



# RESEARCH ACTIVITIES

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## The changing role of nurses

The health care workforce doesn't get any bigger than nurses. Three million strong, they're the largest group of clinicians in the country. *Research Activities* spoke with AHRQ's senior advisor for nursing Beth Collins Sharp, Ph.D., M.S.N., about her perspective on trends in nursing, why nurses are important in research, and the role of nurses at AHRQ.

### What role do you see nurses playing in health care research?

#### Highlights

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Nurses affect so many aspects of health care in addition to direct clinical care—quality measurement and improvement, case management, data collection for clinical trials, insurance coverage review, health and insurance hot lines, patient education classes, and many others. In many of these roles, we hold certification or additional training.

This isn't new. In fact, modern nursing was founded by an epidemiologist and health services researcher. Florence Nightingale was a renowned statistician who was famous for her statistical documentation of mortality during the Crimean War. She collected data proving that more soldiers died from infection than from battle and she championed for improved hygiene procedures to reduce the mortality rates.

If Florence Nightingale were alive today, AHRQ investigators would be clamoring to have her as a consultant on their grants for quality measurement, healthcare-associated infections, and training in patient-centered services.

### Why are nurse researchers so critical in developing health services research?

We bring an on-the-ground perspective—a reality check—to studies. Ideally, nurses are involved

from the beginning as questions are developed through to the end when the research gets put into practice.

We're often the clinicians collecting data and documenting care or implementing the intervention. We can identify problems during pilot studies or run-in periods in the research protocols. After all, we are experienced with clinical protocols. And, of course, when the study is complete, we're often doing much of the patient education.

Nurse practitioners and certified nurse midwives continue providing the patient's view in advanced practice with patients in a variety of settings, including a strong presence in primary care and underserved areas.

Even when nurse researchers are not currently in clinical practice, I believe "thinking like a nurse" remains. I was recently in a very busy ER with a family member for a minor issue so we spent a lot of time waiting. During the visit, I constantly interpreted what I was seeing: "Oh, that woman needs an ice pack," "that man will get his test done before that one," "that's the nurse manager, the one who's calling impromptu meetings because the computers just went down." Nurses are able to identify aspects of health care that would be

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## From the Director



I often say that nurses are on the frontlines of care. While this is true, nurses—despite their vast influence and importance—have too often

been in the background of health care research and policy.

This is changing. Nurses are increasingly becoming leaders in shaping and developing all aspects of health care policy and decisions. It's about time.

In the Department of Health and Human Services, we have more nurses in leadership than ever before. My colleague Mary Wakefield, the administrator of the Health Resources Services Administration is a nurse. Dr. Wakefield once chaired AHRQ's National Advisory Council. The acting administrator for the Centers for Medicare & Medicaid Services, Marilyn Tavenner, is also a nurse. In addition, Rear Admiral

Kerry Paige Nessler, the chief nursing officer in the Federal Public Health Service Nursing Corps, chairs the Public Health Service Nurse Leadership Network that meets twice a year to network, collaborate on programs, and open communications across Federal agencies and various roles in the field of nursing.

AHRQ's own Beth Collins Sharp, who is interviewed in this issue of *Research Activities*, has set up a similar workgroup within the Agency. We're proud to have nurses in almost every center and office here. In each case, their nursing expertise adds value to their respective programs, just as nurses add important perspectives to clinical teams.

For example, nurses play a central role with use of nurse-administered checklists to ensure infection prevention practices are followed at hospitals that are dramatically reducing central-line associated bloodstream infections (CLABSIs) as part of the AHRQ-funded Comprehensive Unit-based Safety

Program (CUSP). CUSP has cut the rate of CLABSIs nationally by 40 percent, saved 500 lives, and saved \$34 million in health costs.

More than 40 of our grants have involved nursing since 2001. Current studies include a trial examining the effectiveness of health information technology interventions to the Visiting Nurse Service of New York; a cross-sectional study collecting data from nurses in surgical units caring for patients with coexisting chronic illness in Atlanta; and a study examining nurse staffing, financial performance, and quality of care in North Carolina.

In 2010, we expanded our continuing medical education/continuing education offerings in our Effective Health Care Program to include nurses and other clinicians in addition to physicians. And even more recently, we established an Effective Health Care Program nursing workgroup. Our partners include the American Academy of Nurse Practitioners, the American Nurses Association, the American Association of Colleges of Nursing, and the National Black Nurses Association.

The Institute of Medicine Report *The Future of Nursing: Leading Change, Advancing Health* and the Affordable Care Act provide new opportunities for nurses to lead and help eliminate barriers to use of patient-centered outcomes research.

AHRQ will continue looking for new opportunities to engage with nurses, expand opportunities for nurses, and educate ourselves on the value that nurses bring to research. We're ready.

Carolyn Clancy, M.D.

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AHRQ  
Office of Communications  
and Knowledge Transfer  
540 Gaither Road  
Rockville, MD 20850  
(301) 427-1711

Gail S. Makulowich  
Managing Editor

Kevin Blanchet  
David I. Lewin  
Kathryn McKay  
Mark W. Stanton  
Contributing Editors

Joel Boches  
Design and Production

Farah Englert  
Media Inquiries

## Nurses

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important to include in a study or data that may be missed without that clinical perspective.

### **As the health care system undergoes transformation, how will the role of nurses change?**

Well, everyone's role is changing—including the patient's. But the piece that cuts across everything is interdisciplinary collaboration with patient-centeredness, which is a long-standing nursing value and well ingrained in nursing practice.

As the number of advanced practice and doctorally-prepared nurses grows, the interest in designing studies and being principal investigators grows. Nursing research used to focus mostly on nursing education studies and then on psychosocial questions. So there's a lot of methodological expertise in qualitative methods and evaluation.

I remember when the first physiologic and genetics test questions were being posed by nurses—some people questioned whether it was really “nursing” research. But nursing has always had a holistic view of the patient, so it makes sense that the science should reflect all paradigms.

I see nurses having an increasing presence on multidisciplinary teams in co-investigator and principal investigator roles. The multidisciplinary approach is such a positive way to go—especially for the patient.

But probably the biggest stimulus of transformation is the Institute of Medicine's (IOM) 2011 report, *The Future of Nursing: Leading Change, Advancing Health*.

### **What's changed since the IOM report on the future of nursing was published?**

There was so much buzz in the nursing community when the report was released, you'd have thought the report was only by and for nurses. But it was sponsored by the Robert Wood Johnson Foundation (RWJ) and the IOM and the chair was Donna Shalala (former secretary of HHS and current president of the University of Miami), who is not a nurse. She said, “The report is really about the future of health care in our country. It points out that nurses are going to have a critical role in that future, especially in producing safe, quality care and coverage for all patients in our health care system.” The report was rolled out to stakeholders beyond the nursing community.

The report resonated with several sectors of the health care industry and they recognize that the report is actionable. The RWJ Foundation and AARP collaborated to create an initiative called the Future of Nursing Campaign for Action. So far, over 80 organizations have become involved in this initiative.

Another change has been the passage of the Affordable Care Act (ACA). There are provisions that speak about both registered nurses and nurse practitioners. For example, a National Healthcare Workforce Commission was established to address workforce issues in multiple disciplines. It is chaired by Peter Buerhaus, Ph.D., R.N., who is also an AHRQ grantee.

We've had progress in other areas. Medicare now pays the same reimbursement to certified nurse midwives for a service if the same service was otherwise delivered by

a physician. The nurse practitioner role is spelled out in several points of the ACA—most often in primary care and the patient-centered medical home, as well as advanced



Beth Collins Sharp

practice education loans and training grants such as geriatric nursing career incentives.

### **Do you think the Affordable Care Act will help advance nursing practice?**

Calling out nurse practitioners in legislation helps the health care industry take note and look at policies that incorporate advanced nursing practice. Sometimes the policies need tweaking during implementation. I recently learned of an issue with incentives for electronic health records (EHR) to encourage e-prescribing. Nurse practitioners may need extra documentation fields if their State regulations for scope of practice require physician collaboration or additional documentation. This documentation has downstream effects in EHR incentives and penalties. This is an oversimplification of the issue, but is a good example of some of the scope of practice challenges for nurse practitioners.

The issues about scope of practice continue to be “spirited.” Currently, there's a lot of posturing around over who should be in charge of medical homes, for example. There are some misperceptions about nurse practitioners—like they're trying to replace physicians or silly

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## Nurses

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things like they're "physician extenders" or "mid-level" providers [chuckles]. Be warned—don't use those phrases with your nurse colleagues! All kidding aside, my personal view is that in the current environment where health care demands and deserves a team approach, there's plenty of work for everyone.

Since patient-centered care is a shared value, things settle into collegial practice as long as the open dialogue continues. That may sound Pollyanna, especially being so close to beltway politics, but I think that patients want quality care, will demand it, and one way they'll receive it is from advanced practice nurses.

### **How are the views of nurses reflected in the work at AHRQ?**

I've always loved that AHRQ has a multidisciplinary atmosphere where teamwork is more than talk. It's real. When I think about AHRQ's portfolios, they reflect important areas of transformation and there's a place for nursing in all of them.

I can't even begin to tell you how much nurses are involved in at AHRQ, but I can give you a few examples. We have nurses working with HHS on the National Quality Strategy called for by the ACA, coordinating site visits to assess Patient Safety Organization

performances, analyzing utilization data, and promoting our materials. One of our nurses recently managed a challenge for nurse practitioners and physician assistants who work in retail environments to translate existing AHRQ research reports into innovative resources.

Almost all of our nurses have advanced degrees. At least one of our nurse practitioners still sees patients. We're nurses and "once a nurse, always a nurse." I don't know the origins of that expression, but it captures the essence of the strong nurse identity that many of us hold.

### **What are your goals for integrating nurses' expertise at AHRQ?**

As senior advisor for nursing, I look for intersections with AHRQ where the nursing perspective can be helpful and areas to promote AHRQ to nursing stakeholders. I'm sort of the concierge for nursing. I have two big goals. They're pretty huge, actually. One is to have nurses on every technical expert and peer review panel and similar groups where the business of that group involves nursing stakeholders. I think that's a reasonable expectation, and for my purposes I assume that is just about everything we do here at AHRQ. I want to have ready resources for my colleagues who think nurses are important stakeholders for their work.

Second, I want to promote the use of AHRQ products by nurses. Nurses are not only the largest segment of health services, we are integrated throughout the system, most especially with patients. Our unique perspective can have real impact. I don't think we have consistently engaged the nursing perspective or leveraged the opportunities that are available by partnering with nurse stakeholders. As I go to meetings and chat with my nurse colleagues, I hear two clear messages: They love the work of the Agency and think it's so important to patient care. On the other hand, they express concern that most materials don't resonate with them because they perceive that the target audience is mainly physicians. I'm hoping we can make our materials more multidisciplinary in general and routinely target materials to nurses.

There will be a lot of work involved to accomplish those goals, but they're actionable and have real potential to improve health care. Plus, it will be fun. I'm excited by the possibilities.

**Editor's note:** This interview is part of an occasional series that looks at trends in health care. For more information about nursing research at AHRQ, email [Beth.CollinsSharp@ahrq.hhs.gov](mailto:Beth.CollinsSharp@ahrq.hhs.gov) ■

**Note:** Only items marked with a single (\*) asterisk are available from the AHRQ Clearinghouse. See the back cover of *Research Activities* for ordering information. Consult a reference librarian for information on obtaining copies of articles not marked with an asterisk.

## Certain hospital strategies lower mortality rates for heart attack patients

Despite a substantial decline in deaths from heart attack in the past decade, there is still substantial variation in 30-day risk-standardized mortality rates (RSMRs) from hospital to hospital. Researchers who surveyed 537 hospitals have identified several hospital strategies that were strongly associated with lower mortality rates for patients hospitalized for heart attack.

Lower mortality rates were more likely to occur when the hospital culture encouraged clinicians to creatively solve problems, physicians and nurses acted as champions to improve the quality of care, hospital clinicians met at least monthly to review care with staff who transported patients to the hospital, and cardiologists were always present in the hospital.

