



RESEARCH ACTIVITIES

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Care of Oklahoma tornado victims helped by AHRQ-supported information system

Ferocious tornadoes struck Moore, OK, on May 20 and May 31, destroying buildings and sending many hurt victims to emergency departments (EDs). Moore Medical Center (MMC), destroyed by the May 20 tornado, quickly mobilized to treat incoming patients and transfer them and resident patients to other Norman Regional Health System (NRHS) hospitals in nearby Norman. “I was the hospitalist on call that night,” recalls Brian Yeaman, M.D. “The HIE [health information exchange] didn’t come



Dr. Robert Frantz (center) talks with hospital disaster team to recap operations the night of the tornado that destroyed Moore Medical Center.

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online for me at NRHS until 9 p.m. the night of the storm. I worked traumas in the ED and admitted seven tornado victims—some crush injuries and pneumothorax patients. Something I don’t want to see again. And when I got the HIE access, I used it for the second survey on the trauma patients.”

The second survey is done when trauma patients have been stabilized and the clinician has time to step back and assess all their current and past medical issues and manage coexisting medical conditions that could complicate their course of recovery. They need quick access to the medical records provided by the HIE to do this.

Medical record information from the NRHS HIE, initially funded by AHRQ, which detailed what medications patients were taking and what medical conditions they had, was essential in order to provide safe and appropriate care to patients. The MMC electronic health record transfer system also helped ensure accurate transfer of patients’ records. Jon White, director of AHRQ’s health information technology portfolio, comments, “Both clinical teams and technology demonstrated their resiliency, as displaced patients were thoughtfully transferred and promptly reunited with their

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From the Director



More than half of us are traumatized at least once in our lifetimes and about two-thirds of children

and adolescents will suffer at least one traumatic event. This harsh reality was recently underscored by the suffering of children and adults due to the Oklahoma tornadoes, Hurricane Sandy, the bombing at the Boston Marathon, and mass shooting at Sandy Hook Elementary. AHRQ-supported research has developed information systems that enable clinicians to quickly and safely care for patients physically hurt by traumatic events, and has identified approaches to help adults and children psychologically shocked by these traumas.

For example, this month's cover story recounts how an AHRQ-

supported health information exchange (HIE) system enabled clinicians at an Oklahoma hospital destroyed by a tornado to quickly access the medical records of patients so they could find out what medications they were on and what medical conditions they had, so their care could be quick and safe. The Oklahoma HIE, SMRTNET (Secure Medical Records Transfer Network), has been recognized as a national health information exchange leader, enabling the secure exchange of over 2.7 million records across 68 Oklahoma cities.

While many adults eventually bounce back from traumas, up to one-third of adults develop debilitating post-traumatic stress disorder (PTSD). It is not known how many children and adolescents develop PTSD, but we know that trauma takes a huge toll on them as well.

The feature stories this month highlight AHRQ's evidence-based reviews that identify ways to prevent and treat adults with PTSD and interventions to help

children exposed to traumas not due to family violence. The reviews were conducted by AHRQ's RTI International-University of North Carolina Evidence-based Practice Center. They show that, fortunately, certain therapies and medications can improve outcomes of adults with PTSD. Evidence is weaker on how to prevent PTSD among traumatized adults already experiencing acute stress symptoms.

The research review on interventions that may help children and adolescents exposed to trauma not due to family maltreatment or violence found that school-based treatments with elements of cognitive behavior therapy appear promising. However, ultimately, the report is a call to action for more research on this critical area.

If we can use health information systems to speed the delivery of safe and quality care to trauma victims and other patients, we can save lives. If we can target high-risk children or adults with effective treatments to prevent PTSD, as well as effectively treat them if they develop PTSD, we can prevent enormous suffering and societal burden. AHRQ will continue to collaborate with other Department of Health and Human Services agencies to conduct this critical research.


Carolyn Clancy, M.D.

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Correction: Page 17 of the June issue mistakenly included a photo of a shot being given without protective gloves—an unsafe practice. ■

Tornadoes

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complete electronic medical records.”

As chief medical information officer for NRHS and medical director for the HIE, Yeaman was gratified to see what a difference the HIE system made in care of tornado victims. “The HIE was important for Moore citizens cared for at MMC that were at home and injured and distributed all over the metro area EDs in making sure the patients’ care transition was adequately informed with their medical history from the HIE.”

“The HIE was important for Moore citizens cared for at MMC that were at home and injured and distributed all over the metro area EDs...”

Fortunately for the tornado victims, Moore Medical Center is one of 26 hospitals that participate in the Oklahoma health information exchange, SMRTNET (Secure Medical Records Transfer

Network), along with 99 clinics and other facilities. Initially funded by AHRQ, SMRTNET has been recognized by the National eHealth Collaborative as a national health information exchange leader, enabling the exchange of over 2.7 million patient records across 68 Oklahoma cities.

SMRTNET enables medical providers to securely exchange electronic health information among hospitals, physician offices, laboratories, a university, Native American tribe, and public health, mental health, and community health centers.

These electronic records are housed in a secure data warehouse and were immediately available to SMRTNET’s 1,400 provider users as they worked to heal patients hurt by the Oklahoma tornadoes. For more information on SMRTNET, go to <http://usa.gov/bpHQ>. For more information on AHRQ’s Health Information Technology Program, go to <http://healthit.ahrq.gov>. ■ GM

Editor’s note: AHRQ just published a guidebook to help primary care clinicians connect their patients’ electronic health records to a local HIE hub and regional health information organization. The guide *Regional Health e-Decisions: A Guide to Connect Health Information Exchange in Primary Care* is available at www.healthit.ahrq.gov/RegionalHealthDecisionsGuide.PDF.



Dr. Brian Yeaman, Chief Medical Information Officer for Norman Regional Health System.

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

Certain therapies and medications improve outcomes of adults with post-traumatic stress disorder

About 60 percent of men and 51 percent of women report suffering at least one traumatic event in their lifetime, and about two-thirds of children and adolescents will experience at least one traumatic event in their lifetime, according to the National Comorbidity Survey of mental health in the United States. The trauma could be a natural disaster like Hurricane Sandy or the recent Oklahoma tornadoes, a mass bombing or shooting like those at the Boston Marathon or Sandy Hook Elementary School, military combat, a motor vehicle collision, violent personal assault, the sudden death of a loved one, or being diagnosed with a life-threatening illness.

Post-traumatic stress disorder (PTSD) develops in up to a third of individuals exposed to traumas, according to the Institute of Medicine. Although about half of adults diagnosed with PTSD following a trauma improve without treatment in 1 year, 10 to 20 percent of these individuals develop persistent symptoms of PTSD, which can lead to job loss, familial discord, lower educational attainment, and suicide.

The good news is that several psychological and drug treatments appear to be effective for improving outcomes of adults with PTSD, according to a new AHRQ research review, *Psychological and Pharmacological Treatments for Adults With Post-Traumatic Stress Disorder*. In many studies, therapy or medication reduced symptoms within 4 months, with some therapies having a large benefit, and certain medications having a small to medium benefit.

The essential symptoms of PTSD are re-experiencing the trauma (e.g., intrusive memories or flashbacks); avoidance or numbing from thoughts, feelings, or activities associated with the trauma; or hyperarousal, for example, having an exaggerated startle response. Psychological therapies are designed to minimize the intrusion, avoidance, and hyperarousal symptoms of PTSD by some combination of re-experiencing and working through trauma-related memories and emotions and teaching better methods of managing trauma-related stressors or coping.

Numerous organizations have produced guidelines for the treatment of patients with PTSD. Most guidelines, such as those from the Department of Veterans Affairs, Department of Defense, and the American Psychiatric Association, suggest psychotherapy as the first line of treatment for PTSD and medications as second-line treatment, but the current report had no direct evidence to support that conclusion. “There is no convincing direct evidence from studies that randomize people to start with either medication or psychological therapy,” notes Dan Jonas, M.D., M.P.H., an internist and co-director of the RTI International-University of North Carolina Evidence-based Practice Center that was funded by AHRQ to conduct the review. “It’s not that we found evidence contradicting that psychotherapy should be the first-line treatment, but we also didn’t find sufficient head-to-head studies to definitively confirm it. However, I do think it is a very reasonable approach, because there is a lot of evidence for



Dr. Dan Jonas, RTI International-University of North Carolina Evidence-based Practice Center.

psychological treatments that shows a pretty large benefit. In contrast, the amount of benefit found in drug studies is generally small or medium.”

“There is a lot of evidence for psychological treatments that shows a pretty large benefit.”

Exposure therapy has best evidence

The review found that exposure therapy had the strongest evidence for reducing PTSD symptoms. Exposure therapy had a large impact on symptom reduction and moderate impact on PTSD remission. Other psychological therapies that improved PTSD symptoms include cognitive processing therapy, cognitive

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therapy, cognitive behavioral therapy-mixed therapies, eye movement desensitization and reprocessing, and narrative exposure therapy.

“In contrast, the amount of benefit found in drug studies is generally small or medium.”

This is how clinical psychologist and report author Catherine Forneris, Ph.D., M.D., A.B.P.P., professor in the department of psychiatry at the University of North Carolina (UNC), Chapel Hill, explains exposure therapy. “Exposure therapy is used to treat a variety of anxiety disorders. In exposure therapy, you place yourself in the feared situation or a situation that comes close to the feared situation, and you allow yourself to get physiologically and emotionally aroused. You continue to ‘expose’ yourself to the feared situation until the arousal goes down and you are able to retrain your body and mind that this situation is not as dangerous as you perceived it to be.”

For example, if the trauma was a motor vehicle accident, the exposure would be sitting in the car, then driving on the road, then driving on the highway under conditions similar to the accident. That is in vivo exposure therapy. Therapists also use imaginal exposure therapy when it’s too dangerous or impossible to recreate the situation, explains Forneris.

“This is when the person just thinks about the situation, for example, someone who has been in combat or experienced sexual assault. We focus on the images or aspects of the trauma frightening to them, talk about it out loud, or they may make an audio recording of their trauma narrative and then listen to it. That can be as powerful in some instances for generating the anxiety responses.” The goal is to enable the person to eventually manage or extinguish the anxiety related to the trauma.

Cognitive therapy helps

Cognitive therapy is a type of psychotherapy based on the concept that the way we think about things affects how we feel and act. Says Forneris, “It’s having patients recognize when and how their thinking is inaccurate or distorted, teaching them to hit the pause button, take a step back, and ask themselves what evidence they have that supports this thought as true or if it has been distorted in their mind because of the emotion associated with it.” She gives the example of a rape victim who takes blame for her assault because of what she was wearing at the time. Thereafter, she is reluctant to dress in a feminine way when going out with friends to a club.

“We address the thought that she is somehow responsible for the attack, pointing out that she has dressed nicely hundreds of times before and she didn’t get attacked,” says Forneris. “Eventually she can reason that ‘Just because I dress nicely is not an invitation for someone to hurt me. I’m going out with my friends who will support me if I feel uncomfortable.’ It’s helping her refocus on the reality, not what she thinks is reality based on her distorted thought and emotional response.”



Dr. Catherine Forneris, University of North Carolina, Chapel Hill.

The review also found eye movement desensitization and reprocessing (EMDR) to be effective, which has an exposure aspect to it. Individuals imagine some aspect of the trauma until they get physiologically aroused. At that point, the practitioner uses a finger or wand and asks them to track something on a screen so that their eyes are moving very rapidly left to right. “I don’t think the underlying mechanism of EMDR is well understood, but there is something about that combination of the imaginal exposure coupled with the rapid eye movement that reduces the physiological and emotional responses and symptoms of PTSD,” says Forneris.

Medications that work

Pharmacological treatments that improve PTSD symptoms range from antidepressants and mood stabilizers to antipsychotics. The AHRQ review found that five medications in particular reduced PTSD symptoms: fluoxetine, paroxetine, sertraline, topiramate, and venlafaxine. Evidence for paroxetine and venlafaxine shows them to be effective for inducing remission of PTSD. This may be

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true for the other medications as well, but studies of other drugs did not typically report remission outcomes.

Jonas and colleagues calculated from the studies reviewed that about 8 patients would need to be treated to achieve one PTSD remission using paroxetine or venlafaxine. These remissions generally occurred within 4 months of starting treatment and patients in the studies were typically 3 months or more beyond the trauma.

All five medications had moderate strength of evidence supporting their efficacy in reducing PTSD symptoms. “It would be possible for someone to conclude that the evidence suggests that paroxetine and venlafaxine have a larger benefit than the others, but that’s not terribly definitive,” cautions Jonas. “These five drugs have not been studied head to head, so this is an indirect conclusion. It looks like these five drugs work and as a clinician you have to pick one, and these two do have more evidence of benefit for certain outcomes.”

How much do the medications help people? The review found a small to medium benefit, which was a 5 point to 15 point reduction in PTSD symptoms using a standard PTSD symptom measure, the Clinician Administered PTSD Scale. “Some argue that a 5 point reduction may not be clinically significant, but most agree that 15 points is a clinically significant reduction,” explains Jonas.

Forneris practices in UNC’s department of psychiatry, so many of her referrals come from people who are already on medication for their symptoms. “Medication has a role in treating PTSD, but therapy is very important too. I think that

medications help stabilize people and help them start to reestablish their equilibrium such that they can engage in therapy. Trauma-related therapy can be difficult.” The goal is to get people’s equilibrium established, with more regular eating, exercise, and sleep, and to make sure they have some basic coping skills before they start exposure therapy.

“Medications help stabilize people and help them start to reestablish their equilibrium such that they can engage in therapy.”

“Initially, exposure therapy can be hard because it stirs up painful, disturbing, and frightening memories and emotions,” explains Forneris. “It is not easy, but it’s actually the most effective therapy. Ideally, when a person does exposure-based therapy, we need them to get physiologically aroused, and if they are on a medication that blunts these symptoms, it makes it difficult or impossible to do exposure therapy. So we try to get them off medication so that they can achieve an arousal that is uncomfortable, but necessary, in order from them to obtain benefit from the intervention.”

