AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

RESEARCH ACTIVITIES

U.S. Department of Health and Human Services | January 2014 | No. 400

New Director Revamps AHRQ's Mission

Richard Kronick, Ph.D., who took the helm of AHRQ in September, has led an effort to revamp the Agency's mission in collaboration with AHRQ's senior leadership team, Department of Health and Human Services (HHS) partners, and key stakeholders. The new mission is to produce evidence to make health care safer, higher quality, more accessible, equitable, and affordable, and to work with HHS and other partners to make sure that the evidence is understood and used. *Research Activities* (RA) spoke with Dr. Kronick about his new vision for the Agency.

Highlights

RA: Using evidence to transform health care seems to be the hallmark of your vision for AHRQ and at the center of the Agency's revamped mission. Is that a shift in what AHRQ had previously been doing?

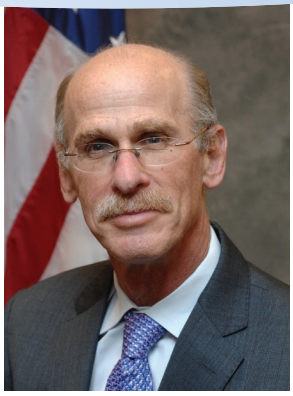
Dr. Richard Kronick with HHS Secretary Kathleen Sebelius during her recent visit to AHRQ.

RK: First, I am well aware that hardly anyone pays attention to mission statements. When I shared the new mission statement at an all-hands meeting of approximately 300 AHRQ staff, I asked how many people knew what the Agency's previous mission statement was. Only a smattering of hands went up. Similarly, hardly any members of AHRQ's National Advisory Council knew the Agency's previous mission statement.

Acknowledging that not much attention gets paid to mission statements, I'll point out some nuanced changes from the previous statement to the new one. Even though the Agency has always done so, the mission statement now clearly identifies our focus as producing evidence and making sure that the evidence is understood and used. The previous mission statement said that our job was to make health care safer, higher quality, more effective. As a relatively small agency, it is unrealistic to think that we can do much to make health care safer, higher quality, and more effective on our own, but we are very well positioned to produce evidence about how to accomplish these goals, and to work with others to make sure the evidence is understood and used. The new mission statement explicitly states that producing evidence on how to improve accessibility, equitability, and affordability is central to our job. But we can't do all of this alone.

continued on page 3

From the Director



I very much look forward in the New Year to working on AHRQ's revamped mission and priorities. A number of my experiences have shaped my views of health care and my vision for AHRQ. In 1989, Alain Enthoven and I wrote an article that characterized health care in the United States as a paradox of excess and deprivation. At the time, we had approximately 30 million people without health insurance and a health care economy that spent more on health care than any other country in the world. It was clear then, as it is now, that making progress on both of those problems would make us collectively much better off. At a minimum, universal coverage is part of the bedrock of living in a decent society.

In 1993, when I worked in the Clinton Administration, my fourth grade daughter opened her first AOL account and her password was 37mill, shorthand for 37 million, which then was the number of uninsured. I worked on increasing access to care in 1993-94, as I had worked on it in Massachusetts State government in the 1980s and, unfortunately, am still working on it now. I very much hope and expect not to be working on it 10 years from now.

We have the prospect of making great progress over the coming years in reducing the number of uninsured. The Affordable Care Act has also served as a catalyst for delivery system reform efforts, designed to increase the quality and value of the health care we receive. In the medium to long run, these efforts are likely to have as large or larger effect on the health of Americans as the coverage expansion, which understandably is receiving most of the media attention at this point. We are making significant progress in reducing growth in health care costs, and in focusing on increasing quality and efficiency. But I'm sure we'll be struggling for decades with figuring out how to deliver high-quality, safe, accessible, equitable, and affordable care. The opportunity to work on creating the evidence base on how to achieve these outcomes, and to work with HHS and other partners on making sure the evidence is understood and used is incredibly exciting, and drew me to AHRQ.

Richard Kronick, Ph.D.

Research Activities is a digest of research findings that have been produced with support from the Agency for Healthcare Research and Quality. *Research Activities* is published by AHRQ's Office of Communications and Knowledge Transfer. The information in *Research Activities* is intended to contribute to the policymaking process, not to make policy. The views expressed herein do not necessarily represent the views or policies of the Agency for Healthcare Research and Quality or the Department of Health and Human Services. For more information, contact Gail Makulowich at gail.makulowich@ahrq.hhs.gov.

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

Also in this issue

continued from page 1

RA: Is that the reason you have emphasized the importance of collaborating with HHS and other partners?

RK: There are two reasons collaborations are important. First and foremost, as mentioned, we can't do it all by ourselves. We have 300 people and a little more than $400 million in our budget, which for a health services research agency, makes us a pretty good sized organization. It's not nearly big enough of course, and in the context of a $2.7 trillion health care system with 800,000 physicians, 5,000 hospitals and more than 3 million nurses, we are very small.

If what we are trying to do is make the health care system safer, higher quality, more equitable, affordable, and accessible, we can't do that much by ourselves and we need partners to help understand, use, and implement the evidence we produce. Further, we are part of a Department that is purchasing more than a $1 trillion worth of health care annually, and we have an opportunity to inform and guide potential levers such as the Medicare and Medicaid Programs, HRSA's (Health Resources and Services Administration) community health centers, and other initiatives to accomplish our mission.

Providing evidence to guide the work of key HHS initiatives is a role we are uniquely able to play. While CMS, NIH, and CDC produce evidence on various aspects of health care, we are the only agency with the sole mission of producing evidence to improve the delivery of health care services and health outcomes. The second reason for collaboration is to generate support for the Agency among stakeholders who are invested in our success. Especially in these times, one can never have too many friends!

Providing evidence to guide the work of key HHS initiatives is a role we are uniquely able to play.

RA: The Agency's first priority is to work on the national initiative created by the Affordable Care Act to harness the potential of patient-centered outcomes research (PCOR). What projects will AHRQ undertake to accomplish this?

RK: The first project we are working on in this area is a very exciting initiative to provide support to small- and medium-sized primary care practices to help them and their patients improve outcomes on cardiovascular risk factors, the so-called ABCS (aspirin, blood pressure, cholesterol, and smoking), and more broadly to help them adopt practices based on PCOR findings as they emerge. We've seen some of the larger and more organized medical groups in the country make progress in this area over the last few years by creating the kinds of teamwork and clinical decision support systems to accomplish it.

For example, some of these large systems will not wait for people with high blood pressure to come in for a visit, but will create a registry of patients with high blood pressure and reach out to them and work proactively on making progress in reducing their blood pressure. Small- and medium-sized physician practices don't have the resources to establish these types of systems.

RA: Making health care safer, a longtime AHRQ priority, is priority number 2. AHRQ has made many dramatic improvements in hospital safety. What safety areas do you plan to focus on?

RK: AHRQ's patient safety research supports improvements in all settings of health care, and we intend to maintain that ongoing support while we also take advantage of key opportunities to make care safer in the near term. First, we plan to accelerate patient safety improvements in hospitals, where we expect even better results and greater improvements can be achieved. Using AHRQ patient safety tools, we will continue to support the momentum generated by the Partnership for Patients and the nation's progress in reducing hospital-acquired conditions (HACs). These activities will aim to reduce rates of venous thromboembolism, falls, pressure ulcers, and adverse drug events.

Another major focus will be our continued efforts in reducing healthcare-associated infections (HAIs).

Another major focus will be our continued efforts in reducing healthcare-associated infections

continued on page 4

continued from page 3

(HAIs). Our poster child is our work on central line-associated bloodstream infections (CLABSIs). Our efforts resulted in more than a 40 percent reduction in CLABSIs in more than 1,000 hospitals where the Comprehensive Unit-Based Safety Program (CUSP) was implemented.

More recently we have been applying a similar, adapted CUSP approach to reduce catheter-associated urinary tract infections (CAUTIs) and, so far, that project is generating promising results. Hospital units that have implemented the program for 14 months have achieved close to a 20 percent reduction in CAUTIs. We've seen nearly a 40 percent reduction in hospital units that are not ICUs (intensive care units), but less progress in ICUs where it's more difficult to change the practice of putting catheters in and keeping them in. We're also extending use of CUSP into other areas, particularly to reduce surgical site infections in both inpatient and ambulatory surgery and reduce ventilator-acquired pneumonia.

A third safety focus targets harm from obstetrical care by reducing perinatal patient safety events such as uterine rupture during labor, birth trauma, maternal blood transfusion, and third or fourth degree perineal laceration. Patient safety improvements in nursing homes are another set of goals AHRQ will address. This initiative will make use of the Agency's collection of tools and resources that are designed to help nursing homes implement interventions to reduce pressure ulcers, falls, HAIs, and hospital admissions.

Finally, we are examining the impact of communication and resolution programs to improve patient safety and reduce medical liability in a diverse set of hospitals. Using this approach, the hospital and physicians approach patients who have been harmed by a medical error and communicate the error, apologize for it, and work in a cooperative way to reach a resolution.

The program already shows promising results. For example, the University of Illinois Hospital and Health Sciences System reduced claims and lawsuits by 40 percent per quarter compared to before program implementation. In addition, malpractice insurance premiums were 22 percent lower in 2012 than in 2010, and in 2013, premiums were 31 percent lower. Further, the program saved payers like Medicare and Medicaid $4.7 million. AHRQ will draw from the findings of recent research projects to develop and refine a toolkit for implementing a communication and resolution program in other organizations. The project team will then evaluate the toolkit and its implementation in various tests sites in preparation for broader implementation.

RA: Where do you expect AHRQ to make the biggest impact on patient safety in the next few years?

RK: The continued progress in reducing HAIs and adverse events in hospitals and nursing homes, extending from what we've learned from our success in the inpatient setting to other settings, and our work in improving patient safety and reducing medical liability with communication and dispute resolution. On the near horizon we look to make progress in measuring and reducing diagnostic errors. System-based factors such as information flow and communication between clinicians, along with cognitive mistakes, can all contribute to the challenge of getting the right diagnosis. Care delivered in the outpatient setting is particularly vulnerable to diagnostic errors, but we can build on some of the early research that has been done to understand and address that issue.

RA: Priority 3 is to evaluate Affordable Care Act coverage expansions to increase health care accessibility. What do you plan to evaluate and what difference will it make?

RK: We plan to produce evidence that the Secretary of HHS, members of Congress, and other policymakers will need to make informed decisions about coverage expansion and other aspects of the Affordable Care Act moving forward. We've already seen that the Affordable Care Act is not static. Like any major piece of social legislation, as its being implemented, further adjustments and changes will be made. Policymakers will need better information about the effects of the coverage expansions in order to make better decisions as they work on making these adjustments. We will be evaluating a variety of questions about the impact of the Affordable Care Act on health care use, health outcomes, financial stability, labor markets, and employer and employee decisions regarding employer-sponsored insurance.

We are quite confident that the fraction of people with a usual source of care will increase. Based on data from AHRQ's Medical Expenditure Panel Survey, about 40 percent of the uninsured have a usual source of care and at least 80 percent of Medicaid- and privately

continued on page 5

continued from page 4

insured persons have a usual source of care. I'd be shocked if having a usual source of care doesn't rise to near 80 percent among the newly insured. We are pretty sure that utilization of health care will also increase and the cost barriers to care access will come down, since the uninsured are much more likely to report than the insured that they didn't get care that they needed because of cost, although the magnitude of the change is much less certain.