Hospital strategies associated with higher mortality rates included having only nurse champions and cross-

training critical care nurses for the cardiac catheterization lab. Although the size of the effect for individual strategies was modest, taken together, they exceeded an absolute difference of 1 percent in RSMRs. If a change this large could be achieved nationally, thousands of lives could be saved yearly by using interventions that have negligible risk and could be implemented with relatively few new resources, suggest the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS16929).

See “Hospital strategies for reducing risk-standardized mortality rates in acute myocardial infarction” by Elizabeth H. Bradley, Ph.D., Leslie A. Curry, Ph.D., Erica S. Spatz, M.D., and others in the *Annals of Internal Medicine* 156, pp. 618-626, 2012. ■ MWS

## Continuing beta blockers after noncardiac surgery improves patient outcomes and lowers mortality

Administering beta-blockers before non-cardiac surgery has been shown to reduce cardiac events and mortality in high-risk patients. A new study shows that for patients already taking beta-blockers at home, continuing beta-blocker therapy on the day of and after non-cardiac surgery is associated with fewer cardiac events and deaths. Researchers looked at 8,431 patients who underwent elective colorectal and bariatric surgical procedures at 38 hospitals during a 2-year period. Of these, 23.5 percent were taking beta blockers prior to hospital admission for surgery.

The practice of continuing beta-blocker therapy on the day of

surgery increased from 57.2 percent at the start of the study to 71.3 percent at the end of the study period. Postoperative beta-blocker use also rose during this period from 75.9 percent to 93.4 percent. The majority of patients (66 percent) continued to receive beta-blockers perioperatively and postoperatively.

Failing to continue beta-blocker therapy during the perioperative period was associated with a nearly twofold risk of 90-day combined adverse events, including death. In these patients, the risk continued to be elevated 1 year after undergoing surgery. Even in patients who did not receive beta blockers on the day of

surgery, but continued them postoperatively, the odds of experiencing a 90-day combined adverse event doubled. These findings provide strong evidence for the continuation of beta blockers in patients undergoing these surgical procedures, note the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS20025).

See “ $\beta$ -blocker continuation after noncardiac surgery,” by Steve Kwon, M.D., M.P.H., Rachel Thompson, M.D., Michael Florence, M.D., and others in the May 2012 *Archives of Surgery* 147(5), pp. 467-473. ■ KB

## A few preoperative factors can be used to predict inpatient deaths following surgery at resource-limited hospitals

Various organizations have developed programs to define, measure, and evaluate the quality of surgical care delivery. However, most of these models are based on hospitals in urban areas. As a result, many suburban and rural hospitals are overlooked. Therefore, there is a need to develop a risk-adjusted tool to measure surgical outcomes in these smaller institutions, particularly those that are resource-limited.

Researchers have now come up with a model that uses fewer than six preoperative variables, making it easier for these hospitals to conduct their own surgical outcome evaluations.

For the development of this new model, the researchers used patient data collected on more than 130 variables by the National Surgical Quality Improvement Program. Within this group of variables are 66 preoperative ones designed to predict inpatient mortality. The researchers used a six-step process that added each variable sequentially to predict inpatient death. Models developed with the highest receiver operating charge (ROC) values, that is, best sensitivity and specificity, were then subjected to validation from a rural U.S. hospital.

A 3-variable model reached higher than a 90 percent ROC value at predicting inpatient mortality. The three variables were the American Society of Anesthesiologists physical status classification, functional status at the time of surgery, and patient age. Adding a fourth variable only increased value to 91 percent; a 6-variable model neared 92 percent. Very little additional gain was realized by adding more variables to the 3-variable model.

This new model can be easily implemented in resource-poor settings, including hospitals located in low- and middle-income countries. The researchers point out that while collecting outcomes on in-hospital mortality is important, future models should consider other factors such as surgical complications, morbidity, and disability-adjusted life-years. The study was supported in part by the Agency for Healthcare Research and Quality (HS19913).

See “Brief tool to measure risk-adjusted surgical outcomes in resource-limited hospitals,” by Jamie E. Anderson, M.P.H., Randi Lassiter, B.S., Stephen W. Bickler, M.D., and others in the May 21, 2012 *Archives of Surgery* [Epub ahead of print]. ■ KB

## Patients transferred to the intensive care unit within 24 hours of admission to a hospital room have high risk of dying

Most critically ill medical patients who arrive at the emergency department (ED) are directly admitted to the intensive care unit (ICU). However, some of these patients are admitted to a medical floor, only to be transferred to the ICU later on. These unplanned ICU transfers have a high in-hospital case-fatality rate, exceeding 55 percent. A new study found that even when the transfer was made within the first 24 hours of admission, there was a high risk of mortality.

Researchers matched 6,369 patients with unplanned medical ICU transfers within 24 hours of admission to a floor from the ED with the same number of medical

patients admitted directly to the ICU from the ED. Patients were grouped into 44 broad “primary medical conditions” and had scores calculated based on laboratory results and coexisting conditions. Careful attention was paid to identifying the time elapsed from admission to unplanned ICU transfer.

The study found that more than 5 percent of patients admitted through the ED eventually had an unplanned ICU transfer. Such patients had longer stays than did patients directly admitted to the ICU (5 vs. 4.1 days). Unplanned transfer patients also had a higher case-fatality rate (11.6 vs. 8.5 percent) than those with direct ICU

admissions. These patients had a high risk of death even when they were transferred within 8 hours of being admitted to the medical floor. Also, the odds of death among unplanned transfer patients increased as the elapsed time between admission and ICU transfer became longer.

Unplanned transfers were associated with excess mortality among patients admitted with respiratory infections and gastrointestinal bleeding. However, no such differences were observed for patients admitted with heart attack, sepsis, or stroke. The study was supported in part by the

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## Intensive care units *continued from page 6*

Agency for Healthcare Research and Quality (HS18480).

See “Adverse outcomes associated with delayed intensive care unit

transfers in an integrated healthcare system,” by Vincent Liu, M.D., M.S., Patricia Kipnis, Ph.D., Norman W. Rizk, M.D., and Gabriel J. Escobar, M.D., in the March 2012 *Journal of Hospital Medicine* 7(3), pp. 224-230. ■ KB

## Study reveals patterns of readmissions to the intensive care unit

Patients readmitted to the intensive care unit (ICU) have higher death rates, higher costs, and longer hospital stays than those not readmitted to the ICU, reveals a new study. The national study of 196,202 ICU readmissions in the United States found that 2 percent of patients were readmitted to the ICU within 48 hours, 3.7 percent within 120 hours, and 5.4 percent within 21 days of discharge. Comparing never-readmitted patients with those readmitted within 48 hours, 3.7 percent vs. 20.7 percent died in the hospital after ICU discharge, 64.4 percent vs. 36.6 percent were discharged home, and median hospital length of stay was 8 versus 15 days, respectively.

Neither 48- nor 120-hour readmission rates varied across patient or ICU types, and ICU readmission rates did not change from 2001 to 2007. The researchers caution that their study does not settle the

important questions of whether readmissions are preventable or causally related to poor outcomes. Too many readmissions could suggest the occurrence of preventable adverse events, but some readmissions may be inevitable, and others may even benefit patients.

The researchers conclude that any use of ICU readmissions as a metric for quality of care must be accompanied by mortality and length-of-stay metrics. Their study was supported in part by the Agency for Healthcare Research and Quality (HS18406).

See “The epidemiology of intensive care unit readmissions in the United States,” by Sydney E.S. Brown, B.A., Sarah J. Ratcliffe, Ph.D., Jeremy M. Kahn, M.D., and Scott D. Halpern, M.D., in the May 1, 2012 *American Journal of Respiratory Critical Care Medicine* 185(9), pp. 955-964. ■ MWS

## Stroke education program improves medication knowledge and satisfaction among stroke patients after hospital discharge

Early treatment and in-hospital education about the importance of medication to prevent another stroke has been shown to improve outcomes after hospitalization for stroke. A new study shows that in-hospital education of patients about stroke-prevention medications is effective in increasing patients’ medication knowledge and satisfaction with health care providers’ explanations.

A telephone survey of 2,219 stroke patients 3 months after hospital discharge asked patients about their

perceptions of education and communication with their health care providers as well as their current medication use and knowledge. It found that fewer than 2 percent of respondents reported not understanding how to take their medications, 4 percent did not know how to refill their medications, and 5 percent did not know the reasons they were taking them.

The majority of patients recalled being provided with a written list and written instructions at hospital

discharge (85.3 percent) and currently understanding their medications’ side effects (80.0 percent). When asked to provide an overall rating of in-hospital communication with health care providers, 92 percent reported excellent, very good, or good communications.

The researchers point out, however, that challenges exist. Increasingly shorter in-hospital days may decrease the available time needed

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## Stroke prevention medications

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to provide optimal patient education. They believe that providing consistent and effective patient education before hospital

discharge has the potential to reduce the risk of recurrent stroke by improving patient adherence to prescribed medications.

See “An evaluation of stroke education in AVAIL registry

hospitals” by Angie West, R.N., M.S.N., C.C.R.N., Marguerite Cox, M.S., Louise O. Zimmer, M.A., M.P.H., and others in the June 2012 *Journal of Neuroscience Nursing* 44(3), pp. 115-123. ■ MWS

## Emergency Care

### Variations exist in cardiac arrest care provided by emergency medical services agencies

Emergency medical services (EMS) personnel are at the front lines when it comes to resuscitation during a cardiac arrest. Organizational and provider factors can have an impact on patient survival. Recently, researchers examined some of these characteristics in a group of EMS agencies participating in the national Cardiac Arrest Registry to Enhance Survival (CARES). They found a host of differences among agencies, including variations in medical direction, deployment tactics, and even the implementation of guideline updates, policies, and protocols.

A total of 25 EMS agencies were surveyed using a Web-based questionnaire; 21 were received. The agencies were asked about such things as protocols used to deliver out-of-hospital cardiac arrest care and the use of resuscitation techniques. The survey also collected descriptors of each agency, including their response area, organizational type, medical director employment, and deployment. All but one of the agencies served areas with a population of more than 50,000 people.

Five different EMS service models were used, with nine agencies supported by fire department-based providers and six supported by non-fire-based providers. All were non-volunteer organizations, with six of them having full-time medical directors. Twelve of the 21 agencies delivered services from a pre-designated location (fixed deployment) as opposed to constantly redistributing ambulances. The total number of paramedics varied widely among the agencies, with fire-based agencies having a slightly



higher median number. There were also wide variations found in the protocols used to care for patients.

Only 10 of the 21 agencies were able to direct 911 callers to an automated external defibrillator. A little over half of the agencies modified 2005 advanced cardiovascular life support guidelines with regard to airway techniques and the delivery of medications. When questioned about the use of six resuscitation techniques, every agency used at least one of them but no agency used all six techniques. The researchers note that further studies are needed to determine which EMS and provider factors are specifically associated with increased patient survival and best practice development. The study was supported in part by the Agency for Healthcare Research and Quality (HS17965).

See “Practice variability among the EMS systems participating in cardiac arrest registry to enhance survival (CARES),” by Prasanthi Govindarajan, M.D., Lisa Lin, M.S., Adam Landman, M.D., and others in *Resuscitation* 83, pp.76-80, 2012. ■ KB

## Uninsured and Medicaid-insured emergency department patients are more likely to agree to free rapid HIV testing

When all patients coming to a large, urban emergency department were offered free rapid human immunodeficiency virus (HIV) screening as part of the registration process, 75 percent opted out, found a new study. The policy that HIV screening be routine (not targeted to a specific population), with consent automatic unless the patient opts out, follows recommendations on screening in health care settings issued in 2006 by the Centers for Disease Control and Prevention. The goal was to improve the epidemiology of infection in the United States, where there are an estimated 230,000 HIV-infected persons who are unaware of their

status and who inadvertently cause many of the 56,300 new HIV infections that occur each year.