“When I think of medications for PTSD, it is more to help quiet or restrict neurovegetative symptoms like poor sleep quality, muscular

tension, gastrointestinal distress, and so on—symptoms that often accompany trauma. Medications, for example, can help someone achieve better sleep, but medication does not specifically target the trauma itself and the meaning they attribute to the event and its sequelae.”

Both Forneris and Jonas point out that most studies on PTSD include individuals with different types of traumas and those with single traumas and multiple traumas. Therefore, more research needs to be done to find out which medications and therapies work for what types of populations or specific types of trauma.

Preventing PTSD

The RTI International-University of North Carolina Evidence-based Practice Center also recently completed a research review on prevention of PTSD among adults *Interventions for the Prevention of Post-Traumatic Stress Disorder in Adults After Exposure to Psychological Trauma*. The evidence for prevention was not very strong compared to the treatment report. The prevention report looked at interventions to prevent PTSD from developing among people who had symptoms within 3 months after the trauma. The evidence showed that debriefing of civilian victims of crime, assault, or accident trauma shortly after the traumatic event was not effective in reducing the incidence or severity of PTSD or depressive symptoms.

Says Forneris, co-author of the prevention report, “Many reports like ours conclude that debriefing is ineffective and can actually be harmful to people and should not be done. The fact that it continued

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to be used as an intervention to prevent PTSD shows that clinical uncertainty and controversy remains in the field as to how to prevent PTSD.”

“Many reports like ours conclude that debriefing is ineffective and can actually be harmful to people.”

The report did find that in individuals with acute stress disorder, brief trauma-focused cognitive behavioral therapy was more effective in reducing the severity of PTSD symptoms than supportive counseling.

There was insufficient evidence to draw conclusions about the effectiveness of medications to prevent PTSD since most of the medication studies were single-arm uncontrolled studies, notes Jonas. More and better prevention studies are needed. Comments Forneris, “The biggest problem was we had over 2,500 studies we identified and we wound up with only 19 that had low to medium risk of bias. Most of the 2,500 studies were not well done from a methodological perspective. In some respects this is understandable because of the conditions under which researchers are trying to conduct the studies.”

For example, researchers often must capture people quickly who may be displaced or recovering from physical injuries. They also must followup with them when their lives may be in a real state of flux. Forneris calls for better studies of preventive interventions that are universal or targeted to high-risk individuals.

Right now clinicians do not know who is at high risk of developing PTSD after a traumatic event. It

may vary by gender, by history of past trauma, or by type of trauma. Says Forneris, “I hope this becomes a prolific area of methodologically sound research in the future. Thinking about recent events such as the bombings in Boston and the gun violence at Sandy Hook Elementary, I hope someone is designing good studies to follow those people so we can see if there is something we could have done—or will do—to prevent those involved from developing PTSD.”

■ GM

Editor’s note: AHRQ’s reports *Psychological and Pharmacological Treatments for Adults With Post-Traumatic Stress Disorder* and *Interventions for the Prevention of Post-Traumatic Stress Disorder in Adults After Exposure to Psychological Trauma* are available on AHRQ’s Effective Health Care Program Web site at <http://effectivehealthcare.ahrq.gov>. You can read about AHRQ’s report on *Child and Adolescent Exposure to Trauma: Comparative Effectiveness of Interventions Addressing Trauma Other Than Maltreatment or Family Violence* in the next article.

School-based interventions show promise for helping children after trauma not due to family violence

When Valerie Forman-Hoffman heard about the shootings at Sandy Hook Elementary School in Newtown, CT, on December 14, she reacted like a parent. She picked up her five-year-old daughter Romy from school earlier than usual and then hugged her closer and longer.

But when Hoffman thinks about the mental health needs of the surviving children affected by the horrific violence, she responds as the researcher she is. She knows too well that we know too little.

Hoffman, a psychiatric epidemiologist, was part of a team of eight investigators at RTI International

Evidence-based Practice Center who reviewed interventions for children and adolescents exposed to traumatic events other than maltreatment or family violence such as accidents, natural disasters, school shootings, and war. RTI is one of 11 centers supported by AHRQ that systematically review scientific findings to examine treatment options.

The AHRQ research review *Child and Adolescent Exposure to Trauma: Comparative Effectiveness of Interventions Addressing Trauma Other Than Maltreatment or Family Violence* revealed that more research is needed on the effectiveness and comparative

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effectiveness of psychotherapeutic and pharmacological interventions. But the authors did find that certain psychotherapeutic interventions may benefit children exposed to trauma. Ultimately, the report is call to action. “It’s a very important problem,” says Hoffman. “How do we help these children?”

Promising school-based interventions

School-based treatments with elements of cognitive behavior therapy appear promising based on the magnitude of their impact on children’s PTSD, anxiety, depression, or anger symptoms.

“The field is so new.”

“The field is so new,” says RTI investigator and child clinical psychologist Joni McKeeman, Ph.D., who also worked on the review. “We’ve learned some really basic things.” She cites an example from a young person who was a child when the 9/11 terrorist attacks occurred. “In his school, they wheeled televisions into the classrooms so students could watch the news all day. Now, we know not to expose children to visual media all day long. We didn’t know that then.”

McKeeman says that although there needs to be more literature and more research, “there are some good strategies found to be effective—Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) and the CFTSI (Child and Family Traumatic Stress Intervention) and CBITS (Cognitive Behavioral Intervention for Trauma in Schools).”

Scope of the problem

Approximately two-thirds of children and adolescents under the age of 18 will experience at least one traumatic event, according to a 2007 article in the *Archives of General Psychiatry*. Although many children exposed to trauma do not experience long-term difficulties, other children go on to develop traumatic stress syndromes, including post-traumatic stress disorder (PTSD). The RTI researchers, supported by AHRQ, examined the efficacy of interventions that target traumatic stress symptoms and syndromes among children and adolescents exposed to trauma and those already experiencing symptoms after trauma.

When they began their research, Hoffman expected to discover more studies. “I worked on this project for a



Dr. Valerie Forman-Hoffman and daughters.

year and a half. It was so intense. I initially thought we were going to find all of these interventions that would need synthesis and meta-analysis. I was really looking forward to finding out what works,” Hoffman told *Research Activities*.

Ultimately, Hoffman said, “I was surprised that there were so few studies. There were only about 20 studies and they were all single studies. There weren’t other studies to confirm the findings.”

“I was surprised that there were so few studies.”

Hoffman understands the challenges of research involving children and trauma. “You don’t know when these types of events are going to occur and the last thing you want to do is go in there as a researcher and ask, ‘Do you mind if I research your child?’ Getting consent to do any type of study especially on a traumatized child is very, very difficult,” she says. “The gold standard of doing intervention research is a randomized control trial. Maybe we’re not going to be able to do that. Maybe the solution is do some very well designed observational studies perhaps using registry data or the like in terms of looking at a cohort of kids and following them forward to see what kind of treatments they got.”

Fellow investigator and family physician Adam Zolotor, M.D., Dr.P.H., shares Hoffman’s concerns. “When we put the science under the microscope, we found the majority of the studies didn’t meet our inclusion criteria.

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They had a brief duration of followup, or weren't randomized, or didn't use standardized measures."

As Zolotor points out, knowing more about which treatments are effective would not only be helpful for children, it would be helpful for payers too to "get a better handle on what types of therapies to reimburse for."

"It is striking how common trauma is in kids and how little science there is," says Zolotor. "The lifelong consequences are tremendous. I see kids and adults. Lots of psychiatric illness due to trauma emerges through the lifespan. Would it be true if all these kids got treatment? We don't really know. There are lots of things we do in medicine where our best practice precedes the evidence, but we often change best practices as evidence emerges."

"It is striking how common trauma is in kids and how little science there is."

Call to action

The investigators interpret their findings as a call to action for more research. "We need strategies for intervening that are available and easier to disseminate to a wider range of practitioners in the community so more practitioners have access to learning about and training in these methods," says McKeeman. "There are a lot of people out there doing good work, but I'd like to see more practitioners with the skills and knowledge to implement the interventions that have been found to be most helpful in working with traumatized children"

Researchers, clinicians, policymakers and the public share a need to know more about how to help traumatized children—before a traumatic event occurs. As a parent, Hoffman hopes she'll never have to know.

■ KM

Editor's note: The Evidence Report *Child and Adolescent Exposure to Trauma: Comparative Effectiveness of Interventions Addressing Trauma Other Than Maltreatment or Family Violence* was one of four reviews on child trauma and adult PTSD supported and funded by AHRQ. All four reviews and others by AHRQ's Effective Health Care Program can be found at www.effectivehealthcare.ahrq.gov.

Health Information Technology

Telemedicine may be a useful tool for managing hypertension, particularly among nondiabetic patients

Patients with hypertension, who use a telemedicine system (either an interactive telephone system or a secure Web site) to report clinical data to their primary care provider twice a week, are more likely to reach their blood pressure (BP) goal at the end of 6 months than patients who receive standard care, according to a new study.

Alfred A. Bove, M.D., Ph.D., of Temple University School of Medicine, and coinvestigators examined telemedicine use and hypertension management among

an urban group of primarily black patients from the Temple University Medical Center in Philadelphia, PA, and the Christiana Health Care Center in Wilmington, DE. Patients had clinical data (blood pressure, heart rate, weight, number of steps walked daily, and tobacco usage) collected when randomly assigned to the telemedicine or standard care group.

Those in the telemedicine group were asked to submit the same data twice weekly by calling in to the phone system or logging onto the

Web site. Most individuals used the interactive telephone system (65 percent of reports). At the end of the 6-month study, 58.8 percent of the 68 nondiabetic patients assigned to the telemedicine group were at goal BP versus 52.1 percent of 73 nondiabetic standard care patients. In contrast, 31 diabetic patients assigned to the telemedicine group were less likely to achieve goal BP (45.2 percent) than either group of nondiabetic patients.

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Standard care patients, in general, did not change their use of medications, while the telemedicine group had a significant 10 percent increase in the number of BP medications. No difference was

noted in medication adherence between the two groups, or between nondiabetic and diabetic patients. The study was funded in part by AHRQ (HS17202).

More details are in “Managing hypertension in urban underserved

subjects using telemedicine—A clinical trial,” by Alfred A. Bove, M.D., Ph.D., Carol J. Homko, R.N., Ph.D., William P. Santamore, Ph.D., and others in the April 2013 *American Heart Journal* 165(4), pp. 615-621. ■ DIL

Web-based risk appraisal tool increases capture of family history data in electronic health records

A Web-based tool successfully collected information on family history and lifestyle factors from primary care patients that might otherwise be missed during a new patient visit or annual examination, according to a new study. The tool, Your Health Snapshot (YHS), was developed at an academic medical center in St. Louis to obtain any history of cancer among the patient’s close relatives, as well as lifestyle information that is used to estimate a patient’s risk of cancer and other chronic diseases.

The researchers adapted YHS to incorporate more detailed information on family history of cancer and to send this information to the patient’s electronic health record (EHR) for providers to view and approve. In addition, YHS produced a summary report (risk assessment) that the patient could take into the primary care appointment to discuss possible areas of elevated risk with their provider.

Of 9,647 eligible intervention patients, 10.3 percent completed Your Health Snapshot. EHR data on family history of cancer from the patients who used YHS were compared with similar data for 637 comparable control patients (matched by clinical and demographic information).

Overall, 2.0 percent of all eligible intervention patients had new documentation of a positive family history of cancer entered in coded fields in the EHR within 30 days of their visit compared with 0.6 percent of all eligible controls. Of the 996 users of YHS, 106 (10.6 percent) had new family cancer history data in their EHR within 30 days of the visit, compared with 5 (0.8



percent) of 637 matched control patients. However, when samples of the YHS users and matched controls were interviewed, the researchers found no difference in the frequency with which various risk-associated topics were discussed during the clinician visit.

The findings were based on studies of patients from three implementation primary care practices and two control primary care practices from the same large academic health care network in Boston. Eligible patients had no previous data about family cancer history in coded fields in their EHR and were seen for new patient or annual checkup visits between mid-December 2010 and mid-August 2011. The study was funded in part by AHRQ (HS19789).

More details are in “Use of a Web-based risk appraisal tool for assessing family history and lifestyle factors in primary care,” by Heather J. Baer, S.D., Louise I. Schneider, M.D., Graham A. Colditz, M.D., Dr.P.H., and others in the online January 31, 2013 *Journal of General Internal Medicine*. DIL



Decision support boosts appropriate use of HPV vaccine

Providing families and clinicians with information to support decisions about starting and completing the human papillomavirus (HPV) vaccine series increases appropriate use of the vaccine. The HPV vaccine is effective in preventing some types of cervical cancer and requires

a total of three shots given over 6 months. A study supported by AHRQ evaluated the impact of education and electronic alerts on vaccination rates. Electronic alerts for clinicians were most likely to impact delivery of the first shot, while education and reminders for families were tied to receipt of shots two and three.

For more details, see “The Implementation and Acceptability of an HPV Vaccination Decision

Support System Directed at Both Clinicians and Families,” which appeared in the 2012 *American Medical Informatics Association Annual Symposium Proceedings*. “Effectiveness of decision support for families, clinicians, or both on HPV vaccine receipt” appeared in the May 2013 issue of *Pediatrics*.



Challenges remain when using simulation-based training in pediatric anesthesiology

Since 1969, computer-controlled patient simulators have evolved into high-tech ways to train medical professionals on a variety of techniques and procedures. Unfortunately, child and infant simulators have lagged behind their adult mannequin counterparts because of the technical difficulties in translating mechanical features of an adult mannequin to the scale of a neonate or infant. A new review article looks at the ways that simulations are being used in pediatric anesthesiology, research into the use of simulation, and current and future challenges in its use.

Simulation has been used for developing new skills specific to pediatric anesthesia. These task-training skills include emergency airway management in children, ventilator management, central line placement, and regional anesthetic techniques. Simulation also uses scenarios to assess performance, demonstrate clinical and teamwork competencies, and expose trainees to the vast domain of potential conditions.

Effective scenarios are also being created that optimize team interactions. As such, there is a trend towards

in situ simulation, where participants engage in a simulation run in their actual clinical environment, such as an operating room. Some simulations currently being used at pediatric hospitals include identifying latent system errors, evaluating provider workloads, and trauma team responses to mock codes.

