



RESEARCH ACTIVITIES

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Improving care for patients with disabilities

One in five people are living with disabilities in the United States, yet little is known about the quality of care they receive and barriers they have to accessing care. The Agency for Healthcare Research and Quality (AHRQ) showcased new approaches and technologies for improving the care of this priority population at a session during its Annual Conference in September. It also recently released an Evidence-based Practice Report on measuring the outcomes of care for people with disabilities. *Research Activities* asked Harvey Schwartz, Ph.D., AHRQ's senior advisor on priority populations, to talk about the health

care issues that need to be addressed to improve care for patients with disabilities.

RA: The session you and Dr. Ileana Ponce-Gonzalez chaired at the AHRQ annual meeting discussed various physical, communication, and other barriers to care faced by patients with disabilities. Could you describe those?

HS: To give you an idea of the unique situation faced by these patients, a person with an intellectual disability may visit a doctor's office several times before being comfortable enough to get up on the examination table. It's a level of comfort that is more difficult for these patients to reach than other patients. Other barriers for many people with disabilities include lack of height-adjustable examination tables, weight scales accessible for those with mobility or activity limitations, lack of broad doorways for wheelchairs, and sign language interpreters for the deaf. Exterior access with ramps, building access with handrails, interior-accessible public spaces, and van-accessible parking are still problems in some places.

Some of the biggest barriers include structural challenges with the delivery of health care, including



providers' inadequate disability competency and awareness. All these barriers are compounded further by lack of affordable and adequate health insurance and lack of long-term assistance at home, specialty care, long-term care, care coordination, prescription medications, durable medical equipment, and assistive technology.

Whether most or few facilities are accessible for people with disabilities or have available interpreters and suitable technology is not known, because there simply isn't much data reported on the accessibility of facilities.

RA: Why is so little known about persons with disabilities versus other priority populations?

HS: This lack of awareness of the needs of people with disabilities is part of the challenge. The

Highlights

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From the Director



about 10 years ago who was hearing-impaired and there was no interpreter available—so we wrote each other notes!

While far from ideal and wildly inefficient, he was sufficiently pleased that he referred a number of his friends. That's probably because I took the time to find a way to communicate with him and pay attention to his needs and preferences.

This month's interview with Harvey Schwartz, Ph.D., AHRQ's senior advisor on priority populations, underscores the unique barriers to care faced by deaf individuals and

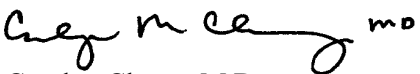
r persons with disabilities.

More than 54 million children and adults in the United States live with disabilities, including hearing impairment. Medical equipment that doesn't meet their needs and lack of health professionals trained in caring for patients with disabilities prevent these individuals from receiving the basic primary and preventive care others take for granted. This care includes getting weighed, preventive dental care, x rays, colonoscopies, pelvic exams, physical exams, and vision screenings. As a result, they are more likely to end up in the emergency department or hospital.

AHRQ's *National Healthcare Disparities Report* tracks many measures of relevance to individuals with disabilities or special health care needs. However,

data on this priority population are limited, and AHRQ continues to work with Federal partners to improve reporting on health care quality for individuals with disabilities. We just released a report that examines measures of care outcomes for persons with disabilities. You can access the report at www.effectivehealthcare.ahrq.gov.

AHRQ continues to solicit research proposals for interventions that improve care, reduce disparities, and address gaps in health care research for patients with disabilities and other priority populations.


Carolyn Clancy, M.D.

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Disabilities

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heterogeneity of this population and the broad range of classifications and definitions of disability add to the challenge. Little data are collected on people with disabilities. Also, the way data are collected are different, so it is difficult at best to adapt them for use in health services research or quality improvement research. Moreover, very few measures we use to assess the quality of care take their specific health care needs into account.

RA: AHRQ's report lists outcome measures that could be used to measure the care for people with disabilities. Will this move research on this group forward?

HS: It definitely helps. The report identified a lengthy list of outcome measures, which vary by the perspectives of researchers in different fields. For example, a geriatrician might look at a person's functional status by measuring six simple activities of daily living, such as the ability to dress oneself. He looks at intermediate steps such as the patient's need for supervision, queuing, and partial assistance with dressing. On the other hand, an occupational therapist would likely break down the dressing task into 26 steps (selecting the clothing, putting it on, fastening the closures, etc.). Both are attempts to look at meaningful measures of outcomes for patients with disabilities.