The researchers analyzed patient demographics and insurance status from a prospective clinical trial at Denver Health from 2007 to 2009 to determine what factors made it most likely for the patient to accept free screening. They found that, compared with patients who had commercial insurance, self-pay (uninsured) and State-sponsored patients were 63 percent and 64 percent, respectively, less likely to opt-out of screening. Medicaid patients were 24 percent more likely to accept the screening than commercially insured patients. Race

and ethnicity also appeared to influence opting-out: blacks were 29 percent less likely to opt out of screening than whites, and Hispanics were 17 percent more likely than whites to accept screening. The study was funded in part by the Agency for Healthcare Research and Quality (HS17526).

More details are in “Payer status, race/ethnicity, and acceptance of free routine opt-out rapid HIV screening among emergency department patients,” by Jeffrey Sankoff, M.D., Emily Hopkins, M.S.P.H., Comilla Sasson, M.D., M.S., and others in the May 2012 *American Journal of Public Health* 102(5), pp. 877-883. ■ DIL

### Patient Safety and Quality

## One-third of patients with hospital-acquired infections are readmitted within 1 year

Hospital readmissions can be costly. In one year alone, 20 percent of Medicare patients readmitted within 30 days of hospital discharge cost an estimated \$17.4 billion. Patients infected with one of three strains of bacteria are more likely to be readmitted to the hospital after discharge, according to a new study.

Researchers looked back over an 8-year period to identify patients admitted to the hospital, who had a positive bacterial culture result 48 hours or longer after their arrival at the hospital. The focus was on three common hospital-acquired infections: methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci, and *Clostridium difficile*. The researchers analyzed the time to hospital readmission after discharge for all adults admitted to the hospital.

The rate of patients who had a clinical culture positive for 1 of the infections was 6 percent, with nearly half of this group (49 percent) having MRSA. Patients with these positive cultures were more likely to be male, older, be in the intensive care unit, have other coexisting conditions, and have longer stays. Within 1

year, 35 percent of those with a positive culture were readmitted to the hospital. Median time to readmission was 27 days compared to 59 days for patients without positive clinical cultures. The 30-day readmission rate was also higher (25 percent) for this group compared to the other group (15 percent).

Even after the researchers adjusted for factors such as age and original length of hospital stay, patients with positive clinical cultures more than 48 hours after admission still had an increased risk of readmission. They recommend that these patients be given additional discharge resources to help them avoid being readmitted to the hospital. The study was supported in part by the Agency for Healthcare Research and Quality (HS21068).

See “Healthcare-associated infections and hospital readmission,” by Carley B. Emerson, M.S., Lindsay M. Eyzaguirre, M.S., Jennifer S. Albrecht, B.A., and others in the June 2012 *Infection Control and Hospital Epidemiology* 33(6), pp. 539-544. ■ KB

## Automated quality measures can be used to improve asthma care

Ask those engaged in health care quality improvement activity and they will tell you it is a labor-intensive, costly process consisting of manual chart review. With electronic medical records (EMRs) now available, there is the potential to streamline the process, provided that quality measures can be adequately automated. A new study looks at this challenge by assessing how such automated measures can improve asthma care. It finds that these measures performed well in a health maintenance organization (HMO).

The study used outpatient asthma care data from two locations: a midsized HMO and a group of

federally qualified health centers. Patients were 12 years of age or older with persistent asthma. Using updated guidelines and other information, the researchers developed 22 asthma care quality measures. These were then incorporated into a health information technology platform.

The accuracy of the automated quality measures averaged 88 percent in the HMO environment following a chart review validation process. They were less accurate in the health centers, with a rate of 80 percent. The researchers found that nearly 70 percent of the measures were either enhanced by or required processing of the providers' clinical

text notes. Only 6 of the 22 measures could be addressed with administrative data alone, suggesting that administrative data alone is insufficient to assess compliance with current asthma care guidelines. The study was supported in part by the Agency for Healthcare Research and Quality (HS17022).

See "Automating care quality measurement with health information technology," by Brian Hazlehurst, Ph.D., Mary Ann McBurnie, Ph.D., Richard A. Mularski, M.D., M.S.H.S., M.C.R., and others in the *American Journal of Managed Care* 18(6), pp. 313-319, 2012. ■ KB

## Delaying the control of blood pressure among middle-aged adults with diabetes lowers quality of life

Long delays in controlling blood pressure among middle-aged adults with diabetes can lower quality of life, concludes a new study. The University of Chicago researchers estimated the harms of different delays in controlling blood pressure in a hypothetical population of 10,000 middle-aged adults (aged 50 to 59) with newly diagnosed type 2 diabetes. With a lifetime of uncontrolled systolic blood pressure, complications increased by 1,855 events per 10,000 patients, average life expectancy decreased by 209 days, and average quality-adjusted life expectancy (QALE) decreased by 332 days, compared to a population with newly diagnosed diabetes who had a lifetime of controlled systolic blood pressure (130 mmHg). The average rates of stroke and heart attack increased the most compared to other complications, such as end-stage renal disease (diabetes damages the kidneys) and diabetes-related amputations.

A 1-year delay in controlling systolic blood pressure increased lifetime complications by 14 events per 10,000 patients, with a range between 0 and five events per 10,000 patients for specific complications. A 1-year delay did not affect average life expectancy, but it decreased QALE by 2 days. A 10-year delay increased

lifetime complications by 428 events per 10,000 patients, and decreased QALE by 145 days. The researchers estimated that delays in blood pressure control of 10 years or more in this group of patients with diabetes are expected to lower QALE to the same extent as smoking in patients with cardiovascular disease.

Given the current size of the diabetes population in the United States, the study findings suggest that achieving and maintaining tight blood pressure control earlier among U.S. middle-aged adults with diabetes has the potential to generate substantial population-level health benefits. This study was supported in part by the Agency for Healthcare Research and Quality (HS16967).

See "Impact of delaying blood pressure control in patients with type 2 diabetes: Results of a decision analysis" by Neda Laiteerapong, M.D., Priya M. John, M.P.H., David O. Meltzer, M.D., and Elbert S. Huang, M.D., in the June 2012 *Journal of General Internal Medicine* 27(6), pp. 640-646. ■ MWS



## Antipsychotic medications linked to occurrence of diabetes in children

The use of second-generation antipsychotics (SGAs) has risen dramatically for children and adolescents. Yet, the majority of prescribing of these drugs is off-label and data on their safety and efficacy for children are limited. Numerous case reports and studies have suggested a link between antipsychotic medications and diabetes in adults. Now a new study has found that children using SGAs had a higher incidence of diabetes than children who were not using any psychotropic medications. However, there was no significant difference in the incidence of diabetes among children using SGAs compared to children using antidepressants.

The researchers had access to the databases of 3 health maintenance organizations enrolling over 700,000 youths 5 to 18 years of age. Of this group, over 9,000 initiated therapy with SGAs between 2001 and 2008. There was a potentially fourfold increased rate of diabetes among children within the first year of initiation of SGA therapy compared to the children who were not using any psychotropic medications.

The researchers suggest that SGAs may affect serotonin 5-HT receptors, resulting in inhibition of insulin release, insulin resistance, or impairment of glucose utilization. Also, previous evidence

suggested that youths receiving SGAs experience adverse changes in body composition and metabolic parameters even after short-term therapy. The authors caution that these findings suggest an important drug safety and public health issue that needs to be further evaluated. Their study was supported by the Agency for Healthcare Research and Quality (HS16955).

See “Antipsychotic medication use among children and risk of diabetes mellitus” by Susan E. Andrade, Sc.D., Joan C. Lo, M.D., Douglas Roblin, Ph.D., and others in *Pediatrics* 128, pp. 1135-1141, 2011. ■ MWS

## Genetic risk for obesity in children boosts risk for obesity in adulthood

A new study finds an important link between genetic variations in children and obesity later in adult life. The 4 decades of research discovered that children at higher genetic risk grew more rapidly during childhood and were more likely to develop obesity in adulthood. Genetic risk was unrelated to birth weight.

The longitudinal study enrolled 1,037 individuals living in Dunedin, New Zealand. All participants represented various socioeconomic groups observed in the general population. These individuals were assessed for height and weight at birth and followed at regular age intervals up to age 38. Genetic risk scores (GRSs) were determined by identifying multiple single-nucleotide polymorphisms associated with a higher adult body mass index (BMI).

Children with higher GRSs had higher BMIs at every age assessed from age 3 through age 38 years. Although children at high and low genetic risk were the same weight at birth, those at higher genetic risk grew more rapidly following birth and were more

likely to develop obesity. The rates of obesity among participants was 5.5 percent during the teenage years, 11.2 percent from 21–26 years, and 22.3 percent from ages 32-38 years. Children with higher GRSs were 1.61 to 2.41 times more likely to become obese in their second, third, and fourth decades of life and 1.90 times more likely to remain chronically obese across 3 or more assessments.

The researchers found that the genetic associations between growth and the risk for obesity were independent of family history. In children with normal-weight and overweight parents, a higher GRS predicted faster growth and higher risk for obesity. The study was supported in part by the Agency for Healthcare Research and Quality (HS20524).

See “Polygenic risk, rapid childhood growth, and the development of obesity,” by Daniel W. Belsky, Ph.D., Terrie E. Moffitt, Ph.D., Renate Houts, Ph.D., and others in the June 2012 *Archives of Pediatrics and Adolescent Medicine* 166(6), pp. 515-521. ■ KB

## Quality improvement collaborative improves outcomes in children with inflammatory bowel disease

The care of children with inflammatory bowel disease (IBD), Crohn's disease (CD), or ulcerative colitis (UC) can be complex. There is a lack of consensus on the best way to manage these patients. As a result, variations in care delivery exist in both diagnosis and treatment. However, a new study suggests that a quality improvement (QI) collaborative may improve outcomes for these chronic conditions. The QI system uses training, coaching, team building, and performance self-reporting to create new care approaches and then to test them.

A network of six care centers shared in the costs of creating the program's technical infrastructure and data sharing. Changes in care delivery were based on the Chronic Illness Care Model. The changes included a set of recommendations to

standardize diagnosis, classify disease severity, and evaluate the patient's nutritional and growth status. As care processes improved, additional changes were implemented that centered on medications, managing nutrition and growth, and inducing and maintaining disease remission. A Model IBD Care Guideline was developed to help standardize therapy.

Testing the care changes and collecting monthly data on them revealed several positive outcomes. First, there was an increase in the proportion of medical visits with complete disease classification. Second, there was more frequent measurement of thiopurine methyltransferase (TPMT) levels before thiopurines (drugs commonly used to treat IBD, CD, and UC) were

administered. Patients were more likely to receive an initial thiopurine dose appropriate to their TPMT level. There was also an increase in the number of CD and UC patients who went into remission. Finally, the application of evidence-based changes resulted in an increase in the percentage of CD patients not taking corticosteroids. The study was supported in part by the Agency for Healthcare Research and Quality (HS16957).

See "Improved outcomes in a quality improvement collaborative for pediatric inflammatory bowel disease," by Wallace V. Crandall, M.D., Peter A. Margolis, M.D., Ph.D., Michael D. Kappelman, M.D., M.P.H., and others in the April 2012 *Pediatrics* 129(4), pp. e1030-e1041. ■ KB

## Surgery for ureter congenital abnormality results in efficacy and long-term durability for children

Children can be born with a congenital abnormality of their ureters called primary vesicoureteral reflux (VUR). This is thought to result from insufficient length of the ureter as it traverses the bladder wall and poor backing of the ureter by the bladder muscle. As a result, urine flows backwards from the bladder to the kidney.

Open ureteral reimplantation (UR) is the gold-standard surgical treatment for this condition, where the child's original ureters are repositioned in the bladder wall. Until recently, there has been little data on the long-term durability of the surgery's anti-reflux effect. Now, a recent study gives new evidence that the procedure produces excellent efficacy and long-term durability.

Researchers conducted a retrospective review of children who underwent successful open UR for primary VUR during a 12-year period at one institution. Results from postoperative cystograms were analyzed to see if there was an absence of VUR after at least one year of follow-up.