According to the authors, the future of simulation in pediatric anesthesiology will depend on improved educational outcomes, patient outcomes, and clinical care delivery. At present, the costs of simulation are high. In addition, there is no direct evidence that it improves patient outcomes. The researchers suggest that areas for future scenario development should draw from identified untoward events or near-misses; and the management approach should reflect evidence-based research and expert consensus opinion. The study was supported by AHRQ (HS18734).

See “Simulation in pediatric anesthesiology,” by James J. Fehr, M.D., Anita Honkanen, M.D., and David J. Murray, M.D., in *Pediatric Anesthesia* 22, pp. 988-994, 2012. ■ KB

Accuracy of electronic quality reporting varies across quality measures

Beginning in 2014, the Federal Electronic Health Record Incentive Program will require electronic reporting of quality from electronic health records (EHRs). The goal is to avoid the limitations of measuring quality from administrative claims (which lack clinical detail) or from manual review of paper-based clinical records (which is time-consuming and yields small sample sizes).

EHRs, however, were designed for clinical care, not for automated reporting of quality measures. Thus, it is important to measure the accuracy of automated reporting and understand opportunities to improve quality measurement.

After examining the electronic records of 1,154 patients of a federally qualified health center, Rainu Kaushal, M.D., and Lisa M. Kern, M.D., M.P.H. of Weill Cornell Medical College, and colleagues found wide measure-by-

measure variation in the accuracy of 12 quality measures, when they compared automated electronic reporting to manual review of the EHR.

The researchers found significant differences between electronic reporting and manual review for 3 of 12 care quality measures. For example, compared to manual review, electronic reporting significantly underestimated rates of appropriate asthma medication (38 percent vs. 77 percent) and pneumococcal vaccination (27 percent vs. 48 percent) and overestimated rates of cholesterol control in patients with diabetes (57 percent vs. 37 percent).

The researchers suggest several possible explanations for these findings of wide measure-by-measure variation. Electronic reporting could have underestimated rates of asthma medication and pneumococcal vaccination if care

was recorded in free-text notes or scanned documents rather than in structured fields. Rates of cholesterol control could have been overestimated if the electronic report and manual reviewers considered a different test to be the most recent cholesterol value.

The researchers suggest that national programs that link financial incentives to quality reporting should require electronic health record vendors to demonstrate the accuracy of their automated reports. This study was supported by AHRQ (HS17067).

See “Accuracy of electronically reported “meaningful use” clinical quality measures,” by Dr. Kern, Dr. Kaushal, Sameer Malhotra, M.D., and others in the January 2013 *Annals of Internal Medicine* 158, pp. 77-83. See also a video about this work, which can be viewed at <http://healthit.ahrq.gov/EQMKaushalVideo>. ■ MWS

Patient Safety and Quality

Soap and ointment slashes deadly MRSA infections in sickest hospital patients

Using germ-killing soap and ointment on all intensive-care unit (ICU) patients can reduce bloodstream infections by up to 44 percent and significantly reduce the presence of methicillin-resistant *Staphylococcus aureus* (MRSA) in ICUs. Researchers tested three MRSA prevention strategies and found that using germ-killing soap and ointment on all ICU patients was more effective than other strategies.

“Patients in the ICU are already very sick, and the last thing they need to deal with is a preventable infection,” said Agency for Healthcare Research and Quality (AHRQ) Director Carolyn M. Clancy, M.D. “This research has the potential to influence clinical practice significantly and create a safer environment where patients can heal without harm.”

The study, REDUCE MRSA trial, was published online May 29 in the *New England Journal of Medicine*

and took place in two stages from 2009–2011. A multidisciplinary team from the University of California, Irvine, Harvard Pilgrim Health Care Institute, Hospital Corporation of America, and the Centers for Disease Control and Prevention (CDC) carried out the study. A total of 74 adult ICUs and 74,256 patients were part of the study, making it the largest study on this topic. Researchers evaluated

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MRSA infections

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the effectiveness of three MRSA prevention practices: routine care, providing germ-killing soap and ointment only to patients with MRSA, and providing germ-killing soap and ointment to all ICU patients. In addition to being effective at stopping the spread of MRSA in ICUs, the study found the use of germ-killing soap and ointment on all ICU patients was also effective for preventing infections caused by germs other than MRSA.

“Patients in the ICU are already very sick, and the last thing they need to deal with is a preventable infection.”

“CDC invested in these advances in order to protect patients from deadly drug-resistant infections,” said CDC Director Tom Frieden, M.D., M.P.H. “We need to turn science

into practical action for clinicians and hospitals. CDC is working to determine how the findings should inform CDC infection prevention recommendations.”

MRSA is resistant to first-line antibiotic treatments and is an important cause of illness and sometimes death, especially among patients who have had medical care. Three-quarters of *Staphylococcus aureus* infections in hospital ICUs are considered methicillin-resistant. In 2012, encouraging results from a CDC report showed that life-threatening MRSA infections in hospitals declined by 48 percent from 2005 through 2010.

“This study helps answer a long-standing debate in the medical field about whether we should tailor our efforts to prevent infection to specific pathogens, such as MRSA, or whether we should identify a high-risk patient group and give them all special treatment to prevent infection,” said lead study author Susan Huang, M.D., M.P.H., associate professor at the University of California (UC), Irvine, School of Medicine and medical director of epidemiology and infection prevention at UC Irvine Health. “The universal decolonization strategy was the most effective

and the easiest to implement. It eliminates the need for screening ICU patients for MRSA.”

The REDUCE MRSA trial was conducted through AHRQ and CDC research programs. The research was conducted in partnership with the Hospital Corporation of America and nearly four dozen of its affiliated facilities.

Reducing healthcare-associated infections (HAIs), such as MRSA, is a priority for the National Quality Strategy, a plan that aligns national efforts to improve the quality and safety of care. HHS-wide efforts to reduce HAIs are outlined in its National Action Plan to Prevent Healthcare-Associated Infections: Roadmap to Elimination.

HAIs are also an area of focus for the Partnership for Patients, a national, public-private partnership of hospitals, employers, physicians, nurses, consumers, State and Federal governments and other key stakeholders that aims to reduce preventable hospital-acquired conditions that harm patients. Together, with incentives created by the Affordable Care Act, these efforts represent a coordinated approach to making care safer for patients. ■

Crisis checklists may substantially reduce the likelihood of critical missed steps in the operating room

A study of 106 simulated surgical-crisis scenarios found that use of a crisis checklist resulted in a nearly 75 percent reduction in failure to adhere to critical steps in crisis management. When checklists were used, only 6 percent of critical steps were missed compared to 23 percent of critical steps being missed when checklists were not available. The simulation scenarios were performed by 17 operating-room teams from 3 hospitals. Each team spent a 6-hour day in a simulated operating room where they were presented with a series of crisis scenarios. These included air embolism,

anaphylaxis, asystolic cardiac arrest, hemorrhage followed by ventricular fibrillation, malignant hyperthermia, unexplained hypotension and hypoxemia followed by unstable bradycardia (abnormally slow heart rate), and unstable tachycardia (abnormally fast heart rate).



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Crises checklists

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Failure to effectively manage life-threatening complications in surgical patients has been recognized as the largest source of variation in surgical mortality among hospitals. The use of surgical safety checklists during routine operative care has been associated with significant reductions in morbidity and mortality. However, the effect of crisis checklists during interoperative crises has been largely untested.

Since the relative infrequency of surgical crises made a live clinical trial of crisis checklist interventions not feasible, researchers used a high-fidelity medical simulation to facilitate a structured observation of these unpredictable events. After participating in the

simulation exercise, 97 percent of the participants agreed that they would want these checklists used if they had an interoperative crisis as a patient. The researchers concluded that the crisis-checklist intervention has the potential to meaningfully affect clinical practice and surgical outcomes. Their results suggest that hospital and ambulatory surgical centers should consider the implementation of checklists to increase the safety of surgical care. This study was supported by AHRQ (HS18537).

See “Simulation-based trial of surgical-crisis checklists,” by Alexander F. Arriaga, M.D., Angela M. Bader, M.D., Judith M. Wong, M.D., and others in the January 17, 2013 *New England Journal of Medicine* 368(3), pp. 246-253. ■ MWS

Surgeons experience conflict with intensivists over intensive care unit care of patients after surgery

Surgeons feel responsible for patient outcomes after surgery. As a result, they may disagree with decisions made by critical-care clinicians called intensivists when their patient is in the intensive care unit (ICU). Conflict may arise from any number of situations, particularly when it comes to discussing end-of-life care. A new study reveals that conflict arises regularly between these two types of clinicians when it comes to care goals of patients doing poorly after surgery. Less-experienced younger surgeons tended to have more conflict with intensivists than older surgeons. The ICU administrative model also affects conflict, with more conflict reported in closed ICUs where intensivists, rather than the operating surgeon, primarily manage patients.

A total of 2,100 vascular, neurologic, and cardiothoracic

surgeons received a mailed survey (700 to each specialty). Surgeons were asked fixed-choice questions about which clinicians they experienced conflict with and how frequently conflict occurred. Other questions asked about how challenging they found certain aspects of their practice, such as communicating about poor outcomes, addressing patient fears about dying, their own discomfort about poor outcomes, and managing the clinical aspects of poor outcomes. The survey also collected other information on the surgeon's gender, practice type, years in practice, high-risk procedures conducted per month, and the type of ICU they worked in.

A total of 912 completed surveys were returned. Among the respondents, 43 percent admitted to sometimes or always experiencing conflict with intensivists and nurses about the goals of postoperative care. Nearly three-fourths of surgeons (73 percent) reported managing their own discomfort about poor outcomes as a significant challenge. More than half (62 percent) also said they found managing the clinical aspects

of poor outcomes to be challenging. A strong association was found between surgeon experience and conflict with intensivists.

Reported conflict was 2.5 times higher for surgeons with less than 10 years of experience than for those with more than 30 years of experience. The odds of conflict were 40 percent lower for surgeons practicing in an open ICU model (where the surgeon is primarily responsible for patients) compared to a closed ICU (where the intensivist is responsible for all patients). The researchers call for more interventions at the individual and system levels to eliminate inter-team conflicts in the ICU. The study was supported in part by AHRQ (HS15699).

See “Surgeon-reported conflict with intensivists about postoperative goals of care,” by Terrah J. Paul Olson, M.D., Karen J. Brasel, M.D., M.P.H., Andrew J. Redmann, B.A., B.S., and others in the January 2013 *Journal of the American Medical Association Surgery* 148(1), pp. 29-35. KB



Multiple patient safety problems infrequently occur during one single hospitalization but are far more resource-intensive

Many studies have documented the occurrence of different types of patient safety problems in hospitals. However, it is uncommon for a patient to experience multiple patient safety problems during one single hospitalization, according to a new study. The team of RAND Corporation researchers found that multiple patient safety events (MPSEs) occurred in approximately 1 in every 1,000 hospitalizations and affected more than 30,000 patients in 2004.

The vast majority of hospital admissions involved no MPSEs; about 2 percent involved one safety event, and 0.1 percent met the criteria for an MPSE. Among MPSE admissions, the most common type of adverse event was Patient Safety Indicator number 4—failure to rescue (from complications of hospital care), occurring in about half of all such cases. MPSEs were also remarkable for being associated with higher rates of several other specific categories of adverse events, most frequently postoperative pulmonary embolism or deep vein thrombosis and postoperative respiratory failure.

Risk factors for MPSEs included older age, male sex, black race, and residence in a low-income Zip code. The occurrence of MPSEs also was significantly associated with some hospital characteristics, notably including admissions to urban teaching hospitals and to hospitals with a relatively high volume of discharges. Compared with all admissions, the average length of stay for MPSE admissions was four times longer, and the average charge for MPSE admissions was eight times greater. The study concluded that, despite their low prevalence, MPSEs have distinct characteristics and are far more resource-intensive than hospital admissions generally. This study was supported by AHRQ (Contract No. 290-02-0010).

See “Multiple patient safety events within a single hospitalization: A national profile in U.S. hospitals,” by Hao Yu, Ph.D., Michael D. Greenberg, J.D., Ph.D., Amelia M. Haviland, Ph.D., and Donna O. Farley, Ph.D., in the *American Journal of Medical Quality* 27(6), pp. 472-479, 2012. ■ MWS

New oral anticoagulant has begun to replace warfarin in treating atrial fibrillation since FDA approval

Clinicians who use blood-thinner pills (oral anticoagulants) to treat patients with atrial fibrillation (AF) are turning to the recently approved drug, dabigatran, rather than the 60-year-old oral anticoagulant warfarin, according to a new study. Historically, heart patients with AF have had a fivefold increased risk of stroke, which is reduced by two-thirds by anticoagulant therapy.

Warfarin, an antagonist of the clotting factor vitamin K, has been for decades the most widely used drug for preventing dangerous blood clots. It is relatively inexpensive, but requires constant testing to ensure that the anticoagulant level remains within a safe range, that is, the blood does not become so thin that it causes internal bleeding, but thinned sufficiently to prevent blood clots. In addition, a number

of other important medications can interact with warfarin to reduce its effectiveness.

Dabigatran, which was approved by the U.S. Food and Drug Administration for treatment of AF in October 2010, does not need routine monitoring and interacts with fewer drugs. However, its retail price is 15 times that of warfarin. The researchers wanted to know how usage of the two blood thinners has changed since the approval of dabigatran. Using a quarterly survey of physicians' diagnoses and medications prescribed, they found that from the first quarter of 2007 through the fourth quarter of 2011, visits involving prescriptions for warfarin declined from 2.12 million to 1.56 million per quarter. Dabigatran visits were a mere 0.06 million before the fourth quarter



of 2010 and rose to 0.36 million by the fourth quarter of 2011. In contrast, treatment of AF accounted for 42 percent of warfarin visits in the fourth quarter of 2010 compared with 92 percent for dabigatran (the remaining 8 percent being visits for hypertensive heart disease).

By the fourth quarter of 2011, AF visits accounted for 39 percent of warfarin prescriptions, but

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Artrial fibrillation

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only 63 percent of dabigatran prescriptions—despite AF remaining the only approved indication for the new drug's use. The findings were based on diagnostic and prescribing data

from the National Disease and Therapeutic Index and prescription expenditures from the National Prescription Audit. The study was funded in part by AHRQ (HS17567).

