



RESEARCH ACTIVITIES

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Curricular modules teach budding pharmacists how to engage patients with low health literacy

The statistics on health literacy are startling.

A Department of Education assessment found that only 12 percent of adults have enough health literacy to understand and use health information effectively. And more than one-third of adults have “basic” or “below basic” health literacy, which means they might not understand labels of over-the-counter medicines.

But the reality is worse.

Because health literacy can affect just about all of us, says AHRQ’s lead on health literacy Cindy Brach, M.P.P.



A pharmacist discusses medications with a patient.

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“I like to say, ‘Health literacy is a state, not a trait,’” says Brach.

Under certain circumstances—for example, a devastating diagnosis of a loved one or ourselves—any patient’s comprehension can plummet, explains Brach. “All of us have a health literacy story about ourselves, or our mothers, or grandmothers.”

Her own story?

“I got a call from my doctor’s office about an abnormal pap smear,” Brach told *Research Activities*. “I was told that I had a nonsquamous epithelial lesion.”

She knew what to ask: “Do I have cancer? Is this precancerous? What is my risk of getting cancer?” But

her questions didn’t help, because the person who called couldn’t answer in a way she could understand. Brach says, “I’m a health literacy expert, but when I looked this up, I was so anxious I misread the chart. I thought I had a high risk of getting cancer.” It turned out that Brach was at increased risk, but her risk was still very small.

She tells the story of a colleague who picked up his father from the hospital after surgery. The discharge nurse gave the father a disc with instructions on how to inject himself with a blood thinner. “It wasn’t until they reached the car

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From the Director



When I was trained as a physician, we were basically taught to ask, “Do you have any questions?” as we moved toward the door.

Now, we know better.

We can rephrase that five-word question to ask, “What questions do you have?”

Encouraging questions is just one recommendation in AHRQ’s new curricular modules designed for pharmacists to advance health literacy practices.

Pharmacists are on the frontlines of helping patients understand how their medications work and how to take them. In many cases, they are available by phone and in person 24/7. Studies have shown that when pharmacists partner with other clinicians to communicate with and follow up with patients with chronic

diseases about their medications, patients do better. Better medication adherence and patient outcomes, in turn, can lead to fewer hospitalizations.

Every day, pharmacists face patients with low health literacy, which affects about 9 out of 10 Americans. Even highly educated people can have trouble understanding health care information—whether it is information on drug labels, medical forms, or instructions from their clinicians. The cover story in this issue of *Research Activities* highlights how pharmacists use AHRQ health literacy tools, including our new curricular modules for faculty, to improve communication with all their patients.

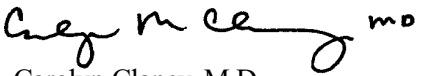
If knowledge is power, we’re in a good position. Three major Federal policy initiatives address issues related to better communication and health literacy: The Affordable Care Act, the Plain Writing Act of 2010, and Healthy People 2020.

At AHRQ, we’re committed to making health literacy a key element of health care improvement. We write our online and printed resources on a variety of health topics in plain language—in both English and Spanish. Our national public service advertising campaign called “Questions Are The Answer” encourages patients to ask questions of their medical team.

To help clinicians, we have a variety of resources available, including a Health Literacy Toolkit with step-by-step guidance on how to assess and improve communication (www.ahrq.gov/qual/literacy/healthliteracytoolkit.pdf).

Communication and information are the major currency of what clinicians do every day. We at AHRQ are doing what we can so that no one—regardless of his or her health literacy level—gets shortchanged.

What questions do you have about health literacy? I encourage you to visit the Health Literacy and Cultural Competency page on our Web site: www.ahrq.gov/browse/hlitix.htm.


Carolyn Clancy, M.D.

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Health literacy

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that the father realized he had a problem,” says Brach. “He didn’t own a DVD player.”

“Poor communication practices resonate with people in a very personal way,” says Brach.

Role of the Pharmacist

For many patients, the last chance to get the personal help they need might be the clinician who is available without appointment every day of the year—the pharmacist.

“Pharmacists have a real opportunity to provide health literacy-appropriate communication on medications,” says Sarah J. Shoemaker, Pharm.D., Ph.D., health services researcher at Abt Associates and adjunct assistant professor at Massachusetts College of Pharmacy and Health Sciences. “Not only have pharmacists become more patient-centered in recent years, but Medicare Part D mandates medication therapy management, which is largely provided by pharmacists.”

“Pharmacists have a real opportunity to provide health literacy-appropriate communication on medications.”

In 2009, AHRQ launched a health literacy site for pharmacists, which includes instructions on how to develop pictorial drug cards for patients and telephone reminder calls, training for pharmacy staff, and more.

After studying pharmacists’ experiences using an assessment tool for evaluating a pharmacy’s health literacy practices, the Agency discovered that pharmacy students and residents were the people most likely to use the tool. Armed with this information, AHRQ developed curricular modules with slide decks and activities for pharmacy faculty, students, and residents to learn techniques to help patients with limited health literacy that can benefit everyone (www.ahrq.gov/pharmhealthlit).

“We can use well-established techniques with everyone,” says Shoemaker. “It’s not a matter of picking out those who have health literacy issues, because you can’t tell who they are. Looks can be deceiving.”

The “teach back” method

The modules explain “teach back” and “show-me” methods, ways for clinicians to confirm understanding when patients explain information back in their own words or demonstrate what to do.

“It’s a universal precautions approach,” says Shoemaker. “Everyone benefits when we communicate well.”

Pajniag Nengchu, Pharm.D., was one of those students who used the AHRQ assessment tool. As a pharmacy resident at the University of Minnesota, Nengchu needed a project, and the AHRQ assessment was natural for her.

“English is my second language, so health literacy is very important to me,” said Nengchu, whose first language is Hmong.

Through the assessment tool, Nengchu noticed a gap in



Photo courtesy of the National Library of Medicine Image Library.

awareness about health literacy at the pharmacy where she was a resident. “The pharmacists put a lot of time into making sure the patients have pamphlets in their own language, but the technicians didn’t have as much of a grasp on health literacy,” said Nengchu. She also noticed a difference when the staff gave directions in person versus over the phone. “They were better in person,” she said. “It would have helped to give landmarks and know bus routes for people calling.”

But Nengchu knows it’s not always easy to help. When Nengchu was about 20, she worked as a technician at a pharmacy. “One day this little old lady who spoke a different language came in with a prescription for eyeglasses,” says Nengchu. “She kept saying, ‘This is a prescription,’ and I’d say, ‘Yes, but we don’t cover eyeglasses.’”

Now, Nengchu knows approaches that might have helped. “I might have drawn pictures or I could have drawn a map with a picture of the mall next door where she could

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Health literacy

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have gotten the prescription filled, or I could have looked up an eye doctor's name in that mall."

Currently a pharmacist at a military hospital in Hawaii, Nengchu uses health literacy skills every day.

"When I talk to patients, I explain things in a way to get feedback, and I ask open-ended questions so that I don't make any assumptions about their knowledge.

"I ask every kid who uses albuterol [an inhaler for asthma] to show me how to use it, and almost every single time, there's something they can do better," she says.

"I ask every kid who uses albuterol [an inhaler for asthma] to show me how to use it, and almost every single time, there's something they can do better."

When patients come in for Coumadin® [Warfarin], a drug that prevents clot formation, Nengchu asks, "Do you know what to do if you miss a dose?" Patients don't always know when they're at increased risk for bleeding and bruising."

"My take-home message is, you really don't know what the patient knows until you ask for the 'teach back.'"

As an associate professor and guest lecturer, Michael J. Miller, R.Ph., Dr.P.H., F.A.P.H.A., teaches faculty, students, pharmacists, and clinicians around the country about the importance of health literacy. He also served as a faculty advisor for AHRQ's health literacy curricular modules for pharmacy faculty.



A pharmacist discusses an AHRQ educational brochure with a patient.

As a graduate student between 1999 and 2004 who wanted to write his Ph.D. dissertation on health literacy, Miller said, "The topic was relatively new, and I had to practically beg people to be on my [dissertation review] committee." The health literacy issue resonated with Miller, whose father didn't finish high school.

"When my father had Class IV heart failure and had exhausted his treatment options, he was invited to be in a research study," said Miller. "My dad came home with this lengthy consent form, looks at me and asks, 'Should I participate?' He had to ask his child because he didn't understand the consent." "Health literacy isn't handing someone a form or stapling uninterpretable information on a bag and assuming they can read, understand, and act on it," says Miller. "There isn't a substitute for oral communication between health care providers and patients."

The pharmacy environment

But Miller acknowledges how difficult it is to communicate—especially in a pharmacy. "Pharmacy environments are not

conducive to communication. They are often designed for convenience, and we are responsible for this culture," says Miller. "People come in for a gallon of milk, a birthday card—and a prescription."

When Miller and his colleagues evaluated pharmacies using the AHRQ pharmacy assessment tool, he found that "patients usually don't have a complaint. They seem pleased with convenience. If they have a question, they get an answer. Pharmacies are very passive environments and often depend on patients to ask questions." They can also be confusing. "Just walk down an aisle with over-the-counter medications and look at how much stuff is packed in a very small area. How do patients identify the products that are best for their needs? Moreover, do they understand what to expect from the treatment without adequate counseling?"

Miller says, "We've come a long way in the last 10 years so that health literacy is now well recognized as fundamental to health care safety, quality, and patient-centeredness."