A total of 846 children with primary VUR underwent an initial cystogram (to look for persistent VUR into the reimplanted ureter) within 6 months of reimplantation. Of these children, 793 (93.7 percent) had no VUR into the reimplanted ureters. Sixty patients had a late cystogram performed at least 1 year after surgery (median of 3.2 years after surgery). Most of these late cystograms were done after a urinary tract infection developed. At a median of 3.2 years following surgery, 100 percent of the 79 reimplanted ureters had no VUR present on late cystogram.

The UR remained durable even with subsequent changes in anatomy brought on by puberty. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS19485).

See "Durability of antireflux effect of ureteral reimplantation for primary vesicoureteral reflux: Findings on long-term cystography," by Katherine C. Hubert, M.D., Paul J. Kokorowski, M.D., Lin Huang, Ph.D., and others in *Pediatric Urology* 79, pp. 675-679, 2012. ■ KB

## Homeless and underserved women may not be receiving empiric treatment for Chlamydia

*Chlamydia trachomatis* is the most common sexually transmitted infection (STI). If left untreated, the infection can result in complications such as infertility in women and urethral strictures in men. Most clinicians treat the infection based on symptoms and patient history (empiric treatment). However, a new study found that only a minority of patients with STI symptoms seen at a safety-net clinic serving homeless and underserved youth and adults were treated empirically with antibiotics. This was particularly true for women with symptoms, who had significantly lower odds of receiving treatment.

Researchers identified 737 men and 485 women who received at least one lab test for *Chlamydia* at a primary care safety-net clinic in Portland, Oregon. Manual chart

review was conducted to collect patient demographics, STI symptoms, laboratory testing, empiric treatment, and follow-up.

Within the group, 488 patients had reported symptoms of a STI, while 49 reported a known STI exposure. Among patients presenting with STI symptoms, 37.1 percent received empiric treatment with antibiotics. The treatment rate rose to 91.8 percent for patients with known STI exposures and 90.9 percent for those who had both STI symptoms and exposure. Out of 75 patients with positive *Chlamydia* laboratory tests, 46 had empiric treatment before confirming infection. Among 515 patients with either STI symptoms or exposure, 281 were empirically treated.

Patients less likely to receive empiric antibiotic treatment included women, homeless

individuals or those with unstable housing, and non-Hispanics. Patients who were non-white with positive lab tests and no empiric treatment were significantly associated with no documented follow-up. Follow-up was also a problem for those with housing issues. The researchers recommend that clinicians make decisions on empiric treatment that take into account how quickly followup can be undertaken, particularly in women. The study was supported in part by the Agency for Healthcare Research and Quality (HS21068).

See "Patterns of empiric treatment of *Chlamydia trachomatis* infections in an underserved population," by Lauren Faricy, M.D., Tanya Page, M.D., Micha Ronick, M.D., and others in the June 2012 *Family Medicine* 44(6), pp. 408-415. ■ KB

## Calcium from food linked to lower risk for prostate cancer



A new study links greater calcium intake from food to lower risk for prostate cancer. To determine the effects of calcium intake on prostate cancer, researchers studied 269 veterans who were biopsied because of

an elevated prostate-specific antigen test or abnormal rectal examination and 237 healthy (i.e. biopsy not recommended) veterans.

When they compared men with positive biopsy results to healthy men, higher total calcium intake was linked with lower prostate cancer risk among black men, but not among white men. When comparing those whose biopsy results tested positive with those who tested

negative, they found that increasing calcium intake from food was associated with lower risk of prostate cancer among all races, as was also observed in comparisons with healthy men.

The finding of an inverse association between prostate cancer and calcium from food but not total calcium suggests that calcium intake from supplements may not help reduce prostate cancer risk as users may expect. It also suggests that adequate calcium from food sources alone may be sufficient to reduce prostate cancer risk. The researchers suggest that a level of supplemental calcium that could reduce prostate cancer risk and a level that could increase risk should be identified.

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## Prostate cancer

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The researchers also examined the relationship between calcium intake and low- versus high-grade cancers (the higher grade cancers, as measured by the Gleason score, are more likely to spread rapidly). They found no association between calcium and low-grade prostate cancer, but an inverse association between high-grade

prostate cancer and dietary calcium. This study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00079).

See “Dietary calcium and risk for prostate cancer: A case-control study among U.S. veterans” by Christina D. Williams, Ph.D., Brian M. Whitley, M.D., Catherine Hoyo, Ph.D., and others in *Preventing Chronic Disease* 9, E39, 2012. ■ *MWS*

## Minimally invasive prostatectomy in young men has fewer complications than standard prostatectomy

Men between ages 18 and 64 who underwent surgery for localized prostate cancer between 2003 and 2007 were more likely to undergo minimally invasive radical prostatectomy (MIRP) than traditional retropubic radical prostatectomy (RRP), also known as “open surgery,” according to a new study. MIRP involves laparoscopic surgery, either with or without robot assistance, requiring only small incisions. The study also found that MIRP had fewer complications, which appeared to have offset its higher hospitalization costs.

The researchers examined data from the LifeLink Health Plan Claims Database on 10,699 nonelderly men who underwent either MIRP or RRP between 2003 and 2007. They found a sharp

increase in the proportion of patients treated with MIRP, increasing from 5.7 percent in 2003 to 50.3 percent in 2007. They looked at the use of MIRP and RRP in younger men, tried to identify factors associated with each type of procedure, and compared outcomes (complication rates, length of hospital stay, hospitalization costs, and total costs within 3 and 6 months of surgery). They found that men who underwent MIRP had a significantly lower rate of complications (23.0 vs. 30.4 percent). However, men who underwent MIRP also had higher mean hospitalization costs—despite shorter mean hospital stays—than those who underwent RRP (\$19,998 for a 1.7-day stay vs. \$18,424 for a 3.1-day stay).

Men with 1 or 2 coexisting illnesses were 12 percent and 73 percent less likely, respectively, to undergo MIRP than men with no coexisting conditions. Based on their data, the researchers recommend research to explore whether the increased use of MIRP reflects overtreatment of prostate cancer in younger men. The study was funded in part by the Agency for Healthcare Research and Quality (HS18535).

More details are in “Comparative effectiveness, cost, and utilization of radical prostatectomy among young men within managed care insurance plans,” by Ya-Chen Tina Shih, Ph.D., John F. Ward, M.D., Curtis A. Pettaway, M.D., and others in the March 2012 *Value in Health* 15(2), pp. 367-375. ■ *DIL*

## Elderly/Long-Term Care



## Restorative care appears to lower emergency department visits and falls by nursing home residents

Restorative care is a philosophy of care that focuses on restoring and maintaining nursing home residents at their highest possible functional and physical status, given underlying conditions. Unfortunately, this care is not consistently provided, since many caregivers in

long-term care settings worry that encouraging more activity may boost residents’ risk of falls and associated trauma. However, a new study found that a restorative care (res-care)

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## Restorative care

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intervention that encouraged residents to engage in activities did not result in increased risks of falling, injury, or other adverse events. Researchers tested the effectiveness of the res-care intervention, looked at adverse events (including falls, fractures, emergency department visits, hospitalizations, and deaths), and monitored the 256 nursing home participants to ensure that the intervention did not elevate their risk of adverse events. In fact, there was a potential protective effect on emergency department visits at 4 months and the proportion of fallers at 12 months compared with the rates 2 months before implementation of the intervention.

The res-care intervention activities were initiated by a research restorative care nurse (RCN) trained and

supported by the investigative team. The RCN worked with the nursing assistants for 20 hours a week over the 12-month intervention period. Motivational techniques to encourage residents to engage in activities included verbal encouragement, role modeling, and cueing. The RCN also helped the nursing assistants to overcome the challenges and barriers associated with restorative care. A total of 12 nursing homes participated in the study. The study was supported by the Agency for Healthcare Research and Quality (HS13372).

See “Adverse events associated with the res-care intervention” by Ann L. Gruber-Baldini, Ph.D., Barbara Resnick, Ph.D., Richard Hebel, Ph.D., and others in the 2011 *Journal of the American Medical Directors Association* 12, pp. 584-589. ■ MWS

## Care processes in nursing home and residential long-term care settings may benefit people with dementia

According to a new research review from the Agency for Healthcare Research and Quality (AHRQ), which compared characteristics and related outcomes of nursing homes and other residential long-term care settings for people with dementia, pleasant sensory stimulation, such as calm music, may reduce agitation for people with dementia. Also, while more research is necessary, some evidence suggests that protocols for individualized care, such as for showering and bathing, can reduce pain, discomfort, agitation, and

aggression. Functional skill training may also improve physical function in basic activities of daily living.

Overall, outcomes for people with dementia do not differ between nursing homes and residential care/assisted living settings. The exception is people needing medical care, who may benefit more from a nursing home setting. More than 5 million Americans—as many as one in every eight individuals ages 65 years or older—have dementia. It is the most common reason for entry into long-term care settings.

More research is needed to support decisionmaking on the care choices and questions faced by people with dementia and their families. To access this review, *Comparison of Characteristics of Nursing Homes and Other Residential Long-Term Care Settings for People With Dementia* and other materials that explore the effectiveness and risks of treatment options for various conditions, visit AHRQ’s Effective Health Care Program Web site: [www.effectivehealthcare.ahrq.gov](http://www.effectivehealthcare.ahrq.gov). ■

## Review looks at outcomes of patients at different types of long-term care facilities

A new research review from the Agency for Healthcare Research and Quality compares patient health outcomes when cared for at different types of long-term care facilities. With over 11 million people in the United States requiring long-term care, it is important that research looks at the differences between long-term care settings and the effects they have on patients.

When comparing outcomes in assisted living facilities with nursing homes over time, low-strength evidence suggested there were no differences in outcomes for

physical function, cognitive health, mental health, or mortality in patients at both types of facilities. When comparing outcomes of home and community-based services with nursing homes over time, low-strength evidence suggested that home and community-based service recipients experienced higher rates of some types of harms, including accidents, injuries, abuse, or neglect. Nursing home residents experienced higher rates of other types of harms, such as having a feeding tube or having a pressure ulcer.

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## Long-term care facilities

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The review also found that when evaluating older adults at the time of admittance into long-term care facilities, nursing home residents had more limitations in physical and cognitive function than both home and community-based service recipients and assisted living residents, but mental health and clinical status were mixed among the two populations.

The review noted that the available studies had a high risk of bias, resulting in low or insufficient evidence for all the outcomes examined. To better understand the outcomes of long-term care, more research is needed to

draw stronger conclusions about how the setting of care delivery influences health outcomes among older adults.

Details on current research on the effects of different long-term care facilities can be found in the evidence-based review, *Long Term Care Strategies in Older Adults: A Review of Home and Community-based Services Versus Institutional Care*. To access this review and other materials that explore the effectiveness and risks of treatment options for various conditions, visit the Effective Health Care Program Web site at [www.effectivehealthcare.ahrq.gov](http://www.effectivehealthcare.ahrq.gov). ■

## Medicare Part D coverage gap reduces antidepressant use in the elderly

The Medicare Part D prescription drug benefit includes a \$265 deductible, an insured period during which the beneficiary pays 25 percent of drug costs from \$265 to \$2,400, and a coverage gap when the beneficiary pays 100 percent of drug costs until reaching the catastrophic limit of \$3,850; then they pay 5 percent.

A new study found that elderly Medicare patients with depression enrolled in standalone Part D plans in 2007 reduced their use of antidepressants during the Medicare Part D coverage gap. In fact, a full gap in drug coverage resulted in a 12.1 percent reduction in antidepressant use, particularly for brand-name drugs.

The researchers studied 65,223 Medicare beneficiaries 65 years or older with depression. They looked at three groups: no coverage before and after the coverage gap

threshold, generic-only coverage, and those with low-income subsidies. They analyzed medication use patterns, including the average number of monthly prescriptions filled per month.

As drug coverage improved, people with depression were more likely to spend up to their coverage-gap threshold. Among the groups, 43.1 percent with no-coverage, 69.2 percent in the generic-only group, and 72.2 percent with LIS reached this threshold.