More details are in “National trends in oral anticoagulant use in

the United States, 2007–2011,” by Kate Kirley, M.D., Dima M. Qato, Pharm.D., M.P.H., Ph.D., Rachel Kornfield, M.A., and others in the September 2012 *Circulation Cardiovascular Quality and Outcomes* 5(5), pp. 615–621. ■ DIL

Safe patient handling program does not inhibit recovery of rehabilitation patients or create equipment dependence

Patients who go through rehabilitation in a hospital system that has implemented a safe patient handling (SPH) program do as well as patients rehabilitated using traditional approaches, according to a new study. A SPH program is designed, in part, to reduce direct patient handling by staff during patient ambulation and transfers to reduce associated back and other staff injuries. Examples of helpful equipment are ceiling- and floor-based dependent lifts, sit-to-stand assists, ambulation aides, motorized hospital beds, powered shower chairs, and friction-reducing devices. This study may help to alleviate the concern among rehabilitation service providers that patients may become dependent on the patient handling equipment to the point of impeding their recovery.

To examine these concerns, the researchers compared the mobility subscale (locomotion and transfers) of the Functional Independence Measure (FIM) between two groups of patients undergoing rehabilitation at one hospital. Patients in group 1 (No-SPH) underwent rehabilitation 1 year before implementation of an SPH program. Patients in group 2 (SPH) underwent rehabilitation during a 1-year period after implementation.

The two groups were comparable in their FIM scores at admission, but differed in terms of mean age and length of stay, as well as the distribution of impairment codes. The change in mobility scores from admission to discharge was not significantly different between the no-SPH group of 507 patients (FIM mobility score rose from 12.4 to 23.2) and the 784 patients in the SPH group (FIM mobility score rose from 12.4 to 23.5).

For patients who had high admission mobility scores (15.1 or higher), the researchers' regression model indicated patients in the SPH group had higher mobility FIM scores at discharge after controlling for admission mobility FIM, age, length of stay, and diagnosis. However, the differences were small and may not have reflected clinically significant differences. The researchers recommend further studies, because they did not collect evidence on how thoroughly the SPH program was implemented and because other predictors, such as body mass index, were not included. The study was funded in part by AHRQ (HS20723).

More details are in “Effect of safe patient handling program on rehabilitation outcomes,” by Marc Campo, P.T., Ph.D., Mariya P. Shiyko, Ph.D., Heather Margulis, P.T., M.S., and Amy R. Darragh, O.T.R./L., Ph.D., F.A.O.T.A., in the January 2013 *Archives of Physical Medicine and Rehabilitation* 94(1), pp. 17–22. DIL



Treatment for community-acquired *Streptococcus pneumoniae* is the same, regardless of risk factors for drug-resistant strain

Guidelines recommend use of a respiratory fluoroquinolone antibiotic or combination antibiotic therapy for outpatient treatment of community-acquired pneumonia (CAP) if patients have risk factors for drug-resistant *Streptococcus pneumoniae* (DRSP). Despite these guidelines, most CAP patients are treated the same, reveals a new study. Because *S. pneumoniae* had developed immunity to some important antimicrobial drugs, two professional societies published a consensus guideline in 2007 on the management of CAP. These guidelines took into account risk factors (for example, recent antibiotic use and chronic medical conditions) in recommending specific antibiotic regimens.

The researchers retrospectively studied 175 adult outpatients

treated for CAP in the emergency department or urgent care center of an urban, academic medical center during a 6-month period in 2009. They looked at antibiotic use in patients with and without DRSP risk factors. One or more DRSP risk factors were found in 51 percent of cases, including asthma (16 percent of cases), alcohol abuse (14 percent), diabetes (10 percent), and three other factors (9 percent of the cases each).

At the initial visit, antibiotic prescriptions were similar among patients with and without DRSP risk factors: a macrolide in 62 percent versus 59 percent, doxycycline in 27 percent versus 28 percent, or a respiratory fluoroquinolone in 9 percent of both groups. Patients with DRSP risk factors were treated according to the

guideline recommendations far less frequently than cases without risk factors (9 percent vs. 87 percent). The researchers noted, however, that strict adherence to the guidelines would have resulted in greater use of fluoroquinolones or combination antimicrobial therapy, which could increase the risk of drug resistance in other microorganisms. The study was funded in part by AHRQ (HS17526).

More details are in “Risk factors for drug-resistant *Streptococcus pneumoniae* and antibiotic prescribing practices in outpatient community-acquired pneumonia,” by Timothy C. Jenkins, M.D., Joy Sakai, M.D., Bryan C. Knepper, M.P.H., M.Sc., and others in *Academic Emergency Medicine* 19(6), pp. 703–706, 2012. ■ DIL

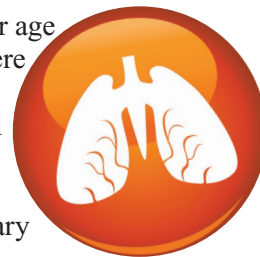
Lung nodule size predicts adherence to guidelines for managing them

When evaluating pulmonary nodules on computerized tomography (CT) scans, radiologists can benefit from several guidelines for recommending management of these nodules to facilitate early detection of malignancies. The most notable of these were developed by the Fleischner Society in 2005. Only 34 percent of radiologists at an academic tertiary hospital adhered to the guidelines from the Fleischner Society, according to a new study. What’s more, over half of the cases that adhered to the guidelines did not mention the Fleischner guidelines in the report. The setting for this study was a 752-bed adult urban tertiary academic medical center with 7 outpatient

imaging locations. A total of 653 chest and 432 abdominal CT scans were randomly selected from the emergency department and outpatient clinics during a 6-month period. Two researchers performed independent manual reviews of the radiology reports with findings of pulmonary nodules. Recommendations in each report were reviewed to determine adherence to the Fleischner guidelines.

The researchers identified 331 reports with confirmed pulmonary nodules (277 for chest CT and 38 for abdominal CT). Sixteen of these were false-positives, 62 were from patients with coexisting malignancies, and 13 were in

patients under age 35. These were all excluded from the final analysis of 240 reports with pulmonary nodules. The average nodule size was 6.6-mm for chest CT and 6.7-mm for abdominal CT. Only 34 percent of recommendations for followup of pulmonary nodules were adherent to the Fleischner guidelines. Nodule size was significantly associated with adherence. The odds of adherence to the guidelines doubled when the nodule was greater than



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Lung nodules

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4-mm to 6-mm in size compared to when the nodule size was 4-mm or less. Of the 240 reports, only 34 actually mentioned the term Fleischner.

The researchers recommend more efforts to monitor and improve adherence to the guidelines. The study was supported in part by AHRQ (HS19635).

See “Factors associated with radiologists’ adherence to Fleischner Society guidelines for management

of pulmonary nodules,” by Ronilda Lacson, M.D., Ph.D., Luciano M. Prevedello, M.D., Katherine P. Andriole, Ph.D., and others in the July 2012 *Journal of the American College of Radiology* 9(7), pp. 468-473. ■ KB

Chronic Disease

Metformin poses fewer cardiovascular risks than sulfonylureas for patients with diabetes

Cardiovascular disease (CVD) accounts for most deaths in patients with diabetes. The most common starting treatment for diabetes is either metformin or sulfonylureas. A new study reveals that, compared with metformin use, sulfonylurea use is associated with a 21 percent greater risk of hospitalization for heart attack or stroke, as well as death from any cause. This translates into an excess of approximately 2.2 CVD events or deaths for every 1,000 person who use sulfonylurea medications for

1 year. The study does not clarify whether the increase in CVD risk is due to harm from sulfonylureas, benefit from metformin, or both.

A team of researchers from Vanderbilt University studied 253,690 veterans aged 18 years or older (mostly white men) who received Veterans Health Administration care and medication (metformin or sulfonylurea) for their diabetes treatment.

The researchers believe that their observations support the use of metformin for first-line diabetes therapy and strengthen the evidence about the cardiovascular advantages of metformin compared with sulfonylureas. This study was supported in part by AHRQ

(Contract No. 290-05-0042).

See “Comparative effectiveness of sulfonylurea and metformin immunotherapy on cardiovascular events in type 2 diabetes mellitus. A cohort study,” by Christianne L. Roumie, M.D., Adriana M. Hung, M.D., Robert A. Greevy, Ph.D., and others in the November 2012 *Annals of Internal Medicine* 157, pp. 601-610. MWS



Simultaneous control of diabetes, hypertension, and high cholesterol is difficult to achieve

The number of Americans living with multiple chronic conditions is growing. More than 75 million individuals have two or more chronic conditions such as diabetes, hypertension, and hyperlipidemia (high cholesterol). Patients with all three conditions struggle to control them properly, suggests a new study. It found that simultaneous control of diabetes, hypertension, and hyperlipidemia is quite uncommon. When patients are successful at controlling all three conditions, it often lasts for only a short period of time.

Researchers retrospectively studied two large groups of patients with these three chronic diseases receiving care at two health systems in Colorado from 2000 through 2008. Three primary outcomes were used to define control of each condition as recommended by the American Diabetes Association guidelines. For diabetes, it was a glycosylated hemoglobin (HbA1c) of <7.0 percent. Blood pressure had to be maintained at <130/80. The low-density lipoprotein (LDL) cholesterol had to be <100 mg/dL. Median follow-up times were 4.0 and 4.4 years for each group.

The rates of meeting any one individual risk factor goal ranged from 61 to 89 percent. Simultaneous control of all three conditions was uncommon. Only 16 percent in one group and 30 percent in the other group achieved this. Even when they did, they had a hard time maintaining it. For example, during the 90 days following achieving this triple goal, 23 percent in one group and 39 percent in the other group lost and then regained control. The rates of never losing control during this period were only 13 percent and 5 percent, respectively. A rise in blood pressure was the most likely reason to lose control, followed by increases in HbA1c and cholesterol.

When less strict goals were applied, the percentage of patients achieving simultaneous control increased to 44 percent and 70 percent in each group. The ability to achieve simultaneous control declined as the severity of conditions increased. However, as medication adherence increased, so did simultaneous control. The study was supported in part by AHRQ (HS17627).

See “Simultaneous control of diabetes mellitus, hypertension, and hyperlipidemia in 2 health systems,” by Emily B. Schroeder, M.D., Ph.D., Rebecca Hanratty, M.D., Brenda L. Beaty, M.S.P.H., and others in the September 2012 *Circulation Cardiovascular Quality and Outcomes* 5, pp. 645-653. KB



Serious mental illness not associated with higher hospital readmission for diabetic patients

Although patients with serious mental illness (SMI) and other chronic illnesses are considered a high-risk group, a new study found that patients with SMI and diabetes were not more likely than other patients to be readmitted to the hospital a month after discharge. The researchers examined 26,878 admissions of patients with diabetes to a large urban hospital.

Of patients with SMI age 35 or younger, SMI was significantly associated with decreased odds of

30-day hospital readmission. Male sex, having more than 3 coexisting illnesses, and a hospital stay longer than 4 days were all significant predictors of 30-day readmission. Older age was associated with a greater likelihood of readmission, but this was not statistically significant.

Among patients with diabetes and SMI older than 35, SMI was not significantly associated with readmission. One explanation may be that individuals with SMI die, on



average, 25 years earlier than people who do not have SMI. Thus older patients with SMI with a greater

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Hospital readmission

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risk of hospital readmission may have died already. Another reason is that those patients old enough to be on Medicare may visit a primary care physician rather than returning to the hospital for care.

The prevalence of SMI in the study population was 6 percent. Patients

with SMI differed significantly from those without SMI. They were more likely to be female, younger, to have a lower mean number of coexisting illnesses, and to have spent more time in the hospital during their initial hospital admission. This study was supported by AHRQ (HS21068, HS18111).

For further details, see “Serious mental illness and acute hospital readmission in diabetic patients,” by Jennifer S. Albrecht, B.A., Jon Mark Hirshon, M.D., M.P.H., Ph.D., Richard Goldberg, Ph.D., and others in the *American Journal of Medical Quality* 27, pp. 503-508, 2012. ■
MWS

Antitumor necrosis factor- α therapy boosts rate of mycobacterial diseases in patients with rheumatoid arthritis

Some of the 2 million patients in the United States who have rheumatoid arthritis (RA), an autoimmune inflammatory disease, are treated with antitumor necrosis factor (anti-TNF) therapy, which suppresses the immune system. A new study found that rates of tuberculosis (TB) and nontuberculous mycobacterial (NTM) disease among anti-TNF therapy users to be fivefold to tenfold higher than disease rates seen in patients with RA not taking these drugs and the general population. The researchers advise clinicians to continue to screen for TB prior to use of anti-TNF therapy and to remain vigilant for the presence or development of NTM disease in patients who use these therapies.

They identified 8,418 patients belonging to the Kaiser Permanente Northern California (KPNC) health maintenance organization, who received anti-TNF therapy between the beginning of 2000 and the end of 2008. They found that 61 percent of these patients had diagnosis codes for RA in their medical records; 64 percent were women, and 61 percent were non-Hispanic whites. Within this group, the researchers identified 16 patients who developed TB at a median of 670 days after starting anti-TNF therapy, and 18 patients who developed NTM infections at a median of 1,027 days after starting this therapy.

The incidence of TB per 100,000 person-years was 56 among patients with RA treated with anti-TNF therapy compared with 2.8 per 100,000 person-years among the general population of KPNC patients. For NTM diseases, the incidence per 100,000 patient-years was 105 (RA anti-TNF users) versus 4.1 (general KPNC population). Patients who were anti-TNF users who



were at risk for developing TB were 80 percent less likely to be white, 3 times more likely to have diabetes, and 4.8 times more likely to have chronic kidney disease. Those at risk for developing NTM diseases were 11 times more likely to be white, 5.3 times more likely to have gastroesophageal reflux disease, and 6.5 times more likely to have chronic lung disease.

The researchers used data from the KPNC automated pharmacy records to identify patients who received anti-TNF therapy during 2000–2008. The study was funded in part by AHRQ (HS17552).