We'll also be analyzing the effects of the law on financial security. A major function of insurance is to protect people's finances when they get sick, and understanding how much protection is provided and what effect the greater protection has on labor force participation and general well-being will be important. In addition, we will be examining the effectiveness of various approaches to outreach and enrollment. One of the decisions that will need to be made in the future is how to get people who aren't insured either to enroll in Medicaid or to purchase insurance in the marketplace, and there is a lot of uncertainty about how best to do this. We'll be analyzing the magnitude and nature of efforts.

Finally, we will be analyzing the impact of coverage expansions on the labor market. Understanding what actually happens will be important information to provide to policymakers as they move forward to figure out how best to increase accessibility to health care services.

RA: Isn't this a new area of focus for AHRQ?

RK: Yes. As we've talked about, our revamped mission is to produce evidence to make health care safer, higher quality, more accessible, equitable, and affordable, and to work with others to make sure that the evidence is understood and used. The Affordable Care Act is the largest change in health care financing and the accessibility of health care since 1965, and it would be irresponsible of us to ignore this change. We couldn't do our job of producing evidence — in fact, we wouldn't be doing our job of producing evidence to improve accessibility — if we ignored evaluation of the largest change since 1965 in health care financing. We have important contributions to make in collaboration with our colleagues at ASPE {HHS Office of the Assistant Secretary for Planning and Evaluation} and CMS. I'm also aware that engaging in this activity could potentially produce results many may not like. We may produce evidence that doesn't provide answers that the Secretary and key officials might want to see, but that it is still part of our job. The Secretary is aware of that possibility and is in full support of AHRQ's agenda.

We wouldn't be doing our job of producing evidence to improve accessibility — if we ignored evaluation of the largest change since 1965 in health care financing.

RA: Your fourth priority is to improve health care affordability, efficiency, and cost transparency. Could you give me an example of a project you are planning?

RK: I'll give you two examples. The first is to provide technical assistance and support to States that are working to make price information more transparent. The Center for Consumer Information & Insurance Oversight recently awarded grants to about 20 states to strengthen their rate review processes. Those grants provide resources to States to work with data centers and in some cases State all-payer claims databases to produce information on prices that are paid to various hospitals, physicians, and other health care providers.

Over the years, AHRQ has worked with many of these State agencies through AHRQ's Healthcare Cost and Utilization Project, the largest database of nationwide and State-specific hospital care data in the U.S., as well as some work we've done with all-payer claims databases. It's clear many of these agencies are poised to do exciting work on price transparency, but many of them need assistance to efficiently get from where they are now to information that will be useful to consumers and purchasers. We will be providing some of that help to catalyze those efforts.

The second project is much broader, with more difficult outcomes to achieve, and still under development. The goal is to produce a compendium of knowledge about health care delivery systems and their performance in the United States. Our objective is to learn more about what choices have been made in structuring and organizing the systems, and to be able to assess

continued on page 6

Director interview

continued from page 5

the efficiency and quality of care that is produced and measured in this variety of delivery systems.

I'm sure there will be a strong regional footprint in performance. Building on decades of work from researchers at Dartmouth and elsewhere, we know that there are large differences across areas of the country in how health care is delivered. But even within regions, there is a lot of variation in performance, and we'll be working at trying to understand the factors related to variation in performance. We expect that this work will be a catalyst for encouraging and informing improvements in performance and more appropriate use of resources.

RA: Given the climate of budget constraints, will AHRQ have the resources to accomplish its revamped mission and how will you gauge its success?

RK: A big part of my job is to focus the work of the Agency. While we don't have enough resources to accomplish our mission as quickly and on as broad a scale that we might want, we certainly have the resources to make progress in each of the four priority areas. The key is to decide how best to invest the resources we have.

In terms of gauging success, the proximate measure for success for the first priority on PCOR is our ability to demonstrate whether one or more techniques is successful in helping physicians and patients improve outcomes such as blood pressure and cholesterol levels and in improving the ability of practices to adopt new PCOR findings. The longer term measure of success is whether the evidence we generate is used by CMS, private insurers, and health systems and put into practice more broadly.

The priority directed at producing evidence to make health care

safer is the easiest one for which to measure success. We will focus on measuring changes in adverse events, and on the rate of implementation of communication and resolution programs and the success of those programs. The proximal measure of success for the efforts at describing health systems performance is whether we produce information that is perceived as credible and valid, and the longer term measure is whether the information is used by health systems, purchasers, and patients to spur efforts at performance improvement. Finally, for the accessibility priority, we will consider ourselves successful if we produce evidence about the impact of the Affordable Care Act on people and labor markets that is seen as useful by the Secretary and members of Congress.

Overall, we are focused on doing a better job of making sure that the evidence we produce is being used by policymakers, providers, and patients to improve care quality, safety, accessibility, equitability, and affordability. ■

Deaths from septic shock decline when guidelines followed

Severe sepsis and septic shock claim one-third of patients hospitalized for these conditions. For many years, there were few new therapies that improved mortality outcomes. However, in 2001, it was discovered that early resuscitation within 6 hours using a central venous catheter (CVC) could measure and improve physiologic parameters. Called early goal-directed therapy, the process was incorporated into clinical practice guidelines developed by the multidisciplinary Surviving Sepsis Campaign (SCC). In a recent commentary on a newly published study, researchers point out that mortality from septic shock is declining, which is most likely due to SCC guideline adherence. The key to reducing mortality is early placement of the CVC.

In the new study, in-hospital mortality was compared for early (day 0) CVC placement versus no or late (after day 0) CVC placement. During the period from 1998 to 2009, the researchers found that early CVC placement tripled but was still at a disappointing rate of 19 percent. Nevertheless, in-hospital mortality decreased from 40 percent to 31 percent. Declines in mortality were even greater in patients who received an early CVC.

According to the commentators, there may be several reasons why the early placement rate of a CVC is

continued on page 7

Septic shock

continued from page 6

a mere 19 percent. There is modest sensitivity of ICD-9-CM diagnostic coding for CVC placement. Other reasons may include timing ambiguities, contraindications to placement, and patient improvement with just initial fluid administration. Since the rate of early CVC placement is still less than ideal for goal-directed treatment, more improvements are needed. The researchers believe more educational initiatives would further encourage adherence to the SCC guidelines and result in additional survival gains. The commentary was supported by AHRQ (HS20672).

See "Trends in mortality and early central line placement in septic shock: True, true, and related?" by Hallie C. Prescott, M.D., and Collin R. Cooke, M.D., M.Sc., M.S., in the June 2013 *Critical Care Medicine* 41(6), pp. 1577-1578. ■ *KB*

Jump in opioid prescribing not linked to improved treatment of pain

Between 2000 and 2010, the number of visits in which patients with chronic pain (other than cancer pain) were treated with opioid prescription drugs increased by more than two-thirds, from 11.3 percent in 2000 to 19.6 percent by 2010, according to a new study. This decade also represents a period of sharp increase in opioid abuse and nonmedical use of painkillers in the United States, with concurrent increases in emergency department visits and deaths associated with illicit opioid use.

A fifth (20.7 percent) of ambulatory care visits during 2000–2010 represented patients with pain as a primary complaint or diagnosis—a proportion that fluctuated by less than 2 percent during the decade. However, the increased use of opioids for chronic pain was accompanied by a decline in the proportion of pain visits with no prescribed pain treatment (from 61.1 percent in 2000 to 53.4 percent in 2010).

Alexander and colleagues also examined visits for new-onset musculoskeletal pain and, in spite of similar increases in opioid prescribing, the results showed a significant decrease in non-opioid analgesic prescriptions from 38 to 29 percent between 2000 and 2010. This was despite a lack of evidence showing opioids are more effective or safer than non-opioid treatments for such pain.

Using multivariate regression to examine the association between patient, physician, and practice characteristics, and receipt of opioids for new musculoskeletal pain, only a few characteristics were significantly associated with opioid receipt. Over the decade studied, the increase in opioid prescription appears to be nonselective, and not strongly tied to patient, physician, or practice characteristics, the researchers conclude. Their findings were based on data from the National Ambulatory Medical Care Survey for a study sample of 7.8 million visits. The study was funded in part by AHRQ (HS18960).

More details are in "Ambulatory diagnosis and treatment of nonmalignant pain in the United States, 2000–2010," by Matthew Daubresse, M.H.S., Hsien-Yen Chang, Ph.D., Yuping Yu, Pharm.D., and others in the October 2013 *Medical Care* 51(10), pp. 870-878. *DIL*

■ ■ ■

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.

Telephone communication between poison control centers and emergency departments fraught with problems

In 2010 alone, there were 2,384,825 consultations by U.S. poison control centers to manage poison exposures. The telephone is a critical method of communication and information transfer between poison control centers (PCCs) and emergency departments (EDs). Each PCC and ED maintains their own electronic health record (EHR) system. However, data from those systems is not electronically shared to augment or replace telephone communication. A new study of telephone-based communication between PCCs and EDs found numerous inefficiencies, safety vulnerabilities, and ambiguous communication of information.

Telephone transcripts were reviewed on a random sample of 120 PCC cases occurring during 1 year. All involved one PCC and multiple collaborating tertiary care EDs. A list of observed phenomena was developed and categorized into concept categories. These included occurrences such as ambiguous communication of information, clinical information exchanged with non-clinical ED staff, and others.

According to the study's findings, communication between the ED and PCC consists of three phases. The first phase, notification, is when the PCC refers a patient to the ED for evaluation. The second phase is collaborative care. This begins when the patient arrives at the ED. During this phase, complex dialogues regarding diagnosis and treatment are exchanged over the phone. The final phase is ongoing consultation.

Several communication problems were identified. In 55 percent of the cases, the patient was discharged before collaboration between the ED care provider and the PCC. There was vague communication of clinical observations in 42 cases. Ambiguous communication of information concerning tests and vital signs was found in 22 percent of the cases. In some cases PCC specialists were unable to reach ED care providers, with calls routed through multiple ED staff before reaching the appropriate care provider. Clinical information was also exchanged with non-clinical staff. Given these problems, the researchers suggest that other communication modes be considered, such as a process that partially replaces telephone communication with asynchronous, electronic health information exchange of patient and poisoning information. The study was supported by AHRQ (HS18773).

See "Inefficiencies and vulnerabilities of telephone-based communication between U.S. poison control centers and emergency departments," by Mollie R. Cummins, Ph.D., R.N., Barbara Crouch, Pharm.D., M.S.P.H., Per Gesteland, M.D., M.Sc., and others in the June 2013 *Clinical Toxicology* 51, pp. 435-443. *KB*

No increased risk of severe adverse drug events in patients treated with antibiotics for acute respiratory infections

Antibiotics are overprescribed, particularly for acute nonspecific respiratory infections (ARIs), which are usually caused by viruses. Thus patients who receive antibiotics for ARIs are potentially exposed to antibiotic side effects with an anticipated small risk of receiving a benefit. Even with practice guidelines recommending against antibiotic treatment for ARIs, one-half of all U.S. and U.K. adults diagnosed with ARIs receive antibiotics. A new study found that patients treated with antibiotics for ARIs are not at increased risk of severe adverse drug events requiring hospital admission, compared with ARI patients who don't receive antibiotics. In addition, these patients had a slightly decreased risk of being hospitalized for pneumonia.