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Health literacy

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Yet when Miller speaks to groups of pharmacists, he often shares a story that doesn't involve a pharmacy. He tells about purchasing jewelry for his wife after 20 years of marriage.

"I'd never bought my wife a diamond before, and I didn't know anything about gold or silver," Miller admits. "The jeweler showed me something called Pandora jewelry, which involved selecting spacers, clasps, silver and gold,

"We've come a long way in the last 10 years so that health literacy is now well recognized as fundamental to health care safety, quality, and patient-centeredness."

charms." At the end of the purchase, Miller says, "The jeweler spent an hour with me, I didn't know anything about the stuff, I was embarrassed and afraid to ask questions, and I'd just spent

somewhere between \$1,200 and \$1,400."

Miller then makes his point. "In health care, we use language and terminology that is very complicated, and when we're misunderstood we have a tendency to blame the patients—who often feel like I did in the jewelry store."

As Shoemaker says, "At the end of the day, it's communication that's so important." You might even say it's golden. ■ *KM*

Comparative Effectiveness Research

Muscle training effective in treating urinary incontinence for women

A type of exercise called pelvic floor muscle training is effective for treating adult women with urinary incontinence (the involuntary loss of urine) without risk of side effects, according to a new report from the Agency for Healthcare Research and Quality (AHRQ). The report also found that drug-based treatments can be effective, but the degree of benefit is low and side effects are common.

The report, a comparative effectiveness review prepared for AHRQ's Effective Health Care Program by the Minnesota Evidence-based Practice Center, was published April 9 in the *Annals of Internal Medicine*. The full report and summary publications for consumers and clinicians are available at www.effectivehealthcare.ahrq.gov.

"Urinary incontinence can affect women in a variety of ways, including physically, psychologically, and socially—and some of these impacts can be severe," said AHRQ Director Carolyn M. Clancy, M.D. "This new report will help women and their clinicians work together to find the best treatment option based on each patient's individual circumstances."

Urinary incontinence is extremely common in adult women, affecting approximately 25 percent of young women, up to 57 percent of middle-aged and postmenopausal women, and approximately 75 percent

of older women in nursing homes. The condition can impose significant, potentially debilitating lifestyle restrictions. The cost of incontinence care in the United States averaged \$19.5 billion in 2004, and by one estimate the annualized cost of women's nursing home admissions due to urinary incontinence was \$3 billion. Six percent of nursing home admissions of older women are attributable to urinary incontinence.

Researchers concentrated on two kinds of incontinence: stress incontinence, or the inability to retain urine during coughing or sneezing; and urgency incontinence, which is an involuntary loss of urine associated with the sensation of a sudden, compelling urge to urinate that is difficult to defer. Both types usually occur when the urinary sphincter fails, often as a result of weak pelvic floor muscles, which support the uterus, bladder, and other pelvic organs.

Exercises to strengthen the pelvic floor muscles, similar to Kegel exercises, were found to be effective in increasing women's ability to hold their urine. Pelvic floor muscle training combined with bladder training improved mixed (stress and urgency) incontinence, the report found. Estrogen treatment was found to be effective in treating stress incontinence, but with some side effects. Another drug treatment, the antidepressant

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Urinary incontinence

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duloxetine, was not found to be effective, while carrying high risk of side effects.

Overall, the report found that the drugs reviewed showed similar effectiveness. However, with some drugs, more women discontinued treatment due to bothersome side effects. The report provides comprehensive information about side effects with each drug to help clinicians and patients choose treatments with the most benefits and least harms.

Researchers said that while there is much evidence on clinical measures for treatment of urinary incontinence, such as grams of urine lost, there are fewer measures of

quality of life related to the condition and its treatments.

The report, *Nonsurgical Treatments for Urinary Incontinence in Adult Women: Diagnosis and Comparative Effectiveness*, is the latest comparative effectiveness review from AHRQ's Effective Health Care Program. The Effective Health Care Program helps patients, doctors, nurses, pharmacists and others choose the most effective treatments by sponsoring the development of evidence reports and technology assessments to assist public- and private-sector organizations in their efforts to improve the quality of health care in the United States. More information about the program can be found at www.effectivehealthcare.ahrq.gov. ■

Extended use of medications to prevent blood clots may benefit patients after major orthopedic surgery

Extending post-surgical use of medications to prevent blood clots may be beneficial for patients who have undergone major orthopedic surgery such as hip or knee replacement, according to a new review from the Effective Health Care Program at the Agency for Healthcare Research and Quality. Standard treatment currently calls for the use of anti-clotting medications 7 to 10 days post-surgery. However, the evidence

suggests that up to 28 days or longer may be appropriate.

While there is not enough evidence to determine which type of anti-clotting medication is best, within the heparin class of medications, low molecular-weight heparin was found to be superior to unfractionated heparin. More research, particularly clinical trials, is needed to compare the effectiveness of using single or

combination therapies, including medications or mechanical prophylaxis, such as leg compression or foot pumps, and to evaluate the use of medications after less serious types of orthopedic surgery. You can access this and other evidence reviews at the Effective Health Care Program Web site at www.effectivehealthcare.ahrq.gov. ■

Research review finds support for some off-label uses of atypical antipsychotic medications

Atypical antipsychotic medications, approved by the Food and Drug Administration to treat schizophrenia, are also used to treat such conditions as agitation in dementia, generalized anxiety, and obsessive-compulsive disorder (called off-label use). Although some patients appear to benefit from off-label treatment with specific atypical antipsychotic drugs, the drugs are nevertheless associated with serious adverse events. These are the findings of a systematic review of studies on the topic. The researchers examined controlled trials that compared the effect of

specific atypical antipsychotic drugs versus placebo, another atypical antipsychotic drug, or other medications for off-label use in adults.

From 14 placebo-controlled trials of elderly patients with dementia, the researchers found small but statistically significant improvement in psychosis, mood, and aggression for aripiprazole, olanzapine, and risperidone. For treatment of general anxiety, evidence from three pooled trials showed that quetiapine had a

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Antipsychotic medications

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26 percent greater likelihood of improving a patient's anxiety scores than did placebo. Risperidone was found 3.9 times more likely to produce a favorable response in patients with obsessive-compulsive disorder than did placebo.

In elderly patients, the antipsychotics were associated with an increased risk of death, stroke, uncontrolled body or facial movements, and urinary tract symptoms, depending on the specific drug used. The major problems observed in nonelderly adults were weight

gain, fatigue, sedation, and uncontrollable facial or body movements. The study was funded with support from the Agency for Healthcare Research and Quality to the RAND Health Southern California Evidence-based Practice Center (Contract No. 290-07-1006).

More details are in "Efficacy and comparative effectiveness of atypical antipsychotic medications for off-label uses in adults," by Alicia Ruelaz Maher, M.D., Margaret Maglione, M.P.P., Steven Bagley, M.D., and others in the September 2011 *Journal of the American Medical Association* 306(12), pp. 1359-1369. ■ *DIL*

Medications for low bone density prevent fractures in women with osteoporosis

Medications to prevent loss of bone mass reduce the risk of backbone, hip, and other fractures in women with osteoporosis, according to a new review of the evidence from AHRQ's Effective Health Care Program.

Comparative Effectiveness of Treatment to Prevent Fractures in Men and Women with Low Bone Density—Update updates a 2007 review by the Agency for Healthcare Research and Quality (AHRQ) on the topic. The review includes new information on effectiveness and adverse events for recently approved medications, including two new bisphosphonates and the biologic agent, denosumab, to treat and prevent osteoporosis. There is not yet

enough evidence to determine whether one type of medication is more effective than others at preventing fractures.

Approximately 52 million people in the United States are affected by osteoporosis or low bone density, with more than an estimated 2 million fractures in 2010 and direct medical costs of more than \$18 billion. While 25 percent of those costs are attributable to men, few studies have addressed this population.

While research suggests benefits for osteoporosis medications in preventing fractures, side-effect profiles vary. The review also indicated that while patient adherence to osteoporosis

treatments is low overall, it is improved when medications are taken weekly instead of daily.

The report concludes that more research is needed on which patients benefit most from taking therapies to treat or prevent osteoporosis and which therapies are most effective at preventing fractures. More research is also needed on the effects of long-term use and how to improve treatment adherence. To access this review and other materials that explore the effectiveness and risks of treatment options for various conditions, visit AHRQ's Effective Health Care Program Web site at www.effectivehealthcare.ahrq.gov. ■

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

Trauma centers vary in screening for deep vein thrombosis

After they are admitted to the hospital, trauma patients are at risk for developing blood clots in their leg veins, known as deep vein thrombosis (DVT). In fact, DVT is one of the most common in-hospital complications. As a result, several national agencies have suggested that hospital DVT rates be used as a quality-of-care measurement. In fact, the Centers for Medicare & Medicaid Services no longer reimburses hospitals for DVT after hip and knee joint replacement surgery, deeming it a “reasonably preventable” event. Routine duplex ultrasound screening for DVT has been proposed, although no standards have been established. A recent study looked at screening practices in trauma centers and the opinions of trauma surgeons. It found wide differences in opinions and practices, and concluded that DVT rates alone are not reflective of the true quality of trauma care.