The report also noted the importance of measures for specific groups and generic measures for cross-group comparisons. Overall, the report shows that we are in the early stages of research development in this area. Quality improvement research for people

with disabilities could benefit from organized databases and collaboration and coordination of efforts across medical interventions, rehabilitation, and social support provision.

RA: What remedies are being developed or that you envision happening in the near future?

HS: Addressing the big barriers will entail identification of best practices in treating people with disabilities, educating physicians and other providers to increase awareness and competence, and improving access to facilities, health information, and services.

RA: Health care for people with disabilities can present special challenges. For example, disability problems can be worsened or complicated by other medical, psychological, economic, and social problems. In similar fashion, management of medical problems can be complicated by disability. Often optimal care for these patients requires coordination of medical, community, and social services. What is the state of care coordination for this group now and how can it be improved?

HS: Among the special challenges is a lack of evidence-based information to guide decisionmakers on how best to integrate systems within different contexts and for different desired outcomes for people with disabilities. A related challenge is a lack of standardized tools to evaluate health outcomes for patients with disabilities in integrated systems of care.

Currently, insurance schemes do not adequately compensate health care providers for the time required to provide care coordination for people with disabilities. Also, many

people with disabilities report gaps in health care insurance coverage that limit or prevent care coordination that is critical for health,

independence, and self-determination. Some other reports suggest that inadequate transportation, limited personal assistance, and difficulty navigating the insurance system obstruct or delay care or lead to skipping medication or going without needed equipment. These problems can lead to patients ending up in the emergency department or being hospitalized.

A coherent investigative strategy that will inform policy and planning for the growing number of people who will acquire disabilities with age, and for the overall future impact of disability on society should improve the state of care coordination. Collaboration and coordination of quality improvement research efforts across medical interventions, rehabilitation, and social support provision should also enhance the state of care coordination.

Lastly, one model that holds promise for improving health outcomes for people with disabilities in various contexts is the Patient Centered Medical Home (PCMH) Model. Evidence suggests that a PCMH has the possibility of improving care processes for patients with complex needs by having a primary care provider that coordinates all care.



Dr. Harvey Schwartz

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Disabilities

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RA: Are there some health care needs that have been overlooked for young adults with disabilities versus children with special health care needs and the elderly with disabilities?

HS: I will focus on a few examples. One is the readiness of the adult health care system to take care of young adults, including young veterans with disabilities and chronic conditions. Adult health care providers generally do not have comprehensive training to address the needs of this population, nor are they well-positioned to spend the extra time that is necessary to care for these young adults.

Further, this is driven by the failure of the reimbursement system to provide adequate additional payments to compensate providers for the additional effort that is required. Another challenge facing young adults is their need to have interactions with different agencies and organizations, such as hospitals, physician offices, mental health providers, vocational training, rehabilitation, and social services, each of which is concerned with only one aspect of these individuals' lives.

Another example is middle-aged adults with intellectual or developmental disabilities and chronic medical conditions who are still living with their parents, who decline as they age. When their parents need to enter a nursing

home, not only are the people with intellectual and developmental disabilities without a place to live, they are also without their family caregivers.

RA: The AHRQ annual meeting session showcased innovative technologies for persons with disabilities. What do you think are the most promising approaches to improving their care quality, access, and participation in care?

HS: To reveal new directions in technology, Dr. Ponce-Gonzalez and I invited Drs. Steven Barnett of the University of Rochester Medical Center, David O'Hara, of the Westchester Institute for Human Development in New York, and Shaun Kane, of the University of Maryland, Baltimore County, who are on the cutting edge.

Dr. Barnett's adaptation of the Consumer Assessment of Health Plans Survey, which may soon be used by deaf patients to evaluate their health care, makes the survey accessible by use of visual cues and a touch screen for those who are deaf and use American Sign Language. These types of adaptations are needed to identify and address the health and health care priorities for this particular group.

Dr. O'Hara is developing self-directed surveys and patient education tools that use multi-modal presentation and accessible design for individuals with intellectual and developmental

disabilities. These tools can increase independence and reduce staff time in interviewing and entering/aggregating data. This can help individuals with cognitive disabilities to become active participants in their own health and wellness.

Dr. Kane's research lab is redesigning existing devices to make them more accessible for persons with disabilities by involving future users in design research and device development. This approach holds promise for improving the quality of care for people with disabilities.

One example from Dr. Kane's research is a location-aware communication tool for people with aphasia. The redesigned device uses context to guide the user on what to say (e.g., talk about medicine when at the doctor's office). Another type of redesign his lab is working on is access overlays to produce accessible touch screens for blind people.