The study, based in the United Kingdom, used prescription and outcome data to identify 1,531,019 visits by 814,283 adults to primary care providers with an ARI diagnosis. The researchers compared the outcomes of patients prescribed antibiotics with those of patients not prescribed antibiotics. Particular attention was paid to hospitalizations within 15 days for severe adverse drug events and community-acquired pneumonia. In

continued on page 9

Acute respiratory infections

continued from page 8

65 percent of all ARI visits, antibiotics were prescribed.

Antibiotic prescribing varied widely among the 326 practices in the study, ranging from 3 percent to 95 percent of visits. In terms of preferred antibiotics, amoxicillin was at the top of the list (51.2 percent), followed by penicillin (17 percent) and erythromycin (12.7 percent). Those who did receive antibiotics tended to be older and had more coexisting conditions.

The researchers identified 126 severe adverse events. Among those receiving antibiotics, the crude incidence rate of events was 8.48 events per 100,000 visits. In the group not receiving antibiotics, the crude incidence rate was 7.75 events. Adjusting for age, study year, coexisting conditions, and clustering by practice, there were 1.07 fewer severe adverse events per 100,000 visits for treated vs. untreated patients, but this was not statistically significant.

None of the individual antibiotic classes showed any increased risk for these events. However, antibiotic treatment was associated with minor adverse events, with 55.58 extra events per 100,000 visits requiring outpatient followup. In the case of pneumonia hospitalizations, there were estimated to be 8.16 fewer hospitalizations per 100,000 visits for patients prescribed antibiotics, which was statistically significant. According to the researchers, 12,255 patients needed to be treated with antibiotics to prevent just 1 hospitalization for pneumonia.

The study was supported in part by AHRQ (HS16946).

See "Risks and benefits associated with antibiotic use for acute respiratory infections: A cohort study," by Sharon B. Meropol, M.D., Ph.D., A. Russell Localio, Ph.D., and Joshua P. Metlay, M.D., Ph.D., in the March/April 2013 *Annals of Family Medicine* 11(2), pp. 165-172. ■ *KB*

Readmission rates vary moderately from year to year, suggesting need for other measures of hospital care quality

Hospitals' annual readmission rates are not very stable, according to a new study. The importance for hospitals of their annual readmission rates (for specific conditions) began when the Centers for Medicare & Medicaid Services (CMS) began reporting these rates to consumers through the Hospital Compare Web site. Subsequently, a provision in the Affordable Care Act makes $500 million available to hospitals and community-based organizations to implement collaborative programs for reducing readmission rates. Finally, CMS is reducing payments to hospitals with higher-than-expected readmission rates.

Because of the growing importance of readmission rates to hospitals and patients, Andrew P. Ryan, Ph.D., of Weill Cornell Medical College in New York City, and his colleagues compared the change in readmission rate rankings (by quartile) for heart attack, heart failure, and pneumonia between 2009 and 2011. The researchers found that there was little difference between the lowest rate for heart attack readmissions among the fourth quartile ("worst") hospitals and the highest rate in the first quartile ("best") hospitals. In addition, only 49 percent of the 545 hospitals in the 2009 fourth quartile remained in that quartile in 2011, while 51 percent had moved into the first through third quartiles.

Similarly, among 564 hospitals in the first quartile for heart attack readmissions in 2009, 58 percent remained in that quartile in 2011, while 42 percent had moved to lower quartiles. The 2009–2011 changes in readmission rates for heart failure and pneumonia were similar. For all three conditions, many hospitals with higher-than-average readmission rates in 2009 showed somewhat improved rates in 2011 and many hospitals with lower-than-average readmission rates in 2009 showed somewhat worsened rates in 2011.

Teaching hospitals tended to have higher readmission rates than nonteaching hospitals. Also, the condition-specific readmission rates in 2011 correlated only weakly, or even negatively, with other recognized quality indicators for each condition, such as mortality rates. Based on their findings, the researchers suggest that policymakers consider augmenting the use of readmission rates with other measures of hospital performance during care transitions. The study was funded in part by AHRQ (HS13903).

More details are in "Limits of readmission rates in measuring hospital quality suggest the need for added metrics," by Matthew J. Press, M.D., M.Sc., Dennis P. Scanlon, Ph.D., M.A., Dr. Ryan, and others in the June 2013 *Health Affairs* 32(6), pp. 1083-1091. ■ *DIL*

Staff perception of infection prevention safety culture varies among hospitals

A hospital's perceived commitment to safety and quality improvements is its safety culture. Improving safety culture is complicated, as it involves individual and group values. A new study reveals that frontline health care technicians perceive they are not as engaged in hospital infection improvement efforts compared to other staff. Similarly, frontline technicians had lower perceptions of the adequacy of staffing and resources than administration. Nevertheless, most safety culture items did not vary by staff role or experience.

Instead, the safety culture related to infection control varies more by the hospital than by any particular staff position or the experience of individual employees. Therefore, the researchers conclude that safety education and interventions need to be tailored to the needs of individual hospitals rather than the professional role or experience level for individual staff.

The researchers surveyed staff, clinicians, and managers at 5 hospitals about their perceptions of their hospital's safety culture related to preventing infections. The 5 hospitals included four urban hospitals and one rural hospital across New England, the South and Middle Atlantic, and West North Central parts of the country. Staff perceptions of safety related to infection prevention were scored from 1 (strongly disagree) to 5 (strongly agree).

On average, each hospital completed 63 questionnaires. The majority who responded were nurses (38 percent), although about 10 percent were health care technicians (aides, medical technologists, and phlebotomists). Eleven of 14 mean scores were above 4.0. There were high scores for such things as practical things staff could do to prevent infections, washing hands before and after patient contact, and hospital monitoring of infections for quality improvement. The lowest scores centered on staffing coverage, inadequate resources to support patient safety, and better continuing education programs on infection control.

Administrators and quality leaders agreed more strongly than nurses and technicians that the hospital monitors infections to improve patient safety. However, nurses kept better posted on advances in patient safety compared to residents and interns. Staff with shorter tenure at their facilities agreed more strongly that there are practical things they can do to prevent infections compared to those staff with 20 years of more of employment. The study was supported by AHRQ (Contract No. 290-06-00015).

See "Does health care role and experience influence perception of safety culture related to preventing infections?, by Barbara I. Braun, Ph.D., Anthony D. Harris, M.D., M.P.H., Cheryl L. Richards, B.S., R.H.I.A., and others in the *American Journal of Infection Control* 41, pp. 638-641, 2013. ■ *KB*

Improved hospital work environment linked to less nurse burnout and job dissatisfaction

One way to alleviate nursing shortages is to promote organizational efforts that will improve nurse recruitment and retention. A new study examining survey data on nurse outcomes at 137 Pennsylvania hospitals between 1999 and 2006 found nurses' situations improving, with fewer nurses reporting burnout (42.2 vs. 37.6 percent), intention to leave (22.4 vs. 14.2 percent), and job dissatisfaction (40.7 vs. 31.5 percent). These changes in nurse outcomes were related to improvements in the work environment.

Over this same time period, four in 10 hospitals (39 percent) improved their nurse work environments while 33 percent worsened and 28 percent remained unchanged. The nurse work environment was measured using the Practice Environment Scale of the Nursing Work Index, a 31-item scale composed of

five subscales: staffing and resource adequacy; nurse manager ability, leadership, and support of nurses; collegial nurse-physician relations; nurse participation

continued on page 11

Hospital work environment

continued from page 10

in hospital affairs; and nursing foundations for quality of care. Nurses were surveyed on the degree to which each of 31 characteristics of better work environments was present in their current jobs.

More than 42,000 nurses (52 percent response rate) responded to the survey in 1999, while over 25,000 nurses (39 percent response rate) responded in 2006. This study was supported by AHRQ (HS18534).

See "Changes in hospital nurse work environments and nurse job outcomes: An analysis of panel data" by Ann Kutney-Lee, Ph.D., Evan S. Wu, B.S., Douglas M. Sloane, Ph.D., and Linda H. Aiken, Ph.D., in the *International Journal of Nursing Studies* 50, pp. 195-201, 2013. ■ *MWS*

Despite use of topical antimicrobial therapies for MRSA decolonization, resistance remains low

A current epidemic of skin abscesses associated with community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) strains has led physicians to consider two topical antimicrobial agents (mupirocin and chlorhexidine) to prevent recurrent skin infections in the outpatient setting. However, a new study found that although mupirocin resistance in *S. aureus* was infrequent in the patients studied, when present, it resulted in less successful eradication efforts in those patients.

Mupirocin and chlorhexidine have been widely used to prevent healthcare-associated MRSA infections in patients in intensive care, or who are undergoing surgery or dialysis. The researchers studied outcomes of patients with CA-MRSA skin and soft tissue infections, who were treated with a 5-day regimen of mupirocin and/or chlorhexidine. They recruited patients at least 6 months old who had community-onset skin and soft tissue infections from the emergency departments of pediatric and adult tertiary hospitals and 9 pediatric practices associated with a practice-based research network in St. Louis, MO.

The overall prevalence of resistant strains was low—2.1 percent for mupirocin (23/1,089 patients) and 0.9 percent for chlorhexidine (10/1,089 patients). However, patients with a mupirocin-resistant strain were significantly more likely to remain colonized with the bacteria after using the mupirocin for the 5-day regimen. Four patients found to carry mupirocin-resistant strains of *S. aureus* at baseline (that is, before decolonizing treatment with the drug) remained colonized with *S. aureus* after 1 month, in contrast to successful decolonization in 66 percent of 324 patients carrying mupirocin-sensitive strains at baseline.

The percentages of patients with baseline chlorhexidine-resistant and baseline chlorhexidine-susceptible *S. aureus* colonized after 1 month were equivalent (50 percent and 48 percent, respectively). Finally, the researchers noted that the mupirocin- and chlorhexidine-resistant strains of *S. aureus* were not derived from a single clonal type. Rather, 16 different strain types were detected among 113 CA-MRSA isolates resistant to mupirocin and/or chlorhexidine. The study was funded in part by AHRQ (HS21736).

More details are in "Mupirocin and chlorhexidine resistance in *Staphylococcus aureus* in patients with community-onset skin and soft tissue infections," by Stephanie A. Fritz, M.D., M.S.C.I., Patrick G. Hogan, M.P.H., Bernard C. Camins, M.D., M.Sc., and others in *Antimicrobial Agents and Chemotherapy* 57(1), pp. 559-568, 2013. *DIL*

■ ■ ■

Biological drug offers multiple sclerosis patients fewer relapses and improved quality of life, despite some risks

A new study of three disease-modifying therapies (DMTs) approved by the U.S. Food and Drug Administration (FDA) for use in patients with relapsing-remitting multiple sclerosis (RRMS) finds that natalizumab reduces the number of relapses and increases the patients' quality-adjusted life years (QALYs) when compared with a commonly prescribed DMT, (glatiramer acetate [GA]). Fingolimod, an oral DMT approved by the FDA in 2010, was also compared to the other two DMTs. The study took into account that natalizumab is associated with a risk of a virus-related brain disease, progressive multifocal leukoencephalopathy (PML).