For this study, 317 trauma surgeons received Web-based surveys asking them about their clinical practice regarding DVT screening in asymptomatic trauma patients. In addition, 213 hospitals completed surveys about their policies and procedures on screening. Physicians were asked which patients should be screened, when screening should start, and how often it

should be performed. Hospitals were asked about their written guidelines on screening, including the timing and frequency of screening.

Among the trauma surgeons, more than half (53 percent) agreed that there should be DVT screening of asymptomatic trauma patients. While three-quarters felt that high-risk patients should be screened, there was no consensus about what factors define a high-risk patient. Another 36 percent disagreed with screening. More than a quarter of the hospitals surveyed (28 percent) had written screening guidelines that stated that screening should start early and be performed frequently, at least weekly. Patients who can benefit the most from screening include those with spinal cord injuries and pelvic fractures. The study was supported in part by the Agency for Healthcare Research and Quality (HS17952).

See “Duplex ultrasound screening for deep vein thrombosis in asymptomatic trauma patients: A survey of individual trauma surgeon opinions and current trauma center practices,” by Elliott R. Haut, M.D., Eric B. Schneider, Ph.D., Amar Patel, B.A., and others in the *Journal of Trauma* 70(1), pp. 27-34, 2011. ■ KB

Leapfrog survey may not accurately report use of safe practices in trauma centers

Patients fare no better at trauma centers that comply with safe practices outlined by the Leapfrog Group than those at less compliant centers, according to a new study. It found that patients at high-compliance level I or level II trauma centers did not have lower risk of death or hospital-associated infections (HAIs) than those at less compliant centers. To improve patient outcomes, the Leapfrog Group evaluated the adoption of a set of Safe Practices for Better Healthcare by hospitals. These practices include use of teamwork training, disclosure of adverse events, pressure ulcer prevention, and the use of prevention measures

for ventilator-associated pneumonia and venous catheter bloodstream infections.

After controlling for potential patient- and hospital-level confounders, the total score on the Leapfrog Safety Practices Survey was not significantly associated with either mortality or HAIs. The one exception was a 13 percent lower risk of dying with disclosure of adverse events. Some of the safety practices were associated with increased risk of HAI (by 35 percent for pressure ulcer prevention, 17 percent for prevention of wrong-site surgery, and 11 percent for prevention of

heart attack). Curiously, implementation of the two practices directly aimed at preventing HAIs (prevention of central line catheter-associated bloodstream infection and prevention of ventilator-associated pneumonia) did not significantly alter patient risks of mortality or HAI at a trauma center.

This finding suggests to the researchers that there may be problems, not with the safe practices, but with the ability of the Leapfrog survey to accurately report their use. The study used data from the 2006 AHRQ-

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Safe practices in trauma centers *continued from page 8*

sponsored Healthcare Cost and Utilization Project National Inpatient Sample, which is the largest all-payer inpatient database of patients in the United States. The study sample consisted of 42,417

patients admitted to 58 level I or II trauma center hospitals. The study was funded in part by the Agency for Healthcare Research and Quality (HS16737).

More details are in “Relationship between Leapfrog Safe Practices

Survey and outcomes in trauma,” by Laurent G. Glance, M.D., Andrew W. Dick, Ph.D., Turner M. Osler, M.D., and others in the October 2011 *Archives of Surgery* 146(10), pp. 1170-1177. ■ *DIL*

Lower complications are seen after laparoscopic kidney removal

Most kidney-removal surgeries (radical nephrectomy) are now done via the minimally invasive laparoscopic route. The complication rate is lower for the laparoscopic compared to the open surgical approach, according to a new study. However, when patients did develop complications after laparoscopic nephrectomy, they were more likely to die from them (failure to rescue).

Using National Cancer Institute and Medicare data, the researchers identified 2,108 patients who underwent laparoscopic radical nephrectomy. A second group of 5,895 patients had their kidney removed via open surgery. Patients undergoing the laparoscopic approach had a lower rate of complications such as sepsis, infection, and injury after surgery (31.7 percent) compared to open-surgery patients (38.8 percent). However, laparoscopic patients had a higher failure-to-rescue rate (7 percent vs. 4.8 percent for open-surgery patients). Gastrointestinal complications and care-related (iatrogenic) injury were more common in laparoscopic patients who died

after surgery. Neurological complications were more common in open-surgery patients who died. Hospitals that performed a higher volume of these surgeries had lower rates of any complications regardless of surgical approach. Higher-volume surgeons had lower failure-to-rescue rates for laparoscopic patients than open patients. Given the findings, the researchers believe that adverse events may be more difficult to recognize or manage successfully in patients undergoing laparoscopic radical nephrectomy. They call for more attention to patient safety, surgeon preparation, and hospital readiness to achieve better outcomes when complications arise in these patients. The study was supported in part by the Agency for Healthcare Research and Quality (HS18346).

See “Complications and failure to rescue after laparoscopic versus open radical nephrectomy,” by Hung-Jui Tan, M.D., J. Stuart Wolf, Jr., M.D., Zaojun Ye, M.S., and others in the October 2011 *Journal of Urology* 186, pp. 1254-1260. ■ *KB*

Dissemination and implementation of clinical trial results are needed to encourage recommended practices

Disseminating results from clinical trials to clinicians is critical to bring new guidelines and therapies into practice. This is certainly the case for HIV/AIDS care, where new drugs and treatments can be life-saving to patients. Recently, researchers investigated the diffusion, dissemination, and implementation of findings from an AIDS clinical trial. Their

knowledge-transfer initiative resulted in changes in routine clinical practice brought about by active dissemination and implementation from department leaders.

The clinical trial results used in this study were from an AIDS Clinical Trials Group (ACTG) protocol. This trial found that giving antiretroviral therapy (ART) within

14 days after a diagnosis of the opportunistic infection *Pneumocystis jirovecii* pneumonia (PCP) reduced AIDS progression and mortality by 50 percent. After the findings were released at a major meeting (diffusion), leaders from the HIV/AIDS Division at the University of California at San

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Disseminating results

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Francisco undertook a major initiative to get clinicians to adopt this practice.

Efforts included establishing guidelines, disseminating educational materials, meeting with opinion leaders, and other activities. The researchers evaluated 162 patients with PCP to determine time to initiation of ART. Before the clinical trial protocol, the proportion of patients receiving

ART within 14 days of their PCP diagnosis was just 7.4 percent. After trial results were released, this proportion increased to 50 percent, which rose to 83 percent following the knowledge-transfer initiative. The researchers noted that, while diffusion is important, targeted information transfer and modification of local conditions were required to ensure maximum change in clinical practice. The study was supported in part by the Agency for Healthcare Research and Quality (HS17784).

See “The effect of AIDS clinical trials group protocol 5164 on the time from *Pneumocystis jirovecii* pneumonia diagnosis to antiretroviral initiation in routine clinical practice: A case study of diffusion, dissemination, and implementation,” by Elvin H. Geng, M.D., James S. Kahn, M.D., Olivia C. Chang, M.P.H., C.P.H., and others, in the November 2011 *Clinical Infectious Diseases* 53(10), pp. 1008-1014. ■ KB

Health Information Technology

Electronic health records improve nursing care, coordination, and patient safety

A number of studies have demonstrated the benefits nurses receive when electronic health record (EHR) systems are put in place by hospitals. Generally, such systems improve nursing documentation, reduce medication errors, and make nurses feel more satisfied with their work environments. Now a new study finds that nurses working in an EHR environment are less likely to report poor patient safety compared to their peers working in non-EHR environments.

University of Pennsylvania researchers surveyed 16,362 nurses working in 316 hospitals in 4 States (California, Florida, New Jersey, and Pennsylvania). Nurses were asked about their workload and patient outcomes, as well as their hospital's patient safety culture using items from the Agency for Healthcare Research and Quality (AHRQ) Hospital Survey on Patient Safety Culture. Of the 316 hospitals, only 7 percent had a basic EHR system functioning on all patient care units.

The nurses from hospitals with fully implemented EHRs were significantly less likely to report unfavorable outcomes compared to nurses working in hospitals without fully implemented EHRs. Fewer nurses in the fully implemented hospitals reported frequent medication errors, poor quality of care, and poor confidence in a patient being ready for discharge. These nurses also had a 14 percent decrease in the odds of reporting that “things fell between the cracks” when patients were transferred between units. They were also less likely to report that patient safety is a low priority for hospital management. The study was supported in part by the Agency for Healthcare Research and Quality (HS18534).

See “The effect of hospital electronic health record adoption on nurse-assessed quality of care and patient safety,” by Ann Kutney-Lee, Ph.D., R.N. and Deena Kelly, M.S., R.N., in the November 2011 *Journal of Nursing Administration* 41(11), pp. 466-472. ■ KB

Older, busier clinicians who see complex patients are more likely to use novel electronic health record (EHR) functions

A growing number of clinical settings are adopting electronic health record (EHR) systems. EHR systems that include clinical decision support (CDS) functionality have shown potential for improving care quality. While most people might assume that older, busier, and established physicians are less likely to fully embrace EHRs, a new study finds that busy physicians who see patients with complex needs are more willing to use novel functions of EHRs.

In this study, physicians were introduced to a three-part EHR enhancement focused on tobacco use and treatment. The enhancement included providing clinicians with (1) smoking status icons, (2) tobacco treatment reminders, and (3) a Tobacco Smart Form to be used to facilitate medication ordering and counseling

referrals. Twelve of the 26 primary care practices participating in the study were randomly assigned to receive this enhancement. Even though only 103 of the 207 clinicians in the intervention practices used the functionality, study results show an increase in the documentation of patient tobacco use. In addition, more contacts were made between smokers and tobacco counseling.