RA: Is AHRQ stepping up its research in this area?

HS: AHRQ encourages grant applications that propose research that focuses on the health care for priority populations, including populations with disabilities. Topics include implementation of research and interventions that aim to reduce disparities in priority populations and settings; addressing known gaps in research dealing with

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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.

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priority populations; development of methods to improve outcomes for priority populations in AHRQ-sponsored research; and research on crosscutting issues involving multiple priority population groups and settings (for example, children with disabilities, women with disabilities, racial and ethnic minorities with disabilities, people with disabilities receiving care in rural areas, etc).

RA: Finally, what should clinicians and the health care

system do differently to better serve this population?

HS: As Helen Keller said, “Science may have found a cure for most evils, but it has found no remedy for the worst of them all—the apathy of human beings.” I am not saying clinicians are apathetic. Far from it. They want to do the best for each patient. However, the health care system has not adequately trained them to care for people with disabilities in a patient-centered manner that respects the whole person.

The health care system needs to change the way it views people

with disabilities. Health care professionals in all types of facilities must understand disability as more complex than physical, cognitive, or emotional dysfunction. A new model must be envisioned that takes into account the range of barriers to care for these patients. These barriers include environmental, architectural, logistical, societal, and cultural. ■

Editor’s note: You can view the Evidence-based Practice Report on measuring the outcomes of care for people with disabilities at www.effectivehealthcare.ahrq.gov.

Patient Safety and Quality

Many hospitalized children receive numerous medications, raising potential safety concerns

In the hospital setting, the efficacy and safety of many pediatric medications have not been well established, and much of their use is for off-label indications. A new study reveals that many hospitalized children are receiving a substantial number of drugs. This use is a concern, given that exposure to multiple medications has been linked to a greater risk of drug reactions in adult patients in intensive care units and other settings.

The researchers examined pediatric drug use at 411 general hospitals and 52 children’s hospitals, representing nearly one-fifth of all pediatric hospitalizations across the United States. They found that the most common generic drugs and therapeutic agents to which children were exposed included intravenous fluids; analgesics such as the narcotics fentanyl and morphine; the antipyretics/analgesics acetaminophen and ibuprofen; and anti-infective agents such as ampicillin, gentamicin, and cephalosporins.

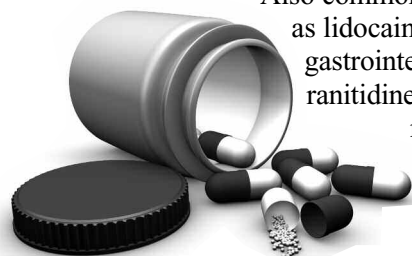
Also common were anesthetic agents such as lidocaine and propofol and gastrointestinal drugs such as ranitidine, ondansetron, and metoclopramide.

On the first day of hospitalization in children’s

hospitals, patients younger than 1 year at the 90th percentile of daily exposure to distinct medications received 11 drugs and patients 1 year or older received 13 drugs; in general hospitals, 8 and 12 drugs, respectively. By the seventh hospital day in children’s hospitals, patients younger than 1 year at the 90th percentile of cumulative exposure to distinct medications had received 29 drugs, and patients 1 year or older had received 35; in general hospitals, 22 and 28 drugs, respectively.

The researchers caution that the level of polypharmacy among hospitalized children raises patient safety concerns, given the relationship between polypharmacy and adverse drug events already documented among adults in hospital settings. This study was supported by a grant to the University of Pennsylvania Center for Education and Research on Therapeutics (CERT) by the Agency for Healthcare Research and Quality (HS17991). For more information on the CERTs program, go to www.certs.hhs.gov.

See “Prevalence of polypharmacy exposure among hospitalized children in the United States” by Chris Feudtner, M.D., Ph.D., Dingwei Dai, Ph.D., Kari R. Hexem, M.P.H., and others in the January 2012 *Archives of Pediatrics* 166(10), pp. 9-16. ■ MWS



Seniors learn some things from prescription drug advertisements, but can also be misled

Direct-to-consumer advertising (DTCA) of prescription drugs to consumers is currently only permitted in the United States and New Zealand, where it remains controversial. Proponents of DTCA claim that advertisements help inform consumers and facilitate their involvement in clinical decisions about prescription drugs. A study examined 15 seniors' perceptions of 9 television ads to understand how the ads might help consumers make informed decisions about prescription drugs.