PML is an often fatal brain disease caused by reactivation of a common human virus (polyomavirus JC, also known as JC virus), which is found in 70–90 percent of the world population. The reactivated virus can cross the blood-brain barrier to cause progressive inflammation of the brain and damage to myelinated nerve fibers. The researchers undertook the study because randomized clinical trials typically follow patients for 1–2 years, and do not allow comparison of the average long-term (20-year) risks and benefits for each drug. To simulate 20-year outcomes of PML and other risks, benefits, and QALYs, the researchers used published data on the natural history of RRMS in patients without antibodies to JC virus, as well as treatment effects in such patients for each drug (from clinical trials)—on disease progression and relapse rates, PML risks, and utility preference scores.

In comparing the model's 20-year outcomes for the three drugs pairwise, the researchers estimated that compared to GA, natalizumab resulted in 4.6 fewer relapses, 0.6 more years of disability-free time, 0.0165 cases of PML per patient treated, and an incremental 1.2 QALYs gained. Compared with fingolimod, Natalizumab resulted in 1.7 fewer relapses, 0.1 more years of disability-free time, 0.0165 more cases of PML per patient treated, and a gain of 0.4 QALYs. The comparison against fingolimod did not result in statistical significance. These findings suggest that, on average, the benefits of natalizumab outweigh its risks when compared with the other two DMTs. The study was funded in part by AHRQ (HS19464).

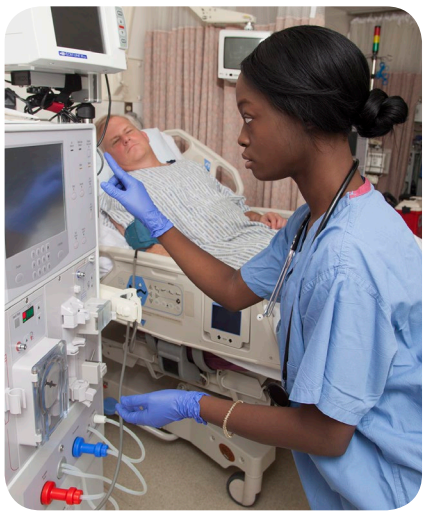
More details are in "Comparative effectiveness of early natalizumab treatment in JC virus-negative relapsing-remitting multiple sclerosis," by Jonathan D. Campbell, Ph.D., R. Brett McQueen, Ph.D., Augusto Miravalle, M.D., and others in the April 2013 *American Journal of Managed Care* 19(4), pp. 278-285. ■ *DIL*

The VA uses its own and outsourced dialysis facilities for growing number of veterans with end-stage renal disease

Around 35,000 veterans enrolled in the Veterans Health Administration (VA) have end-stage renal disease (ESRD). To serve its veterans seeking dialysis care for ESRD, the VA operates 74 hospital-based dialysis units that provide both inpatient and outpatient treatments. The VA also relies on a network of non-VA facilities to provide outsourced dialysis care. Costs for the portion of the VA's dialysis care that is outsourced have risen much faster than VA's in-house treatment costs. A new study shows that patient outcomes (one-year hospitalizations and mortality) also differed by type of setting.

The study included veterans in two VA regions who received chronic dialysis care financed by the VA between January 2007 and December 2008. Of 1,388 veterans, 27 percent of whom received dialysis exclusively in the VA, 47 percent in VA-outsourced settings, and 25 percent in dual settings, 48

continued on page 13



Dialysis facilities

continued from page 12

percent were hospitalized and 12 percent died.

Veterans in VA-outsourced settings were less complex, less likely to be hospitalized, and had shorter hospital stays than veterans receiving dialysis at VA sites. Dual-system dialysis patients had similar likelihood of hospitalization but lower one-year mortality than veterans receiving VA dialysis.

Based on their results, the researchers believe the VA should carefully consider options to reorganize care and improve patient access to care for a growing veteran population with ESRD.

This study was supported by AHRQ (HS19479).

See "Comparison of outcomes for veterans receiving dialysis care from VA and non-VA providers," by Virginia Wang, Ph.D., Matthew L. Maciejewski, Ph.D., Uptal D. Patel, M.D., and others in the *BMC Health Services Research* 13(26), pp. 1-9, 2013. ■ *MWS*

Some blacks with chronic kidney disease are at particularly high risk for adverse outcomes

Blacks with chronic kidney disease (CKD) have worse outcomes if they have high levels of protein in their urine (proteinuria) and low glomerular filtration rates (GFRs), according to a new study. Previous studies have shown that blacks in the United States have rates of progression from CKD to end-stage renal disease (ESRD) that are 3.5 times higher than the progression rates for whites. Some of this difference in CKD progression is related to known risk factors that are more prevalent in blacks (proteinuria, hypertension, lower socioeconomic status, coronary disease, and high serum cholesterol).

After controlling for other known risk factors, the researchers examined whether a patient's GFR level changed the relationship between proteinuria and CKD progression or death. They looked at 1,094 black patients with high blood pressure and GFR between 20 and 65 mL/minute per 1.73 m^2—603 with high baseline GFR (at least 45 mL/min per 1.73 m^2) and 491 with low baseline GFR (less than 45 mL/min per 1.73 m^2). These individuals were enrolled in the African American Study of Kidney Disease.

A clinical composite outcome (death, GFR decline, progression to ESRD) was more common among patients with low versus high baseline GFR (44.9 vs. 9.9 percent). A renal composite outcome (GFR decline or ESRD) also appeared more often in the patients with lower baseline GFR than those with higher baseline GFR (36 vs. 13.8 percent). The risk of the clinical composite outcome with a doubling of proteinuria was increased by 30 percent with a GFR of 50 mL/min per 1.73 m^2 versus 55 percent for a GFR of 25. The study was funded in part by AHRQ (HS19178).

More details are in "Interaction between GFR and risk factors for morbidity and mortality in African Americans with CKD," by Kevin F. Erickson, M.D., Janice Lea, M.D., M.S.C.R., and William M. McClellan, M.D., M.P.H., in the *Clinical Journal of the American Society of Nephrology* 8(1), pp. 75-81, 2013. ■ *DIL*

HIV-infected patients with higher levels of patient activation are more likely to exhibit viral suppression

In the early years of the AIDS epidemic, the concept of patient activation for persons infected with HIV was involvement in demonstrations to push for more resources to cure or prevent the disease. Today, with effective treatments that keep the infection from progressing to AIDS, patient activation is still important—but on the personal level, according to a new study. Specifically, the higher the patient's level of activation, as measured by a 13-item questionnaire (the Patient Activation Measure, or PAM), the higher their count of CD4 white blood cells (indicating a stronger immune system) and the lower the concentration of HIV RNA in their blood.

The concept of patient activation in the study comes from the widely adopted Chronic Care Model, which has as one of its underpinnings that the degree of a patient's belief, knowledge, skill, and confidence to manage his or her own disease is critical to achieving optimal health outcomes. The researchers found that the overall level of patient activation was high among 443 patients receiving care at four HIV

continued on page 14

Viral suppression

continued from page 13

clinics, with a mean PAM score of 72.3 (on a scale of 0–100).

Patients without a high school diploma had significantly lower activation scores than high school graduates (68 vs. 74), as did the most depressed third of patients (68.1) compared with the middle third (70.2) and the least depressed (77.6). After adjustment for other possible risk factors, each 5-point increase in PAM score was associated with a 10 percent higher likelihood of a high CD4 count (above 200 cells/mL), an 18 percent greater likelihood of adherence to the drug regimen, and an 8 percent increase in viral suppression (less than 400 copies of HIV RNA/mL). Further statistical tests indicated that the effect of PAM score was mediated by the greater adherence to medication. The study was funded in part by AHRQ (Contract No. 290-01-0012 and grant HS13903).

More details are in "Patient activation and improved outcomes in HIV-infected patients," by Rebecca Marshall, M.D., M.P.H., Mary Catherine Beach, M.D., M.P.H., Samnath Saha, M.D., M.P.H., and others in the May 2013 *Journal of General Internal Medicine* 28(5), pp. 668-674. ■ *DIL*

Social marketing campaign may not improve adherence to antiretroviral therapy

A variety of educational efforts are used to improve medication adherence among individuals with HIV infection. Despite these efforts, adherence to antiretroviral therapy is difficult and remains suboptimal for a number of patients. Social marketing interventions are now being used to change behavior by appealing to cultural sensibilities, group identity, and social norms. A new study measured the results of a 5-month, clinic-wide, social marketing campaign designed to improve medication adherence in this group. The intervention did not increase adherence levels over the short term. However, those individuals who were more engaged in the campaign did experience some increases in adherence.

First, 31 clinic patients were asked to participate in focus groups, where they worked on possible slogans, materials, and ideas for the social marketing campaign. The input resulted in a campaign that was peer-to-peer in its approach, had positive messages, and used multimedia elements at the clinic. The campaign was called "Live the Solution: Take Your Pills Every Day." Mentors were videotaped sharing their stories about how they became successful with adherence, and the video was played on the televisions in the clinics' waiting rooms about 3 times a day. Other elements included posters, pens, mugs, and slogan lapel buttons for staff to wear. To evaluate the impact of the intervention, 141 participants self-reported their medication adherence over a 4-week period, and responded to pre- and post-campaign surveys.

Most participants had positive impressions of the campaign, including the video and posters. The majority (86 percent) said the intervention made it "easy" to take pills every day. However, self-reported adherence did not improve. Adherence actually declined more for patients with more than 3 visits to the clinic compared to those with less than 3 visits. No significant differences in adherence were noted based on exposure to individual campaign elements. Participants who correctly identified the campaign's slogan and who were more engaged, however, had some small non-significant increases in adherence. Future social marketing campaigns aimed at adherence may need to include take-home components and broader interventions to make them successful. The study was supported in part by AHRQ (HS16093).

See "Effect of a clinic-wide social marketing campaign to improve adherence to antiretroviral therapy for HIV infection," by Thomas P. Giordano, M.D., M.P.H., Sonia Rodriguez, B.S., Hong Zhang, Ph.D., and others in *AIDS Behavior* 17, pp. 104-112, 2013. *KB*

■ ■ ■

Loss of bone mineral density over time is associated with progressive cartilage loss in osteoarthritic knees

General bone health appears to influence the ability of bone to stabilize the knee joint affected by osteoarthritis (OA). In fact, a new study reveals that, as bone mineral density (BMD), a measure of bone health, is lost, it is accompanied by progressive cartilage loss in the knee. Researchers investigated the relationship between BMD changes and the progression of knee OA in 127 patients with knee OA. At baseline, year 1, and year 2, each individual had their BMD measured at the hip by a DXA scanner. During these same time points, magnetic resonance imaging (MRI) was used to measure cartilage volume and thickness in the knee joint.

The average baseline BMD was 0.95 gm/cm^2 and the change in BMD per year was -0.004 gm/cm^2. A BMD loss of 0.1 gm/cm^2 was associated with a cartilage volume loss of 1.25 percent each year. Patients with greater BMD loss (greater than the Least Significant Change) lost an average of 1.02 percent more cartilage volume per year compared to patients with no BMD loss.

BMD loss also affected femoral and tibial cartilage thickness. A BMD loss of 0.1 gm/cm^2 resulted in a tibial cartilage thickness loss of 0.028 mm each year. Patients with greater BMD loss (greater than the Least Significant Change) lost an average of 0.021 mm more tibial cartilage thickness per year compared to patients without BMD loss.