When reviewing how often the enhancement was used and by whom, study researchers found that, during the study period, 90 clinicians (43 percent) used the Smart Form one or more times. The functionality was used by 74 clinicians (36 percent) to refer at least one patient to a counselor for tobacco treatment. Staff physicians were more likely than trainees to use the functionality. Users were also more likely to be in practice

longer (10 to 30 years) and be busier seeing patients with more problems compared to non-users. In fact, these busier staff clinicians were more likely to be heavy users. According to the researchers, such physicians may see the time-saving potential in novel EHR functionality and be more inclined to want to obtain the benefits for their practices. The study was supported in part by the Agency for Healthcare Research and Quality (HS15169).

See “Clinician characteristics and use of novel electronic health record functionality in primary care,” by Jeffrey A. Linder, M.D., M.P.H., Nancy A. Rigotti, M.D., Louis I. Schneider, M.D., and others in the December 2011 *Journal of the American Medical Informatics Association* 18(Suppl 1), pp. i87-i90. ■ KB

Rural health care providers in California look to telehealth to supply the training needed to manage childhood obesity

Telehealth technologies, such as videoconferencing, may help rural providers learn how to manage pediatric obesity, suggests a new study. Childhood obesity in the United States has more than doubled in the past 30 years, and currently affects 17 percent of U.S. children, with another 15 percent considered overweight. Obesity in children is known to be a risk factor for the development of many serious conditions, including type 2 diabetes, hypertension, elevated blood cholesterol, obstructive sleep apnea, and emotional problems.

Previous studies found that it is particularly difficult to tackle childhood obesity in rural areas because there are few local weight-loss resources, few exercise facilities, and poor access to healthy foods. The researchers conducted a cross-sectional survey of 139 health care providers who treat children and adolescents at 39 clinics in rural California. The providers identified lack of local weight-management

programs, patient motivation, and family involvement in treatment as key barriers to success. The providers most wanted readily accessible patient education materials on childhood obesity, strategies to link patients to community treatment programs, and training in skills to provide brief, focused counseling to patients.

The providers saw telehealth, such as teleconferences, as useful for communicating with specialists, undertaking Web-based education, and accessing interactive case conferences on childhood obesity. Based on these findings, the researchers recommend using telehealth technology to provide targeted interventions on managing childhood obesity to rural health care providers in California, and repeating the study with rural providers in other States.

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Telehealth

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The researchers contacted 78 rural clinics in California known to have telehealth connectivity with the University of California at Davis Center for Health and Technology to identify 41 clinics that provided health care to children under age 18 and the 156 providers who treated them. Providers were asked to complete a three-page questionnaire on their self-perceived effectiveness in treating childhood obesity, barriers to

treatment and helpful resources, and interest in telehealth technologies. The study was funded in part by the Agency for Healthcare Research and Quality (HS18567).

More details are in “Pediatric obesity management in rural clinics in California and the role of telehealth in distance education,” by Ulfat Shaikh, M.D., M.P.H., M.S., Jasmine Nettiksimmons, M.A., and Patrick Romano, M.D., M.P.H., in the *Journal of Rural Health* 27(3), pp. 263-269, 2011. ■ *DIL*

Clinical inertia may represent good clinical judgment in hypertension telemanagement

Clinical inertia, i.e., provider failure to initiate or intensify antihypertensive medication therapy when indicated by clinical guidelines, is a prime contributor to inadequate blood pressure (BP) control. This issue has become increasingly important with the spread of home BP telemonitoring that provides a greater number of readings over longer periods of time than any individual clinic visit. BP telemonitoring allows physicians to better understand patients’ usual BP and also provides more opportunities for the physician to intervene by intensifying medications, if indicated.

Using a home telemonitoring approach, what initially looked like clinical inertia may instead have represented good clinical judgment on the part of the study physicians, concluded a new study by a team of researchers from the Durham, NC, Veterans Affairs

Medical Center and Duke University.

They examined factors contributing to clinical inertia in the treatment of 296 veterans. They found that for the 1,216 intervention alerts triggered by an elevated 2-week mean home BP, physicians intensified treatment in 40.6 percent of cases. The most common (53.7 percent) reason given by physicians for not intensifying treatment was their perception that the reported blood pressure was actually acceptable despite the intervention alert. In these cases, the average home BP was 135/76 in contrast to the 143/81 average BP for alerts that resulted in physicians intensifying treatment.

“Blood pressure acceptable” intervention alerts were associated with the lowest level of repeat alerts, meaning that repeat blood pressure elevations occurred less frequently. When considering

whether to intensify antihypertensive therapy when home BP is only mildly elevated, physicians must take into account factors such as patient preferences and values, medication burden, and other medical or personal circumstances along with absolute BP values. The researchers concluded that knowing when not to intervene by intensifying treatment, as well as when to intervene, is part of good clinical practice. This study was supported, in part, by the Agency for Healthcare Research and Quality (T32 HS000079).

See “Treatment intensification in a hypertension telemanagement trial: Clinical inertia or good clinical judgment?” by Matthew J. Crowley, M.D., Valerie A. Smith, M.S., Maren K. Olsen, Ph.D., and others in *Hypertension* 58, pp. 552-558, 2011. ■ *MWS*

Health information exchange can save money by reducing admissions from the emergency department

Health information exchange (HIE) allows clinicians access to patient data from other sites of care or service. This access can be achieved through health information organizations (HIOs) or through direct, point-to-point communication among providers.

Such access should reduce medical error, improve health care quality and lower medical costs. Most of the savings attributed to HIE thus far are estimates, with reports of measurable financial benefits being few in number. However, a Vanderbilt University research team has found total annual societal savings resulting from the use of HIE to be approximately \$1.95 million, with reduced hospital admission from emergency departments (EDs) accounting for 97.6 percent of the total savings.

The researchers studied the financial impact of access to HIE by ED physicians and its effects on hospital admissions in 12 major hospitals in the Memphis, TN metropolitan area, which linked their clinical administrative data through a single HIO. The data,

covering nearly 7 percent of ED visits over a 2-year period, included hospital discharge summary notes, laboratory data, pathology reports, radiographic reports, and other transcribed notes.

The total annual societal savings resulting from the use of HIE were approximately \$1.95 million. Annual operating costs during the study period of approximately \$880,000 reduced the net societal savings to around \$1.07 million. The researchers believe that such savings will be only a fraction of the economic benefit that will be realized as the connected digital health care delivery system evolves. This study was supported in part by the Agency for Healthcare Research and Quality (Contract No. 290-04-0006).

See “The financial impact of health information exchange on emergency department use” by Mark E. Frisse, M.D., Kevin B. Johnson, M.D., Hui Nian, Ph.D., and others in the November 2011 online *Journal of the American Medical Informatics Association*. ■ MWS

Health Care Costs and Financing

Affordable Care Act likely to create uncertainties in Medicaid enrollment, costs, and physician workforce needs

The expansion in 2014 of Medicaid to millions of additional United States citizens and residents by the Affordable Care Act of 2010 (ACA) will bring major uncertainties in enrollment, costs, and the need for additional physicians, concludes a new study.

The ACA will expand Medicaid eligibility to all U.S. citizens and qualified residents with incomes below 138 percent of the Federal poverty level in order to increase access to care. Estimates of new Medicaid enrollment in 2019 are 16 million and 18 million individuals, by the Congressional Budget Office

and the Centers for Medicare & Medicaid Services, respectively.

The researchers developed a simulation model to identify for policymakers the factors that most strongly influence enrollment, costs, and provider workforce needs under the new law and to provide a range of estimates of these values as of 2019 under a variety of plausible conditions. Their model found that the number of new enrollees in Medicaid could vary by more than 10 million individuals, from a base case estimate of 13.4 million individuals and a range of 8.5 million to 22.4 million new participants.

This would result in additional Federal spending for new Medicaid enrollees from \$34 billion to \$98 billion annually, and a need for 4,500–12,100 new physicians to care for the new Medicaid participants. The largest group of new enrollees would be newly eligible uninsured adults, estimated to range from 4.6 million to 11.3 million new enrollees.

For their simulation, the researchers used data from two different surveys conducted by the U.S. Census Bureau, the 2009 Current Population Survey and the 2008

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Affordable Care Act
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Survey of Income and Program Participation. The study was funded in part by the Agency for Healthcare Research and Quality (HS19754).

More details are in “Policy makers should prepare for major uncertainties in Medicaid enrollment, costs, and needs for physicians under health reform,” by Benjamin D. Sommers, M.D., Ph.D., Katherine Swartz, Ph.D., and

Arnold Epstein, M.D., M.S., in the November 2011 *Health Affairs* 30(11), pp. 2186-2193. ■ *DIL*

Chronic Disease

Study outlines factors associated with untreated diabetes

Untreated or undertreated diabetes can cause debilitating complications such as blindness and amputations. Among adults with diagnosed diabetes, 87 percent reported using oral medications or insulin, 10.6 percent reported treating their diabetes with diet, but not drugs, and 2.4 percent reported not using any of these treatments. Those are the results of a study by Steven C. Hill, Ph.D., of the Agency for Healthcare Research and Quality (AHRQ), and a team of researchers from AHRQ and the Government Accountability Office.