Four themes emerged from the interviews of the 15 seniors: (1) awareness of medications was increased, (2) information was

missing or misleading and drugs were often perceived as more effective than evidence would suggest, (3) most seniors were more strongly influenced by personal or vicarious experience with a drug — and by their physician—than by DTCA, and (4) most seniors were circumspect about the information in commercial DTCA.

The researchers concluded that there was some potential for benefit from DTCA, but there were also critical shortcomings of the current ad format. They identified several ways in which advertisements could be improved to better facilitate informed decisionmaking, such as inclusion of the importance of

lifestyle changes in the ads, and legislative action to improve utility of DTCA. They also recommended comprehensive counseling by physicians prior to prescribing new drugs to patients to clarify any misperceptions. This study was supported by the Agency for Healthcare Research and Quality (T32 HS00046).

See “Seniors’ perceptions of prescription drug advertisements: A pilot study of the potential impact on informed decision making” by Jerry L. Grenard, Ph.D., Visith Uy, B.S., Jose A. Pagan, Ph.D., and Dominick L. Frosch, Ph.D., in *Patient Education and Counseling* 85, pp. 79-84, 2012. ■ MWS

Chronic Disease

Diabetes substantially affects school dropout rates and wages

Diabetes affects more than 23 million people, or just under 8 percent of the United States population. Diabetes rates continue to rise along with growing rates of obesity. The impact of the disease is immense, reveals a new study by two Yale University researchers. For example, it found that the high school dropout rate was 6 percentage points higher among students with diabetes than those without the disease. Also young adults with diabetes who have one or more parents with diabetes have a reduced likelihood of attending college by four to six percentage points, even after controlling for the child's health status. What's more, a person with diabetes can expect to lose more than \$160,000 in wages over his or her working life, compared to a peer without the disease.

The researchers call for in-school screening for whether the impact of diabetes on individual learning and performance begins before classic signs of clinical diabetes appear. They used data from the National Longitudinal Study of Adolescent Health from 1994–1995, 1996, 2001–2002, and 2008 (when respondents were an average of nearly 30 years). They measured the

educational and labor-market outcomes for the young adult population with diabetes.

Prior estimates place the total lifetime costs to society at between \$243,000 and \$388,000 per high school dropout. Increasing the dropout rate by 5 percentage points for the 570,000 young people with diabetes suggests a predicted increase of nearly 30,000 high school dropouts because of diabetes. That results in an estimated overall cost to society of \$7–11 billion during the dropouts' lifetimes. The researchers note that prevention, especially for children, might take on a renewed urgency for parents and other stakeholders once they become aware of how soon the effects of diabetes emerge and how profound the impact is later in life. This study was supported by the Agency for Healthcare Research and Quality (HS17589).

See “Diabetes's ‘health shock’ to schooling and earnings: Increased dropout rates and lower wages and employment in young adults” by Jason M. Fletcher, Ph.D., and Michael R. Richards, M.D., in *Health Affairs* 31(1), pp. 27-34, 2012. ■ MWS

Gaps in insurance coverage linked to less receipt of preventive services by patients with diabetes

Patients in safety-net clinic settings may receive care regardless of insurance status. However, continuity of insurance coverage can make a difference in whether optimal care is received. During coverage gaps, it is likely that patients delay getting preventive care until securing insurance coverage again. In fact, a new study reveals that patients with diabetes who have gaps in coverage, regardless of the duration of the gap, receive less diabetes preventive care than their continuously insured counterparts.

A team of researchers investigated whether the amount of time with insurance coverage had a dose-response relationship with the likelihood of receiving diabetes preventive care over a 3-year study period among patients treated at

safety-net clinics. They found no evidence of a relationship with increasing duration of coverage, nor of a threshold amount of partial coverage, associated with better receipt of care. In almost all cases, those insured for 1 percent to 99 percent of the study period received services less often than the continuously insured, with no pattern of differences in receipt of care.

Clinical preventive services included in the study were low-density lipoprotein screens, influenza vaccinations, HbA1c screens (a test for blood-glucose level), and microalbumin screens (to detect diabetes-related kidney damage). All of these tests are recommended to be done annually for patients with diabetes. The study group consisted of 3,384

adults with diabetes—711 were partially insured (covered for 1 to 99 percent of the 3-year study period), 909 had no coverage, and 1,764 were continuously insured. The researchers concluded that persons in vulnerable populations need both access to primary care and continuous insurance coverage. This study was supported in part by the Agency for Healthcare Research and Quality (HS16181).