The researchers call for more research to determine the biologic mechanism behind the relationship between BMD loss and cartilage loss in knees with OA. The study was supported in part by AHRQ (T32 HS00060).

See "Relationship of bone mineral density to progression of knee osteoarthritis," by Ji Y. Lee, M.D., M.S., William F. Harvey, M.D., M.Sc., Lori L. Price, M.A.S., and others in the June 2013 *Arthritis & Rheumatism* 65(6), pp. 1541-1546. ■ *KB*

Disparities/Minority Health

Behavioral incentives can help nutritional assistance program recipients make healthier food choices

Obesity rates continue to rise, especially in children. In addition, lower-income individuals have a disproportionately higher rate of obesity. Formerly known as the Food Stamps Program, the Supplemental Nutrition Assistance Program (SNAP) is one way to improve nutrition in this group. However, it was not designed to encourage recipients to eat healthier. In a recent paper, researchers propose innovative changes in SNAP to help combat rising obesity rates. Their three new delivery options are based on behavioral economic insights and encourage SNAP recipients to select higher-quality foods.

The first proposal involves rewarding healthy purchases with more SNAP funds in the form of cash-back incentives for qualifying foods. This has already been piloted in Massachusetts. The researchers propose that the extra funds be added to the electronic benefits transfer card in the following month. This would foster more healthy purchases in later months. A maximum reward would be set. Recipients would need

to maintain a preset level of purchases in order to keep their maximum bonus award.

A second proposal uses raffles that SNAP recipients can enter and win prizes after a specific number of

continued on page 16

Food choices

continued from page 15

qualifying purchases. Prizes would include such things as healthy cooking classes, cooking equipment, gym memberships, and family activities. The third proposal would help individuals resist temptations to purchase unhealthy foods in the store. It involves selecting foods from a list and then having the store fill the order for quick pick up or home delivery. Grocery home delivery is starting to get some traction in some low-income areas of New York City, but this is not linked with behavioral economic interventions. These three proposals can encourage the consumption of nutritious foods while at the same time fostering more ideas that can make SNAP a healthier program, suggest the authors. Their study was supported in part by AHRQ (HS17589).

See "Rewarding healthy food choices in SNAP: Behavioral economic applications," by Michael R. Richards, Ph.D. (cand.) and Jody L. Sindelar, Ph.D., in *The Millbank Quarterly* 91(2), pp. 395-412, 2013. ■ *KB*

Racial-ethnic differences exist in use of asthma controller medications

Asthma is a common chronic disease in children. Treatment guidelines and new medications have improved asthma care. Most patients use a controller on a daily basis to reduce airway inflammation and the onset of symptoms such as tight chest and breathing difficulty. Black and Hispanic children are less likely to use controllers compared to white children, concludes a study by AHRQ researchers, Eric M. Sarpong, Ph.D., and G. Edward Miller, Ph.D.

They examined racial and ethnic differences in asthma controller use among insured children by analyzing data on 853 white children, 646 black children, and 665 Hispanic children with asthma between 2005 and 2008. Census data provided additional socioeconomic information. Children were identified who used controller medications any time during the year.

Black children (8.5 percent) were more likely than white (6.3 percent) and Hispanic children (5.8 percent) to be treated for asthma. However, among children who were treated for asthma, only 44.1 percent of blacks and 49.8 percent of Hispanics used controllers on a consistent basis compared to 67.9 percent of whites. In addition, publicly insured white children (59.6 percent) were significantly less likely to use controllers than their privately insured counterparts (70.3 percent).

Characteristics associated with controller use include younger children, living with native parents, living in neighborhoods where at least 1 percent receives public assistance, living with married parents, having fair or poor health, and receiving treatment for allergies. Factors associated with poor controller use include black race-ethnicity, female, living in places where at least 1 percent have incomplete plumbing facilities, and living in low-income households.

The researchers call for additional interventions to improve awareness of asthma treatment options, increase the demand for recommended asthma medications, and reduce the costs of care for low-income families.

See "Racial and ethnic differences in childhood asthma treatment in the United States," by Drs. Sarpong and Miller in the December 2013 *HSR: Health Services Research* 48(6,pt1), pp. 2014-2036. *KB*

■ ■ ■

Wait times for substance abuse treatment affected by race and other factors

Due to the often long wait for individuals to get into substance abuse treatment programs, many are likely to drop out before they actually receive treatment. Being black, referred by the criminal justice system, and receiving methadone increases one's chances of waiting longer than a month to enter treatment. Conversely, having a diagnosis of HIV/AIDS is linked to a lower likelihood of waiting more than one month, according to a new study.

Christina M. Andrews, M.S.W., and colleagues at the University of Chicago examined client and treatment program characteristics associated with wait times of 1 month or longer in a national sample of 2,920 clients from 57 substance abuse treatment programs in urban areas across the United States. They found that nearly 30 percent of clients waited more than 1 month to enter treatment after making an initial request for services.

Only one program-level characteristic was associated with outcome. Clients entering methadone maintenance were almost three times more likely than clients entering outpatient programs to wait more than a month to enter substance abuse treatment.

Clients with more severe substance use problems got treatment more quickly. But, it is unclear whether this is related to some aspect of motivation or availability on the part of the client, or a process of formal or informal triaging on the part of the treatment programs. The study was supported in part by AHRQ (T32 HS00084).

See "Client and program characteristics associated with wait time to substance abuse treatment entry," by Christina M. Andrews, M.S.W., Hee-Choon Shin, Ph.D., Jeanne C. Marsh, Ph.D., and Dingcai Cao, Ph.D., in the *American Journal of Drug and Alcohol Abuse* 39(1), pp. 61-68, 2013. ■ *MWS*

Population factors explain most between-State disparities in rates of gestational diabetes

Gestational diabetes mellitus (GDM) rates, adjusted for age and race, varied twofold among a sample of 23 States—from 3.47 cases per 100 deliveries in Utah to 7.15 cases per 100 deliveries in Rhode Island, according to a new study. Diabetes is one of the most common complications of pregnancy in the United States, with the incidence varying between the country's various racial and ethnic groups. However, since much health care planning and program implementation takes place at the State level, AHRQ researcher Anne Elixhauser, Ph.D., and coinvestigators wanted to obtain information on GDM prevalence by State in a wider variety of population subgroups.

They analyzed data from AHRQ's Healthcare Cost and Utilization Project 2008 State Inpatient Databases on GDM rates among women in different racial/ethnic groups, between distinct 5-year age groups (for the range 15–44 years old), between quartiles of State median household income (by patient Zip Code), by type of hospital (number of beds, ownership type, rural versus urban), and by type of insurance. Based on approximately 1.8 million deliveries in the 23 States during 2008, mean age-adjusted GDM rates were higher for Asians and Hispanics (8.14 and 7.02 cases per 100 deliveries, respectively) than for whites and blacks (4.40 and 5.30 cases per 100 deliveries, respectively).

Overall, the individual-, hospital-, and State-level characteristics accounted for 86.1 percent of the between-State variability in GDM rates, with individual-level characteristics accounting for 35.3 percent of the variability (14.7 percent by age group, 11.8 percent by race or ethnicity, and 5.9 percent by type of insurance).

continued on page 18

Gestational diabetes

continued from page 15

State-level characteristics accounted for another 33.2 percent of the variability, primarily due to the variability in prevalence of obese women (27.4 percent of between-State variability). In contrast, hospital-level characteristics accounted for only 17.6 percent of the variability.

More details are in "Variation in prevalence of gestational diabetes mellitus among hospital discharges for obstetric delivery across 23 states in the United States," by Barbara H. Bardenheier, Ph.D., M.P.H., M.A., Dr. Elixhauser, Giuseppina Imperatore, M.D., Ph.D., and others in the May 2013 *Diabetes Care* 36(5), pp. 1209-1214. ■ *DIL*

Health Care Costs and Financing

Medicare Part D prescription drug coverage boosts use of antidementia drugs

Medicare beneficiaries whose prescription drug coverage improved with the introduction of Medicare Part D in 2006 were more likely to fill prescriptions for cholinesterase inhibitors or memantine, which are known to slow the progression of dementia, a new study reports. Dementia affects over 5 million people in the United States, including 1 in 8 adults at least 65 years old. Although these antidementia drugs slow the rate of cognitive decline, they do not reverse the effects of the disease. This lack of reversal suggests that they are not effective in treating persons with advanced disease, even though up to 30 percent of the use of these medications is for nursing home residents with severe dementia.

The researchers compared the use of the antidementia drugs each year and the number of 30-day prescriptions filled for these drugs by persons age 65 or older continuously enrolled in a Medicare Advantage (managed care) plan from 2004 to 2007. They did the comparison by the type of pharmacy drug benefit enrolled in prior to Medicare Part D: no coverage, a quarterly benefit cap of $150, of $350, or no quarterly benefit cap (reference group).

After Part D went into effect, beneficiaries who previously had no coverage showed a 38 percent increase in the likelihood of using antidementia medication, relative to the no quarterly benefit cap ("no cap") group. All of the coverage groups significantly increased the number of filled 30-day antidementia drug prescriptions over the period of study. Among beneficiaries who filled prescriptions for antidementia drugs before Part D became effective, the "no coverage" group increased filling prescriptions by 36 percent and the "$350 cap" group showed a 15 percent increase. The findings were based on pharmacy, inpatient, and outpatient medical claims data for patients in a Medicare Advantage plan offered by a large insurer in Pennsylvania. The study was funded in part by AHRQ (HS19461).

More details are in "The impact of Medicare prescription drug coverage on the use of antidementia drugs," by Nicole R. Fowler, Ph.D., M.H.S.A., Yi-Fan Chen, Ph.D., Christina A. Thurton, Ph.D., and others in the April 2013 *BMC Geriatrics* 13(37), 9 pp. ■ *DIL*

■ ■ ■

The ambulatory care cost benefits of integrated delivery systems may not extend to inpatient surgery

Accountable care organizations (ACOs), an important part of the Affordable Care Act, may not produce the same degree of savings for inpatient surgery that is found for integrated delivery systems (IDSs)—a type of ACO becoming common in ambulatory care, according to a new study by David C. Miller, M.D., M.P.H., and colleagues at the University of Michigan, Ann Arbor. They conclude that the ambulatory care benefits of the IDSs may not extend to inpatient surgery.

The study found that patients who had surgery (coronary artery bypass graft [CABG], hip replacement, back surgery, or colectomy) at IDS-affiliated and non-IDS-affiliated hospitals did not differ significantly in mortality, complications, or readmissions. The exception was significantly lower readmissions for patients who underwent colectomy at an IDS-affiliated hospital compared with a non-IDS-affiliated hospital (12.6 vs. 13.5 percent).

When the researchers accounted for differences in patient demographics and illness severity, they found that total-episode Medicare payments were slightly lower in IDS-affiliated than non-IDS-affiliated hospitals for CABG, back surgery, and colectomy, and were significantly lower (by $932, or 4 percent) for hip surgery in an IDS-affiliated hospital. Most of the cost differences between the two types of hospitals came from physician services and postdischarge care.

The findings were based on analysis of data on Medicare beneficiaries who underwent one of the four selected surgeries during a 35-month period (January 2005–November 2007). Identification of IDS-affiliated and -nonaffiliated hospitals was done annually through the use of a commercial database. The study was funded in part by AHRQ (HS18346).

