabetes-related amputations among Hispanics increased from 63 admissions per 100,000 people in 2001 to nearly 80 admissions per 100,000 people in 2004. During the same period, the rate for whites remained steady at roughly 28 to 31 admissions per 100,000 people.
- In 2004, only 38 percent of adult Hispanics age 40 and over with diabetes received three recommended annual screenings—foot exams, eye exams and blood sugar level checks (hemoglobin A1c test). The percentage was 47 for whites and 47 for blacks.

State Snapshots

AHRQ's *State Snapshots* Web tool was launched in 2005, and has been updated annually. Based on data drawn from various sources that have State level data available, including government surveys, health care facilities and health care organizations, the *State Snapshots* is an application that helps State health leaders, researchers, consumers, and others more easily access information about the status of health care quality in individual States, including each State's strengths and weaknesses. The data the *State Snapshots* are drawn from the 2007 *National Healthcare Quality Report* and provide State rankings for 15 "selected measures." These rankings show that no State does well or poorly in all areas:

- Texas ranked 4th best at minimizing nursing home patients' pressure sores but 41st on vaccinating older people against pneumonia.
- Ohio ranked 7th for its high percentage of pregnant women who received prenatal care but 46th for its high rate of breast cancer deaths.

- New Mexico ranked 4th best on improving the mobility of nursing home residents but 50th for its low number of heart attack patients who received the right medications at hospital discharge.

To access the 2007 *State Snapshots* tool, go to <http://statesnapshots.ahrq.gov/snaps07/>.

Improving Hispanic Elders Health: Community Partnerships for Evidence-Based Solutions (*Hispanic Elders Learning Network*)

The Hispanic Elders Learning Network supports the development of local, evidence-based intervention plans for reducing health disparities and improving the delivery of health care and related aging and social services for Hispanic elders. The project was inspired by growing health disparities between Hispanics and non-Hispanic whites reported in the AHRQ 2006 *National Healthcare Disparities Report*. The project highlights eight communities with the largest Hispanic populations: Chicago, Houston, Los Angeles, Lower Rio Grande Valley (Texas), Miami, New York, San Antonio, and San Diego. Each location has formed an interdisciplinary coalition of clinical and community representatives to customize plans to target their services in ways that would contribute to improving the health status of the elderly. Federal partners in this effort are AHRQ, AoA, CDC, CMS, and HRSA, linked with a team of national experts including the National Council on Aging and the George Washington University Department of Community Health and Prevention

Recent research findings on disparities and minority health

- Blacks and Hispanics who go to hospital emergency departments in pain are significantly less likely than whites to get pain-relieving opioid drugs. Researchers analyzed treatments for more than 150,000 pain-related visits to U.S. hospitals between 1993 and 2005. They found 23 percent of blacks and 24 percent of Hispanics received opioids compared with 31 percent of whites. While the use of opioids increased overall, the differences in use between racial and ethnic groups did not diminish. In 2005, the last year of the survey, 40 percent of whites in pain received opioids; 32 percent of all others received the drugs. Among patients in severe pain, opioids were prescribed to 52 percent of whites, 42 percent of Hispanics and 39 percent of blacks.
- Researchers analyzed the pregnancy outcomes of 10,755 Medicaid-insured women, who gave birth at the Duke University Medical Center between 1994 and 2004. Black women, who were younger, were more likely to have another medical condition while pregnant, to remain in the hospital for more than 4 days, and to have hospital charges over \$7,500. Compared with white women, Hispanic women were 34 percent less likely to have preterm births, and black women had 30 percent higher odds of preeclampsia and 74 percent higher odds of small for gestational age infants. Since all the women were poor, Medicaid-insured patients, poverty, and insurance status did not explain these differences.
- The Native Telehealth Outreach and Technical Assistance Program equipped and trained nine health advocates from a variety of backgrounds, including an HIV counselor, a registered nurse, and an elementary school teacher. The participants learned about available health resources and had access to a state-of-the-art multimedia facility to develop their educational projects. Eighteen months after initial training, eight of the nine

participants had developed projects, including an educational video on hepatitis C, an interactive CD-ROM for elementary school students on the effects of alcohol and other drugs on the body, an interactive CD-ROM sharing Native American insights and information on diabetes, and a Web site and brochure campaign on the diverse birth control methods available to the tribal community. These products were disseminated throughout the rural communities.

Getting value for money spent on health care

According to data from the Medical Expenditure Panel Survey (MEPS), Americans spent \$1.02 trillion in health care expenses for hospital inpatient and outpatient care, emergency room services, office-based health care providers, dental services, home health care, prescription medicines, and other medical services in 2005. Nearly 85 percent of the U.S. population had some medical expense with an average annual expense per person of approximately \$4,000. The average expense for a person age 65 and over was more than \$9,000, three times the average for a person under age 65 (\$3,200). Despite this level of health care spending, health care quality in this Nation still needs improvement.

Value-Driven Health Care Initiative

AHRQ is working closely with HHS to fulfill the goals of HHS Secretary Mike Leavitt's Value-Driven Health Care Initiative. The goal of the Initiative is to create a health care system where patients can get better information about the quality and cost of their care that includes competition to provide them with the best value.