See “Receipt of diabetes preventive care among safety net patients associated with differing levels of insurance coverage” by Rachel Gold, Ph.D., Jennifer E. DeVoe, M.D., D.Phil., Patti J. McIntire, B.A., and others in the January-February 2012 *Journal of the American Board of Family Medicine* 25(1), pp. 40-49. ■ MWS

Self-monitoring of blood pressure along with nurse counseling leads to greater blood pressure control

High blood pressure (HBP) remains a major public health concern both in the United States and worldwide. Since managing HBP is often a lifetime effort, it is important to find effective ways to improve both self-care skills and motivations for individuals with HBP. A community-based lifestyle modification program using telephone-transmitted self-monitoring BP technology and nurse-led counseling more than doubled the percentage of people maintaining BP control (from 30 to 73 percent) during an initial 3-month education period. This control was sustained and even improved during a 12-month followup period, according to a new study.

In addition, the more-counseled group improved their BP and psychosocial outcomes more than the less-counseled group. The authors point out that maintaining optimal BP over time directly leads to

declines in stroke and coronary artery disease incidence and mortality. The study population consisted of 359 middle-aged (40–64 years) Korean immigrants who completed a 15-month intervention. The intervention consisted of 6 weeks of behavioral education followed by home telemonitoring of BP and bilingual nurse telephone counseling for 12 months. This study was supported by the Agency for Healthcare Research and Quality (HS13160).

See “Teletransmitted monitoring of blood pressure and bilingual nurse counseling-sustained improvements in blood pressure control during 12 months in hypertensive Korean Americans” by Miyong T. Kim, Ph.D., Hae-Ra Han, Ph.D., Haley Hedlin, Ph.D., and others in the *Journal of Clinical Hypertension* 13, pp. 605-612, 2011. ■ MWS

Breathing retraining techniques may help adult asthma

Certain behavioral approaches to treat asthma may improve asthma symptoms or reduce use of quick-relief medication in motivated adults with poorly controlled asthma, concludes a new report. The evidence-based review from AHRQ's Effective Health Care Program notes that asthma is a chronic condition of the airways characterized by the complex interaction of underlying inflammation, bronchial (airway) hyper-responsiveness, and airway obstruction.

In 2009, the estimated prevalence of asthma in the United States was 8.2 percent, which represents 24.6 million adults and children. Poorly controlled asthma is associated with increased health care use, decreased quality of life, and significant activity limitations. In

the United States, the projected annual cost (direct and indirect) of asthma in 2010 was estimated to be over \$20 billion.

Moderate evidence suggests that, for adults with poorly controlled asthma, hyperventilation-reduction breathing techniques can improve symptoms and may reduce reliever medication use over 6 to 12 months, with no known harmful effects compared to other breathing techniques. However, these techniques were not found to improve lung (pulmonary) function when compared to no intervention. Programs that included 5 or more hours of contact and that also offered interventions beyond breathing retraining or advice were more likely to be effective than no intervention. Patients considering

these treatments should not alter asthma medication before discussing their options with their clinician.

The report's findings can be found in the research review *Breathing Exercises and/or Retraining Techniques in the Treatment of Asthma: Comparative Effectiveness*. To access this review and other materials that explore the effectiveness and risks of treatment options for various conditions, visit the Effective Health Care Program Web site at www.effectivehealthcare.ahrq.gov. ■



Patient decision aids can reduce uncertainty in decisions about whether to undergo total knee replacement

Total knee arthroplasty (TKA) is a serious medical procedure that results in substantial pain relief and functional improvement for the patient. Despite its benefits, TKA is not without risks and, since it is an elective procedure, patients with advanced knee osteoarthritis must carefully weigh potential benefits and risks. A new study found that certain patient decision aids can reduce the level of uncertainty or "decisional conflict." Researchers tested three types of patient decision aids in a group of patients with knee osteoarthritis (OA) who were considering TKA. They examined scores on a decisional conflict scale ranging from 0 (no conflict) to 100 (most conflict).

They found a 21-point reduction in decisional conflict in the group receiving a video booklet compared with two other groups receiving the video booklet plus the adaptive conjoint analysis (ACA) tool (14-point

reduction) or an educational booklet on OA management (10-point reduction).

ACA is a specific type of analysis to describe patient preferences and values affecting decisionmaking in rheumatic conditions. ACA collects and analyzes preference data using an interactive computer program that uses an individual respondent's answers to update and refine questions through a series of paired comparisons. One reason why participants who used both the videobooklet and the ACA did not experience a reduction in decisional conflict may have been fatigue (doing both took an average of 2 hours compared to 1 hour for the videobooklet alone).