Lack of resources was strongly associated with lack of treatment. In particular, 5.5 percent of the full-year uninsured were untreated, compared with 2.2 percent of people who had insurance for at least part of the calendar year. Similarly, 7.9 percent of those lacking a usual source of care were untreated compared with 2.1 percent of those who had a usual source of care.

Lack of resources is also strongly associated with use of diet only to control diabetes. Most notably, 19.7 percent of those with no usual source of care used diet only, compared with 10.1 percent of people who had a usual source of care. The researchers suggest that multiple strategies are needed to initiate treatment for these difficult-to-reach patients. Data for the study came from AHRQ’s Medical Expenditure Panel Survey Diabetes Care Supplement, a nationally representative sample of adults diagnosed with diabetes that is administered annually. Between 2000 and 2006, 10,681 adults provided treatment information in the survey.

See “Adults with diagnosed and untreated diabetes. Who are they? How can we reach them?” by Dr. Hill, G. Edward Miller, Ph.D., and Merrile Sing, Ph.D., in *Journal of Health Care for the Poor and Underserved* 22, pp. 1221-1238, 2011. Reprints (AHRQ Publication No. 12-R025) are available from AHRQ.* ■ *MWS*

Teenage body size does not predict heart failure in older adults

Being overweight as a teenager can cause a variety of health problems for a young individual. Recent studies also point to a variety of issues arising in adulthood as a result of being overweight or obese during the teen years. In fact, carrying extra weight as a teenager is associated with higher mortality rates in later adulthood. However, a new study found no association between higher rates of heart failure among the elderly and being overweight as a teenager.

The study included 5,293 community-dwelling adults age 65 and older, who were participants in the Cardiovascular Heart Study (CHS). In addition to physical examinations and laboratory tests, the individuals were asked about their weight as teenagers. Following the collection of baseline information, participants were followed for up to 13 years to see if they developed new-onset heart failure.

More than half (57 percent) of participants reported having an

average body size as a teenager. Another 34 percent reported being heavier than average, while the remaining 9 percent said they were thinner than average. Heart failure developed in 1,072 individuals after a median of 12 years follow-up. The rate of heart failure was 20 percent in those with average teenage body size, 20 percent in those whose teen weight was heavier than average, and 22 percent in those thinner than

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Heart failure

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average. All results were similar for different sexes and races.

Interestingly, older adults who reported being thinner than average during their teen years had the highest average body mass index

(BMI) as adults. The opposite was also true. Participants who said they were heavier than average as teenagers had the lowest BMI as older adults. The study was supported in part by the Agency for Healthcare Research and Quality (HS19465).

See “Self-reported teenage body size and heart failure in adults >65 years of age,” by Emily B. Levitan, Sc.D., Marjan Mujib, M.B.B.S., Margaret A. Feller, M.P.H., and others in the *International Journal of Cardiology* 149(3), pp. 401-402, 2011. ■ KB

Disparities/Minority Health

Sex-related health differences associated with income and marital status

Gender-related differences have been identified for multiple health-related outcomes, such as disease prevalence, mortality, health behaviors, health care use, and health-related quality of life (HRQoL). A new study finds that men in the United States have better estimated physical and psychosocial health and less pain than do women. These gender differences were mostly explained by income and marital status. Age, race, and education explained less of the differences, according to the study.

A greater proportion of women (29 vs. 23 percent) were in one of the two lower-income categories (<\$20,000, \$20,000 to \$34,000) and more men than women (81 vs. 69 percent) were married or living with a partner. The magnitude of gender differences varied, with the smallest difference found on pain and the largest on the physical and psychosocial dimensions.

Gender differences in the three health dimensions (physical, psychosocial, and pain) underlying five different preference-based indexes of HRQoL were estimated using structural equation modeling. The findings are based on data from the National Health Measurement Study, a random-digit-dial telephone survey of a national community-dwelling sample of 3,844 adults aged 35 to 89 years. This research was supported in part by the Agency for Healthcare Research and Quality (T32 HS000046).

See “Gender differences in multiple underlying dimensions of health-related quality of life are associated with sociodemographic and socioeconomic status” by Dasha Cherepanov, Ph.D., Mari Palta, Ph.D., Dennis G. Fryback, Ph.D., and others in the November 2011 *Medical Care* 49(11), pp. 1021-1030.

■ MWS

Modeling inequalities helps to develop cervical cancer screening strategies that can improve outcomes and reduce disparities

The two fundamental goals of improving population health and distributing that health fairly are frequently in tension, because measures to improve one may not be optimal for and may conflict with the other. Researchers devised a typology of cancer disparities among black, white, and Hispanic populations in the United States

that differentiated inequalities resulting from different factors, such as care access and quality of treatment and prevention.

By explicitly modeling disparities between subgroups, they identified prevention strategies that could reduce the risk of cervical cancer overall, distribute health benefits

equitably, and use health care resources efficiently.

With a disease-simulation model of cervical cancer, they applied this typology to an evaluation of different screening and vaccination strategies in which the health and

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Cervical cancer screening

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economic outcomes were calculated for the average population, and also for the three subgroups separately. The researchers identified strategies that reduced the overall risk of cervical cancer by 60 percent to 74.5 percent, and that improved cancer outcomes in all racial subgroups.

However, they also found that the benefits were unequally distributed. For example, one strategy using Pap smears and human papilloma virus (HPV) triage (cytology followed by HPV DNA testing) resulted in an average reduction of 69 percent in cancer incidence overall, but a 71.6 percent reduction for white women, 68.3 percent for black women, and 63.9 percent for Hispanic women.

The researchers found that screening strategies that directly targeted racial subgroups bearing the greatest inequalities provided a more equitable distribution of benefits. For example, reduction in cervical cancer incidence was 69.7 percent in white women versus 70.1 percent in Hispanic women. These strategies were also more effective and less costly than current screening patterns. Strategies that included adolescent HPV vaccination at coverage rates of 33 percent and targeted screening with new screening algorithms had a cost-effectiveness ratio of \$28,200 per year of life saved when compared with the same strategy without vaccination.

The disease-simulation model the researchers used was calibrated to

epidemiological data for the United States. The researchers calculated the average reduction in cervical cancer incidence overall and for black, white, and Hispanic women under five different prevention strategies. This study was supported in part by the Agency for Healthcare Research and Quality (HS15570).

See “Model-based analyses to compare health and economic outcomes of cancer control: Inclusion of disparities” by Sue J. Goldie, M.D., and Norman Daniels, Ph.D., in the *Journal of the National Cancer Institute* 103, pp. 1373-1386, 2011. ■ MWS

Access to Care

Children whose parents lack a usual source of care are more likely to have unmet medical needs

Children with a usual source of care (USC) have more consistent access to health care services, which likely contributes to better health outcomes. However, children with a USC whose parents did not have a USC (12.4 percent of the children surveyed) had a higher likelihood of several unmet health care needs when compared to children with a USC whose parents had a USC. That's the finding of a new study by a team of researchers led by Jennifer E. DeVoe, M.D., of the Oregon Health & Science University. Unmet needs included an insurance coverage gap, an unmet medical or prescription need, and no yearly dental visits.

The researchers analyzed data on 56,302 children and their parents drawn from the Medical Expenditure Panel Survey of the Agency for Healthcare Research

and Quality (AHRQ), weighted to a population of nearly 70.9 million children. They found that 78.6 percent of children had a USC and at least one parent with a USC, 12.4 percent had a USC but neither parent had a USC, 2.5 percent had no USC but at least one parent had a USC, and 6.5 percent had no USC and no parent had a USC.

The researchers suggest that policy reforms should ensure access to a USC for all family members. This study was supported in part by AHRQ (HS18569).

See “Parent and child usual source of care and children's receipt of health care services” by Dr. DeVoe, Carrie J. Tillotson, M.P.H., Lorraine S. Wallace, Ph.D., and others in the *Annals of Family Medicine* 9, pp. 504-513, 2011. ■ MWS

Children's hospitals are pressed to capacity by response to pandemic outbreaks

During 2009, a novel influenza A (H1N1) virus began to spread in North America, with children having the highest rates of illness and hospitalization. Yet, a new study shows that children's hospitals routinely operate so close to capacity that little available reserve exists for even a modest surge of inpatients.

A team of researchers led by Marion R. Sills, M.D., M.P.H., of the University of Colorado School of Medicine, examined how close 34 children's hospitals came to exhausting capacity during the 2009 outbreak. They found that for the 11-week pandemic period during the fall of 2009, the median overall inpatient occupancy was 95 percent, but this situation did not differ from typical levels of high occupancy commonly experienced. For example, in the prior 2008-09 flu season, the median occupancy was 101 percent, and occupancy was 91 percent for the entire 2008 calendar year.

Hospital experiences varied considerably, with hospital-level median occupancy rates ranging from 57.4 percent to 128.0 percent. To reach 100 percent occupancy across all study hospitals during the pandemic period, hospitals would have needed to admit a median of 0.2 additional patients per day for non-intensive care unit beds and 0.7 per day for intensive care unit beds.

Another part of the study measured the effect on children's hospital capacity if the H1N1 outbreak during fall 2009 had been more severe. Using historical precedents, the researchers constructed five models projecting inpatient occupancy. They varied the number of emergency department (ED) visits and admission rates for influenza-related ED visits. For the worst case scenario, the median occupancy would have been 132 percent.