More details are in “Mycobacterial diseases and antitumor necrosis factor therapy in USA,” by K.L. Winthrop, M.D., M.P.H., R. Baxter, M.D., L. Liu, M.S., and others in the January 2013 *Annals of Rheumatic Disease* 72(1), pp. 37–42. ■ DIL

Smoking does not reduce the effectiveness of rheumatoid arthritis treatment

Cigarette smoking is a risk factor for many diseases, including rheumatoid arthritis (RA). Some previous studies have shown that smoking may also reduce the response to treatment. However, a new study finds that smoking does not affect treatment response in patients receiving combination therapy.

The patients studied had early RA for less than 3 years. Study participants were randomized into four groups. The first two groups received early intensive treatment with methotrexate and etanercept or with methotrexate, hydroxychloroquine, and sulfasalazine (triple therapy). The third and fourth groups received initial treatment with methotrexate alone. Their regimen was intensified

by stepping up to methotrexate and etanercept or to triple therapy if the patient still had disease at 24 weeks.

The concentration of cotinine, a metabolite of nicotine, in serum specimens drawn at baseline and 48 weeks later, was used to define smokers ($>5\text{ng/ml}$) and heavy smokers ($>100\text{ ng/ml}$). Patients were not asked about passive exposure to cigarette smoke, use of medicinal nicotine, or therapy with isoniazid.

Among 412 participants, 293 were nonsmokers and 119 were smokers, with the majority being heavy smokers. Overall, there was no significant difference in treatment response between smokers and nonsmokers at weeks 24, 48, and 102 of therapy. This finding persisted after adjustment for age, sex, race,

disease duration, functional status, and other factors. Smokers and nonsmokers did not differ in the frequency of serious adverse events from treatment. The researchers pointed out, however, that their findings did not eliminate the need to promote smoking cessation in patients with RA. The study was supported in part by AHRQ (HS18517).

See “Serum cotinine as a biomarker of tobacco exposure and the association with treatment response in early rheumatoid arthritis,” by Leann B. Maska, M.D., Harlan R. Sayles, M.S., James R. O’Dell, M.D., and others in the December 2012 *Arthritis Care & Research* 64(12), pp. 1804-1810. ■ KB

People with disabilities frequently experience pain and fatigue

Approximately 1 in 5 people in the United States have a disability. These individuals can experience a range of symptoms, which in turn, can affect their health status and physical functioning. In fact, a new study found diverse and significant symptom experiences among people with disabilities, with pain and fatigue being the most common symptoms.

A total of 12,249 Midwestern adults aged 40 and older returned a questionnaire asking them to describe how frequently they experienced 1 or more of 21 commonly reported symptoms. They also answered questions about whether or not they had a disability, their perceived health status, physical functioning, number of medications taken, and demographic details.

More than a third of those surveyed (37.8 percent) reported a disability. Among nondisabled respondents, 67.4 percent reported excellent or very good health compared to only 24.7 percent of those with a disability. However, there were some persons with a disability who reported very good or excellent health.

For all participants, the top four most frequently experienced symptoms were joint pain, muscle pain, backache, and sleeping problems. The adults with disabilities had significantly greater prevalence and frequencies of all 21 symptoms listed in the questionnaire, especially for pain and fatigue.

There was a strong association between the reporting of symptoms and lower self-rated general health status, as well as poorer self-reported physical function. On average, participants took three medications. After controlling for disability and

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Disabilities

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demographics, the researchers found a significant negative association with the number of medications taken and self-reported general health status and physical functioning. The study was supported in part by AHRQ (HS16094).

See “Living with disability: Patterns of health problems and symptom mediation of health consequences,” by Brandon J. Patterson, Pharm.D., William R. Doucette, Ph.D., Scott D. Lindgren, Ph.D., and Elizabeth A. Chrischilles, Ph.D., in *Disability and Health Journal* 5, pp. 151-158, 2012. ■ KB

Primary Care

Primary care practices can improve colorectal cancer screening

Although screening rates for colorectal cancer have increased in the past decade, rates remain lower than those for mammography and cervical cancer. In fact, there is much room for improvement in colorectal cancer screening in primary care practices, suggests a new study. It found wide variation in how well practices perform evidence-based colorectal cancer screening steps, and suggests several steps that primary care practices can add to raise screening rates.

Clinicians and staff at 15 primary care practices received a written survey asking them about performing four steps associated with screening colonoscopy and seven steps associated with stool blood test screening. From the responses, the researchers were able to calculate the percentage of respondents from each practice

who reported that a given step was performed in their practice.

Screening colonoscopy steps included ordering and scheduling the procedure, and contacting and rescheduling no-show patients. Similar steps were included for stool blood test screening as well as giving results and sending positive patients for followup colonoscopy. A total of 205 surveys were received for analysis (72 percent response rate).

Wide variation among the 15 practices was discovered when it came to performing individual evidence-based steps. For example, within the stool blood testing category, the second reminder step of contacting nonresponders was only performed by 46 percent of all practices. Another reminder function, contacting patients with positive stool tests who didn't appear for followup colonoscopy, had an average performance rate of 62 percent. Rescheduling of no-shows only occurred in 64 percent of practices.

Contacting colonoscopy no-shows was performed by 36 percent of practices. Rescheduling colonoscopy no-shows averaged 38 percent. According to the researchers, adopting health delivery mechanisms, such as patient-centered medical homes, can improve screening rates. Communication and coordination of care between primary care practices and colonoscopy practices can decrease confusion over which steps have been completed. The study was supported in part by AHRQ (Contract No. 290-06-00014).

See “Variation in colorectal cancer screening steps in primary care: Basis for practice improvement,” by Mona Sarfaty, M.D., M.P.H., F.A.A.F.P., Ronald E. Myers, Ph.D., Daniel M. Harris, Ph.D., and others in the *American Journal of Medical Quality* 27(6), pp. 458-466, 2012. KB



Acute Care/Hospitalization

Odds of receiving a transfusion during major noncardiac surgery can vary fourfold among hospitals

Your chance of receiving a blood transfusion during major noncardiac surgery depends on the hospital in which you have your operation, according to a new study. While blood transfusion reduces risks associated with anemia, overuse of blood transfusions may pose serious health risks to patients having major surgery. The researchers used a database of surgical procedures conducted at academic medical centers to look at transfusions in 77 hospitals for 54,405 patients undergoing primary total hip replacement (THR), 21,334 patients having primary colectomy, and 7,929 patients undergoing primary, pancreatic duodenectomy.

Hospitals were characterized as being high-transfusion, average-transfusion, and low-transfusion. Among the THR patients, 31 percent received perioperative red blood cell (RBC) transfusion, 0.9 percent received frozen fresh plasma (FFP) transfusion, and 0.5 percent received perioperative platelet transfusion. The hospital-specific transfusion rates for THR ranged from 1.5–77.8 percent for RBCs, 0–11.4 percent for FFP, and 0–6.3 percent for platelets. Comparable levels of variability occurred for each of the other major noncardiac surgeries studied.

When the researchers grouped the hospitals into high-, average-, or low-transfusion (separately for each

type of surgery), patients undergoing THR had a 2.4 higher odds of receiving RBCs at a high-transfusion hospital than an average-transfusion hospital, but 55 percent lower odds of doing so at a low-transfusion hospital. Comparable differences were noted for the use of FFP and platelets during THR. Differences in transfusion rates among the hospitals were similar for colectomy and pancreatic duodenectomy. The findings were based on data from the University HealthSystem Consortium database for June 2006 through September 2010. The study was funded in part by AHRQ (HS16737).

More details are in “Variation in blood transfusion in patients undergoing major noncardiac surgery,” by Feng Qian, M.D., Ph.D., Turner M. Osler, M.D., Michael P. Eaton, M.D., and others in the February 2013 *Annals of Surgery* 257(2), pp. 266–278. ■ *DIL*



Presurgical evaluations and epilepsy surgery are no longer limited to large medical centers

Surgery for epilepsy produces good outcomes, yet it remains an underused treatment option. This surgery requires inpatient evaluation using video electroencephalography (VEEG) to monitor brain wave activity and seizures. Another evaluation, called intracranial EEG, uses electrodes placed directly on the exposed brain to map out epileptic zones prior to surgery. A new study of trends in presurgical evaluations for epilepsy from 1998

to 2009 found that hospitalization rates for intractable epilepsy and VEEG monitoring increased. In addition, more presurgical evaluations were being performed in nonteaching hospitals. Yet, this did not translate to more use of epilepsy surgery over time.

Data were obtained from the Nationwide Inpatient Sample to identify hospital admissions for presurgical evaluation and/or surgery in patients with epilepsy.

The year of discharge was grouped into two time periods: 1998–2003 and 2004–2009. By using U.S. Census population estimates and the prevalence rate of epilepsy (7.1/1,000 persons), the researchers estimated the number of individuals with epilepsy.

During the study period, more patients from older age groups underwent epilepsy surgery and

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Epilepsy surgery

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pre-surgical diagnostic evaluations. An increase in surgery was also noted for patients in the 0–17 year age group. More evaluations and surgeries were performed in nonteaching hospitals. The researchers also found a significant

rise in intractable epilepsy-related discharges and VEEG monitoring. However, there were no changes in the use of intracranial EEG monitoring or epilepsy surgery overall. The study was supported in part by AHRQ (T32 HS00059).

See “Temporal trends in pre-surgical evaluations and epilepsy surgery in the U.S. from 1998 to 2009,” by Nicholas K. Schiltz, Ph.D., Siran M. Koroukian, Ph.D., Samden D. Lhatoo, M.D., and Kitti Kaiboriboon, M.D., in *Epilepsy Research* 103, pp. 270-278, 2013.

■ KB

Most stroke patients are assessed for rehabilitation during their initial hospitalization

Rehabilitation is the key to functional recovery and psychological adjustment for patients who have suffered a stroke. In fact, stroke survivors have been found to do better when treated in a facility where they can receive coordinated, multidisciplinary, stroke-related evaluation and rehabilitation services. A new study found that nearly 90 percent of acute stroke patients enrolled in a registry of stroke patients from 1,532 acute hospitals in the United States had an assessment for rehabilitation services documented in their medical record.

The researchers used data from the stroke registry for patients admitted to a participating hospital during the 3-year study period to determine whether the patient's record included any of six indications of evaluation for rehabilitation. Patients with an assessment were likely to be younger (decreasing by 16 percent for each 10-year increase in age). They were also 11 percent more likely to be male, more likely to be black (by 38 percent) or Asian (by 5 percent) than white, and more likely to have Medicare or Medicaid (by 7 percent

or 8 percent, respectively) than private or Veterans Administration insurance.

Patients who had a stroke while in a rehabilitation or long-term-care facility were 55 percent less likely to have an evaluation, but patients with longer hospital stays were 3 percent more likely and those who received care in a stroke unit were 38 percent more likely to be assessed for rehabilitation. The findings were based on analysis of data on patients in the American Heart Association's Get With the Guidelines—Stroke national registry and performance improvement initiative from January 1, 2008, through March 31, 2011. The study was funded in part by AHRQ (HS19479).

More details are in “Assessing stroke patients for rehabilitation during the acute hospitalization: Findings from the Get With the Guidelines—Stroke Program,” by Janet A. Prvu Bettger, Sc.D., Lisa Kaltenbach, M.S., Mathew J. Reeves, Ph.D., and others in the January 2013 *Archives of Physical Medicine and Rehabilitation* 94(1), pp. 38–45. ■ DIL

Statin users found to have a reduced risk of *C. difficile* infection

Patients who use statins, a class of drugs used to reduce risk of heart disease by lowering the level of low-density lipoprotein (LDL)-bound cholesterol in the blood, gain an unrelated benefit, according to a new study. Taking statins also reduces by 22 percent hospitalized patients' risk of infection with the bacterium *Clostridium difficile*. This microbe is thought to cause 20 percent of all cases of hospital-

acquired diarrhea, and spread of a new strain of *C. difficile* in the United States has increased mortality rates from this infection. The cost of managing *C. difficile* infections exceeds \$3.2 billion annually.

When the researchers compared 31,472 *C. difficile* cases and 78,096 matched controls, they found that significantly fewer of the infected

patients were taking statins than were the uninfected controls (17.7 percent vs. 22.1 percent). Furthermore, all of the commonly used statins showed this protective effect, ranging from a 28 percent reduction for patients taking lovastatin to a 14 percent reduction for those taking pravastatin. None of the nonstatin cholesterol-lowering

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Statin users

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drugs significantly reduced the risk of *C. difficile* infection, while resins (bile acid sequestrants) increased the risk more than threefold.

The reduced infection risk from statin use may be due to anti-inflammatory properties of statins,

note the researchers. Their findings were based on analysis of case-control data from the University HealthSystem Consortium, a combination of 107 academic medical centers and affiliated hospitals. The study was funded in part by AHRQ (HS18578).

More details are in “Statin use and the risk of *Clostridium difficile* in academic medical centres,” by Christine Anne Motzkus-Feagans, M.P.H., Amy Pakyz, Pharm.D., M.S., Ronald Polk, Pharm.D., and others in *Gut* 61, pp. 1538–1542, 2012. ■ *DIL*

Health Care Costs and Financing

Ambulatory surgery centers and physician offices are less expensive than hospitals for outpatient urological surgery

Nearly 53 million outpatient procedures are performed annually in the United States. While most of these procedures occur in hospital outpatient departments, a growing number are being done in nonhospital-based facilities such as ambulatory surgery centers and physician offices. A new study encourages providing outpatient surgery in these less-resource-intensive settings.

It found that urological surgery (except for two procedure groups) performed in ambulatory surgery centers and physician offices was associated with lower overall episode payments than hospitals. Average total payments for outpatient surgery episodes varied widely, from \$200 for urethral dilation at a physician office to \$5,688 for shock wave lithotripsy at a hospital. Compared to hospitals, office-based prostate biopsies were nearly 75 percent less costly.

The biggest driver of payment differences among hospitals, ambulatory surgery centers, and physician offices was outpatient facility payment. For example, outpatient facility payments accounted for 88 percent of the 30-day payments following shock wave lithotripsy at a hospital.

The researchers used national Medicare claims data to examine episode payments for 22 common outpatient urological procedures between 1998 and 2006. The study was not able to assess the impact of the Centers for Medicare & Medicaid rule beginning in 2008 that mandated reimbursement of facility fees for ambulatory surgery centers at two-thirds the rate of hospitals. The study was supported by AHRQ (HS18726).