Chartered Value Exchanges

In February 2008, working with AHRQ, HHS designated 13 community collaboratives as Chartered Value Exchanges. The Chartered Value Exchanges are local collaborations of health care providers, employers, insurers, and consumers working jointly to improve care and make quality and price information widely available. The first 13 Chartered Value Exchanges are:

- Wisconsin Healthcare Value Exchange, Madison, Wisconsin
- Healthy Memphis Common Table, Germantown, Tennessee
- Greater Detroit Area Health Council, Detroit, Michigan
- Oregon Health Care Quality Corporation, Portland, Oregon
- Pittsburgh Regional Health Initiative, Pittsburgh, Pennsylvania
- Puget Sound Health Alliance, Seattle, Washington
- Utah Partnership for Value-driven Health Care, Salt Lake City, Utah
- Louisiana Health Care Quality Forum, Baton Rouge, Louisiana
- Maine Chartered Value Exchange Alliance, Scarborough, Maine
- Minnesota Healthcare Value Exchange, St. Paul, Minnesota
- Massachusetts Chartered Value Exchange, Watertown, Massachusetts
- Alliance for Health, Grand Rapids, Michigan
- New York Quality Alliance, Albany, New York

In September 2008, HHS designated 11 community collaborations as Chartered Value Exchanges:

- Aligning Forces for Quality, York, Pennsylvania
- California Chartered Value Exchange, San Francisco, California
- The Colorado Chartered Value Exchange, Denver, Colorado
- eHealth Connecticut, Inc., Middletown, Connecticut
- Greater Louisville Value Exchange Partnership, Louisville, Kentucky
- Health Improvement Collaborative of Greater Cincinnati and HealthBridge, Cincinnati, Ohio
- Kansas City Quality Improvement Consortium, Kansas City, Missouri
- Michigan Health Information Alliance, Mt. Pleasant, Michigan
- Nevada Partnership for Value-driven Health Care, Las Vegas, Nevada
- Quality Health First Program, Managed by the Indiana Health Information Exchange, Indianapolis, Indiana
- Virginia Health Care Alliance, Glen Allen, Virginia

As Chartered Value Exchanges, these communities will have access to information from Medicare that gauges the quality of care that physicians provide to patients. These performance measurement results may be combined with similar private-sector data to produce a more comprehensive guide to the quality of care in these communities. In addition, they will join a nationwide Learning Network sponsored by AHRQ. This network will provide peer-to-peer learning experiences through facilitated meetings, both face-to-face and on the Web and access to HHS experts and new tools, including an ongoing private Web-based knowledge management system.

Consumer Financial Incentives Guide for Employers and Other Health Care Purchasers

Consumer financial incentives are either a reward offered to influence patients to behave in a particular way, or, less often, a penalty for failing to do so. By using financial incentives, health care purchasers hope to encourage patients to take actions that either may improve the results of their treatment—such as selecting a high-quality physician, reducing or eliminating high-risk behaviors and using preventive services—or may reduce costs by eliminating unnecessary emergency room visits and decreasing preventable hospitalizations.

In 2008, AHRQ released a new guide that can help employers, private health plans, the Federal government, and State Medicaid agencies as they consider consumer financial incentives as part of an overarching strategy to improve the quality of health care and get better value for what they spend on services. *Consumer Financial Incentives: A Decision Guide for Purchasers* consists of an evidence summary organized around a series of 21 questions that purchasers need to consider when implementing consumer financial incentives. The guide reviews the application of incentives to five types of consumer decisions, including selecting a high-value provider, selecting a high-value health plan, deciding among treatment options, reducing health risks by seeking preventive care, and reducing health risks by decreasing or eliminating high-risk behavior.

Consumer Financial Incentives: A Decision Guide for Purchasers is available at www.ahrq.gov/qual/value/incentives.htm. Its companion, *Pay for Performance: A Decision Guide for Purchasers* is available at www.ahrq.gov/qual/p4pguide.htm. For more information about pay for performance, go to www.ahrq.gov/qual/pay4per.htm. More information on Value-Driven Health Care is available at www.hhs.gov/valuedriven.

Care Management of Patients with Complex Health Care Needs

Americans are growing older today in a way unlike any preceding generation. However, one result is an unprecedented number of older Americans with chronic illnesses. In 2000, 60 million Americans had multiple chronic conditions, and it is projected that this will rise to over 81 million by 2020 (Partnership for Solutions, 2002). The primary care system in this country is unprepared for the challenges posed by a growing population of patients with complex combinations of chronic diseases. The complicated medical regimens, interactions of different diseases, and cumulative effect of different conditions on morbidity, mortality, and quality of life make it difficult to identify optimal approaches for such patients. Care for these patients is often fragmented across multiple settings and providers, with limited, or no communication or coordination and no sense of overarching responsibility. Currently, the management of the patient with complex healthcare needs is often a web of many-to-many relationships with information moving haphazardly among different providers, settings, and the patient. To help meet the needs of both patient and providers and improve the safety and quality of care to patients with complex health care needs, in FY2008, AHRQ funded 30 research projects in care management and health IT (see Appendix Tables 1 and 2).