More details are in "Anticipating the effects of accountable care organizations for inpatient surgery," by Dr. Miller, Zaojun Ye, M.S., Cathryn Gust, M.S., and others in the June 2013 *Journal of the American Medical Association/ Surgery* 148(6), pp. 549-554. ■ *DIL*

Women's Health

Women with breast cancer more likely to have sentinel lymph node biopsy if physician affiliated with community oncology program

Practice-based research networks (PBRNs) are research partnerships between academic researchers and community-based practitioners. Their goal is to expedite research by providing greater access to larger and more diverse populations. As a result, patients can benefit from cutting-edge discoveries in treatment and care. One area where PBRNs are making a difference is in the treatment of breast cancer.

A recent study found that women treated by physicians affiliated with PBRNs are more likely to undergo sentinel lymph node biopsy (SLNB). These are lymph nodes close to the tumor rather than farther away, such as under the arm. These biopsies are associated with equivalent survival and lower morbidity compared with standard axillary lymph node dissection (ALND). ALND can have a devastating effect on women, including arm swelling and other morbidities.

Anne-Marie Meyer, Ph.D., and colleagues at the University of North Carolina at Chapel Hill, examined women undergoing SLNB in a National Cancer Institute's Community Clinical Oncology Program (CCOP), a cancer-focused PBRN. SEER-Medicare linked data provided information on 17,177 women who received care for stage I or II breast cancer. All received breast-conserving surgery. Those undergoing SLNB and ALND were identified using ICD-9 procedure codes. A total of 874 patients received care from 84 providers affiliated with CCOPs.

The majority of women (95 percent) received care outside of CCOPs. Of the 874 women who were CCOP patients, 770 received SLNB. These women were also more likely to receive SLNB through the study period from 2000 to 2005. Women receiving SLNB at

continued on page 20

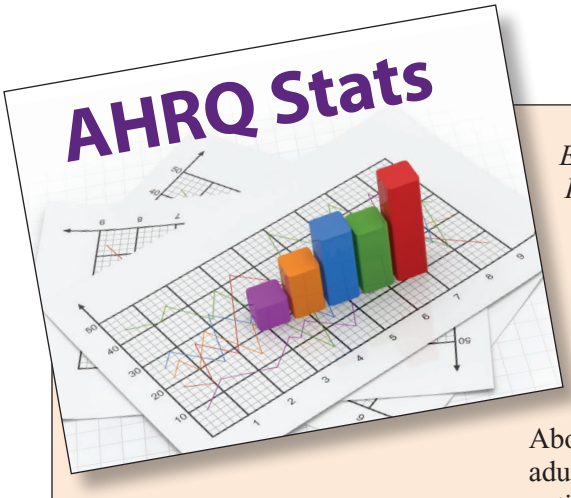
Breast cancer

continued from page 19

CCOPs increased from 73 percent to 96 percent. The researchers found that the odds of receiving SLNB from a CCOP physician were nearly 2.7 times that of non-CCOP women. These odds were also significantly increased when the woman received treatment at a medical school-affiliated hospital.

Factors associated with receiving SLNB included having lower stage disease and better-differentiated tumors. Those less likely to have SLNB included women who were black, over 80 years of age, and those with lower socioeconomic status. The study was supported in part by AHRQ (HS19468).

See "Differential receipt of sentinel lymph node biopsy within practice-based research networks," by Anne-Marie Meyer, Ph.D., Katherine E. Reeder-Hayes, M.D., M.B.A., Huan Liu, M.S., and others, in the September 2013 *Medical Care* 51(9), pp. 812-818. ■ *KB*



Most common causes of hospital adverse drug events

In 2011, the most common causes of adverse drug events originating during a hospital stay were steroids, antibiotics, opiates/narcotics, and anticoagulants. (Source: *AHRQ Healthcare Cost and Utilization Project Statistical Brief #164: Characteristics of Adverse Drug Events Originating During the Hospital Stay, 2011*, available at www.hcup-us.ahrq.gov/reports/statbriefs/sb164.jsp).

Top outpatient prescription drugs for adults

About one-third of the U.S. adult population purchased anticonvulsants, analgesics, and other drugs for central nervous system conditions in 2010. (Source: AHRQ *Medical Expenditure Panel Survey Statistical Brief #410: Expenditures for the Top Five Therapeutic Classes of Outpatient Prescription Drugs, Adults Age 18 and Older, U.S. Civilian Noninstitutionalized Population, 2010*, available at http://go.usa.gov/ZjbT.

Potentially preventable hospital admissions decline

The total number of potentially preventable hospital admissions for adults and children decreased by 6.2 percent and nearly 40 percent, respectively, between 2005 and 2010. The corresponding total hospital costs for adult and pediatric conditions decreased 2 percent and 32 percent, respectively. (Source: *AHRQ Healthcare Cost and Utilization Project Statistical Brief #151: Trends in Potentially Preventable Hospital Admissions Among Adults and Children, 2005–2010*, which is available at http://www.hcup-us.ahrq.gov/reports/statbriefs/sb151.jsp.

■ ■ ■

Public health may benefit from computer-based clinical decision support

A variety of issues needs to be resolved to effectively implement two-way communication between public health officials and clinicians treating patients who may be affected by a public health threat such as a newly discovered contaminant in the water supply affecting neighborhoods near a clinic. That's the conclusion of a systematic review of the topic by Brian E. Dixon, M.P.A., Ph.D., of Indiana University and the Regenstrief Institute in Indianapolis, and his colleagues. They analyzed 10 papers with sufficient evidence that were published between 2001 and 2011. Of these, four focused on Internet dissemination of public health information through a bidirectional, Web-based health alert network (HAN) and six focused on approaches using electronic health records (EHRs). The HAN articles discussed use of a Web-based portal to facilitate two-way communication between public health workers who have recognized an emerging public health event and clinicians who can query about whether de-identified cases meet the criteria.

The six EHR papers looked at the design and implementation of a communications system that allows alerts (and recommended diagnostic actions) to be incorporated into a hospital or outpatient clinic EHR's clinical decision support (CDS) function, and perhaps provide access to a knowledge base of alerts created by various public health organizations. For instance, in the example of the contaminated water supply, which puts patients at risk of waterborne illness, an alert might suggest ordering stool samples of patients who have gastrointestinal symptoms.

Dr. Dixon and his colleagues conclude that these approaches are promising, but more research is needed on possible information architectures, approaches to semantic and system interoperability, governance (including both the public health and clinical communities), and usability. Specific instances of public health threats dealt with by HAN or EHR CDS are described and referenced by the authors. The review was funded in part by AHRQ (HS20909).

More details are in "Toward public health decision support: A systematic review of bidirectional communication approaches," by Dr. Dixon, Roland E. Gamache, Ph.D., M.B.A., and Shaun J. Grannis, M.D., M.S., in the May/June 2013 *Journal of the American Medical Informatics Association* 20(3), pp. 577-583. *DIL*

Demonstration project uses public deliberation methods to obtain informed public opinion on complex health issues

A new demonstration project shows that public deliberation is a promising way to obtain people's informed opinion about complicated health care issues. AHRQ, like many organizations interested in improving health, would like to capture the public voice on complex and value-laden health issues for which the "off-the-cuff" responses obtained through surveys and focus groups are not always appropriate. In public deliberation, members of the public are given balanced information on an issue and then convened to discuss the information, learn from others, examine and refine their own views, and give their opinions.

The demonstration shows the public's capacity to apply evidence, view health care issues from a societal perspective, and often to prioritize societal needs over personal needs. Deliberative methods are feasible and effective, and they have similar effects across the spectrum of race, ethnicity, age, and educational attainment. Several types of deliberative methods were tested and compared with a group who were given reading materials but did not meet for discussion. The deliberative methods varied in the size of the group, whether facilitation was active or minimal, whether meetings were in person or online, the number of meetings, and cost.

All the deliberative methods were effective, but less intensive methods may be more suited to less complex topics. Compared with the reading-only group, members of all deliberative methods groups combined gained knowledge of medical issues and concepts related to health care, using medical evidence, and comparative effectiveness research, and demonstrated a shift in attitudes on a number of subjects.

One purpose of the deliberative methods demonstration project was to obtain informed public views about questions central to the mission of AHRQ's research

programs regarding appropriate and acceptable ways to use evidence. Topics included the tradeoffs in seeking care at a hypothetical regional versus lower-performing local hospital; use of inappropriate antibiotics for upper respiratory infection, and the link between inappropriate antibiotic use and methicillin-resistant *Staphylococcus aureus*; the relevance of evidence in choices for treating coronary artery disease; and obesity management. The participants had strong core values of individual freedom and personal choice, which were tempered in varying degrees by concern for the greater good and perceptions of fairness. Evidence of physical or economic harm to some individuals or the community led to increased acceptance of some limits on decisionmaking. Members of the public respect research evidence but express concerns about its limitations.

The Deliberative Methods Demonstration Project is part of the AHRQ Community Forum, whose purpose is to improve and expand public and stakeholder engagement in AHRQ's Effective Health Care Program. ■

Report shows that health information technology can improve care for those with complex health care needs

Providing patients and clinicians with information and support using health information technology (IT) is effective in improving care outcomes and quality, according to a new AHRQ report. The "Findings and Lessons From the Improving Management of Individuals with Complex Health Care Needs Through Health IT Grant Initiative" documents the findings of more than 10 research projects that investigated how health IT applications can support shared-decisionmaking and communication during care transitions, as well as facilitate secure exchange of information across multiple settings of care. Several studies showed positive impacts on process, intermediate, health, and economic outcomes. You can access the report at http://healthit.ahrq.gov/asqmcpreport.

AHRQ research explores impact of self-management support

AHRQ has awarded a 2-year, $500,000 grant to the Oregon Rural Practice-Based Research Network to implement self-management support tools with patients and health care practices. Self-management support assists patients and providers by promoting and delivering education to increase patients' skills to cope with the burden of chronic illness. The study will assess the impact of self-management support tools on patients and their health care teams, and aims to identify factors associated with successful implementation of self-management programs in primary care. You can access AHRQ's library of self-management support resources at www.orau.gov/ahrq/sms_home.html.To learn more about Practice-based Research Networks, select www.pbrn.ahrq.gov.

New atlas fills need for measuring integrated behavioral health care

As greater numbers of primary care organizations implement integrated behavioral health services, there is a growing need to measure the extent to which integrated behavioral health care is being provided. The 2013 *Atlas of Integrated Behavioral Health Care Quality Measures* helps primary care organizations and researchers identify and assess quality measures for integrating behavioral health care. It was developed by AHRQ's Academy for Integrating Behavioral Health and Primary Care and features nine core measures that describe specific characteristics, actions, and selected outcomes of integrated care. All measures were chosen based on criteria established by a panel of experts. New measures will be added as they become available.