Although the 2009 pandemic did not exhaust hospital capacity, surge capacity is scarce, as demonstrated by the many hospitals operating at or near capacity in the EDs and inpatient areas. For hospitals and government agencies, the results of this study should prompt review of preparedness planning and reconsideration of surge capacity, suggest the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS16418).

See "Inpatient capacity at children's hospitals during pandemic (H1N1) 2009 outbreak, United States" by Dr. Sills, Matthew Hall, Ph.D., Evan S. Fieldston, M.D., M.B.A., M.S.H.P., and others in the September 2011 *Emerging Infectious Diseases* 17(9), pp. 1685-1691. ■ MWS

Kidney-sparing surgery for children with renal tumors has equivalent in-hospital results to kidney removal surgery

It is widely accepted that, when feasible, partial removal of the kidney (nephron sparing surgery [NSS]), is preferable to complete removal of the kidney (radical nephrectomy [RN]) for the treatment of kidney tumors in adults. In children, RN is more frequently used because of the relatively large size of the tumor and technical difficulty of NSS for most pediatric kidney tumors. However, recent research suggesting that adults undergoing RN may have decreased long-term survival compared with NSS patients has prompted a reconsideration of the role of NSS in children.

Among 1,235 children with kidney tumors who received either RN or NSS, patients in either group had similar median comorbidity scores, in-hospital charges, and surgical complication rates, according to a team of researchers from Children's Hospital in Boston.

The researchers suggest that NSS may be performed in well-selected children with malignant renal tumors without significantly increasing their hospital charges, length of stay, or surgical complication rates. However, they further advise that implementation of management

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Kidney-sparing surgery

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changes in children with malignant kidney tumors would be premature, since long-term data on oncological outcomes are lacking.

Data for the study came from 41 children's hospitals that treated the 1,235 children between 2003 and 2009. In this group, 91 percent received RN and 9 percent received NSS. This study was supported in part by the

Agency for Healthcare Research and Quality (T32 HS000063)

See "Contemporary use of nephron-sparing surgery for children with malignant renal tumors at freestanding children's hospitals" by Jonathan C. Routh, M.D., M.P.H., Dionne A. Graham, Ph.D., Carlos R. Estrada, M.D., and Caleb P. Nelson, M.D., M.P.H., in *Urology* 78, pp. 422-426, 2011. ■ MWS

Annual screening for malignancy among children with spina bifida with cystoplasty unlikely to be cost effective

Screening programs for disease are frequently subject to cost-effectiveness analysis. Screening for malignancy following bladder augmentation among children with spina bifida (also known as "augmentation cystoplasty") is a case in point.

In order to determine the potential for screening cystoscopy and cytology to be cost effective, a research team from Children's Hospital in Boston used formal decision analysis techniques. Their analysis suggested that screening for malignancy in patients with spina bifida after cystoplasty with annual cystoscopy and cytology is highly unlikely to be cost effective

at accepted willingness to pay thresholds. In a hypothetical group, the individual increase in life expectancy for the entire group was 2.3 months with an average lifetime cost of \$55,200 per capita. The discounted incremental cost-effectiveness ratio was \$273,718, which exceeds the \$100,000 per life year gained threshold considered to be cost effective for medical interventions.

Neurogenic bladder dysfunction is common in children with spina bifida and is most often treated by bladder augmentation. This procedure appears to pose an increased risk of malignancy, but performing a controlled trial to

learn more about this outcome is impractical due to the low incidence of malignancy and long interval from cystoplasty to tumor development. This study was supported in part by the Agency for Healthcare Research and Quality (T32 HS000063).

See "Screening for malignancy after augmentation cystoplasty in children with spina bifida: A decision analysis" by Paul J. Kokorowski, M.D., Jonathan C. Routh, M.D., Joseph G. Borer, M.D., and others in the October 2011 *Journal of Urology* 186, pp. 1437-1443. ■ MWS

Increased child hospitalizations are associated with the mother's mental state and confidence in parenting

Studies show that depressed mothers generally have low confidence in their ability to parent (parenting self-efficacy). Children of mothers who suffer from depression are more likely to have higher rates of hospitalization, including from potentially preventable causes such as dehydration and asthma flareups. A new study looked at maternal parenting self-efficacy as a possible mediator between maternal depression and child hospitalizations.

The researchers analyzed data from 432 mother-child pairs. These were mostly minority women living in low-income urban areas. Each mother was interviewed at 6 months, 1 year, and then 2 years after their first child's birth. More than one-third of the mothers had

given birth to a second child by the time their first child was 2 years old. During these interviews, the mothers were asked questions to determine their level of depressive symptoms and self-efficacy.

After 1 year, 28.8 percent of mothers had increased depressive symptoms. At 2 years, 46.5 percent of depressed women still had symptoms. Both elevated symptoms of depression and lower maternal self-efficacy were individually associated with increased child hospitalizations. When these two factors were combined, the researchers identified self-efficacy as a mediator between maternal depression and child

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Child hospitalizations

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hospitalizations. Clinicians may wish to assess maternal self-efficacy during medical encounters, particularly in those mothers with depressive symptoms. Depressed mothers with low self-efficacy can be given parenting skills and also improve the lives of both the mother and her children, suggest the researchers. Their study was supported in part by the

Agency for Healthcare Research and Quality (T32 HS00044).

See “Self-efficacy as a mediator between maternal depression and child hospitalizations in low-income urban families,” by Margaret L. Holland, Ph.D., Byung-Kwang Yoo, M.D., Ph.D., Helena Temkin-Greener, Ph.D., and others in *Maternal and Child Health* 15, pp. 1011-1019, 2011. ■ *KB*

Children with special health care needs with disabilities have greater unmet health care needs than those without disabilities

Children with special health care needs (CSHCN) who also have disabilities (at least one functional limitation) form a special subset of CSHCN. Compared with other CSHCN, these children are more likely to have behavioral problems (39.6 percent vs. 25.2 percent), anxiety/depressed mood (46.1 percent vs. 24.0 percent), and trouble making and keeping friends (38.1 percent vs. 15.6 percent), according to researchers from the University of California, San Francisco, who have developed a wide-ranging profile of this group.

They found that only 32.2 percent of CSHCN with disabilities were receiving care within a medical home compared with more than half of the other CSHCN. In addition, only 48.8 percent of

CSHCN with disabilities reported adequate care coordination compared with 73.5 percent of other CSHCN. CSHCN with disabilities also had statistically higher odds of unmet need for the following services: specialty care, mental health services, physical therapy, occupational therapy and/or speech therapy, medical supplies, durable medical equipment, and communication aids.

In 2005-2006, 13.9 percent of children in the United States had special health care needs. Of these children, 21.5 percent qualified as having at least 1 functional limitation. Children overrepresented in this group include boys, minority children, children living near or in poverty, uninsured and publicly insured

children, children living in households headed by a single mother, and children living in homes in which the highest educational attainment was high school or less. This study was supported by the Agency for Healthcare Research and Quality (HS11716).

See “Profiling health and health-related services for children with special health care needs with and without disabilities” by Amy J. Houtrow, M.D., Megumi J. Okumura, M.D., Joan F. Hilton, Sc.D., and Roberta S. Rehm, Ph.D., in the November-December 2011 *Academic Pediatrics* 11(6), pp. 508-516. ■ *MWS*

Consumers choose “high-value” health care providers when given combined cost and quality information

When asked to choose a health care provider based solely on cost information, consumers tend to equate cost with quality and choose the more expensive option, according to a new study funded by the Agency for Healthcare Research and Quality (AHRQ). The study, “An experiment shows that a well-designed report on costs and quality can help consumers choose high-value health care,” appeared in the March 2012 issue of *Health Affairs*. University of Oregon’s Judith H. Hibbard, Dr.P.H., found that consumers equate cost with quality and worry that lower cost means a lower quality of care.

Because higher costs may indicate unnecessary services or inefficiencies, cost information alone does not help consumers get the best value for their health care dollar. But when the authors showed the 1,400 consumers participating in the study the right mix of cost and quality information, they were better able to choose high-value health care providers—those who deliver high-quality care at a lower cost.

While many public reports are available to help consumers compare providers, including those sponsored by the 24 regional quality collaboratives that AHRQ supports through the Chartered Value Exchange Learning Network, few integrate cost and quality information. In addition, there has been little scientific evidence to guide the presentation of such information to help consumers choose high-value providers.

The study is one of five AHRQ-supported papers in the March issue of *Health Affairs*. Here are the conclusions of the four other papers. Maureen A. Smith of the University of Wisconsin-Madison found that physician groups and clinics that have publicly reported their performance on diabetes care were more likely to adopt diabetes improvement interventions than those that did not. Gary J. Young of Boston’s Northeastern University found that multi-stakeholder regional collaboratives have led the way in producing public reports about health care providers’ performance.

Mark W. Friedberg and Cheryl L. Damberg of the RAND Corporation offer a five-point methodological checklist to guide those who want to improve their reporting methods. Finally, Harold S. Luft, of the Palo Alto Medical Foundation Research Institute in California proposes the creation of a public-private data aggregator, which would receive data about care from both patients and providers and would be funded through fees charged to commercial users, such as health plans. The journal issue also includes papers on public reporting by Andrew Ryan of Cornell Medical College, Anthony A. Lavery of London’s Imperial College, Stephanie Teleki and Maribeth Shannon of the California HealthCare Foundation, and Harvard’s Anna D. Sinaiko. ■

Only 75 percent of HIV patients stay in care

Only 75 percent of HIV/AIDS patients in the United States remain in care consistently, according to a new study supported by the Agency for Healthcare Research and Quality (AHRQ). The study, published in the February 29 issue of the journal *AIDS*, is the first to provide a comprehensive national estimate of HIV care retention and information about patients who are most likely to continue their care over time.