See “Medicare payments for outpatient urological surgery by location of care,” by John M. Hollingsworth, M.D., Chris S. Saigal, M.D., M.P.H., Julie C. Lai, M.P.H., and others in the *Journal of Urology* 188, pp. 2323-2327, 2012. *MWS*



Older teens with type 1 diabetes face challenges as they transition into adult care

As individuals with type 1 diabetes transition from their late teens into their 20s, they are faced with special challenges. Young adults with type 1 diabetes are at risk for gaps in medical followup, poor glycemic control, diabetes-related complications, and even early death. The transition from pediatric to adult diabetes providers can add further challenges, according to a new study.

The researchers mailed surveys to and received them back from 258 young adults with type 1 diabetes, with an average age of 19.5 years. Participants were asked about their living arrangements, education level, occupation, and coexisting medical conditions.

Other questions asked about their reasons and preparation for transition to adult care, how satisfied they were with the process, and any gaps in care. From the medical record, the researchers collected data on age, sex, race, insurance, and

most recent HbA1c level (a marker of blood-sugar control).

A third of patients reported gaps of more than 6 months between pediatric care and the establishment of adult diabetes care. The majority never had a transition preparation visit or received written transition materials. Patients less likely to report this gap had strong transition preparation as well as three or more pediatric diabetes visits in the year before their transition into adult care.

When asked about how prepared they felt to make the transition, only 63 percent reported feeling mostly or completely prepared. In addition, only 62 percent felt being mostly or completely satisfied with the process. Less than 15 percent reported receiving a transition preparation visit or being given written materials on it. In addition, less than half received a recommendation from an adult provider.

While transition preparation decreased care gaps, it did not improve post-transition HbA1c levels. Pre-transition HbA1c predicted post-transition HbA1c, as did the patient's level of education. The researchers point out that more robust transition preparation may be needed to ultimately improve young adult HbA1c. Interventions should be developed to improve the transition process and deliver developmentally tailored care as these young adults enter adult diabetes care. The study was supported in part by AHRQ (T32 HS00063).

See "Health care transition in patients with type 1 diabetes," by Katharine C. Garvey, M.D., M.P.H., Howard A. Wolpert, M.D., Erinn T. Rhodes, M.D., M.P.H., and others in the August 2012 *Diabetes Care* 35, pp. 1716-1722. ■ KB

Pediatric readmission rates vary by condition and hospital type

A new study reveals that pediatric hospital readmission rates, one indicator of quality of care, vary by medical condition and hospital type. Researchers examined 568,845 admissions at 72 children's hospitals in 34 States for patients 18 years and younger discharged during a 1-year period.

They looked at readmissions for 10 conditions with the highest prevalence of readmission, defined as the first unplanned hospital admission within 30 days of the initial hospitalization. They also collected other patient and hospital characteristics.

The 30-day readmission rate for all hospitalized children was 6.5 percent. Among the children readmitted, 39 percent were sent back to the hospital



in the first 7 days after discharge. The majority (61.6 percent) were readmitted in the first 14 days. Readmission rates were higher (7.6 percent) for

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Pediatric hospital readmission

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children aged 13 to 18 years compared to younger children (6.1 to 6.2 percent). Among children with chronic health conditions, children with cancer had the highest readmission rates (21.1 percent) and children with chronic respiratory diseases had the lowest rates (6.1 percent).

Readmission rates increased according to the number of chronic conditions present. The 10 admission diagnoses with the highest number of readmissions accounted for 27.7 percent of all readmissions. The highest readmission rates were observed with admissions for anemia or neutropenia, ventricular shunt procedures, and sickle cell anemia crisis.

Readmission rates also varied significantly across hospitals for 8 of the 10 diagnoses with the highest number of readmissions. Patients with public insurance had the highest readmission rate (6.9 percent), while the uninsured had the lowest rate (4.5 percent). Readmission rates were also higher for patients with longer initial hospital stays. The study was supported in part by AHRQ (HS20513).

See “Pediatric readmission prevalence and variability across hospitals,” by Jay G. Berry, M.D., M.P.H., Sara L. Toomey, M.D., M.Phil., M.P.H., Alan M. Zaslavsky, Ph.D., and others in the January 23/30, 2013 *Journal of the American Medical Association* 309(4), pp. 372-380.

■ KB

Children exposed to partner violence and parental depression are at risk for ADHD

Intimate partner violence (IPV) affects 1 in 4 women and 1 in 7 men. Children who experience this violence in the home are at increased risk for behavioral and mental health problems. According to a new study, a child's exposure to IPV and maternal depression before age 3 is associated with the development of attention-deficit/hyperactivity disorder (ADHD). Early exposure to parental depression is also associated with the child being prescribed psychotropic medications.

The study followed 2,422 children receiving care from 4 pediatric clinics. Each child had at least two documented visits. The first visit was between birth and age 36 months, while the second visit was between 37 and 72 months of age. During routine primary

care encounters, their parents were screened for IPV and depression.

By the time their child turned 3 years old, 58 parents (2.4 percent) had reported IPV and depressive symptoms together. Another 69 parents (2.8 percent) reported IPV only. Finally, 704 parents (29.1 percent) reported depressive symptoms only. After 3 years of age, the prevalence of ADHD (4.5 percent) in children was significantly associated with depressive symptoms in their parents.

This compares to 2.8 percent in children of parents without depressive symptoms. These children also had a higher likelihood of receiving psychotropic medications (2.9 percent vs. 1.6 percent). For exposure to IPV, the rates were 6.3 percent versus 3.1 percent, respectively. Children of parents with both IPV and depressive symptoms before age 3 were more likely to develop ADHD after age 3 years compared to non-exposed children.

The researchers recommend that pediatricians increase their efforts to screen these younger children for exposure to IPV and other risk factors when a parent or teacher is concerned about the child's behavior. If IPV or parental depressive symptoms are identified, there can be active surveillance at each visit for changes in behavior. In addition, parents with depression should be treated as part of the child's overall treatment plan. The study was supported in part by AHRQ (HS18453).

See “Associations of early exposure to intimate partner violence and parental depression with subsequent mental health outcomes,” by Nerissa S. Bauer, M.D., M.P.H., Amy L. Gilbert, J.D., M.P.H., Aaron E. Carroll, M.D., M.S., and Stephen M. Downs, M.D., M.S., in the February 4, 2013 *JAMA Pediatrics* 167(4), pp. 341-347. KB

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Disparities/Minority Health

Socioeconomic status does not influence how black parents position their infants for sleep

Since 1992, the incidence of sudden infant death syndrome (SIDS) has decreased by 50 percent. Yet, black infants remain twice as likely as white infants to be placed on their stomachs instead of their backs—the position recommended to prevent SIDS. Recently researchers surveyed black parents about their infant sleep position to see how this practice varied by socioeconomic status (SES). They found no differences in infant sleep position practices among black families based on SES. However, their findings suggested that black families with lower SES can benefit from sleep position recommendations from their health care provider.

Black parents with infants 6 months of age or younger were recruited from primary care pediatric clinics and private practices. The 412 parents participated in a 15-minute survey delivered by staff. They were asked about their knowledge of SIDS, their attitudes and practices about infant sleep positions, and demographic characteristics.

Of the 412 parents, 264 were of lower SES and 148 were of higher SES. The majority of parents (62.9 percent) exclusively placed infants on their backs to sleep. Another 8.5 percent placed infants on their side, while 9.5 percent placed infants on their stomachs. Nearly 20 percent did not consistently use one sleep position.

The researchers found no differences in the use of any infant sleep position based on SES or educational level. Those parents with higher SES were significantly



more likely to say they knew what SIDS was. No significant differences were observed between higher and lower SES groups when it came to identifying the supine sleep position as the recommended position for infants. The same was true for believing that prone sleeping places babies at increased risk for SIDS.

Parents who received a recommendation that they place their infants on their back for sleeping from their health care providers were more likely to know what SIDS was and that the supine position was recommended by the American Academy of Pediatrics. This recommendation for lower SES families made them more likely to occasionally use the supine position and less likely to use the side position. The study was supported in part by AHRQ (HS16892).

See “Factors influencing infant sleep position: Decisions do not differ by SES in African-American families,” by David Robida, M.D., and Rachel Y. Moon, M.D., in the *Archives of Diseases in Childhood* 97, pp. 900-905, 2012. KB



Frequent tea consumption leads to significant health benefits in older men

Want to live to a very old age with a lower risk of death or disability? Then you should probably drink a cup of tea nearly every day—at least if you are Chinese, according to a new study. Previous studies of persons from many countries have shown that drinking tea regularly appears to offer some protection against stroke, lung cancer, prostate cancer, and breast cancer. In a study of 32,606 individuals (13,429 men and 19,177 women) in China aged 65 years or older, the researchers found that men who drank tea nearly every day (five or more times weekly) had a substantially reduced risk of poor overall health than men who seldom drank tea (once a week or less).

For men 65 to 84 years old who drank tea almost daily, the risk of

poor overall health was 46 percent less than that of men in the same age group who seldom drank tea. The risk for overall poor health was 32 percent less for men aged 85 years and older. The effect of nearly daily consumption of tea among women resulted in a risk reduction of 33 percent for women aged 65 to 84, and a 15 percent reduction among women aged 85 year or older.

The researchers reported similar age- and sex-related differences for disabilities in activities of daily living, cognitive impairment, and self-reported poor health for overall health. Only in the risk of suffering from cardiovascular disease did women who drank tea almost daily show more protection than did men when compared with those of

the same sex who seldom drank tea.

The findings were based on analysis of data from the Chinese Longitudinal Healthy Longevity Survey observations for 1998, 2000, 2002, and 2005. The study was funded in part by AHRQ (T32 HS00079).

More details are in “Associations between frequency of tea consumption and health and mortality: Evidence from old Chinese,” by Li Qiu, B.S., Jessica Sautter, Ph.D., and Danan Gu, Ph.D., in the November 2012 *British Journal of Nutrition* 108(9), pp. 1686–1697. ■ *DIL*



Radiation treatments show similar results in prostate cancer patients after surgery

For patients who require radiotherapy following post-prostatectomy, the prostate cancer therapies intensity-modulated radiotherapy (IMRT) and conformal radiotherapy (CRT) achieved similar morbidity and cancer control results, according to new research from AHRQ's Effective Health Care Program. IMRT is a newer and more costly treatment option for post-prostatectomy patients who have received adverse pathology results or have recurrent disease. Men who received IMRT versus CRT showed no significant difference in rates of long-term gastrointestinal morbidity, urinary nonincontinent morbidity, urinary incontinence, or erectile dysfunction. There was also no significant difference in subsequent treatment for recurrent disease.

It remains unclear whether the potential benefits of a more focused radiation technique will be realized in terms of improving outcomes of men with localized prostate cancer, according to this population-based study, funded by AHRQ. Researchers used the Surveillance, Epidemiology, and End Results (SEER)—Medicare-linked database in their analysis, which is the largest study to compare patient outcomes from IMRT with those from CRT.

More details are in “Comparative Effectiveness of Intensity-Modulated Radiotherapy and Conventional Conformal Radiotherapy in the Treatment of Prostate Cancer After Radical Prostatectomy” by Gregg H. Goldin, M.D., Nathan C. Sheets, M.D., Anne-Marie Meyer, Ph.D., and others in *JAMA Internal Medicine*, 173(9), 2013. ■

Comparative Effectiveness Research

Bariatric surgery effective for treating diabetes in some obese patients

There is some evidence to suggest that bariatric surgery is effective in the short term for treating diabetes in patients who are obese (body mass index [BMI] of at least 30 but less than 35 kg/m²) based upon blood-glucose (HbA1c) outcomes, according to a new AHRQ research review that was published in *The Journal of the American Medical Association* on June 5, 2013.

Specifically, evidence suggests that laparoscopic adjustable gastric banding, Roux-en-Y gastric bypass, and sleeve gastrectomy are effective for treating diabetes and impaired glucose tolerance.

At 1 year, patients showed greater weight loss than usually seen in studies of diet, exercise, or other behavioral interventions. While short-term harms associated with bariatric surgery appear to be relatively minor in these patients, there is not yet enough data to

fully understand all the potential harms. Also, there is not yet enough evidence to determine if surgical intervention is effective in the long term.

Bariatric surgery has consistently been used in populations with a BMI of greater than 40.0 kg/m² (morbidly obese), and in those patients with a BMI of 35.0 to 39.9 kg/m² (severely obese), who suffer from significant weight-related comorbidities such as diabetes. In the past few years, bariatric surgery has been suggested as an option for patients with lower BMIs as a way to treat diabetes and other metabolic conditions.

While lifestyle interventions such as diet and exercise can be effective in reducing obesity and other weight-related issues like diabetes, heart disease, and hypertension, some people with lower BMIs may benefit from surgical intervention



to address these potentially life-threatening comorbidities.

These findings can be found in the research review *Bariatric Surgery and Nonsurgical Therapy in Adults With Metabolic Conditions and a Body Mass Index of 30.0 to 34.9 kg/m²*. You can access the review at <http://go.usa.gov/bdUT>. Laura will shorten the link. ■

SmartPill equally effective at detecting gastroparesis and constipation

A new research review from AHRQ's Effective Health Care Program finds that the wireless motility capsule (WMC), also known as the SmartPill, has similar accuracy to current testing methods for detecting gastroparesis (delayed gastric emptying), or slow-transit constipation, and may provide increased diagnostic gain compared with standard motility testing, such as gastric scintigraphy. The WMC is a small device that when swallowed can detect specific transit times in the stomach, small bowel, and colon. This device is a portable, one-time use, ingestible capsule that records and transmits data to a receiver as it travels through the gut.

Gastroparesis affects more than 1.5 to 3 million Americans, and 15 to 20 percent of the U.S. population

suffers from constipation. WMC could improve how clinicians test for gastroparesis or slow-transit constipation, because it's small and can be transported to patients wherever they live. Also, the capsule does not involve any radioactive material or x-ray exposure, and can record information about pressure, transit, and location simultaneously.