The average length of time spent in the gap was 115 days, 137 days, and 128 days, respectively. A gap in coverage was associated with a significant reduction in antidepressant use per month in the no-coverage (12.1 percent) and the generic-only group (6.9 percent). The majority of these reductions were for brand-name

drugs. There were also reductions in the use of heart failure drugs (12.9 percent) and oral anti-diabetes medications (13.4 percent). Despite the reduction in antidepressant use, there was no associated increase in non-drug medical spending. The study was supported in part by the Agency for Healthcare Research and Quality (HS18657).

See “Effects of Medicare Part D coverage gap on medication and medical treatment among elderly beneficiaries with depression,” by Yuting Zhang, Ph.D., Seo Hyon Baik, Ph.D., Lei Zhou, M.S., Charles F. Reynolds, M.D., and Judith Lave, Ph.D., in the July 2012 *Archives of General Psychiatry* 69(7), pp. 672-679. ■  
KB

## Adding another medication rather than switching medications may benefit patients partially responding to initial antidepressant

While antidepressants are effective treatment for major depressive disorder, up to 40 percent of patients may not respond adequately to initial first-line therapy. Options for such patients include switching to another medication or adding an additional medication to the initial treatment. A new study found no clear difference between these strategies in terms of remission of depression, response to medication, or time to remission or response. However, the findings did suggest that those who completed an initial treatment of 12 weeks or more, and had a partial response to the medication with residual mild depression, might benefit more from augmentation of treatment with another medication than from switching medications.

The researchers analyzed the outcomes of a group of patients who had participated in the Sequenced Treatment Alternatives to Relieve Depression (STAR\*D) clinical trial. All patients (age 18 to 75 years) had failed to respond to an initial antidepressant in the trial. The researchers matched 269 augmenting patients and 269 switching patients to examine remission and medication response.

The likelihood of remission or medication response and time to remission or response were similar in the two groups, and the strategies did not differ in effect on quality of life. The severity of a patient's depression and the number of weeks on initial treatment strongly influenced the propensity to receive augmentation. The superiority of augmentation was most apparent in patients who received 12 weeks of initial treatment. In this case, the augmentation strategy was twice as likely to produce remission as was switching medication. Patients who had partially responded to initial treatment were also more likely to have remission with augmentation than with switching. The study was supported in part by the Agency for Healthcare Research and Quality (Contract No. 290-05-0040).

See "Treating depression after initial treatment failure: directly comparing switch and augmenting strategies in STAR\*D," by Bradley N. Gaynes, M.D., M.P.H., Stacie B. Dusetzina, Ph.D., Alan R. Ellis, M.S.W., and others in the February 2012 *Journal of Clinical Psychopharmacology* 32(1), pp. 114-119. ■ KB



## When cancer drug went generic, its use declined

After the patent expires for an infused chemotherapy drug and it becomes available as a generic drug, economists would predict that its use would increase. Yet a new study suggests that is not always the case. Researchers compared the use of irinotecan and oxaliplatin in elderly patients with metastatic colorectal cancer (MCRC) from 2006 through 2009. In 2008, generic irinotecan was approved by the U.S. Food and Drug Administration. After the generic entry of irinotecan into the market, the number of irinotecan administrations fell by 17 percent compared with administrations of

oxaliplatin, which remained under patent protection.

When the researchers added in the August 2008 decrease in Medicare reimbursement for irinotecan administration, the number of irinotecan compared to oxaliplatin administrations fell by 19 percent, and the number of patients receiving irinotecan (compared with those receiving oxaliplatin) fell by 18 percent. All of these differences were statistically significant.

The researchers conclude that estimates of savings from irinotecan becoming available as a generic

were overestimated, perhaps due to financial incentives related to insurance coverage, changes in the scientific evidence to support other regimens for MCRC, and possible drug promotions by the pharmaceutical manufacturers. Their findings were based on prescribing behavior of a population-based sample of oncologists obtained from a commercial database, as well as monthly data on Medicare reimbursement rates for irinotecan and oxaliplatin. The study was funded in part by the Agency for Healthcare Research and Quality (HS18535).

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## Cancer drug

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More details are in “Infused chemotherapy use in the elderly after patent expiration,” by Rena M. Conti, Ph.D., Meredith B.

Rosenthal, Ph.D., Blase N. Polite, M.D., and others in the May 2012 *American Journal of Managed Care* 18(5 Spec No. 2), pp. e172-e178. ■ *DIL*

## Comparative Effectiveness Research

### Review supports use of metformin as first-line therapy for patients with type 2 diabetes

New research from the Effective Health Care Program of the Agency for Healthcare Research and Quality examined metformin and sulfonylureas use among patients beginning to take oral medications to treat type 2 diabetes. The use of sulfonylureas was associated with an increased risk of cardiovascular disease (CVD) events—including death—among study patients compared with metformin use. Further studies would be needed to clarify whether the difference in risk is due to harms from sulfonylureas, benefits from metformin, or both.

While previous studies have shown that metformin seems to have fewer serious CVD events than sulfonylureas, this is one of the first large-scale data

analyses to come to this conclusion. The study examined more than 250,000 records from the U.S. Department of Veterans Affairs. The findings support the use of metformin for first-line type 2 diabetes therapy for patients without other contraindications and contribute to our knowledge about the cardiovascular advantages of metformin compared with sulfonylureas.

See “Comparative Effectiveness of Sulfonylurea and Metformin Monotherapy on Cardiovascular Events in Type 2 Diabetes Mellitus,” by Christianne L. Roumie, M.D., M.P.H., Adriana M. Hung, M.D., M.P.H., Robert A. Greevy, Ph.D., and others in the November 2012 *Annals of Internal Medicine* 157(9), pp. 601-610. ■

### No single strategy is uniformly successful in reducing cesarean sections

A new research review from the Agency for Healthcare Research and Quality (AHRQ) that compared strategies for reducing cesarean section (c-section) birth in low-risk women found that few studies have been done on this topic and no single strategy is uniformly successful in reducing c-sections.

Among the few studies addressing prenatal strategies for reducing cesarean birth, one strategy was found to be effective—the treatment of the cervix with hyaluronidase in the clinic at term to promote cervical softening. Active management of labor, labor coach support, fetal assessment, and amnioinfusion strategies are all strategies conducted during labor

that showed statistically significant reduction in cesarean births. Of these strategies, active management of labor showed the greatest reduction, with 2.8 to 7.4 percent decreases. However, the strength of evidence for these studies was predominantly insufficient to low.

Health system strategies implemented with the specific goal of reducing c-sections also showed statistically significant reductions in cesareans. However, most strategies had more than one component, making it difficult to determine which of the components were associated with reductions.

Nearly 1 in 3 births in the United States is a cesarean section, and the number of c-section births increased

53 percent from 1996 to 2007. The low to insufficient strength of evidence available for all strategies means that the review could not determine a widely appropriate approach to reduce the use of cesarean among low-risk women in the United States.

Details on current research on the effectiveness of strategies to reduce cesarean section can be found in the research review *Strategies to Reduce Cesarean Birth in Low-Risk Women*. To access this review and other materials that explore the effectiveness and risks of treatment options for various conditions, visit the AHRQ Effective Health Care Program Web site at [www.effectivehealthcare.ahrq.gov](http://www.effectivehealthcare.ahrq.gov). ■

## Limited evidence of benefit of interventions during early stages of chronic kidney disease

A new research review from the Agency for Healthcare Research and Quality (AHRQ) found no or limited evidence that screening, monitoring, and treatment interventions are beneficial to patients in the early stages of chronic kidney disease. Authors of the review evaluated the evidence on the potential benefits and harms of screening, monitoring, and treatment of adults for early-stage chronic kidney disease, that is, the first three stages of five stages of the disease.

Many knowledge gaps remain, however, and additional research should increase understanding regarding optimal approaches to chronic kidney disease screening, monitoring, and treatment. Chronic kidney disease affects more than 44 percent of U.S. adults over the age of 70.

You can read *Chronic Kidney Disease Stages 1-3: Screening, Monitoring, and Treatment* and many other materials on the AHRQ's Effective Health Care Program Web site at [www.effectivehealthcare.ahrq.gov](http://www.effectivehealthcare.ahrq.gov). ■

## Physical therapy may improve outcomes for adults with knee pain

A new research review by the Agency for Healthcare Research and Quality (AHRQ) has found that low-strength evidence suggests that core physical therapy interventions, including aerobic, aquatic, strengthening, and balance exercise improve patient outcomes for adults with symptomatic knee osteoarthritis (OA). Aerobic and aquatic exercise improved disability measures; aerobic and strengthening exercise reduced pain and improved function. However, no single therapy improved all outcomes.

The findings generally agree with previously established guidelines and systematic reviews that

recommend exercise for adults with symptomatic knee OA. Many studies did not follow practice guidelines that physical therapy should be conducted as a combination of exercises. Instead, studies focused on individual physical therapy interventions, thereby reducing the strength of the findings. Evidence on long-term adherence to and benefits of available physical therapy interventions is lacking.

OA of the knee afflicts 28 percent of adults over age 45 and 37 percent of adults over age 65 in the United States. Consensus is needed regarding methods to judge benefits of physical therapy

interventions. Future studies should compare benefits and harms of combined physical therapy treatments, more closely resemble actual practice, and analyze the effects of additional treatments such as pain relievers on pain and function.

These findings can be found in the research review *Physical Therapy Interventions for Knee Pain Secondary to Osteoarthritis*. Visit Inside Track, AHRQ's Effective Health Care Program newsletter, at [www.ahrq.gov/clinic/insidettrack](http://www.ahrq.gov/clinic/insidettrack) to learn more about important health news and developments. ■

## Disparities/Minority Health

### Living in Hispanic or black communities increases risk for obesity

One of the more exciting areas of obesity research deals with community-level characteristics that can promote unhealthy lifestyles and obesity. These include lack of sidewalks, minimal food selections, and even the racial/ethnic makeup of a community. A new study by James B. Kirby, Ph.D., and Lan Liang, Ph.D., researchers at the Agency for Healthcare Research and

Quality (AHRQ), and other researchers investigated the complex relationship between racial/ethnic composition of communities and obesity levels.

They found that living in a community with a high concentration of Hispanics was associated with an

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## Obesity risk

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increase in body mass index (BMI) and obesity among non-Hispanic whites and Hispanics. However, living in communities with a high Asian concentration resulted in lower BMI and lower odds for obesity among non-Hispanic whites.

The study based its findings on nationally representative data collected from the Medical Expenditure Panel Survey pooled from 2002 to 2007. Census data yielded information on poverty and racial/ethnic composition at the community level. BMI was calculated based on self-reported weight and height. Individuals were considered obese if their BMI exceeded 30. (Normal weight is a BMI of 18.5 to 24.9 and overweight is 25 to 29.9).

Blacks were the most likely group to be obese, with a prevalence of 36.1 percent. Next came Hispanics (28.7 percent), followed by whites (24.5 percent), and Asians (7.1 percent). Average BMIs for all 4 groups were 28.6, 27.7, 26.9, and 24.0, respectively. Individuals

living in communities with a high proportion of Hispanics had significantly higher BMIs and were more likely to be obese compared to others. Lower average BMIs and obesity rates were found among residents of Asian communities.

Hispanics living in areas where 25 percent or more residents were Hispanic had higher BMIs and were more likely to be obese compared to other individuals. Whites living in these Hispanic communities also had higher BMIs and were more likely to be obese. However, whites living in Asian neighborhoods had lower BMI scores and rates of obesity.

More details are in “Race, place, and obesity: The complex relationships among community racial/ethnic composition, individual race/ethnicity, and obesity in the United States,” by Dr. Kirby, Dr. Liang, Hsin-Jen Chen, M.S., and Youfa Wang, M.D., Ph.D., M.S., in the August 2012 *Research and Practice* 102(8), pp. 1572-1578. Reprints (AHRQ Publication No. 12-R086) are available from AHRQ.\* ■ KB

## Type of insurance affects use and intensity of postacute care for stroke survivors

Your insurance may play a role in how much post-acute care you get following a stroke, suggests a new study. It found that both uninsured and Medicaid-insured stroke survivors were less likely to use an inpatient rehabilitation facility (IRF) for post-stroke rehabilitation than a skilled nursing facility (SNF) compared with privately insured stroke survivors. What's the difference? The intensity of post-acute care varies from at least 3 hours of rehabilitation per day in an IRF to variable amounts of less frequent and intense rehabilitation in a SNF.