Recent research findings on value, health care costs, and improving performance

- Obesity surgeries for patients between the ages of 55 and 64 in the United States soared from 772 procedures in 1998 to 15,086 surgeries in 2004—a nearly 2,000 percent increase. In addition, there was a 726 percent increase in surgeries among patients age 18 to 54. Among the reasons for the dramatic increases is that the mortality outcomes from

obesity surgery have improved greatly. The national death rate for patients hospitalized for bariatric surgery declined 78 percent, from 0.9 percent in 1998 to 0.2 percent in 2004. The average hospital cost for a bariatric surgery patient stay, excluding physician fees, was \$10,395 in 2004 as compared with \$10,970 in 1998, adjusted for inflation. The overall hospital costs for bariatric surgery patients increased more than eight-fold — from \$147 million in 1998 to \$1.3 billion in 2004.

- Researchers conducted telephone interviews in 2005 and 2006 with 609 employers in 41 U.S. markets, representing about 78 percent of the U.S. metropolitan population. Of the executives surveyed, 65 percent said they look at health plan quality data when choosing a plan for their employees. However, just 17 percent use that data to negotiate bonuses or penalties in plan contracts. Instead, geographic coverage and premium rates drove their decisionmaking 85 percent of the time. One explanation for not using the data is employers do not see the business case of how value-based purchasing may affect productivity or workforce recruitment and retention. Employers do appear to be embracing health promotion in the workplace. Nearly half of all businesses surveyed provide screening, treatment, or disease management on site, and 70 percent provide clinical help lines.
- People who buy their own health insurance saw their average annual premiums rise 18 percent between 2002 and 2005, a modest increase compared with the 34 percent jump in average premiums for people insured through their employers, according to data taken from the MEPS. The annual cost of these nonemployer policies was paid entirely out of pocket. The average annual premium for a one-person policy was \$2,835 in 2005, up from \$2,531 in 2002. Annual premiums

for family policies were \$5,568 in 2005, up from \$4,442 in 2002. For people with company-sponsored insurance, average annual premiums paid out-of-pocket rose from \$1,231 to \$1,655 between 2002 and 2005.

- With soaring health care costs, private insurance may no longer provide sufficient financial protection. MEPS data from 2001 to 2004 indicates that the rise in out-of-pocket health care expenses, along with stagnant incomes, led one in five privately insured people in middle-income families to face a high financial burden by 2004. After accounting for inflation, total spending for premiums and services rose \$553 to \$3,211, a 21 percent increase over the period, while family incomes were largely unchanged. The increase in families' financial burdens was driven entirely by people with private (employer-sponsored) insurance. Recent projections estimate that both overall private health insurance costs and out-of-pocket spending will continue to rise by about 6 to 7 percent annually through 2016.

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 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 health care in America. 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.

MEPS consists of a family of surveys, which includes families and individuals, their medical providers, and employers across the United States. The MEPS Household Component collects data on demographic characteristics, health conditions, health status, use of medical care services, charges and payments, access to care, satisfaction with care, health insurance coverage, income, and employment. The MEPS Household Component public use data files released in 2008 cover the calendar year 2006. These data files included full-year population characteristics, job information, home health, other medical expenses, dental visits, emergency room visits, office-based provider, and outpatient visits.

The MEPS Insurance Component (MEPS-IC) collects data from a sample of private and public sector employers on the health insurance plans they offer their employees. The collected data include the number and types of private insurance plans offered (if any), premiums, contributions by employers and employees, eligibility requirements, benefits associated with these plans, and employer characteristics. In 2008, MEPS-IC data released included 2006 MEPS-IC Health Insurance Tables – National Estimates as well as State and Metro Area Estimates.

MEPS Publications

MEPS publishes various reports including statistical briefs, research findings, methodology

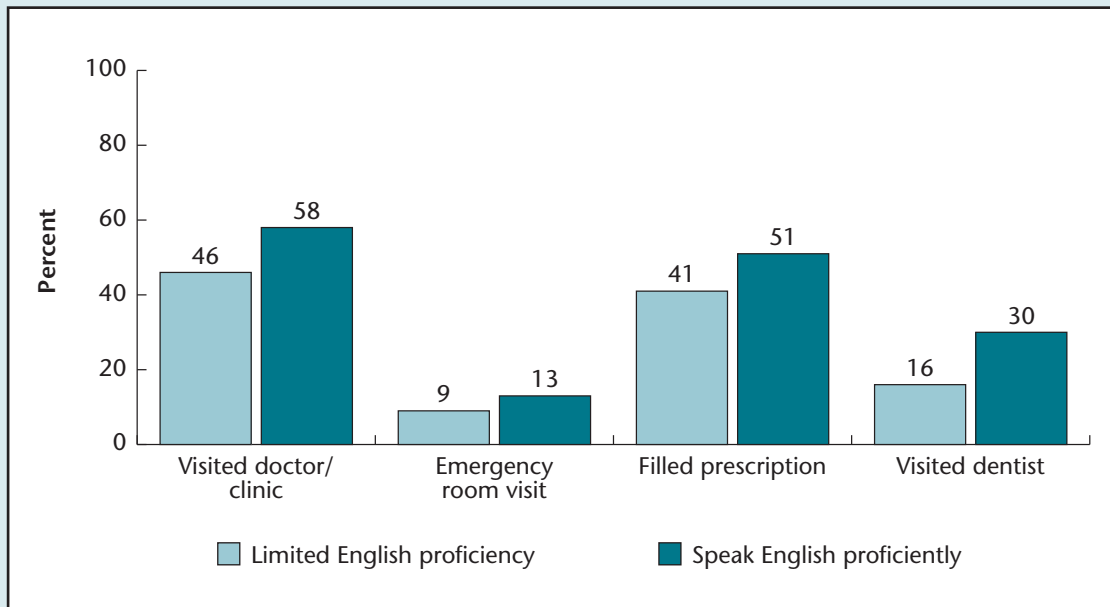
reports, and chartbooks. These analytic publications are based on data collected through MEPS. For example:

- Only about 49 percent of Hispanics who are not comfortable speaking English have a regular source of medical care, such as a family doctor or community health clinic, compared to 63 percent of Hispanics who speak English proficiently. About 6 of every 10 Hispanics aged 18-64 with limited English proficiency are also uninsured compared with 3 of every 10 Hispanics who speak English proficiently. This analysis, based on 2004 statistics, also found that Hispanics with limited English proficiency were less likely to visit a doctor or clinic, go to an emergency room, have their prescriptions filled, or visit a dentist compared to those who spoke English proficiently (see Figure 2).
- In 2005, about 6 of every 10 people in the United States age 18 and older had at least

one chronic medical condition as did 9 of every 10 Americans aged 65 and older. Over three-fourths had two or more chronic conditions. Nine of every 10 dollars spent for medical care (excluding expenses for dental care and medical equipment and supplies) on adults in the United States was spent to treat persons with chronic conditions.

- U.S. adult consumers spent nearly \$36 billion for prescription drugs to lower blood sugar, reduce cholesterol, or help with other metabolic problems in 2005. The four other classes of drugs that topped spending among adults were:
 - Cardiovascular drugs, for reducing high blood pressure and treating heart conditions (\$33 billion).
 - Central nervous system drugs, which include pain killers, sleep aid medications and medications for attention deficit disorder (\$26 billion).

Figure 2. Comparison of access to health care for Hispanics by proficiency in English



Source: *Demographics and Health Care Access of Limited-English-Proficient and English-Proficient Hispanics*, MEPS Research Findings #28.

- Antidepressants and antipsychotic drugs (\$17 billion).
- Gastrointestinal drugs including antacids and laxatives (\$15 billion).

Reports, data files, and additional information on MEPS are available 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 all-payer encounter-level longitudinal hospital care data in the United States, 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

In FY2008, HCUP added a number of outpatient databases, including additional State Ambulatory Surgery Databases (SASD) and State Emergency Department Databases (SEDD). It also began the development of a new nationwide emergency department sample (NEDS) database. Analysis concluded in 2008 determined that creating the NEDS would be a valuable resource for examining emergency department (ED) services. In 2008, 27 States contributed data on ambulatory surgery and other outpatient services for a combined total of 45,759,433 visits

in over 4,087 facilities. In addition, 25 States contributed outpatient ED data, for a combined total of 52,268,817 visits in 2,486 hospitals.

2006 Kids' Inpatient Database

In 2008, HCUP released data from the Kids' Inpatient Database (KID)—the only dataset on hospital use, outcomes, and charges designed to study children, and includes all patients under age 21 regardless of payer (privately insured, Medicaid, uninsured). The data, which is released every 3 years, can be weighted to produce national estimates, allowing researchers and policymakers to use the KID to identify, track, and analyze national trends in pediatric health care issues on utilization, access, charges, quality, and outcomes. Such topics include:

- Rare conditions, such as congenital anomalies.
- Common conditions, such as asthma.
- Economic burden of pediatric conditions, such as adolescent pregnancy.
- Access to services.
- Quality of care and patient safety.
- Impact of health policy changes.

The KID for 2006 includes 3,739 hospitals from 38 States. As part of the HCUP database family, the KID is considered to be one of the most reliable and affordable databases for studying important pediatric health care topics.

2006 Nationwide Inpatient Sample

The Nationwide Inpatient Sample (NIS) featuring 2006 data was released in May 2008. This inpatient care database includes all patients, regardless of payer—including people covered by Medicare, Medicaid, private insurance, and the uninsured. The data can be weighted to produce national estimates, allowing researchers and policymakers to use the NIS to identify, track,

and analyze national trends in health care utilization, access, charges, quality, and outcomes.

Health statistics and information from the 2006 KID and the 2006 NIS can be accessed via HCUPnet at <http://hcupnet.ahrq.gov/>, the free online data query system.

2006 State Data

State data for the 2006 data year was released in 2008. This database release includes the State Inpatient Databases (SID), SASD, and SEDD of selected States. Researchers and policymakers can use these State-specific HCUP databases to investigate questions unique to one State, compare data from two or more States, conduct

market area research or small area variation analyses, and identify State-specific trends in utilization, access, quality, charges, and outcomes.

- SID data from the 2006 data year are available for 24 of the HCUP Partner States.
- The SASD feature ambulatory surgeries performed on the same day in which patients are admitted and released. They contain the ambulatory surgery encounter abstracts from hospital-affiliated, and in some cases, freestanding, ambulatory surgery sites within participating States. SASD data for 15 of the HCUP Partner states are available through the HCUP Central Distributor at www.hcup-us.ahrq.gov/tech_assist/centdist.jsp.