Researchers studied 17,425 adult patients cared for at 12 clinics within the AHRQ-supported HIV Research Network between 2001 and 2008. Only 42 percent of patients studied had what researchers defined as no “gap” in treatment (intervals of no more than 6 months in between outpatient visits) over the 7-year period. Nearly one-third, or 31 percent of patients, had one or more treatment gaps that extended between 7 and

12 months. What’s more, about 28 percent of patients appeared to have gone without care for more than a year on one or more occasions. Women, white patients, older patients, male patients who were infected via sex with men, and patients who began treatment on Medicare (compared to those on private insurance) were more likely to remain in care more consistently.

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HIV patients

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Retention was also greater among patients whose CD4 cell counts were very low when they entered care (lower CD4 counts indicate

more advanced HIV disease). The study was led by Baligh Yehia, M.D., a post-doctoral fellow at the University of Pennsylvania Perelman School of Medicine, and Kelly Gebo, M.D., an associate

professor of medicine at the Johns Hopkins University School of Medicine. You can access the study abstract on PubMed® at www.ncbi.nlm.nih.gov/pubmed/22382143. ■

Announcements

New clinician and consumer research summaries on treatment-resistant depression available

New clinician and consumer research summaries on nonpharmacologic therapies for treatment-resistant depression (TRD) are now available from the Effective Healthcare Program of the Agency for Healthcare Research and Quality (AHRQ). The summaries are based on a recently released research review, *Nonpharmacologic Interventions for Treatment-Resistant Depression in Adults*, which found insufficient evidence to evaluate whether nonpharmacologic treatments are effective for TRD. These new products summarize evidence on the effectiveness and efficacy of four non-pharmacologic treatments: electroconvulsive therapy, repetitive transcranial magnetic stimulation, vagus nerve stimulation, and cognitive behavioral therapy or interpersonal psychotherapy.

Comparative clinical research on nonpharmacologic interventions for TRD is in its infancy. Many clinical questions about efficacy and effectiveness remain unanswered. These findings and future research needs are summarized in the clinician summary, *Nonpharmacologic Interventions for Treatment-Resistant Depression in Adults*, and the consumer summary, *Therapies for Treatment-Resistant Depression*. Other available materials include a continuing medical education course and a faculty slide set. These materials and many others that explore the effectiveness and risks of treatment options for various conditions are available on AHRQ's Effective Health Care Program Web site, www.effectivehealthcare.ahrq.gov. ■

New AHRQ resource helps communities connect those at risk to health care services

A new resource, *Connecting Those at Risk to Care: The Quick Start Guide to Developing Community Care Coordination Pathways* (www.innovations.ahrq.gov/content.aspx?id=3390), can help community-based organizations improve coordination of health care services for patients with the greatest need and health risks. The guide is part of the Agency for Healthcare Research and Quality's (AHRQ's) Health Care Innovations Exchange (www.innovations.ahrq.gov), and provides assistance on how to create tools and resources to develop a community HUB.

The HUB is an infrastructure that brings public and private community stakeholders together to determine local health needs and coordinate appropriate medical care and social services to be delivered without duplication of effort. The Quick Start Guide gives an overview of this process and complements the more comprehensive guide (www.innovations.ahrq.gov/content.aspx?id=2956) released by AHRQ in 2010. To date, 16 HUBs have been established throughout the United States. ■

Amiel, J.M., Pincus, H.A. (2011). "The medical home model: New opportunities for psychiatric services in the United States." (AHRQ grant HS16097). *Current Opinions in Psychiatry* 24, pp. 562-568.

This review examines the development of integrated care systems into the current concept of the patient-centered medical home (PCMH). It also describes two basic implementation frameworks: the integration of psychiatric services into a PCMH and the integration of medical services into a patient-centered psychiatric home.

Bessman, S.C., Agada, N.O., Ding, R., and others. (2011). "Comparing National Institutes of Health funding of emergency medicine to four medical specialties." (AHRQ grant HS17957). *Academic Emergency Medicine* 18, pp. 1001-1004.

This study compared NIH funding received by emergency medicine (EM) to the specialties of internal medicine, pediatrics, anesthesiology, and family medicine in 2008. It determined that EM is one of the least funded specialties, perhaps because of its youth, emphasis on clinical research, and the opportunity costs of clinical practice.

Cegala, D.J. (2011). "An exploration of factors promoting patient participation in primary care medical interviews." (AHRQ grant HS90110). *Health*

Communication 26(5), pp. 427-436.

This study explored aspects of Street's ecological model as a means of identifying factors that promote or impede patient participation during a medical interview. The analysis revealed eight significant predictors of patient participation. A broader goal of this research was to contextualize physician-patient communication within a multilevel interdependent perspective.

Chen, P.G-C., Curry, L.A., Bernheim, S.M., and others. (2011, November). Professional challenges of non-U.S.-born international medical graduates and recommendations for support during residency training. (AHRQ grant T32 HS17589). *Academic Medicine* 86(11), pp. 1383-1388.

Foreign-born graduates of medical school other than those in the United States and Canada report challenges acculturating while attending U.S. residency programs. To understand the problems they face, and to suggest possible remedies, the researchers conducted in-depth interviews with 25 foreign-born graduates who were practicing physicians in Connecticut, New York, or New Jersey.

Chou, R., Arora, B., Dana, T., and others. (2011). Screening asymptomatic adults with resting or exercise electrocardiography: A review of the evidence for the

U.S. Preventive Services Task Force. (AHRQ Contract No. 290-07-10057). *Annals of Internal Medicine* 155(6), pp. 375-385.

Despite an additional 7 years of studies, the evidence remains inadequate to support the use of resting or exercise electrocardiography to screen adults without symptoms for abnormalities that would indicate increased risk of coronary heart disease (CHD), according to a new evidence review conducted for the United States Preventive Services Task Force. None of the 65 articles that met the selection criteria provided consistent evidence on the potential benefits or harms of screening.

Chou, R., Crosswell, J.M., Dana, T., and others. (2011). "Screening for prostate cancer: A review of the evidence for the U.S. Preventive Services Task Force." (AHRQ Contract No. 290-07-10057). *Annals of Internal Medicine* 155, pp. 762-771.

The purpose of this review was to update the 2002 and 2008 U.S. Preventive Services Task Force evidence reviews on screening and treatments for prostate cancer. It concluded that prostate-specific antigen-based screening results in small or no reduction in prostate cancer-specific mortality, and is associated with harms related to subsequent evaluation and treatments, some of which may be unnecessary.

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Clancy, C. (2012). “Alleviating ‘second victim’ syndrome: How we should handle patient harm.” *Journal of Nursing Care Quality* 27(1), pp. 1-5. Reprints (AHRQ Publication No. 12-R030) are available from the Agency for Healthcare Research and Quality.*

Adverse events in health care can be devastating—and not just to patients whom they strike, but to physicians, nurses, and other clinicians connected to these events. The author, director of the Agency for Healthcare Research and Quality, discusses the systemic nature of patient safety events and the importance of disclosure. She describes the role of Patient Safety Organizations in the systematic reporting of patient safety events as well as the success of the Michigan model for disclosure of these events to the affected patients.

Crosson, J.C., Etz, R.S., Wu, S., and others. (2011, October). “Meaningful use of electronic prescribing in 5 exemplar primary care practices.” (AHRQ grant HS16391 and Contract No. 290-06-0017). *Annals of Family Medicine* 9(5), pp. 392-397.

To understand why some primary care practices are successful in their transition to electronic prescribing, while many are not, the researchers conducted a comparative case study of five primary care practices. The practices had different organizational structures, primary care specialties, and patient

populations. Each practice responded to an advance questionnaire and underwent a 3-day site visit, from which common themes were identified.

De Achaval, S., and Suarez-Almazor, M. (2011). “Acetaminophen overdose: A little recognized public health threat.” (AHRQ grants HS17991, HS16093).

Pharmacoepidemiology and Drug Safety 20, pp. 827-829.

This article comments on two studies in the same issue that provide updated estimates of the rates of acetaminophen overdose. It also highlights major areas of concern, including patient populations who may be at higher risk of overdose and who may be targets for educational or behavioral interventions. The authors encourage more efforts to educate consumers and prescribers and to redesign the process by which acetaminophen doses are measured and administered to children.

Friedly, J. (2012, January). “Imaging and uncertainty in the use of lumbar epidural steroid injections.” (AHRQ grant HS19222). *Archives of Internal Medicine* 172(2), pp. 142-143.

The author comments on a study in the same issue that sought to determine if magnetic resonance imaging (MRI) improved outcomes of epidural steroid injections for lumbar radiculopathy and if imaging altered treatment decisions. Radiculopathy refers to symptoms (e.g., pain, weakness, numbness) caused by nerves that are not working properly. The author concluded that better data are needed on the cost-

effectiveness of injections performed with and without MRI.

Gartlehner, G., Hansen, R.A., Morgan, L.C., and others. (2011). “Comparative benefits and harms of second-generation antidepressants for treating major depressive disorder. An updated meta-analysis.” (AHRQ Contract No. 290-07-10056). *Annals of Internal Medicine* 155, pp. 772-785.