University of Michigan and Duke University researchers retrospectively studied 33,917

working-age stroke survivors from the 2004–2006 Nationwide Inpatients Sample. They looked at their use of any institutional post-acute care following hospitalization for stroke. Among Medicaid-insured stroke survivors who used institutional postacute care, 51 percent were discharged to a SNF compared to 27 percent of the privately insured.

One reason for this may be that the SNFs are less expensive than the IRFs. Based on Medicare payments, the use of an IRF leads to an average of \$10,121 more spending than the use of a SNF. Another reason may be that stroke survivors insured by Medicaid may have greater preexisting disability

and are thus better candidates for using an SNF.

The researchers note that although no definitive trials address the impact of rehabilitation intensity on poststroke outcomes, the available evidence suggests that IRFs are associated with better outcomes than SNFs. This study was supported in part by the Agency for Healthcare Research and Quality (HS19479).

See “Effect of insurance status on postacute care among working age stroke survivors,” by Lesli E. Skolarus, M.D., William J. Meurer, M.D., James F. Burke, M.D., and others in *Neurology* 78, pp. 1590-1595, 2012. ■ MWS

## Benefits under the Affordable Care Act would have reduced out-of-pocket spending if available sooner



People receiving individual health insurance currently do not have the same insurance benefits as do people covered under employer-sponsored plans. Benefits under these individual policies tend to be less generous, with higher deductibles and copays. Sometimes, prescription drugs are not covered. However, under the Affordable Care Act, individual insurance will be more generous, including mandated coverage for prescription drugs and reduced caps on out-of-pocket expenses.

Steven C. Hill, Ph.D., a researcher with the Agency for Healthcare Research and Quality (AHRQ), examines how these new reforms would have impacted out-of-pocket spending had they been available from 2001 to 2008. He finds that consumers would have saved \$280 in average annual spending on medical care and drugs. In addition, individuals would not face very high out-of-pocket expenses for major health events.

Using data from the Medical Expenditure Panel Survey Household Component, Dr. Hill focused on out-of-pocket spending for medical care and prescription drugs. Owing to the small number of people with individual insurance, data were pooled together from each year. There were three subgroups of special interest: adults with chronic conditions, the near-elderly (ages 55–64), and low-income people. Finally, those with individual insurance were compared with those insured through small employers or large employers.

Adults with individual insurance used fewer physician services and had less use of emergency departments

and hospitals than those insured through large employers. Adults with individual insurance spent \$1,100 out of pocket per year compared with \$546 for adults insured by large employers and \$607 for adults insured by small employers. The percentage of people with individual insurance with annual out-of-pocket expenses over \$3,000 was more than twice the rate of those with insurance from small employers.

The near-elderly and those with chronic conditions who had individual insurance had significantly higher out-of-pocket spending compared to healthier younger adults. Benefits under the Affordable Care Act would have saved the near-elderly \$589 per year.

The savings would be \$535 for people with low incomes. All adults with individual insurance would have a reduced likelihood of having out-of-pocket expenses exceeding \$6,000 annually. According to Dr. Hill, the probability of having spending above this level will drop from the current level of 2.6 percent to 0.6 percent once provisions in the Affordable Care Act go into effect.

More details are in “Individual insurance benefits to be available under health reform would have cut out-of-pocket spending in 2001–2008,” by Dr. Hill, in the June 2012 *Health Affairs* 31(6), pp. 1349-1356. Reprints (AHRQ Publication No. 12-R087) are available from AHRQ.\* ■ KB

## Corporate social responsibility as well as profit motivates executives running Medicaid managed care programs

What drives executives of for-profit health care organizations? Not just profits, suggests a new study. New Mexico and Colorado researchers conducted interviews with four chief executive officers (CEOs) of for-profit managed care organizations that had received major State contracts for Medicaid managed care. Eight State government officials charged with

oversight of Medicaid managed care also were interviewed.

All of the executives interviewed cited social responsibility as a major motivator when making decisions. Several mentioned a belief in the Medicaid system and making it their mission to serve the State. They also cited a responsibility to their employees, many of whom were new and hired

in large numbers to address the requirements of Medicaid managed care. The executives viewed the experience gained with the Medicaid contracts as an opportunity to enhance their market share for private managed care products.

On the economic side, CEOs were more motivated by the

*continued on page 22*

## Medicaid managed care programs *continued from page 21*

predictability of financial performance than actual profitability. A predictable rate of profit, which comprised a major concern for investors in the for-profit managed care corporations, trumped the rate of profit itself in CEOs' decisionmaking. Among the State government officials

interviewed, cost control in Medicaid was a primary motivator, with for-profit managed care organizations seen as an important part of this strategy. The officials generally defended the CEOs and felt that some criticisms they faced from patients and advocacy organizations were not justified. The study was supported in part by the Agency for Healthcare Research

and Quality (HS13251 and HS09703).

See "Advancing the business creed? The framing of decisions about public sector managed care," by Howard Waitzkin, Ph.D., M.D., Joel Yager, M.D., and Richard Santos, Ph.D., in *Sociology of Health & Illness* 34(1), pp. 31-48, 2012. ■  
KB

## Primary care practices incur considerable costs for collecting data on diabetes quality improvement programs

The time and resources needed for individual primary care practices to provide all recommended care for all patients with diabetes can be daunting, especially in the face of similar recommendations for other chronic diseases and preventive care. Measuring and reporting quality data on the recommended care can also incur considerable costs, according to a new study. The researchers analyzed six primary care practices in Colorado that were participating in a diabetes quality improvement program. They found that the cost for data collection and reporting were approximately \$15,552 per practice (about \$6.23 per diabetic patient per month). The first year maintenance cost for this effort was approximately \$9,553 per practice (\$3.83 per diabetic patient per month).

They concluded that the cost for implementing and maintaining a diabetes quality improvement effort, which includes formal data collection and reporting

mechanisms, was significant and quantifiable. They suggest that policymakers become aware of the financial and cultural impact on primary care practices when considering value-based purchasing initiatives.

The researchers suggest that if meaningful and durable change is to be achieved, the requisite resources that adequately cover the cost of quality improvement and the collateral data collection and reporting must be made available. This study was supported by the Agency for Healthcare Research and Quality (Contract No. 290-07-100081).

See "Costs associated with data collection and reporting for diabetes quality improvement in primary care practices: A report from SNOCAP-USA," by David R. West, Ph.D., Tiffany A. Radcliff, Ph.D., Tiffany Brown, Ph.D., and others in the *Journal of the American Board of Family Medicine* 25, pp. 275-282, 2012. ■ MWS

## Health Information Technology

### Human-computer interaction evaluation can inform the redesign of computerized clinical reminders

Clinicians continue to report barriers to using computerized clinical decision support (CDS) as part of electronic health records. Earlier, researchers had identified several barriers related to the use of CDS for colorectal cancer screening. In a new study, they use human-computer interaction evaluations to redesign this CDS to

make it more user-friendly and effective.

The researchers recruited 12 primary care providers from 5 outpatient clinics that were part of a Veterans Affairs medical center. Evaluations took place in a simulation laboratory where participants were videotaped to include their facial expressions and

interactions with the clinical information system. Participating providers tested both the current and redesigned prototype by completing a simple and complex scenario involving colorectal screening. Following this, participants received a workflow integration survey.

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### Computerized clinical reminders *continued from page 22*

The redesigned prototype scored significantly higher than the current prototype on the workflow integration survey. Providers gave high marks for the redesigned colorectal cancer screening reminder and the timeline visual of a patient's history for screening. The redesign enhancements had a positive impact on the providers' workflow integration and the ability to find a patient's relevant data. No

differences were observed between the two prototypes in terms of perceived workload, simplicity, efficiency, and overall satisfaction.

The researchers conclude that using these and other human-computer interaction methods can benefit not only clinical software development, but its integration into clinical practice as well. Human factors input must be adopted early in the process if user performance is to be improved. The study was supported

in part by the Agency for Healthcare Research and Quality (Contract No. 290-06-00013).

See "Redesign of a computerized clinical reminder for colorectal cancer screening: A human-computer interaction evaluation," by Jason J. Saleem, Ph.D., M.S., David A. Haggstrom, M.D., M.A.S., Laura G. Militello, M.A., and others in the *BMC Medical Informatics and Decision Making*, 2011. ■ KB

## Agency News and Notes

### AHRQ Stats

#### AHRQ publishes statistics on hospital stays among obese adults and children and hospital stays for hip and knee replacement

##### Hospital stays by obese children double

Hospital stays among obese patients jumped from 6 percent to 9 percent between 2004 and 2009, according to a new data analysis from the Agency for Healthcare Research and Quality (AHRQ). Another analysis found that hospital stays by obese children doubled between 2000 and 2009. For more details, see AHRQ's Healthcare Cost and Utilization Project (HCUP) Statistical Brief #137, *Obesity-Related Hospitalizations, 2004 vs. 2009* ([www.hcup-us.ahrq.gov/reports/statbriefs/sb137.jsp](http://www.hcup-us.ahrq.gov/reports/statbriefs/sb137.jsp)) and HCUP Statistical Brief #138, *Obesity in Children: Hospitalizations from 2000 to 2009* at [www.hcup-us.ahrq.gov/reports/statbriefs/sb138.jsp](http://www.hcup-us.ahrq.gov/reports/statbriefs/sb138.jsp).

##### Hospitalizations for first-time hip replacement reach 440,000 in 2012

Hospital admissions of patients needing a first-time hip replacement will reach 110,000 per quarter by the end of 2012, or

440,000 for the entire year, according to projections by AHRQ. The cost of caring for these patients will average \$19,000 per patient. Two-thirds of the first-time hip replacement admissions are due to osteoarthritis. For details see *HCUP Projections: Mobility/Orthopedic Procedures 2011 to 2012* at [www.hcup-us.ahrq.gov/reports/projections/2012-03.pdf](http://www.hcup-us.ahrq.gov/reports/projections/2012-03.pdf).

##### Hospitalizations for first-time knee replacement reach 704,000 in 2012

The number of admissions per quarter for first-time knee replacement due to osteoarthritis will reach 176,000 by the end of 2012, or 704,000 for the entire year, compared with 104,000 per quarter in 2004 or 416,000 for that entire year, according to AHRQ projections. For details, see *HCUP Projections: Mobility/Orthopedic Procedures 2011 to 2012* at [www.hcup-us.ahrq.gov/reports/projections/2012-03.pdf](http://www.hcup-us.ahrq.gov/reports/projections/2012-03.pdf) ■

## New tools help improve patient safety for those with limited English



Research shows that patient safety events that affect patients with limited English proficiency tend to be more severe and more frequently due to communication errors compared to English-speaking patients.

Two new tools are now available to help improve patient safety for those with limited English proficiency.

The TeamSTEPPS® *Limited English Proficiency Module* developed by the Agency for Healthcare Research and Quality and Department of Defense can help staff reduce medical errors for patients with limited English skills.

Approximately 57 million people—20 percent of the U.S. population—speak a language other than English at home, and approximately 25 million—8.6 percent of the U.S. population—are defined as limited English proficient, meaning that they speak English less than “very well.” The module is available in CD format and includes PowerPoint presentations, teaching modules, and video vignettes that can be used to train staff.

A companion to the TeamSTEPPS module *Improving Patient Safety Systems for Patients With Limited English Proficiency: A Guide for Hospitals* helps hospital leaders learn how to identify, report, monitor, and prevent medical errors among patients with LEP.

To order copies of the CD, contact the AHRQ Publications Clearinghouse at [AHRQPubs@ahrq.hhs.gov](mailto:AHRQPubs@ahrq.hhs.gov) or call (800) 358-9295. Copies of the CD are also available at [www.ahrq.gov/teamstepstools/lep/index.html](http://www.ahrq.gov/teamstepstools/lep/index.html). The hospital guide can be found at [www.ahrq.gov/populations/lepguide](http://www.ahrq.gov/populations/lepguide). ■

## New AHRQ tool assesses patient safety culture in pharmacies

The Agency for Healthcare Research and Quality (AHRQ) has released the *Pharmacy Survey on Patient Safety Culture* and a free toolkit of materials that helps community pharmacies assess their culture of patient safety. It is the latest survey in AHRQ’s suite of patient safety culture surveys now being used by hospitals, nursing homes, and medical offices.