U.S. hospital bill is approaching \$1 trillion

U.S. hospitals charged \$873 billion in 2005—a nearly 90 percent increase from the \$462 billion charged in 1997. The 2005 bill, which is adjusted for inflation, represents the total amount charged for 39 million hospital stays. The average yearly rate of increase over the last several years in the national hospital bill was 4.5 percent. At this rate, researchers estimate that the annual national hospital bill may reach \$1 trillion by 2008. Medicare paid the bulk of the national hospital bill (\$411 billion), followed by private insurance (\$272 billion) and Medicaid (\$124 billion). Uninsured hospital stays accounted for \$38 billion in charges. The remaining \$28 billion was for other insurers, including Workers' Compensation, TRICARE, Title V, and other government programs.

- One-fifth of the national hospital bill was for treatment of just five conditions—coronary artery disease (\$46 billion), pregnancy and childbirth (\$44 billion), newborn infant care (\$35 billion), heart attack (\$32 billion), and congestive heart failure (\$30 billion).
- For 10 conditions, the growth was greater than the average of all hospital stays:
 - Sepsis—189 percent.
 - Chest pain—181 percent
 - Respiratory failure—171 percent.
 - Back pain—170 percent.
 - Osteoarthritis—165 percent.
 - Irregular heart beat—131 percent.
 - Procedure complications—120 percent.
 - Congestive heart failure—117 percent.
 - Medical device complications—113 percent.
 - Diabetes—97 percent.

Source: *The National Hospital Bill: Growth Trends and 2005 Update on the Most Expensive Conditions by Payer*, Statistical Brief No. 42.

- The SEDD contain discharge information on all emergency department visits that do not result in a hospital admission. AHRQ added 2006 data files for California to the existing collection of 12 State SEDD files that are already available to the through the HCUP Central Distributor.

2007 State Data

Release of the 2007 Statewide databases including the SID, SASD, and SEDD for selected States began in July 2008. In the past, the HCUP Statewide databases were typically available 12 to 18 months following the end of a calendar year. Due to new process improvements and strong relationships with HCUP State Partners, AHRQ was able to begin releasing 2007 databases in half that time.

HCUP Statistical Briefs

The HCUP Statistical Briefs are a series of Web-based publications 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:

- Between 1997 and 2006, there were substantial increases in hospitalizations for skin and subcutaneous tissue infections (81 percent), blood infections (48 percent), degenerative joint disease (76 percent), and non-specific chest pain (59 percent). This compares to a 14 percent increase in all discharges.
- Blood transfusions occurred in one out of every ten hospital stays that included a procedure in 2006. Discharges with blood transfusions have increased 117 percent from 1997 to 2006, making this the largest as well as the fastest growing of the most common procedures performed during a hospital stay.
- Between 1993 and 2006, the number of infants born by C-section grew at an average annual rate of 4 percent. Several complications of C-section births grew more quickly, including post-birth respiratory problems (6 percent), jaundice (7 percent), and feeding problems (11 percent).

For more information on HCUP, 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, researchers, government agencies, and others. The AHRQ Quality Indicators (QIs) tool 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 organized into four modules, each of which measures quality associated with the delivery of care occurring in either an outpatient or an inpatient setting. In 2008, AHRQ released Version 3.2, an update of all four modules:

- Prevention Quality Indicators (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.

- Pediatric Quality Indicators (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 AHRQ QIs are being used for reporting and tracking at the international, national, State, and local levels:

- The Paris-based Organization for Economic Cooperation and Development (OECD) has adapted AHRQ's QIs as part of its effort to track the quality of health in nations around the world. OECD intends to use the indicators to explore why the quality of health care varies widely among nations. Currently, 32 nations are participating in the project, ranging from the Czech Republic to

Japan to Mexico. The HCQI Project reports are available from the OECD Web site at www.oecd.org/health/hcqi.

- 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.
- Currently, 12 States that report some or all of the AHRQ QIs: Vermont, Texas, New York, Wisconsin, Massachusetts, Oregon, California, Utah, Florida, Kentucky, Ohio and Iowa.
- Using AHRQ's Inpatient Quality Indicators (IQIs), the Dallas-Fort Worth Hospital Council helped identify a significant relationship between amphetamine use and inpatient stroke deaths in Texas hospitals.

In fiscal year 2008, the National Quality Forum endorsed over 30 AHRQ Quality Indicators for public reporting bringing the total number of endorsed AHRQ Quality Indicators to 44.

AHRQ's patient safety indicators may be useful for comparing quality of care across delivery systems

A study of Veterans Health Administration (VA) hospitals shows excess deaths, longer hospital stays, and higher costs in all groups of patients who experienced potentially preventable safety problems indicated by patient safety indicators (PSIs) developed by AHRQ. Researchers applied 9 PSIs to all 439,537 acute inpatient hospitalizations at 125 VA hospitals. They then compared these findings with those based on similar data on PSIs and adverse events at U.S. community hospitals from AHRQ's Healthcare Cost and Utilization Project Nationwide Inpatient Sample. All nine PSIs were significantly associated with increased length of stay (LOS), cost, and mortality in similar patterns among both VA and non-VA hospitals. The three PSIs that occurred most often—decubitus ulcer, postoperative pulmonary embolism/deep vein thrombosis, and accidental puncture/laceration—were associated with relatively smaller excess mortality, LOS, and cost. The three PSIs that occurred least often—postoperative sepsis (blood infection), respiratory failure, and dehiscence (disruption of the wound) were associated with the greatest excess mortality, LOS, and cost.