While the strength of evidence is low, the data were relatively consistent and suggested that WMC is no less sensitive than gastric scintigraphy. More research is needed to evaluate how the WMC should be used in combination with or instead of other testing modalities for evaluating slow-transit constipation

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SmartPill

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and gastroparesis. Studies reporting patient-centered outcomes, such as the need for medications and additional tests, are also needed to see if testing helps to improve quality of life or symptom control.

These findings can be found in the research review, *Wireless Motility Capsule Versus Other Diagnostic Technologies for Evaluating Gastroparesis and Constipation: A Comparative Effectiveness Review* at <http://go.usa.gov/bdU9>. ■

Tools can improve health care provider adherence to asthma guidelines

A number of clinical guidelines are available for the diagnosis and management of asthma. However, despite the evidence of improved outcomes associated with adherence to guidelines, their long-term existence, and widespread availability, health care providers

do not routinely follow asthma guideline recommendations.

A new research review from AHRQ finds decision support tools, feedback and audit, and clinical pharmacy support may improve the adherence of health care providers to asthma guidelines, as measured through health care process outcomes, and improve clinical outcomes. However, additional evaluations of how these interventions may improve clinical outcomes for

patients with asthma are needed.

Further research should evaluate other types of interventions targeted to health care providers, with a focus on standardized measures of outcomes such as missed school days or work days, more rigorous study designs, and addition of cost measures. These findings can be found in the research review, *Interventions To Modify Health Care Provider Adherence to Asthma Guidelines* at <http://go.usa.gov/bdUm>. ■ ■ ■

More research needed to effectively prevent blood clots in special populations

A new AHRQ research review finds that there is a lack of high-quality evidence on the comparative effectiveness and safety of techniques to prevent venous thromboembolism (VTE) in special populations, including those hospitalized with trauma, traumatic brain injury, burns, or liver disease; patients on antiplatelet therapy; and obese or underweight patients. VTE affects an estimated 900,000 Americans every year, resulting in significant morbidity and mortality.

There were few high-quality randomized controlled trials on preventing VTE, while the majority of observational studies had a high risk of bias. However, low strength evidence suggests that inferior vena cava (IVC) filter placement is associated with a lower occurrence of pulmonary embolism (PE) and fatal PE in

hospitalized patients with trauma compared to no IVC filter placement. Low strength evidence also suggests that the drug enoxaparin reduces deep vein thrombosis and unfractionated heparin reduces mortality in patients with traumatic brain injury when compared to patients who do not receive anticoagulation agents.

Given that clinical trials typically exclude or do not report on these populations, more high-quality observational research on VTE prevention in special populations is needed that controls for confounding variables, such as provider and practice patterns and disease severity. These findings can be found in the research review *Pharmacologic and Mechanical Prophylaxis of Venous Thromboembolism Among Special Populations* at <http://go.usa.gov/bdUA>. ■

Review finds insufficient evidence to compare effectiveness of most local therapies for inoperable primary liver cancer

There is not enough evidence in the available literature to draw conclusions about outcomes (overall survival, quality of life, disease progression, local recurrence, length of hospital stay, and days of work missed) and adverse events across the majority of the local hepatic therapies that were studied for the treatment of unresectable primary hepatocellular carcinoma (HCC), concludes a new research review from AHRQ.

However, there is moderate strength of evidence demonstrating that radiofrequency ablation (RFA) improves overall survival at 3 years and low strength of evidence indicating that RFA lengthens the time to disease progression and results in better local disease control compared with percutaneous

ethanol or acetic injections (PEI/PAI).

In patients with larger tumors, there is low strength of evidence demonstrating longer overall survival after RFA compared with PEI/PAI. However, this difference in survival was not found in patients with smaller tumors. A low strength of evidence also shows that patients treated with RFA remain in the hospital longer than patients treated with PEI/PAI.

HCC is the fifth most common cancer and the third leading cause of cancer death worldwide. Approximately 80 percent of patients with primary HCC—the most common type of liver cancer—are not candidates for surgery because of advanced-stage disease, tumors in unresectable

locations, or other medical conditions that result in high surgical risk. Local therapies (e.g., ablation, embolization, and radiotherapy), which are used to prolong survival and/or palliate symptoms in these patients, are an important part of disease management.

The review highlights the need for additional clinical studies to address the current gaps in research, especially considering that the incidence of and mortality rate due to HCC are projected to increase worldwide in the next 20 years.

These findings are available in the research review, *Local Therapies for Unresectable Primary Hepatocellular Carcinoma* at <http://go.usa.gov/bdUJ>. ■

More research needed on effective treatments for peripheral artery disease

Available evidence for treatment of patients with peripheral artery disease (PAD) is limited by the few studies that provide direct comparisons of treatment options, according to a research review from AHRQ. A limited number of studies on antiplatelet therapy for the prevention of cardiovascular events in patients with PAD found that aspirin has no benefit over placebo in asymptomatic PAD patients.

Dual antiplatelet therapy is not significantly better than aspirin at reducing cardiovascular events in patients with intermittent claudication (IC, leg muscle or lower extremity discomfort), or critical limb ischemia (CLI, ischemic rest pain for more than 14 days), ulceration, or tissue loss/gangrene.

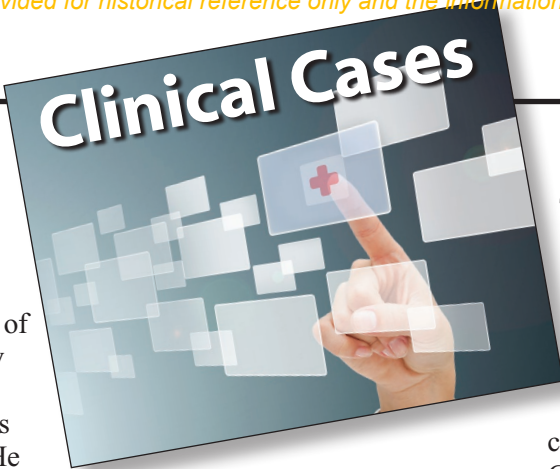
Exercise therapy, medical therapy such as cilostazol, and endovascular or surgical revascularization interventions all had an effect on improving functional status and quality of life for IC patients. However, the

comparative effectiveness of different treatments or combinations of treatments is uncertain.

Roughly 20 to 50 percent of patients diagnosed with PAD are asymptomatic, though they usually have functional impairment when tested. More studies of asymptomatic and symptomatic patients with PAD are needed to firmly conclude whether antiplatelet monotherapy or dual antiplatelet therapy is necessary in this high-risk cardiovascular population.

Additionally, further research is needed to better understand the comparative effectiveness of different treatment options for IC and CLI for different outcomes and in different populations. These findings can be found in the research review, *Treatment Strategies for Patients With Peripheral Artery Disease* at <http://go.usa.gov/bdPY>. ■

Clinical Cases



Right regimen, wrong cancer—patient catches error

The May issue of AHRQ's Web M&M features a Spotlight Case of a 48-year-old man with a history of metastatic penile cancer, who was admitted to a hospital for his fourth round of chemotherapy. He had three previous uncomplicated admissions where he received a standard protocol of 3 days of paclitaxel, ifosfamide, and cisplatin. The patient received this regimen for 3 days with minimal adverse effects. On hospital day 4, the patient was expecting to go home, when his bedside nurse came in and stated that she would be giving him his fourth day of chemotherapy. Surprised, the patient asked to speak with the oncology team who was directing his care. The team realized that rather than the 3-day regimen for metastatic penile cancer, a higher dose 5-day regimen of paclitaxel, ifosfamide, and cisplatin for germ cell cancer had been ordered. The oncology fellow and attending oncologist discussed this with the patient and he was discharged later that day with no adverse consequences.

The accompanying commentary written by Joseph O. Jacobson, M.D., M.Sc., and Saul N. Weingart, M.D., Ph.D., attributes the error to choice of the wrong paper order set by the oncology fellow that included the correct agents, but that he failed to notice had the higher dose and incorrect duration. The mistake was not caught by the attending oncologist, who was less familiar with penile cancer, nor caught by other safety checks. The commentators caution that the gradual shift in chemotherapy administration to the outpatient setting has resulted

in a disintegration of inpatient oncology services, with inpatient chemotherapy becoming a "high-risk, low-volume" procedure in which the risk of failure is high.

Polypharmacy

In this case, a 65-year-old man with schizophrenia receives his routine outpatient psychiatric care through an agency. His case manager visits him weekly regarding medication adherence, which includes biweekly visits to his clinic for administration of his risperidone depot injection. He receives all his oral medications dispensed in weekly blister packs from his local pharmacy. However, the risperidone is provided by a separate "specialty pharmacy" that dispenses all long-acting injectable antipsychotics for the agency.

At his usual visit to his local pharmacy to obtain his oral medications, his pharmacist dispensed not only the usual oral medications but also the risperidone depot injection kit. The patient accepted the risperidone without disclosing this fact to his caregiver or case manager. On return to home, he reconstituted the powdered medication and self-administered the risperidone into his gluteus. Two days later, when contacted with a reminder regarding his upcoming injection (at the clinic), he reported his self-administration of the risperidone.

This was a near miss, in that the patient did not receive the duplicate injection. The local pharmacy was advised to not dispense the injectable medication to the patient in the future. The accompanying commentary by B. Joseph Guglielmo, Pharm.D., cautions patients to avoid these types of errors by using a single pharmacy (or a pharmacy chain that maintains an integrated medication profile), requesting pharmacist consultation, and collaboratively ensuring the accuracy of the medication list upon receipt of prescribed medications.

Don't use that PORT: Insert a PICC

A 48-year-old woman receiving neoadjuvant therapy for breast cancer was admitted to the hospital with fever and abdominal pain. A computed tomography scan in the emergency department revealed acute appendicitis and surgery was recommended. Although the patient had a chest port in place, the surgeon refused to access the port, and instead requested placement of a peripherally inserted central catheter (PICC). The surgeon believed that the port device should be exclusively used for chemotherapy, not to provide venous access for other purposes; he felt strongly that such use would increase the risk of infection. Although the vascular access nurse disagreed and advised that the port should be used for vascular access during surgery, the surgeon ordered PICC insertion by interventional radiology.

The patient underwent a complicated PICC placement

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Clinical cases

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requiring multiple insertion attempts and adjustments. The next day, she developed severe arm pain and swelling and was found to have an acute deep venous thrombosis involving the axillary and subclavian veins on the side of the PICC. Surgery was canceled, and she was placed on anticoagulation therapy and managed conservatively for appendicitis. The patient

ultimately recovered, but only after significant complications including contained perforation, peritonitis, and prolonged hospitalization (in addition to the blood clots).

In the accompanying commentary, Roy Ilan, M.D., M.Sc., notes that a highly questionable decision of one team member trumped the legitimate views of another. For better outcomes, he calls for better communication and shared

decisionmaking and suggests that all health care professionals be trained in teamwork.

Editor's note: Physicians and nurses can receive free CME, CEU, or training certification by taking the Spotlight Quiz. You can view the May issue of AHRQ's Web M&M (Moribidity and Mortality Rounds) at www.webmm.ahrq.gov/home.aspx. ■



trauma, non-teaching, and public hospitals had higher rates of transfer. (Source: *AHRQ Healthcare Cost and Utilization Project Statistical Brief #155, Emergency Department Transfers to Acute Care Facilities, 2009*) You can access the brief at <http://go.usa.gov/bdPQ>.

Medical Expenditure Panel Survey Statistical Brief #403, Health Care Expenditures for the Most Commonly Treated Conditions of Women Ages 18 to 39, 2009). You can access the brief at <http://go.usa.gov/bdPB>.



About 1.5 emergency department visits result in transfer to another acute care facility

Approximately 1.5 percent of emergency department visits resulted in transfer to another acute care facility in 2009. Transfer rates differed by the characteristics of patients and hospitals. Rates of transfer were highest for elderly patients, very young children, and people from rural areas. Non-

More than \$138 billion spent on health services for women 18 to 39 years in 2009

More than \$138 billion was spent on health services for women ages 18 to 39 in 2009. Pregnancy and normal childbirth, mental disorders, asthma and chronic obstructive pulmonary disease, and bronchitis and upper respiratory infections accounted for one-third (\$47 billion) of the spending. (Source: *AHRQ*

News and Notes

AHRQ-sponsored conference focuses on competency skills of mental health professionals treating traumatized survivors

The AHRQ-supported conference, “Advancing the Science of Education, Training, and Practice in Trauma,” was held in June at Yale University. The conference was led by Joan Cook, Ph.D., of Yale University and Elana Newman, Ph.D., of the University of Tulsa. The aims were to:

- Identify empirically informed knowledge and skills that mental health providers (primarily psychiatrists, psychologists, and social workers) treating trauma survivors must have from a “competency” perspective.
- Develop training models to provide services to meet the mental health needs of the broad and diverse trauma survivor population.
- Determine assessment strategies for measuring competencies for providing services to traumatized children and adults.

“The conference participants were highly invested in the conference goals,” noted Charlotte Mullican, AHRQ’s senior health advisor on mental health, who attended the conference.

New AHRQ video series profiles health care innovators making a difference

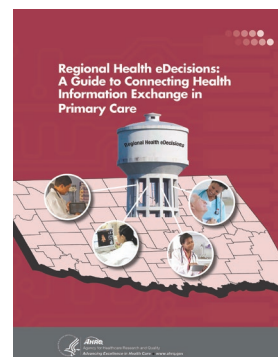
AHRQ’s Health Care Innovations Exchange has launched a new video series profiling health care professionals whose policy innovations have influenced the structures, processes, or outcomes of health care delivery. The innovators share human interest stories that illustrate the key elements of their work and it’s impact. Following are the videos and profiles in the series Healthcare Policy Innovations: Changing Care, Improving Health:

- Bethany Hays, M.D., True North Health Center, Falmouth, ME, explains how @TrueNorthMaine uses innovative policies to enhance access to care for low-income patients. <http://www.youtube.com/watch?v=sgta8r6jRdA>.
- Nancy Langenfeld, M.S., R.N., coordinated school health specialist, Charlotte, NC, describes how a North Carolina school district developed policies to lessen the impact of asthma on its students: <http://www.youtube.com/watch?v=fM51vLL2dNg>.
- Arthur Garson, M.D., M.P.H., director, Institute for Health

Policy, University of Virginia, shares how clinics and hospitals bring in community members to help ensure patients receive appropriate care: <http://www.youtube.com/watch?v=HcZ3cGHRYWw>.