New AHRQ tools help assess and improve medication safety in community pharmacies and outpatient settings

Three new online resources funded by AHRQ and developed by the Institute for Safe Medication Practices can help community pharmacies and outpatient settings improve medication safety and protect patients from the adverse effects of medication errors:

- **High-Alert Medications Consumer Leaflets**—Patient-education checklists developed during a study of the impact of community pharmacies that counseled consumers who picked up prescriptions for certain high-alert medications, including warfarin, fentanyl patches, and more.
- **Assessing Barcode Verification System Readiness in Community Pharmacies**—A free tool that helps community pharmacies assess their readiness and prepare for future implementation of a barcode product verification system.
- **High-Alert Medication Modeling and Error-Reduction Scorecards (HAMMERS™)**—A free tool designed to help community pharmacies identify their unique set of system and behavioral risks associated with dispensing certain high-alert medications. Pharmacies use a series of scorecards to estimate how often prescribing and dispensing errors reach patients and assess how

continued on page 24

continued from page 23

the frequency will change if certain interventions are implemented. You can access these tools at (www.ismp.org/AHRQ).

AHRQ review evaluates treatment scenarios in patients with unstable angina/non-ST elevation myocardial infarction

A new AHRQ research review evaluates the effectiveness and safety of antiplatelet and anticoagulant medications used in three treatment scenarios for patients with unstable angina/non-ST elevation myocardial infarction (UA/NSTEMI). The treatment scenarios include an early invasive approach, an initial conservative approach, and treatment after hospitalization (postdischarge).

Treatment of patients with UA/NSTEMI with an early invasive or percutaneous coronary intervention (PCI)-based strategy, precatheterization treatment with glycoprotein IIb/IIIa inhibitors (GPIs), does not improve ischemic endpoints, but is associated with lower rates of revascularization. However, there is a higher risk of major bleeding at 30 days with this strategy than occurs with both pretreatment and deferred clopidogrel administration.

The review also finds that in patients undergoing an initial conservative approach, the anticoagulant enoxaparin reduces ischemic events, with no difference in the rate of major bleeding, compared with unfractionated heparin at around 30 days. The addition of GPIs to unfractionated heparin reduced the rate of mortality up to 30 days, but minor bleeding rates were increased.

Finally, in UA/NSTEMI patients receiving postdischarge treatment, dual antiplatelet therapy reduces the rates of composite ischemic outcomes and nonfatal myocardial infarction compared with single antiplatelet therapy.

Uncertainty remains about the optimal dosing, timing, duration, and treatment combinations, especially in subpopulations of interest (e.g., the elderly, diabetics, women, obese patients, and people with coexisting conditions). Inconsistencies in the small number of studies that were eligible for inclusion in this review limit the applicability of findings.

Further research is needed to determine the effectiveness and safety of newer agents in combination with other antiplatelet and anticoagulant treatment strategies. These findings and others can be found in the research review *Antiplatelet and Anticoagulant Treatments for Unstable Angina/Non-ST Elevation Myocardial Infarction*, which is available at http://go.usa.gov/Zjkh.

Multicomponent dissemination strategies better at encouraging use of health-related evidence

A new research review from AHRQ's Effective Health Care Program finds that multicomponent dissemination strategies that address a combination of reach, ability, or motivation, appear to be more effective than one strategy alone in affecting change in clinicians' behaviors, particularly clinician guideline adherence. However, there is insufficient evidence to determine the comparative effectiveness of various dissemination strategies.

The report does recommend that clear communication and active dissemination of evidence to all relevant audiences in easy-to-understand formats are critical to increase awareness, consideration, adoption, and use of health-related evidence. Specific factual statements (e.g., "It takes time to establish the safety...") and advice ("Ask for the drug that….") were found to help patients choose treatments with direct evidence of benefit and had the highest likelihood of net benefit.

Expanding investment in comparative effectiveness research of communication, implementation, and dissemination strategies is needed to help identify strategies most likely to aid effective translation of health care evidence and provide benefit to the patient and clinician. These findings can be found in the research review *Communication and Dissemination Strategies To Facilitate the Use of Health-Related Evidence* at http://go.usa.gov/Zj9C.

Review examines biomarkers' value for diagnosis, prognosis, and treatment of heart failure

A new AHRQ research review finds that in both emergency and primary care settings, the biomarkers B-type natriuretic peptide (BNP) and N-terminal proBNP (NT-proBNP) have good diagnostic performance to rule out, but lesser performance to rule in, the diagnosis of heart failure because of a high sensitivity and low specificity of the test. While the diagnosis of heart failure,

continued on page 25

continued from page 24

a condition affecting approximately 5.7 million Americans, is a difficult challenge, BNP and NT-proBNP are emerging as promising markers for HF diagnosis, prognosis, and treatment.

According to the review, in patients with decompensated or chronic stable heart failure, higher levels of BNP and NT-proBNP are associated with a greater risk of morbidity and mortality. The majority of studies assessing prognosis showed associations between BNP and NT-proBNP and mortality, morbidity, and outcomes across different time intervals in patients with decompensated and chronic stable heart failure. However, the clinical utility of using multifactor prognostic scoring needs to be designed and evaluated before this becomes an established clinical tool.

The review finds an association also exists between NT-proBNP and the outcomes of morbidity and mortality in the general population. There is a low strength of evidence that BNP/NT-proBNP-guided therapy reduces all-cause mortality when compared with usual care.

Because expression of these biomarkers is highly variable in individual patients with and without heart failure, serial measurements should be interpreted with caution. Additional studies are needed to confirm the diagnostic, prognostic, and therapeutic value of the biomarkers BNP and NT-proBNP in patients with heart failure.

These findings and others can be found in the research review *Use of Natriuretic Peptide Measurement in the Management of Heart Failure* available at http://go.usa.gov/ZjXJ.

AHRQ releases interactive decision aid on urinary incontinence

Health care professionals who treat women with urinary incontinence can now share with patients the third Web-based decision aid offered by AHRQ's Effective Health Care (EHC) Program. EHC Program decision aids are interactive resources that help patients understand the facts about common health conditions and think about what is important to them when talking to their health care team about treatment options.

Research Briefs

Berkman, N.D., Lohr, K.N., Morgan, L.C., and others. (2013). "Interrater reliability of grading strength of evidence varies with the complexity of the evidence in systematic reviews." (AHRQ Contract No. 290-07-11056). ***Journal of Clinical Epidemiology*** **66, pp. 1105-1117.**
The researchers examined the consistency (interrater reliability) of applying guidance for grading strength of evidence in systematic reviews for the AHRQ Evidence-based Practice Center Program. They found that current instructions may be sufficient for straightforward quantitative evaluations that use meta-analysis for summarizing findings of randomized controlled trials. In contrast, agreement suffered when evaluations did not lend themselves to meta-analysis and reviewers needed to rely on their own qualitative judgment.

Brooks, J.M., and Ohsfeldt, R.L. (2013, August). "Squeezing the balloon: Propensity scores and unmeasured covariate balance." (AHRQ grants HS16094, HS18381). ***HSR: Health Services Research*** **48(4), pp. 1487-1495.**
This study assessed the covariate balancing properties of propensity score-based algorithms in which covariates affecting treatment choice are both measured and unmeasured. It found that if the unmeasured covariates affecting treatment choice are confounders, propensity score methods can exacerbate the bias in treatment effect estimates.

Brown, J.S., Kahn, M., and Toh, S. (2013, August). "Data quality assessment for comparative effectiveness research in distributed data networks." (AHRQ grants HS19912, HS19908). ***Medical Care*** **51(8) Suppl 3, S22-S29.**
Distributed data networks that combine information from multiple sources are needed to generate evidence about the real-world effectiveness, safety, and quality of medical care. The authors provide a set of field-tested best practices and a set of recommendations for data quality checking for comparative effectiveness research in distributed data networks.

Budge, P.J., Lazensky, B., Elliott, K.E., and others. (2013, April). "Primary amebic meningoencephalitis in Florida: A case report and epidemiological review of Florida cases." (AHRQ grant T32 HS13833). ***Journal of Environmental Health*** **75(8), pp. 26-31.**
The researchers describe a fatal case of primary amebic meningoencephalitis in a resident of northeast Florida and the ensuing public health investigation. They highlight the positive collaborations that developed in this joint investigation among State and local environmental health specialists and epidemiologists and the CDC.

Devine, E.B., Alfonso-Cristancho, R., Devlin, A., and others. (2013). "A model for incorporating patient and stakeholder voices in a learning health care network: Washington State's Comparative Effectiveness Research Translation Network." (AHRQ grant HS20025). ***Journal of Clinical Epidemiology*** **66, pp. S122-S129.**
The authors describe a multisite, longitudinal, prospective, observational cohort study grounded in patient-centered outcomes research and conducted by Washington State's Comparative Effectiveness Research Translation Network. They outline the ways in which patients and other stakeholders are being incorporated into all aspects of research to compare invasive and noninvasive treatments for peripheral arterial disease, and describe how results are being incorporated into practice.

Doshi, P. (2013). "Influenza vaccines. Time for a rethink." (2013). (AHRQ grant T32 HS19488). ***JAMA Internal Medicine*** **173(11), pp. 1014-1016.**
The author challenges basic assumptions behind the treatment of influenza as a major public health threat. He argues that the evidence that influenza represents a threat of public health proportions is questionable, the evidence that influenza vaccines reduce important outcomes such as mortality is unreliable, and the assumption that past influenza vaccine safety is predictive of future experience is unsound.

continued on page 27

Research briefs

continued from page 26

Haukoos, J.S., and Hopkins, E. (2013, March). "Understanding HIV screening in the emergency department: Is perception reality?" (AHRQ grant HS17260). *Academic Emergency Medicine* 20(3), pp. 309-312.
Understanding how to best integrate routine HIV screening into emergency care remains a critical next step for emergency medicine. The author discusses two articles appearing in the same issue that use qualitative methodology to better understand clinician and patient understanding of routine HIV screening in the emergency department. He believes that additional research is required to better understand how opt-out consent mechanisms are interpreted. For now, clinicians and program administrators must be careful in how they incorporate opt-out consent into screening programs.

Hernandez, A.F. (2013, July 3). "Preventing heart failure." (AHRQ grant HS16964). *Journal of the American Medical Association* 310(1), pp. 44-45.
The author discusses an article in the same issue on St. Vincent's Screening To Prevent Heart Failure (STOP-HF) trial. The STOP-HF trial focused on measuring B-type natriuretic peptide in a population with cardiovascular risk factors. The trial also compared collaborative care with usual care. Finally, there is a discussion of the issues raised by the trial, as well as its limitations and the lessons to be learned from improving heart failure prevention strategies.

Hollingworth, J.M., Rogers, M.A.M., Krein, S.L., and others. (2013). "Determining the noninfectious complications of indwelling urethral catheters." (AHRQ grant HS20927). *Annals of Internal Medicine* 159, pp. 401-410.
Since little is known about noninfectious complications resulting from urethral catheter use, the researchers conducted a systematic review, identifying all published studies describing such complications. After performing their meta-analysis, they determined that many noninfectious catheter-associated complications are at least as common as clinically significant urinary tract infections.

Jiang, X., Sarwate, A.D., and Ohno-Machado, L. (2013, August). "Privacy technology to support data sharing for comparative effectiveness research: A systematic review." *Medical Care* 51(8), Suppl 3, pp. S58-S65.
The researchers reviewed existing and emerging techniques that may be appropriated for data sharing related to comparative effectiveness research (CER). Their systematic review, limited to methods that demonstrated practical impact and to data sharing for data tables, concluded that state-of-the-art privacy-preserving techniques can guide the development of practical tools that will scale up the CER studies of the future.