See "Using patient safety indicators to estimate the impact of potential adverse events on outcomes," by Peter E. Rivard, Ph.D., Stephen L. Luther, Ph.D., Cindy L. Christiansen, Ph.D., and others, in the February 2008 *Medical Care Research and Review* 65(1), pp. 67-87.

AHRQ Preventable Hospitalization Costs, a county level mapping tool

In 2008, AHRQ released a free, new software program that maps AHRQ's Prevention Quality and Pediatric Quality indicators for a State or county and estimates the expected cost savings that could be achieved by reducing potentially avoidable hospitalizations. The Preventable Hospitalization Costs (<http://qualityindicators.ahrq.gov/mappingtool.htm>) assists health care decisionmakers in identifying communities for future interventions, such as improving preventive and primary care services or improving patient safety, and tracking the impact of such interventions over time. By overlaying residence data, the program shows where interventions can have the biggest impact for certain health plan enrollees or other target populations. The program can also be useful to employers, employer coalitions, Medicaid programs, health departments, hospitals, health

Talking Quality's Report Card Compendium

AHRQ developed a new Web tool demonstrating a variety of approaches for health quality report cards. The new Health Care Report Card Compendium is a searchable directory of over 200 samples of report cards produced by a variety of organizations. It can inform and support the various organizations that develop health care quality reports, provide easy access to examples of different approaches to content and presentation, and meet the needs of health services researchers. The compendium was developed as a resource for report sponsors to supplement guidance provided on AHRQ's TalkingQuality Web site (www.talkingquality.gov). The Health Care Report Card Compendium can be found at www.talkingquality.gov/compendium/.

systems, health plans, and researchers interested in improving health care quality in the community.

Consumer Assessment of Healthcare Providers and Systems

AHRQ has been the lead Federal agency in developing and distributing standardized, evidence-based surveys and related tools for assessing patients' experiences with the U.S. health care system. The Agency's Consumer Assessment of Health Care Providers and Systems (CAHPS) program has become the focal point of a national effort to measure, report on, and improve the quality of health care from the perspective of consumers and patients. CAHPS 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.

Release of CAHPS Hospital Survey Results

In late March 2008, CMS released results of the CAHPS Hospital Survey (H-CAHPS) for the first time on the Hospital Compare Web site. These measures of the patient-centeredness of care at over 2,500 hospitals throughout the country complement existing information on the clinical quality of specific aspects of hospital care. The publication of the H-CAHPS data introduces a new element of transparency and accountability for hospitals. To view the results, go to www.hospitalcompare.hhs.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 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.

New Tool Helps Hospitals Evaluate Disaster Drills

In 2008, AHRQ released a tool that helps hospitals identify the most important strengths and weaknesses in their disaster response plans. As of September 2008, hospitals participating in the Hospital Preparedness Program, administered through HHS, will be required to provide executive summaries of the results of disaster drills they conduct. AHRQ's new *Tool for Evaluating Core Elements of Hospital Disaster Drills* (<http://www.ahrq.gov/prep/drillelements>) can help hospitals meet this requirement.

The tool is a series of evidence-based modules that provide standardized checklists to document observations during a disaster drill. Using the observations, hospitals can identify areas for improvement, make appropriate changes and set benchmarks to track those changes over time. The individual modules assess the adequacy of response by different functional "zones" set up within a hospital during a disaster: command center, decontamination, triage, and treatment. A pre-drill module is also included, and a debrief module helps capture feedback from all participants, including observations that occur across multiple functional zones.

Resources for Home Health Care Response During a Flu Pandemic

AHRQ also released *Home Health Care During an Influenza Pandemic: Issues and Resources* (<http://www.pandemicflu.gov/plan/healthcare/homehealth.html>), a report identifying home

health care as a critical component in providing care during a pandemic influenza event and offering resources to home health care providers and community planners to prepare for such an event. The report emphasizes the home health care sector's potential to help handle a surge in patients during a biologic event and stresses the need for involvement of home health care agencies in advance planning and coordination at the local level. It offers resources and suggestions on addressing key elements of home health care preparedness and includes lists of existing tools and models. Examples of issues and strategies addressed in the report include:

- Exploring the use of technology to monitor patients at a distance.
- Collaboration with community partners.
- Legal and ethical considerations of providing care under emergency conditions.
- Home health care workforce issues, including training.
- Recommendations for additional action and research at the Federal, State, and local levels.

The report is based on the findings of an expert panel meeting, including representatives of home health care, emergency and disaster planning, professional organizations, and Federal and State government agencies.

AHRQ has funded more than 60 emergency preparedness-related studies, workshops, and conferences to help hospitals and health care systems prepare for public health emergencies. More information about these projects can be found online at www.ahrq.gov/prep/.