The new survey is designed for pharmacy staff, including clerks, technicians, and pharmacists. It includes 36 survey items that measure 11 areas of patient safety culture such as physical space and

environment, patient counseling, communication about prescriptions across shifts, and teamwork. It also includes items about the frequency of documenting mistakes and an overall rating on patient safety.

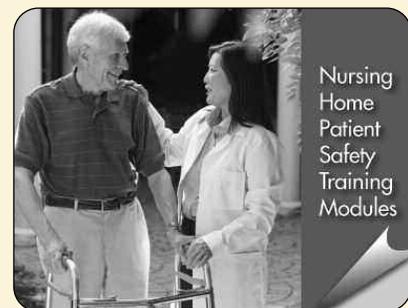
Toolkit materials include the survey form, a document identifying items by composite, a Survey User’s Guide, and results from 55 pharmacies that participated in the 2012 pilot study. To download the survey, visit [www.ahrq.gov/qual/patientsafetyculture/pharmsurindex.htm](http://www.ahrq.gov/qual/patientsafetyculture/pharmsurindex.htm) ■

## New tool released that improves the safety of care for nursing home residents

A new tool, TeamSTEPPS® for Long-Term Care, developed by the Agency for Healthcare Research and Quality (AHRQ) and the Department of Defense, is designed to support the training of health care personnel in team and communication skills to reduce patient safety risks and hazards in nursing homes. It includes new materials to demonstrate how to

use communication tools in quality improvement projects.

The tool is available in DVD format and includes PowerPoint presentations, teaching modules, exercises, and video vignettes that can be used to train staff. To order copies of the DVD, contact the AHRQ Publications Clearinghouse at [AHRQPubs@ahrq.hhs.gov](mailto:AHRQPubs@ahrq.hhs.gov) or



call (800) 358-9295. To download the information, visit [www.ahrq.gov/TeamSTEPPStools/longtermcare](http://www.ahrq.gov/TeamSTEPPStools/longtermcare). ■

### Final 2014 clinical quality measures available

The final 2014 clinical quality measures (CQMs) for health professionals and hospitals are now available, along with the specifications for electronic reporting and access to the related data elements and value sets. The value sets define clinical concepts, providing a list of numerical values (e.g., code values from the vocabularies of ICD-9, SNOMED CT, etc.) and individual descriptions for the clinical concepts used to define the quality measures.

Each clinical concept referenced in a clinical quality measure is represented by a set of code values, also known as value sets. To help providers and vendors navigate the new CQM specifications, the Agency for Healthcare Research and Quality (AHRQ) has developed the U.S. Health Information Knowledgebase (USHIK) with both Meaningful Use Stage 1 and Stage 2 (2014) clinical quality measures. The USHIK Web site provides different formats for viewing, downloading, and comparing versions of electronic CQMs and their value sets in response to

user requests.

AHRQ's USHIK is a metadata registry of health care-related standards, their data elements, and metadata funded and directed by AHRQ, in partnership with the Centers for Medicare & Medicaid Services (CMS) and the Veterans Administration. USHIK's Meaningful Use portal is a comprehensive resource for accessing an organized presentation of Meaningful Use clinical quality measures and value sets.

It is unique in allowing users to compare present, past, and future proposed versions of Meaningful Use quality measure and value sets. USHIK allows researchers to browse, compare, and synchronize diverse data sets in order to promote interoperability, uniformity, and comparability of health data. You can access USHIK at <http://ushik.ahrq.gov>. CMS has developed guidance for understanding and using the final CQMs, as well as human readable files and e-specifications. ■

### Report examines quality improvement measurement in people with disabilities

A new report from the Agency for Healthcare Research and Quality (AHRQ) found that there is little evidence to adequately assess the measures for evaluating quality improvement outcomes among people with disabilities. Quality of life, social functioning, or other outcome measures are critical for assessing the quality of care for people with physical, intellectual, or developmental disabilities. These disabilities can aggravate medical problems and complicate treatment and follow-up care.

There are no studies of medical care for basic medical needs or

secondary conditions in mixed populations of people with and without disabilities that include disability as an underlying condition. According to the lead author, Mary Butler, Ph.D., of the Minnesota Evidence-based Practice Center, research on disability as a coexisting condition is at an early stage and could benefit from organized databases of critically assessed outcome measures.

The report is part of a larger initiative *Closing the Quality Gap: Revisiting the State of the Science*, and builds on an earlier AHRQ series of evidence reports *Closing*

*the Quality Gap: A Critical Analysis of Quality Improvement Strategies*. The initiative was developed by AHRQ's Effective Health Care Program, which funds effectiveness and comparative effectiveness research and makes findings available for clinicians, consumers, and policymakers. To read *Quality Improvement Measurement of Outcomes for People with Disabilities* and other reports, go to [www.effectivehealthcare.ahrq.gov](http://www.effectivehealthcare.ahrq.gov). ■

## AHRQ awards grants for the science of public reporting

The Agency for Healthcare Research and Quality, in collaboration with the Center for Medicaid & Medicaid Services, has awarded 17 research grants designed to advance the science of public reporting. These awards launch a 3-year, \$14 million research initiative to grow the evidence base behind the content, design, dissemination, and underlying data and methodology of public reports of health care quality for consumers.

The Affordable Care Act and National Quality Strategy identify public reporting as a cornerstone of the nation's quality infrastructure, both as a driver of quality improvement efforts by providers and a key transparency tool that allows consumers to choose providers based on care quality and cost.

These 17 exploratory and developmental studies address public reports for consumers that compare the

quality and costs of hospitals, nursing homes, primary care, surgery, home health, and hospice. Recognizing that access and choice of quality care vary by population group, these studies also will engage Department of Health and Human Services priority populations such as minorities, lower income individuals, individuals with chronic conditions such as diabetes and congestive heart failure, as well as Medicare, Medicaid, and dually-eligible beneficiaries.

The ultimate goal of this research is to inform the development of a health care system in which consumers have ready access to reports that allow meaningful comparison of providers based on measures of quality and resource use. To learn more about these grants, visit [www.ahrq.gov/qual/value/sciencepubreport.htm](http://www.ahrq.gov/qual/value/sciencepubreport.htm). ■

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**Boulet, J.R., Murray, D. (2012). “Review article: Assessment in anesthesiology education.” (AHRQ grant HS18734).**

*Canadian Journal of Anesthesiology* 52, pp. 182-192. Assessment plays a fundamental role in the education of anesthesiologists. Many different types of assessments are needed to measure the competencies of anesthesia providers. The development of sound assessment practices can help ensure the safe and effective provision of care.

**Burke, J.F., Kerber, K.A., Iwashyna, T.J., and Morgenstern, L.B. (2012). “Wide variation and rising utilization of stroke magnetic resonance imaging: Data from 11 States.” (AHRQ grant HS17690).** *Annals of Neurology* 71, pp. 179-185.

For the diagnosis of stroke, magnetic resonance imaging (MRI) is more accurate than computed tomography (CT), but it is also more costly and time-consuming. A study of MRI use during stroke hospitalization from 1999 to 2008 found that it increased substantially, with wide geographic variation. Since neuroimaging practices are not standardized, there may be an opportunity to improve the efficiency of stroke care.

**Castle, M.G., Wagner, L.M., Ferguson, J.C., and others. (2012). “Alcohol misuse and abuse in assisted living.” (AHRQ grant HS165347).** *Journal of the American Medical Directors Association* 13, p. e7.

Data on alcohol misuse and abuse in assisted living were collected from 832 nurse aides working in Pennsylvania assisted living (AL) facilities. Nurse aides believe that 8 percent of residents have untreated alcohol-related problems. These findings present preliminary evidence that alcohol misuse and abuse may be a problem in AL facilities.

**Dahabreh, I.J., Chung, M., Balk, E.M., and others. (2012). “Active surveillance in men with localized prostate cancer.” (AHRQ Contract No. 290-07-10055).** *Annals of Internal Medicine* 156, pp. 582-590.

The authors systematically reviewed strategies for observational management of prostate cancer (active surveillance [AS] or watchful waiting [WW]); the factors affecting their use; and comparative effectiveness of observational management versus immediate treatment with curative intent. Evidence is insufficient to assess whether AS is an appropriate option for men with localized prostate cancer.

**Doshi, P., Jones, M., and Jefferson, T. (2012). “Rethinking credible evidence synthesis.” (AHRQ grant T32 HS19488).** *British Medical Journal* 344, p. d7898.

After publication of a Cochrane review on the effectiveness of oseltamivir in 2009, the authors obtained access to 3,195 pages of study reports for 10 treatment trials of oseltamivir. Their thoughts on

this experience provide the basis for their argument that open access to all relevant trial data is a necessity to make ethical decisions in health care.

**Elder, N.C., and Barney, K. (2012, April). ““But what does it mean for me?” Primary care patients’ communication preferences for test result notification.”** *Joint Commission Journal on Quality and Patient Safety* 38(4), pp. 168-176.

The researchers conducted a study to determine the factors that patients believe are important in communicating test results. They found three themes to be important in the satisfaction and understanding of test results: the information shared, the significance of the results, and personal preferences for communication. The researchers proposed an algorithm that may enhance patient satisfaction and use of test results by patients.

**Fink, H.A., Ishani, A., Taylor, B.C., and others. (2012). “Screening for, monitoring, and treatment of chronic kidney disease stages 1 to 3: A systematic review for the U.S. Preventive Services Task Force and for an American College of Physicians Clinical Practice Guideline.” (AHRQ Contract No. 290-07-10064).** *Annals of Internal Medicine* 156, pp. 570-581.

This review summarizes evidence about the benefits and harms of

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## Research briefs

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screening for and monitoring and treatment of chronic kidney disease (CKD) stages 1 to 3. It found no trials evaluating screening or monitoring, and 110 trials that evaluated treatments. Since evidence about outcomes was sometimes scant and derived from post-hoc analyses of subgroups of patients enrolled in trials, the authors concluded that the role of CKD screening or monitoring in improving clinical outcomes is uncertain.

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**Gurses, A.P., Ozok, A. A., and Pronovost, P.J. (2012).** “Time to accelerate integration of human factors and ergonomics in patient safety.” (AHRQ grant HS18762). *BMJ Quality and Safety* 21, pp. 347-351.

This paper gives an overview of the discipline of human factors and ergonomics and describes its role in improving patient safety. The authors provide examples of how these disciplines have improved both care processes and patient outcomes. They also provide five major recommendations to better integrate human factors and ergonomics in patient safety improvement efforts.

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**Halpern, S.D., and Emanuel, E.J. (2012, February).** “Advance directives and cost savings.” (AHRQ grant HS18046). *Archives of Internal Medicine* 172(30), pp. 266-268.

Despite the legal use of advance directives for 35 years, there is a lack of convincing evidence that increased use of advance directives actually lowers health care costs. The authors discuss a study in the same issue by Nichols et al. suggesting that advance directives

may enable patients to defend against unwanted aggressive care. They conclude that the findings of this study provide strong impetus for interventional advance directive studies, but little impetus for immediate policy changes.

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**Haukoos, J.S., Lyons, M.S., Lindsell, C.J., and others. (2012).** “Derivation and validation of the Denver human immunodeficiency virus (HIV) risk score for targeted HIV screening.” (AHRQ grant HS17526). *American Journal of Epidemiology* 175(8), pp. 838-846.

The authors derived and validated an instrument to accurately identify patients at risk for HIV infection, using patient data from a metropolitan sexually transmitted disease clinic in Denver. The derivation sample included 92,635 patients, of whom 504 were diagnosed with HIV infection. The authors believe that theirs is the first study to empirically derive and externally validate an HIV risk prediction tool.