Johnson, T.J., and King, C. (2013, March). "An 11-year-old girl with right-sided weakness secondary to cerebral abscesses: A case report." (AHRQ grant T32 HS17587). *Pediatric Emergency Care* 29(3), pp. 360-363.
This report documents a case in which a previously healthy 11-year-old girl, who came to the emergency department with 8 days of headache and right-sided weakness, was found to have two cerebral abscesses. The authors review the clinical presentation, evaluation, and management of this unusual but potentially life-threatening condition.

Kim, K.K., McGraw, D., Mamo, L., and Ohno-Machado, L. (2013, August). "Development of a privacy and security policy framework for a multistate comparative effectiveness research network." (AHRQ grant HS19913). *Medical Care* 51(8), Suppl 3, pp. S66-S72.
This article describes the initial development of a flexible, ethical policy framework to govern the Scalable National Network for Effectiveness Research. The project's goal is to develop and demonstrate a scalable, flexible technical infrastructure for distributed research networks that enable real-time comparative effectiveness research.

Lyles, C.R., Lopez, A., Pasick, R., and Sarkar, U. (2013). "5 mins of uncomfyness is better than dealing with cancer 4 a lifetime: An exploratory qualitative analysis of cervical and breast cancer screening dialogue on Twitter." (AHRQ grant HS17594). *Journal of Cancer Education* 28, pp. 127-133.
Little is known about health behavior discussions on Twitter, a "micro-blogging" Web site. The authors retrieved publicly available Twitter messages during a 5-week period related to the terms "Pap smear" and "mammogram." Their analysis of 474 messages using one term or the other demonstrated that Twitter can be a rich source of information and

continued on page 28

continued from page 27

could be used to design new health-related interventions.

Mathias, J.S., Agrawal, A., Feinglass, J., and others. (2013). "Development of a 5 year life expectancy index in older adults using predictive mining of electronic health record data." (AHRQ grant T32 HS00078). *Journal of American Medical Informatics Association* 20, pp. e118-e124.

The authors used predictive data mining and high dimensional analytics of electronic health record (EHR) data to develop a highly accurate and clinically actionable 5-year life expectancy guide. Their EHR based index successfully distinguished adults age 50 and over with life expectancy of 5 years or greater from those with a life expectancy of 5 years or less. This information could be used clinically to optimize preventive service use (e.g., cancer screening in the elderly).

Ogunyemi, O.I., Meeker, D., Kim, H-E. (2013). "Identifying appropriate reference data models for comparative effectiveness research (CER) studies based on data from clinical information systems." (AHRQ grant HS19913). *Medical Care* 51(8), Suppl 3, pp. S45-S52.

The authors examine the challenges associated with representing and mapping data for analyses in CER studies that use data taken from multiple electronic health records and associated data warehouses. They further assess the impact of having a common data model on the approach to data collection and exchange. They also present an evaluation of the modeling challenges and data or information loss that can occur when using different existing data models.

Palson, O.S., and Whitehead, W.E. (2013). "Psychological treatments in functional gastrointestinal disorders: A primer for the gastroenterologist." (AHRQ grant HS18695). *Clinical Gastroenterology and Hepatology* 11, pp. 208-216.

This article aims to identify and describe the forms of psychological treatment that show evidence of effectiveness in functional gastrointestinal disorders (FGIDs). In addition, it summarizes the empirical evidence for their effectiveness, explains how to find a suitable local provider, characterizes which FGID patients should be considered for referral, and describes how to make an effective referral.

Puskarich, M.A., Trzeciak, S., Shapiro, N.I., and others. (2013, June). "Whole blood lactate kinetics in patients undergoing quantitative resuscitation for severe sepsis and septic shock." (AHRQ grant HS18519). *Chest* 143(6), pp. 1548-1553.

The researchers compared the association of whole-blood lactate kinetics with survival in patients with septic shock undergoing early quantitative resuscitation. They concluded that in patients in the emergency department with a sepsis diagnosis, early lactate normalization during the first 6 hours of resuscitation was the strongest independent predictor of survival and was superior to other measures of lactate kinetics.

Reed, M., Huang, J., Brand, R., and others. (2013). "Implementation of an outpatient electronic health record and emergency department visits, hospitalizations, and office visits among patients with diabetes." (AHRQ grant HS15280). *Journal of the American Medical Association* 310(10), pp. 1060-1065.

The researchers examined the association between implementing a commercially available outpatient electronic health record (EHR) and emergency department (ED) visits, hospitalizations, and office visits for patients with diabetes mellitus. They found that use of an outpatient EHR in an integrated delivery system was associated with modest reductions in ED visits and hospitalizations, but not office visits.

Ryan, G.J., Cuadle, J.M., Rhee, M.K., and others. (2013, September). "Medication reconciliation: Comparing a customized medication history form to a standard medication form in a specialty clinic (CAMPII 2)." (AHRQ grant HS18230). *Journal of Patient Safety* 9(3), pp. 160-168.

In a crossover prospective study, researchers compared the accuracy and acceptability of a "fill-in-the-blank" medication history form (USUAL) to a customized form that contained a checklist of the 44 most frequently prescribed diabetes clinic medications. They found that medication self-report is very poor, and few subjects created an accurate list on either form. There were no differences in overall accuracy between the customized form and USUAL.

Sarfaty, M., Stello, B., Johnson, M., and others. (2013). "Colorectal cancer screening in the framework of the medical

continued on page 29

Research briefs

continued from page 28

home model: Findings from focus groups and interviews." (AHRQ Contract No. 290-06-00014). *American Journal of Medical Quality* 28(5), pp. 422-428.

This article summarizes the qualitative data that bear on the survey findings presented in an earlier paper on colorectal cancer screening in 15 primary care practices. Key points in the earlier article were the underuse of evidence-based systems such as reminders, test tracking, and rescheduling. The qualitative data reinforce those findings by showing the lack of office policies or systems.

Toh, S., Gagne, J.J., Rassen, J.A., and others. (2013, August). "Confounding adjustment in comparative effectiveness research conducted within distributed research networks." (AHRQ grants HS19912, HS18088). *Medical Care* 51(8), Suppl 3, S4-S10.

The researchers describe the strengths and limitations of different confounding adjustment approaches that can be considered in observational comparative effectiveness research studies conducted within distributed research networks. The use of appropriate methods that incorporate confounder summary scores allows investigators to perform many analyses traditionally conducted through a centralized dataset with detailed patient-level information.

Wang, J.J., Sebek, K.M., McCullough, C.M., and others. (2013, August). "Sustained improvement in clinical preventive service delivery among independent primary care practices after implementing electronic health record systems." (AHRQ grants HS17059, HS17294). *Preventing Chronic Disease. Public Health Research, Practice, and Policy* 10, pp. E130.

This study examines the continued improvement in clinical quality measures for a group of independent primary care practices using electronic health records and receiving technical support from a local public health agency. It found that during 2 years practices showed significant improvement in the delivery of antithrombotic therapy, blood pressure control, smoking cessation intervention, and hemoglobin A1c testing.

Wu, H-Y., Karnik, S., Subhadarshini, A., and others. (2013). "An integrated pharmacokinetics ontology and corpus for text mining." (AHRQ grant HS19818). *BMC Bioinformatics* 14, p. 35.

From either database construction or literature mining, the main challenge of pharmacokinetics (PK) data integration is the lack of PK ontology. This paper develops a PK ontology that can annotate all aspects of in vitro PK experiments and in vivo PK studies. It then constructs a PK corpus to present four classes of PK abstracts.

Yoon, S., Elhadad, N., and Bakken, S. (2013). "A practical approach for content mining of tweets." (AHRQ grant HS18953). *American Journal of Preventive Medicine* 45(1), pp. 122-129.

This paper describes a practical approach to analyzing Tweet contents and illustrates an application of the approach to the topic of physical activity. The approach includes five steps: (1) selecting keywords to gather an initial set of Tweets to analyze; (2) importing data; (3) preparing data; (4) analyzing data topic, sentiment, and ecologic context; and (5) interpreting data.

Yu, Z., Liu, L., Bravata, D.M., and others. (2013). "A semiparametric recurrent events model with time-varying coefficients." (AHRQ HS20263). *Statistics in Medicine* 32, pp. 1016-1026.

The authors consider a recurrent events model with time-varying coefficients motivated by two clinical applications. They use a random effects model to describe the intensity of recurrent events and a penalized spline method to estimate the time-varying coefficients. Next, they use Laplace approximation to evaluate the penalized likelihood without a closed form. After further steps, they apply their method to analyze two data sets: a stroke study and a child wheeze study.

Yudkowsky, R., Luciano, C., Banerjee, P., and others. (2013). "Practice on an augmented reality/haptic simulator and library of virtual brains improves residents' ability to perform a ventriculostomy." (AHRQ grant HS17361). *Simulation in Healthcare* 8(1), pp. 25-31.

The researchers, using computed tomographic scans of actual patients and developed a library of 15 virtual brains for a ventriculostomy simulator. They used this library to permit repeated deliberate practice on cases that exhibit a range of normal and abnormal anatomies, and studied the impact of simulator practice on both simulated and live surgical performance. ■

2013 *Research Activities* Author Index

continued on page 31

2013 Author Index

continued from page 30

continued on page 32

2013 Author Index

continued from page 31

continued on page 33

2013 Author Index

continued from page 32

2013 *Research Activities* Subject Index

The following is an alphabetical listing of research topics featured in *Research Activities* in 2013. Month of publication and page number(s) are given.

continued on page 35

2013 Subject Index

continued from page 34

continued on page 36

2013 Subject Index

continued from page 35

continued on page 37

2013 Subject Index

continued from page 36

continued on page 38

2013 Subject Index

continued from page 37

Follow AHRQ news on Twitter

AHRQ uses Twitter to broadcast short health messages ("tweets") that can be accessed by computer or mobile phone. You can follow AHRQ news on Twitter at **http://twitter.com/AHRQNews**.

To view all of AHRQ's social media tools, including email updates, podcasts, and online videos, go to **www.ahrq.gov/news/newsroom/socialmedia.html**.

U.S. Department of Health and Human Services

Agency for Healthcare Research and Quality
P.O. Box 8547
Silver Spring, MD 20907-8547

Official Business
Penalty for Private Use $300

AHRQ Pub. No. 14-RA003
January 2014

ISSN 1537-0224

Ordering Information

Most AHRQ documents are available free of charge and may be ordered online or through the Agency's Clearinghouse. Article reprints marked with an * are available from the AHRQ Clearinghouse. Other documents are available from the National Technical Information Service (NTIS).

- To order AHRQ documents, call or write:
  AHRQ Publications Clearinghouse
  Attn: (publication number)
  P.O. Box 8547
  Silver Spring, MD 20907
  800-358-9295
  703-437-2078 (callers outside the United States only)
  888-586-6340 (toll-free TDD service; hearing impaired only)
- To order publications online, send an email to: ahrqpubs@ahrq.hhs.gov.
- For a print subscription to *Research Activities*, send an email to ahrqpubs@ahrq.hhs.gov with "Subscribe to Research Activities" in the subject line. Be sure to include your mailing address in the body of the email.
- To access or subscribe to *Research Activities* online go to www.ahrq.gov/news/newsletters/research-activities/index.html.

Scan with your mobile device's QR Code Reader to access or subscribe to AHRQ's *Research Activities*.