Health Care Innovations Exchange

The Health Care Innovations Exchange (www.innovations.ahrq.gov) is a Web resource that allows users to learn, share, and adopt innovations in the delivery of health services.

Innovations are new or perceived as new to a particular context or setting relative to the usual care processes. They have potential for high impact on the delivery of patient care, whether preventive, emergent, chronic, acute, rehabilitative, long-term, or end-of-life. In addition, they are designed to address the need for the reduction of health disparities in populations of interest to AHRQ, which include low income groups, minority groups, women, children, the elderly, and individuals with special health care needs.

Serving as the Federal government's repository for successful health care innovations, the Health Care Innovations Exchange also includes descriptions of attempts at innovation that failed, and is a useful tool for health care leaders, physicians, nurses, and other health professionals who seek to reduce health care disparities and improve health care overall. Users can read articles and perspectives on the creation and adoption of innovation, read expert-generated commentaries on specific innovations, comment on innovations, participate in Webinars and discussions, and join online forums that connect innovators with organizations that adopt them.

AHRQ's Knowledge Transfer Initiative

As part of its mission to develop programs for disseminating and implementing the results of Agency activities, the Office of Communications and Knowledge Transfer (OCKT) directs a Knowledge Transfer program to promote the use of AHRQ tools, products, and initiatives by various stakeholders. Knowledge Transfer activities consist of a series of projects that disseminate and implement AHRQ products, tools, and research to a specific target audience. The goals are to:

- Enhance awareness about AHRQ's tools, research, and products.

- Increase knowledge about the suite of AHRQ tools available.
- Assist target audiences in the actual implementation of AHRQ tools, research, and products.
- Gain feedback regarding the successes and barriers that organizations are experiencing in implementing AHRQ initiatives.
- Develop case studies showing how target audiences have actually disseminated and implemented specific AHRQ products.

Key Projects in OCKT's Knowledge Transfer Initiative

Pharmacy Suite of Tools – Develop partnerships with key organizations and associations to disseminate and promote products and tools developed from AHRQ's Effective Health Care Program. The project will provide opportunities for stakeholders to offer feedback and nominate topics for future summaries and reports, develop marketing plans, and measure results of efforts.

Purchasers Suite of Tools – Promote selected AHRQ products to purchasers of health care in the private sector and document the impact of using the products. Establish relationships with organizations representing or serving employers, determine the organization's knowledge of AHRQ and its products, and increase uptake of selected AHRQ products by private sector employers.

Long-Term Care Quality Improvement Learning Network – 20 long-term care facilities are participating in a high-intensity, quality improvement (QI) learning network. Using the AHRQ Readiness Assessment Tool to establish a QI baseline and to find commonalities among the facilities, nursing homes already engaged in varying levels of QI initiatives will be encouraged to learn new and proven strategies for improving leadership, communication, and teamwork.

Increasing Clinicians Use of Effective Health Care Program Products – Implement an efficient and effective strategy for disseminating Effective Health Care products to clinicians—both Comparative Effectiveness Review executive summaries and Eisenberg Center products (including summary guides for clinicians and consumers, when available).

Quality Indicators Learning Institute – Establish and support a forum for discussing and facilitating the use of the AHRQ QIs in Statewide and regional programs that report hospital quality measures to the public. Institute members are leaders from State agencies/task forces, State hospital associations and/or coalitions that are directly involved with developing public reporting programs.

Medication Adherence – Achieve consensus on a set of messages and an action plan for a sustained public education campaign on medication adherence. Consensus will be sought among representatives of key stakeholder groups, including clinicians, consumers, insurers, businesses, States, pharmacists, drug manufacturers, and others, to review and promote existing AHRQ research and tools related to medication safety and adherence.

Emergency Preparedness Webcasts – Help stakeholders, especially States and communities, find and use AHRQ's emergency preparedness products. The goals of this project are to (1) enhance awareness among key stakeholders about AHRQ's role in the emergency preparedness arena, (2) increase knowledge among decisionmakers about the suite of AHRQ tools available to them, and (3) provide feedback to AHRQ to inform its future educational offerings and outreach efforts.

Electronic Preventive Services Selector (ePSS) – Promote the electronic Preventive Services Selector (ePSS)—an interactive tool designed for use on a PDA or desktop computer to help primary care clinicians identify the screening,

counseling, and preventive medication services recommended by the U.S. Preventive Services Task Force that are appropriate for their patients.

Hospital Product Line – Increase awareness of AHRQ among hospitals and health systems and help hospitals enhance their quality and safety by implementing AHRQ products and tools. Technical assistance is being provided to individual hospitals as well as groups of hospitals in the form of in-person meetings, Web conferences, and conference calls.

Medicaid Care Management Learning Network – Help State Medicaid programs develop strategies for improving the quality of care in the following critical areas: helping patients become active in their care; encouraging provider participation in care management programs, developing program interventions and corresponding measurement strategies that impact patient care; and designing valid, reliable evaluations to determine the program's success. The expertise and lessons learned during this project are shared in the publication *Designing and Implementing Medicaid Disease and Care Management Programs: A User's Guide* (www.ahrq.gov/qual/medicaidmgmt/).