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**Hempel, S., Newberry, S.J., Maher, A.R., and others. (2012).** “Probiotics for the prevention and treatment of antibiotic-associated diarrhea.” (AHRQ Contract No. 290-07-10062). *Journal of the American Medical Association* 307(18), pp. 1959-1969.

The authors performed a systematic review to evaluate the evidence for probiotic use in the prevention and treatment of antibiotic-associated diarrhea (AAD). The review found that pooled evidence suggests an association of probiotics with a reduction in AAD.

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**Linder, S.K., Swank, P.R., Vernon, S.W., and others. (2011).**

“Validity of a low literacy version of the Decisional Conflict Scale.” (AHRQ grant HS10612). *Patient Education and Counseling* 85, pp. 521-524.

This study evaluated the psychometric properties of the 4-factor low literacy Decisional Conflict Scale (DCS-LL) with men eligible for prostate cancer screening (PCS). The study provides support for use of the DCS-LL in PCS decision aid studies, but suggests caution about using the individual subscales as evaluative criteria.

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**Luo, Z., Yetisgen-Yildiz, M., and Weng, C. (2011).** “Dynamic categorization of clinical research eligibility criteria by hierarchical clustering.” (AHRQ grant HS19853). *Journal of Biomedical Informatics* 44, pp. 927-935.

Currently there is no standard categorization of clinical research eligibility criteria. The authors sought to semi-automatically induce semantic categories of eligibility criteria from text and to automatically classify eligibility criteria based on their semantic similarity. They found that the UMLS semantic feature representation outperforms the “bag of words” feature representation in 89 percent of the criteria categories.

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**Mane, K.K., Bizon, C., Schmitt, C., and others (2012).**

“VisualDecisionLinc: A visual analytics approach for comparative effectiveness-based clinical decision support in psychiatry.” (AHRQ grant HS19023). *Journal of Biomedical Informatics* 45, pp. 101-106.

The authors highlight the role that visual analytics can play in

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## Research briefs

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comparative effectiveness research (CER)-based clinical decision support. They developed a VisualDecisionLinc (VDL) tool prototype that uses visual analytics to provide CER-derived data views to facilitate rapid interpretation of large amounts of data. A next step is to perform a formal evaluation of the clinical utility of the developed VDL clinical decision support tool.

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**Nembhard, I.M. (2012, June).** “All teach, all learn, all improve?: The role of interorganizational learning in quality improvement collaborative.” (AHRQ grant HS98701). *Health Care Management Review* 37(2), pp. 154-164.

This study examined the use of interorganizational learning activities (inter-OLAs) as an explanation for mixed performance improvement among collaborative participants. After surveying 52 teams participating in 4 Institute for Healthcare Improvement collaboratives, the authors found that the more collaborative teams used inter-OLAs, the more their organizations’ performance improved. The results also suggest that complementing high use of inter-OLAs with intra-OLA use and quality-focused human resource practices enhanced performance improvement.

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**O’Reilly, D., Tarride, J.E., Goeree, R., and others. (2012).** “The economics of health information technology in medication management: A systematic review of economic evaluations.” (AHRQ Contract

No. 290-07-10060). *Journal of the American Medical Informatics Association* 19, pp. 423-438.

A systematic review of the evidence surrounding the cost-effectiveness of health information technology (IT) in the medication process finds that the quality of the economic literature in this area is poor. Given the uncertainty that surrounds the cost and outcomes data and limited study designs, it is difficult to reach any definitive conclusion as to whether the additional costs and benefits of health IT represent value for money.

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**Rahbar, M.H., Chen, Z., Jeon, S., and others. (2012).** “A nonparametric test for equality of survival medians.” (AHRQ grant HS14206). *Statistics in Medicine* 31, pp. 844-854.

The authors propose a new nonparametric method for testing the equality of several survival medians based on the Kaplan-Meier estimation from randomly right-censored data. They derive asymptotic properties of this test statistic. Through simulations, they compute and compare the empirical probabilities of type I errors and the power of this new procedure with those of Brookmeyer-Crowley, log-rank, and Wilcoxon methods.

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**Ratanawongnsa, N., Handley, M.A., Quan, J., and others. (2012).** “Quasi-experimental trial of diabetes Self-Management Automated and Real-Time Telephonic Support (SMARTSteps) in a Medicaid managed care plan: Study protocol.” (AHRQ grant HS17261). *BMC Health Services Research* 12, p. 22.

This paper presents a description of the study design and recruitment results for the Self-Management Automated and Real-Time Telephonic Support (SMARTSteps), a controlled quasi-experimental evaluation study to improve diabetes quality of life, self-management, and clinical outcomes. The study uses two variants of a language-concordant automated telephonic self-management intervention for a Medicaid managed care plan serving a low-income, ethnically diverse urban population.

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**Reidenberg, M.M. (2012).** “Early research on renal function and drug action.” (AHRQ grant HS16075). *Journal of Clinical Pharmacology* 52, pp. 7S-9S.

Since the 1960s, systematic studies of drug action in renal failure have found many differences between patients with renal failure and those without. The pharmacokinetics of antimicrobials and dosage recommendations for azotemic patients (with elevated urea and other nitrogenous wastes in the blood due to poor kidney function) were first delineated in 1867. Other effects of renal failure on drug action were found to include increases in some pathways of drug metabolism with decreases in others and no change in the rest. These and other findings have made drug therapy for azotemic patients safer and more effective over time.

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**Saldana, S.N., Hooper, D.K., Froehlich, T.E., and others. (2011, December).** “Characteristics of successful recruitment in

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## Research briefs

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### prospective pediatric pharmacogenetic studies.” (AHRQ grant HS16957). *Clinical Therapeutics* 33(12), pp. 272-281.

The aim of this study was to identify factors affecting recruitment of eligible subjects in pharmacogenetics studies. The objectives were to evaluate recruitment success of ongoing trials and ascertain contributors to differential recruitment rates. Some characteristics of studies with successful recruitment were: standardized clinical care, an ongoing team-patient relationship, severe and/or life-threatening outcomes measures, and a study coordinator with experience in clinical research.

### Shamliyan, T., Wyman, J.F., Ramakrishnan, R., and others. (2012, June). “Systematic review: Benefits and harms of pharmacologic treatment for urinary incontinence in women.” (AHRQ Contract No. 290-07-10064). *Annals of Internal Medicine* 156(12), pp. 861-874.

The authors conducted a systematic review of drugs for urgency urinary incontinence in women. Their pooled analyses of 94 randomized controlled trials found small benefits for the tested drugs. Continence rates for 1,000 women treated by four different drugs were between 8.5 percent and 13 percent. The authors conclude that therapeutic choices should consider the harms profile of each drug. Evidence for long-term adherence and safety of treatments is lacking.

### Shen, C., Li, X., Li, L., and Were, M.C. (2012). “Sensitivity analysis for causal inference using inverse probability weighting.” (AHRQ

### Contract No. 290-04-0015, Grant HS15409). *Biometrical Journal* 53(5), pp. 822-837.

Evaluation of the impact of potential uncontrolled confounding is an important component for causal inference based on observational studies. The authors introduce a general framework of sensitivity analysis that is based on inverse probability weighting. They propose a general methodology that allows both non-parametric and parametric analyses. Their method is illustrated with two medical data sets.

### Song, P.H., Robbins, J., Garman, A.N., and McAlearney, A.S. (2012, June). “High-performance work systems in health care, Part 3: The role of the business case.” (AHRQ Contract No. 290-06-0022). *Health Care Management Review* 37(2), pp. 110-121.

The aim of this study is to enhance understanding about organizations’ perspectives of the business case of high-performance work practices (HPWPs) in U.S. health care organizations. The authors’ analysis of the 67 interviews with key informants found that the organizations they studied did not appear to have explicit financial return expectations for investments in HPWPs. In addition, evaluation efforts were rare.

### Souter, K.J., and Gallagher, T.H. (2012). “The disclosure of unanticipated outcomes of care and medical errors: What does this mean for anesthesiologists?” (AHRQ grant HS16506). *Anesthesia & Analgesia* 114, pp. 615-621.

This article reviews the currently available literature related to disclosure of unanticipated

outcomes to patients. Disclosures, especially those related to medical errors are discussed in reference to the practice of anesthesiology. The specific challenges of disclosures for anesthesiologists are highlighted, particularly in the ways they differ from other specialties.

### Tang, X., Luo, Z., and Gardiner, J.C. (2012, June). “Modeling hospital length of stay by Coxian phase-type regression with heterogeneity.” (AHRQ grant HS14206). *Statistics in Medicine* 31(14), pp. 1502-1516.

This study demonstrates the application of Coxian phase-type stochastic regression models to hospital length of stay (LOS) to account for the heavy skewness and heterogeneity in the data. The authors demonstrate that selecting an appropriate number of phases and a regression model for hazard rates can account for some heterogeneity in LOS. They used a classification method to assign patients to different LOS groups and illustrated this approach by applying it to hospital admissions for heart attack in the 2003 Nationwide Inpatient Sample from the Healthcare Utilization Project.

### Thornton, R.L.J., Powe, N.R., Roter, D., and Cooper, L.A. (2012). “Patient-physician social concordance, medical visit communication and patients’ perceptions of health care quality.” (AHRQ grant HS32650). *Patient Education and Counseling* 85, pp. e201-e208.

This study examined whether social concordance is associated with differences in the quality of medical visit communication and patients’

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## Research briefs

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perceptions of care. It found that lower patient-physician social concordance was associated with less positive patients' perceptions of care and lower positive patient affect. Social concordance between physician and patient refers to similarity with respect to social identity characteristics (race, gender, age, education).

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**Toledo, P. (2012).** "What's new in obstetric anesthesia: The 2011 Gerard W. Ostheimer lecture." (AHRQ grant HS20122). *International Journal of Obstetric Anesthesiology* 21, pp. 68-74.

Each year, a member of the Society for Obstetric Anesthesia and Perinatology is asked to review the previous year's literature and identify articles that are most relevant to the practice of obstetric anesthesia. The articles reviewed in this lecture focus on maternal co-existing disease, complications of anesthesia, the administration and safety of oxytocin, and patient safety.

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**Van Cleave, J., Dougherty, D., and Perrin, J.M. (2011).** "Strategies for addressing

**barriers to publishing pediatric quality improvement research."** (AHRQ Contract No. 290-07-000192). *Pediatrics* 128, p. e678.

The authors sought to identify barriers to publishing results of quality improvement (QI) research and provide practical strategies that QI researchers can use to enhance publishability of their work. They summarized a workshop on publishing QI research, interviewed experts, and reviewed pediatric QI studies. They identified strategies to overcome barriers that included collaborating with research methodologists and creating incentives to publish.

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**Wilkins, T.L., Rust, G.S., and Sambamoorthi, U. (2012, June).** "Changing BMI categories and healthcare expenditures among elderly Medicare beneficiaries." (AHRQ grant HS15390). *Obesity Journal* 20(6), pp. 1240-1248.

The primary objective of this paper is to analyze the effects of changing body mass index on a variety of health expenditures, including total, in-patient, outpatient, medical, prescription, and dental expenditures among the elderly, using a nationally representative sample of Medicare beneficiaries. Based on their analysis of health-

care expenditures subsequent to short-term weight gains, the researchers found that individuals who stayed obese had higher total, outpatient, prescription, and medical provider expenditures compared to those who remained at normal weight.

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**Zodet, M.W., Hill, S.C., and Zuvekas, S.H. (2012).** "Evaluating an alternative data source for editing MEPS drug prices." Reprints (AHRQ Publication No. 12-R088) are available from the Agency for Healthcare Research and Quality.\* [www.fcsm.gov/12papers/Zodet\\_2012FCSM\\_IV-C.pdf](http://www.fcsm.gov/12papers/Zodet_2012FCSM_IV-C.pdf).

These authors assessed the feasibility of replacing average wholesale unit prices with median retail prices estimated from the MarketScan Outpatient Pharmaceutical Claims database for editing drug prices in the Medical Expenditures Panel Survey. In the second part of their evaluation, the authors determine whether thresholds that suggest outlier unit prices derived from retail prices outperform thresholds derived from the average wholesale price. ■

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