AHRQ publishes guide to connecting health information exchange in primary care

AHRQ has published a new guide that includes best practices for health information exchange to facilitate patient-centered care in primary care practices. As information systems advance, more electronic health records (EHRs) will exchange data with regional health information organizations (RHIOs), and health care organizations will want patient-centered, evidence-based, decision support health care software provided by RHIOs.



The guidebook *Regional Health eDecisions: A Guide to Connecting Health Information Exchange in Primary*

Care addresses the entire process of connecting EHRs to an RHIO and establishing clinical decision support.

The guide specifically introduces providers to:

- Connecting an EHR to a local health information exchange (HIE) hub and RHIO.

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- Incorporating HIE into the clinical practices and workflows of providers using EHRs.
- Connecting clinical decision support to an aggregate HIE database via the Preventive Services Reminder System (PSRS).
- Using the principles of organizational change to implement the connection between clinical decision support, PSRS, and HIE in provider workflows and practices.

This guidebook is based on a project designing, implementing, assessing, and refining the use of local HIE hubs connected to an RHIO in Oklahoma using SMRTNET (September 2007–March 2012). The project involved six primary care practices using different installations of the same EHR.

By the end of 2012, more than 70,000 patient records had been processed from these practices. The project was funded by AHRQ to test the feasibility and impact of HIE and the provision of decision support via a RHIO on the delivery of recommended preventive services and other components of primary care, such as laboratory test

use, medication reconciliation, and coordination of care. You can access the guide at www.healthit.ahrq.gov/RegionalHealthDecisionsGuide.PDF.

AHRQ funds conference to enhance quality improvement science in pediatrics

A highly successful May 2013 Academic Pediatric Association conference, the Third Annual Advancing Quality Improvement Science for Children's Healthcare Research, was funded in large part by an AHRQ conference grant and had a record attendance of 192 people. Lisa Simpson, M.B., B.Ch., president and CEO of AcademyHealth (and former deputy director of AHRQ), provided the national policy context for quality improvement (QI) and QI research.

Breakout sessions addressed such key QI research topics as cluster randomized trials, interrupted time series, advanced regression methods, quality measurement, statistical process control, and funding. A lively closing panel presented the views of senior and more junior QI researchers on developing careers in QI research.

Conference evaluations revealed that participants would like

more similar training. For more information, contact Brenda Harding, AHRQ project officer for the conference grant, at Brenda.Harding@ahrq.hhs.gov or Denise Dougherty, AHRQ senior advisor on child health and quality improvement, at Denise.Dougherty@ahrq.hhs.gov.

New funding opportunity seeks patient-centered outcomes research to close health care disparities

AHRQ is soliciting Research Demonstration Cooperative Agreement applications from institutions to establish and engage relationships with diverse stakeholders to identify effective strategies to reduce racial and ethnic health care disparities through shared decisionmaking. Institutions also will demonstrate how to reduce disparities through the translation, dissemination, and implementation of patient-centered outcomes research findings. This funding opportunity focuses on racial and ethnic minorities in underserved settings. Application deadline is July 31. More details can be found at <http://grants.nih.gov/grants/guide/rfa-files/RFA-HS-13-010.html>.



Research Briefs

Ahern, D.K., Stinson, L.J., Uebelacker, L.A., and others. (2012, September/October). "E-Health blood pressure control program." (AHRQ grant HS18238). *Medical Practice Management*, pp. 91-100.

The researchers describe both technological and human factors design elements necessary to integrate home blood pressure monitoring and patient navigator support into a primary care setting. They found that their e-health blood pressure control system with personal navigator support was well-received by patients and providers.

Clancy, C., and Moy, E. (2013). "Commentary: Measuring what matters most." *Milbank Quarterly* 91(1), pp. 201-204. Reprints (AHRQ Publication No. 13-R055) are available from AHRQ.*

Guidance to aid the selection of measures for tracking inequalities in health care has generally been absent. This article is a commentary on a 2011 *Milbank Quarterly* article by J. Frank and S. Haw that discusses guidelines to assess the appropriateness of measures for tracking socioeconomic inequalities in health outcomes. The authors think that with some small modifications, the approach taken by Frank and Haw can be applied to other types of measures and to uses other than assessing interventions.

Cooke, C.R. (2013, February). "Improving the efficiency of ICU admission decisions." (AHRQ grant HS20672). *Critical Care Medicine* 41(2), pp. 662-663.

This commentary discusses and critiques another article in the same issue (Yang et al) that develops and compares three queuing and simulation-based models to determine the best way to allocate intensive care unit (ICU) beds to incoming postoperative patients in a cardiothoracic ICU. The author's main criticism is that these models rely on a flawed assumption: that all patients who are admitted to the ICU will benefit from critical care services.

Cooke, C.R. and Iwashnya, T.J. (2013, March). "Using existing data to address important clinical questions in critical care." (AHRQ grant HS20672). *Critical Care Medicine* 41(3), pp. 886-893.

The authors examine several existing critical care data sources commonly used for secondary data analysis in critical care and present a practical approach to the selection of a database based on the strength of the source. Their article is aimed both at investigators seeking to answer research questions in critical care and at readers of the medical literature interested in ways to appraise the data sources selected in published studies.

Del Fiol, G., Huser, V., Strasberg, H.R., and others. (2012). "Implementation of the HL7 context-aware knowledge retrieval (Infobutton) standard: Challenges, strengths, limitations, and uptake." (AHRQ grant

HS18352). *Journal of Biomedical Informatics* 45, pp. 726-735.

The authors examined the experience of 17 organizations in the course of implementing the HL7 Infobutton Standard. "Infobuttons" are computerized information retrieval tools that deliver contextually relevant knowledge resources into clinical information systems. Overall, implementers reported a very positive experience with the HL7 Infobutton Standard.

Doshi, P., and Jefferson, T. (2013, March). "The first two years of the European Medicines Agency's policy on access to documents: Secret no longer." (AHRQ grant T32 HS19488). *JAMA Internal Medicine* 173(50), pp. 380-382.

The authors seek to inform discussion of access to clinical trial data by describing how the European Medicines Agency policy is being used. They found that 457 requests for information had been made, mostly by the pharmaceutical industry, media, and law firms. The types of material requested varied widely, with the most frequently requested types being assessment reports, dossiers, and clinical study reports.

Gibbons, R.D., Brown, C.H., Hur, K., and others. (2013, January). "Inappropriate data and measures lead to questionable conclusions—reply." (AHRQ grant HS16973). *JAMA Psychiatry* 70(1), pp. 122-123.

The authors respond to criticisms of their work on antidepressant treatment and suicidal thoughts and behavior in a letter by Spielmanns

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et al. that claims they excluded data from relevant trials, included data from inappropriate trials, and used a poor measure to detect suicidality. Each of these claims is given a detailed response.

Gibbons, R.D., Brown, C.H., Hur, K., and others. (2013, January). “Suicide risk and efficacy of antidepressant drugs—reply.” (AHRQ grant HS16973). *JAMA Psychiatry* 70(1), pp. 124-125. The authors respond in detail to criticisms of their work in a letter by Carroll et al. claiming that their conclusion that there are no significant effects of antidepressant treatment on suicidal thoughts and behavior was unsound. Carroll’s criticism centered on two studies by Gibbons and colleagues that contained risk/efficacy reanalyses of selected data sets on the use of atomoxetine hydrochloride and fluoxetine.

Guisse, J-M., O’Haire, C., McPheeters, M., and others. (2013). “A practice-based tool for engaging stakeholders in future research: A synthesis of current practices.” (AHRQ Contract No. 290-07-10057). *Journal of Clinical Epidemiology* 66, pp. 666-674. In order to learn more about the best methods to engage a wide range of stakeholders in prioritizing patient-centered outcomes and comparative effectiveness research, the authors reviewed 56 relevant articles and conducted interviews with leading research organizations and eight Evidence-based Practice Centers. From the accumulation of findings, they developed recommendations for stakeholder engagement and a reporting checklist.

Hagan, M., and Dowd, B. (2013, April). “Introduction and commentary for special issue simulation techniques in health services research.” *HSR: Health Services Research* 48(2), Part II, pp. 683-685. This editorial states that the special issue on simulation techniques in health services research includes articles which address methodological challenges and solutions to problems when using such techniques. The issue also has articles featuring simulations used to address important content areas in health services research such as supply-side simulation, health care costs, health care policy, and others.

Ibrahim, S.A., and Franklin, P.D. (2013, April). “Race and elective joint replacement: Where a disparity meets patient preference.” (AHRQ grant HS18910). *American Journal of Public Health* 103(4), pp. 583-584. There is a marked racial disparity between black patients compared to white patients in the use of total joint replacement (TJR) surgery. The authors discuss some of the reasons for this disparity and urge that better ways be found to solicit informed preferences from patients considering preference-sensitive treatments such as TJR, especially minority patients who have found the traditional doctor-patient communication a less-than-ideal venue for expressing their choices and beliefs.

Jones, M., Hama, R., Jefferson, T., and Doshi, P. (2012). “Neuropsychiatric adverse events and oseltamivir for prophylaxis.” (AHRQ grant T32 HS19488). *Drug Safety* 35(12), pp. 1187-1188. An earlier study by Toovey et al had stated that in randomized

controlled studies, significantly fewer oseltamivir patients reported neuropsychiatric adverse events (NPAEs) than placebo patients. The authors of this letter request that Toovey prove further details on what events were included in their comparison of NPAE, including the list of 98 preferred terms they mention in their article.

Kesselheim, A.S. (2013, February). “Drug company gifts to medical students: The hidden curriculum.” (AHRQ grant HS18465). *British Medical Journal* [Epub ahead of print]. This editorial comments on an article examining the effect of restricting industry gifts to students on their prescribing of three recently approved brand-name psychotropic drugs. Prescription trends were measured at least 4 years after the policy was implemented, when all students had completed their residencies. The author believes that this study adds an important new dimension to the debate over policies on industry interactions on medical school campuses.

Krishnan, J.A., Lindenauer, P.K., Au, D.H., and others. (2013, February). “Stakeholder priorities for comparative effectiveness research in chronic obstructive pulmonary disease. A workshop report.” (AHRQ grant HS17894). *American Journal of Respiratory Critical Care Medicine* 187(3), pp. 320-326. This article discusses the methodology and development of a national comparative effectiveness research (CER) agenda for chronic obstructive pulmonary disease (COPD), which may help to inform groups intending to

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respond to funding opportunities for CER in COPD. Fifty-four stakeholder groups participated in the workshops. Research priorities varied, but generally focused on studies to evaluate different approaches to health care delivery (e.g., spirometry for diagnosis and treatment).

Li, A.C., Kannry, J.L., Kushniruk, A., and others. (2012). “Integrating usability testing and think-aloud protocol analysis with “near-live” clinical simulations in evaluating clinical decision support.” (AHRQ grant HS18491). *International Journal of Medical Informatics* 81, pp. 761-772.

This paper describes two phases of evaluation conducted prior to widespread deployment of the integrated clinical prediction rule clinical decision support (iCPR CDS) tool. Phase I involved usability testing in conjunction with “think-aloud” protocol analysis to assess human-computer interaction as the health care providers performed specific tasks following a script for invoking the iCPR CDS. Phase II involved a “near-live” clinical simulation to assess how providers interact with the iCPR CDS while interviewing a simulated patient.

Likosky, D.S., Goldberg, J.B., DiScipio, A.W., and others. (2012). “Variability in surgeons’ perioperative practices may influence the incidence of low-output failure after coronary artery bypass grafting surgery.” (AHRQ grant HS15663). *Circulation Cardiovascular Quality Outcomes* 5, pp. 638-644.

Low-output failure (LOF) is one of the most significant adverse

sequelae of isolated coronary artery bypass surgery (CABG). A study investigating factors associated with the development of LOF after isolated on-pump CABG surgery has found that perioperative surgical practices rather than patient case mix or other preoperative factors are responsible for most of the surgeon-to-surgeon variation in rates of LOF.

Liu, V., Turk, B.J., Ragins, A.I., and others. (2013, January). “An electronic simplified acute physiology score-based risk adjustment score for critical illness in an integrated healthcare system.” (AHRQ Grant HS19181). *Clinical Care Medicine* 41(1), pp. 41–48.

The researchers used structured data from the Kaiser Permanente of Northern California HealthConnect electronic medical record system and adapted it for use in an automated system to calculate risk-adjustment scores for patients in an intensive care unit (ICU). They then developed an automated scoring model using 40 percent of 67,889 first-time ICU patients admitted between 2007 and 2011 to 21 hospitals associated with Kaiser Permanente. They tested the model by calculating hospital mortality rates for the remaining 60 percent.

Parente, S.T. and Feldman, R. (2013, April). “Microsimulation of private health insurance and Medicaid take-up following the U.S. Supreme Court decision upholding the Affordable Care Act.” (AHRQ Contract No. 262-05-63293). *HSR: Health Services Research* 48(2), Part II, pp. 826-849.

The researchers seek to predict both how many people will take up private health insurance under the Affordable Care Act (ACA) and how many will take up Medicaid

under several possible patterns for States opting out of the ACA’s Medicaid expansion. Using data from several large employers, the Medical Expenditure Panel Survey Household Component, and other sources, they find that the ACA will increase coverage substantially in the private insurance market as well as Medicaid. The total number of uninsured, at best, will drop by more than 20 million.

Rangachari, P. (2013). “Effective communication network structures for hospital infection prevention: A study protocol.” (AHRQ grant HS19785). *Quality Managed Health Care* 22(1), pp. 16-24.

The author has developed a protocol for a study with 2 aims: (1) to examine associations between quality improvement interventions and communication structure and content, and (2) to examine associations between communication structure and content and outcomes at the unit level. The study, to be undertaken in two hospital intensive care units, aims to assist hospitals in implementing the central line bundle. This bundle consists of five evidence-based practices known to significantly reduce, if not eliminate, the incidence of catheter-related bloodstream infections. ■

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