Quality Diagnostic Tools for States – Increase the use of AHRQ's Quality Improvement tools among State policymakers. Activities include workshops, audio and Web conferences, and hands-on technical assistance with individual States to encourage and facilitate use of the tools.

Emergency Preparedness Tools for States – Provide assistance to community planners in three pilot sites to use one or more of AHRQ's products to enhance their overall emergency preparedness planning process, operational effectiveness, and response to public health emergencies. The emphasis is on fostering partnerships and integration among public health departments, hospitals, and health care providers as well as emergency

management at the State, regional, and local levels.

Medicaid Medical Directors Learning Network – Provide a forum for clinical leaders of State Medicaid programs to discuss their most pressing needs as policymakers, use relevant AHRQ products and related evidence to address their concerns, and determine their needs for future research. Through this project, they connect with other organizations interested in using evidence-based medicine to make policy decisions that impact Medicaid programs.

Hispanic Elders Learning Network – Support the development of local, evidence-based intervention plans for reducing health disparities and improving the delivery of health care and related aging and social services for Hispanic elders. This project seeks to foster the development of interdisciplinary teams/coalitions in eight communities with large populations of Hispanic elders and link them together in a learning network with a team of national experts in the areas of health disparities measurement, evidence-based programs, community health, and organization.

Elders Prevention Learning Network – Provide technical assistance to six States, i.e., Illinois, Maryland, Maine, Massachusetts, New Jersey, and Ohio, to create community-clinician linkages using evidence-based research that demonstrates how to best provide care for the elderly.

In Conclusion

In fiscal year 2009, AHRQ will continue its mission to improve the quality, safety, and cost-effectiveness of health care in America with a focus on prompt greater uptake and use of its tools and research. 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 through improved quality of care and patient outcomes and value gained for what we spend.

Appendix

Table 1. Optimizing Prevention and Health Care Management for the Complex Patient, HS08-003

Project Title	Institution
Prioritizing Care of Complex Elders Using Survival and Functional Status Outcomes	University of California, Los Angeles
Developing Treatment Policies for Complex Patients Using Modeling and Data Mining	University of Minnesota Twin Cities
Multimorbidity and Screening Colonoscopy: A Framework for Patients and Policy	Yale University
Outcomes of Blood Pressure Management in Diabetes Patients with Comorbidities	University of Michigan at Ann Arbor
The Effect of Incident Comorbidities on Guideline-Concordant Chronic Disease Care	Kaiser Foundation Research Institute
Optimizing the Treatment of Diabetes Patients	Mayo Clinic College of Medicine, Rochester
Optimal Prevention and Treatment in Medically Complex Alzheimer Patients (OPTIMAL)	Indiana University Purdue University at Indianapolis
Modeling Prioritization of Health Care for Complex Patients Using Archimedes	University of Oklahoma Health Sciences Center
Effect of Chronic Illness Complexity on Evidence-Based Depression Treatment	Northwestern University
How the Linkage Between Care Processes and Outcomes Varies by Comorbidity	University of California, Los Angeles
Optimizing Secondary Prevention in Type 2 Diabetes	Kaiser Foundation Research Institute
Relationship of Depression to SCD Severity, Health Care Utilization and QoL	Duke University
Guideline Adherence and Health Outcomes in Medicare FFS Patients with Diabetes	University of Wisconsin, Madison
Mental Comorbidity and Chronic Illness in the National Medicaid System	Emory University
Treatment Burden in Complex Older Patients as a Target for Intervention	Johns Hopkins University
Models to Improve Colorectal Cancer Screening Decisions in Complex Older Patients	University of North Carolina, Chapel Hill
Implanted Cardiac Defibrillators for Heart Failure Patients with Kidney Disease	Tufts Medical Center
Diabetes Mellitus, Comorbid Conditions and Mortality	University of Washington

Table 2. Ambulatory Safety and Quality Program: Improving Management of Individuals with Complex Healthcare Needs through Health IT, HS08-002

Project Title	Institution
Randomized Controlled Trial Embedded in an Electronic Health Record	University of California, San Francisco
E-Coaching: IVR-Enhanced Care Transition Support for Complex Patients	University of Alabama at Birmingham
Improving Care Transitions for Complex Patients through Decision Support	Duke University
Using HIT to Improve Transitions of Complex Elderly Patients from SNF to Home	University of Massachusetts Medical School, Worcester
Using Electronic Data to Improve Care of Patients with Known or Suspected Cancer	Baylor College of Medicine
An Electronic Personal Health Record for Mental Health Consumers	Emory University
Improving Pediatric Cancer Survivorship Care through SurvivorLink	Emory University
Enhancing Complex Care through an Integrated Care Coordination Information System	Oregon Health and Science University
Improving Medication Management Practices and Care Transitions through Technology	Visiting Nurse Service of New York
Chronic Mental Health: Improving Outcomes through Ambulatory Care Coordination	SE Nebraska Behavioral Health Information Network
A Longitudinal Telephone and Multiple Disease Management System to Improve Ambulatory Care	Boston Medical Center
The Effectiveness of an HIT-based Care Transition Information Transfer System to Improve Outpatient Post-Hospital Care for Medically Complex Patients	Billings Clinic Foundation



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