This article updates a previous AHRQ-funded systematic review on the use of major antidepressants for major depressive disorder. After reviewing data from 234 studies, the authors find that current evidence does not warrant recommending a particular second-generation antidepressant on the basis of differences in efficacy. No differences in efficacy were seen in subgroups based on age, sex, ethnicity, or comorbid conditions.

Giardina, T.D., and Singh, H. (2011, December). “Should patients get direct access to their laboratory test results?” (AHRQ grant HS17820). *Journal of the American Medical Association* 306(22), pp. 2502-2503.

A proposed Federal rule allows patients to access test results directly from the laboratory by request. Currently, there is a lack of consensus in the literature about best practices in direct patient notification of abnormal results. The authors consider patient and clinician perspectives on the potential effects of this approach. They also discuss issues to consider in the implementation of this proposed rule.

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Kesselheim, A.S., Cresswell, K., Phansalkar, S., and others. (2011). “Clinical decision support systems could be modified to reduce ‘alert fatigue’ while still minimizing the risk of litigation.” (AHRQ grant HS18465). *Health Affairs* 30(12), pp. 2310-2317.

Physicians and other users of clinical decision support systems often suffer “alert fatigue” caused by excessive numbers of warnings about items such as potentially dangerous drug interactions. The authors’ analysis of product liability principles and existing research into clinical decision support systems concludes that more finely tailored or parsimonious warnings could ease alert fatigue without imparting a high risk of litigation.

McKibbin, K.A., Lokker, C., Handler, S.M., and others. (2012). “The effectiveness of integrated health information technologies across the phases of medication management: A systematic review of randomized controlled trials.” (AHRQ Contract No. 290-07-10061). *Journal of the American Medical Informatics Association* 19, p. 22-30.

This review describes the process of collecting and synthesizing the findings from randomized controlled trials on the effectiveness and effects of medication management information technology on all phases of medication management. The review reports results for process changes, clinical outcomes, and other outcomes related to use, usability, knowledge, skills, and attitudes.

Pickard, A.S., Lee, T.A., Solem, C.T., and others. (2011, December). “Prioritizing comparative-effectiveness research topics via stakeholder involvement: An application in COPD.” (AHRQ Contract No. 290-05-0038). *Clinical Pharmacology & Therapeutics* 90(6), pp. 888-892.

In order to identify and prioritize comparative effectiveness research (CER) topics in chronic obstructive pulmonary disease (COPD) that could be addressed using a prospective study design, the authors sought input from clinical researchers and stakeholders about the generation and prioritization of research questions. They describe the process they adopted in identifying and prioritizing research questions for the conduct of a CER study in COPD.

Schneeweiss, S., Gagne, J.J., Glynn, R.J., and Rassen, J.A. (2011, December). “Assessing the comparative effectiveness of newly marketed medications: Methodological challenges and implications for drug development.” *Clinical Pharmacology & Therapeutics* 90(6), pp. 777-790.

This article characterizes the methodological challenges faced when assessing the comparative effectiveness (CE) of newly marketed medications as they are used in day-to-day care. The authors propose a framework that integrates evidence from multiple sources for assessing the CE of drugs in the early marketing period. They also make suggestions for structural changes throughout the development process in order to support early generation of CE evidence.

Toh, S., Platt, R., Steiner, J.F., and Brown, J.S. (2011, December). “Comparative-effectiveness research in distributed health data networks.” (AHRQ grant HS19912). *Clinical Pharmacology & Therapeutics* 90(6), pp. 883-887.

To meet the need to use the growing amount of electronic health data to address important comparative effectiveness questions, a distributed as opposed to a centralized network is preferred. That is because it can perform essentially all the functions desired of a centralized database, while avoiding many of the latter’s disadvantages. The recent development of more adaptable network architectures ensures future expansion and scalability to meet the growing comparative effectiveness research needs of a variety of stakeholders.

Varley, C.D., Gross, N.D., Marx, D.P., and Winthrop, K.L. (2011). “Tuberculosis of the nasolacrimal duct.” (AHRQ grant HS17552). *Ophthalmic Plastic and Reconstructive Surgery* 27(5), pp. e129-e131).

The authors describe an extremely unusual case of postprimary tuberculosis of the nasolacrimal system with inferior turbinate enlargement and cervical adenopathy. After dacryocystorhinostomy and nine months of standard four-drug antituberculosis therapy, complete resolution of symptoms occurred.

Vogelsmeier, A. and Scott-Cawiezell, J. (2011). *Achieving quality improvement in the nursing home: Influence of*

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nursing leadership on communication and teamwork. (AHRQ Grant HS14281). *Journal of Nursing Care Quality* 26(3), pp. 236–242.

Nursing leaders at nursing homes, who facilitate open communication and teamwork, achieve quality improvement while nursing leaders who obstruct these elements of organizational change fail to improve quality of care, concludes this comparative case study. The research was part of a larger study of the effect on medication safety practices of the formation of multidisciplinary medication safety teams in five Midwestern nursing homes that implemented an electronic medication administration record.

Wang, S., Linkletter, C., Maclure, M., and others. (2011). “Future cases as present controls to adjust for exposure trend bias in case-only studies.” (AHRQ grant T32 HS00011). *Epidemiology* 22, pp. 568-574.

Self-matched, case-only studies control by design for time-invariant confounders, but they do not control for confounders that vary with time. The authors present an alternative case-only method for handling exposure-time trends within a pharmacoepidemiologic framework. Their proposed method requires that the effect of exposure be transient and that outcome occurrences be distributed across calendar time.

Ward M.M., Clabaugh, G., Evans, T.C., and Herwaldt, L. (2012). “A successful voluntary, multicomponent Statewide effort to reduce health care-associated infections.” (AHRQ Contract No.

290-06-00021). *American Journal of Medical Quality* 27(1), pp. 66-73.

The authors describe a Statewide multicomponent approach to reduce health care-associated infections (HAIs) in Iowa. The Iowa Healthcare Collaborative’s success in developing a Statewide voluntary reporting system, and in significantly improving the rate of influenza immunization among health care workers demonstrates that a committed collaborative can effectively mobilize hospitals to implement HAI prevention and control measures.

Whitlock, E.P., Vesco, K.K., Eder, M., and others. (2011, November). “Liquid-based cytology and human papillomavirus testing to screen for cervical cancer: A systematic review for the U.S. Preventive Services Task Force.” (AHRQ Contract No. 290-07-10057). *Annals of Internal Medicine* 155(10), pp. 687-697.

This paper systematically reviews the evidence on liquid-based cytology (LBC) and high-risk papillomavirus (HPV) screening for use by the U.S. Preventive Services Task Force in updating its 2003 recommendation. It finds that evidence supports the use of LBC or conventional cytology for cervical cancer screening, but more complete evidence is needed before HPV-enhanced primary screening is widely adopted for women aged 30 years or older.

Wysocki, A., Butler, M., Shamliyan, T., and Kane, R.L. (2011, November). “Whole-body vibration therapy for osteoporosis: State of the science.” (AHRQ Contract No. 290-2007-10064). *Annals of*

Internal Medicine 155(10), pp. 680-686.

Whole-body vibration therapy is a proposed intervention for preventing and treating osteoporosis. It is not approved by the U.S. Food and Drug Administration. After speaking with key informants and reviewing the scant literature on this subject, the researchers believe that the mechanism by which it may increase bone density is not well-understood. The efficacy and safety of this treatment are unknown. More research is needed to understand the role of this investigational therapy.

Yu, Z., and Liu, L. (2011). “A joint model of recurrent events and a terminal event with a nonparametric covariate function.” (AHRQ grant HS16543). *Statistics in Medicine* 30, pp. 2683-2695.

The authors extend the shared frailty model of recurrent events and a dependent terminal event to allow for a nonparametric covariate function. Numerical analysis results show that the proposed estimate performs well for both the nonparametric and parametric components. They apply their method to analyze the hospitalization rate of patients with heart failure.

Zhang, J., Saag, K.G., and Curtis, J.R. (2011). “Long-term safety concerns of antiresorptive therapy.” (AHRQ grants HS13852, HS18517). *Rheumatic Diseases Clinic of North America* 37, pp. 387-400.

Although bisphosphonates prescribed for osteoporosis were well-tolerated and safe during

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large-scale clinical trials, several rare and potentially serious adverse events (osteonecrosis of the jaw, atypical fractures, and esophageal cancer) have been reported to be associated with long-term bisphosphonate use from postmarketing studies and epidemiologic studies. The authors summarize studies examining the association between long-term bisphosphonate use and these adverse outcomes.

Zrelak, P.A., Utter, G.H., Sadeghi, B., Cuny, J., and others. (2012, April). “Using the Agency for Healthcare Research and Quality Patient Safety Indicators for targeting nursing quality improvement.” (AHRQ Contract 290-04-0020). *Journal of Nursing Care Quality* 27(2), pp. 99-108. These authors evaluate opportunities for improving nursing care related to the Agency for Healthcare Research and Quality Patient Safety Indicators (PSIs) identified through a detailed review

of a national sample of medical records of patients who have at least one event of interest. Systematic review of cases flagged by the PSIs demonstrates opportunities for improvement in nursing care and nursing documentation and supports the importance of nurse-led system-level changes. ■

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