Another reason may have been the cognitive rigor of the ACA, which could have reduced clarity about the

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Total knee replacement

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decision, increasing uncertainty. The 208 participants were more than 55 years of age, mostly female, and with a high prevalence of obesity—characteristics that are representative of patients with knee OA. This study was supported by the Agency for Healthcare Research and Quality (HS16093).

See “Impact of educational and patient decision aids on decisional conflict associated with total knee arthroplasty” by Sofia de Achaval, M.S., Laina Fraenkel, M.D., Robert J. Volk, Ph.D., and others in the February 2012 *Arthritis Care & Research* 64(2), pp. 229-237. ■ MWS

Radiation therapy linked to dry mouth in elderly patients with head and neck cancers

Head and neck cancer (HNC) may be treated by a combination of radiation therapy (RT) and chemotherapy, in addition to surgery. A common side effect associated with RT for tumors arising in the head and neck region is xerostomia (dry mouth), a potentially serious post-treatment complication that can affect speech, chewing, and swallowing and lead to gum infections, cavities, and loss of teeth. A new study found that patients receiving RT either with or without chemotherapy had a higher cumulative incidence of developing xerostomia than those who had neither RT nor chemotherapy (5.6 percent and 3.8 percent, respectively vs. 0.5 percent), according to a team of Texas-based researchers.

The risk of xerostomia was regardless of tumor stage at presentation, anatomic primary tumor site, and whether primary cancer treatment included surgery. It was higher in some subgroups of patients, namely in women with distant stage disease or in those with poorly differentiated localized tumors. The risk of xerostomia was lower in patients 80 years or older with the anatomic tumor site at the salivary gland.

The risk of xerostomia reported in this study was lower than in other studies. The researchers believe this was possibly due to patients with minor degrees of xerostomia not reporting symptoms to their providers. Another factor may be that the occurrence of xerostomia

for purposes of this study required that it be reported on at least two different occasions. The study included 10,397 elderly men and women insured by Medicare who were diagnosed with HNC. The study was supported by the Agency for Healthcare Research and Quality (HS16743).

See “Risk of xerostomia in association with the receipt of radiation therapy in older patients with head and neck cancer” by Chih-Chin Liu, M.S., Rui Xia, M.S., Ashleigh Gudanolo, M.D., and others in the *American Journal of Therapeutics* 18, pp. 206-215, 2011. ■ MWS

Emergency Care

Helicopter transport to trauma centers improves patient survival over ambulance transport

Despite having more serious injuries, patients transported to level-I or level-II trauma centers by helicopter had death rates comparable to those transported by ambulance (12.6 percent vs. 11 percent), found a new study. More than 50 million people in the United States are injured each year, resulting in around 169,000 deaths and a lifetime cost of \$406 billion. The impact of helicopter transport versus ground transport on trauma patient outcomes has remained the subject of

debate in the field, particularly because of the higher cost and limited availability of helicopter transport.

The researchers used statistical techniques to match comparable patients transported by either helicopters or ground transportation. They found that patients transported by helicopter to level-I trauma centers had 16 percent better survival odds than those driven to

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Helicopter transport

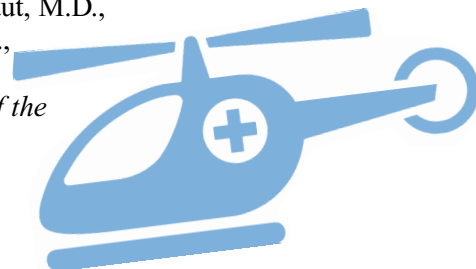
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level-I centers. For patients transported to level-II trauma centers, helicopter patients had 15 percent better odds of survival. Overall, 18.2 percent of helicopter patients transported to level-I centers were discharged to rehabilitation. This contrasted with the 12.8 percent of comparably hurt ambulance patients discharged to rehabilitation centers.

The researchers calculate that 65 patients would need to be transported by helicopter rather than ground vehicle to a level-I trauma center to save one life, at an estimated cost of \$325,000. The findings were based on analysis of data from the American College of Surgeons National Trauma Data Bank for 2007 through 2009. The researchers compared the survival of 61,909

patients with major trauma transported by helicopter with 161,566 patients receiving ground transportation. The study was supported in part by the Agency for Healthcare Research and Quality (HS17952).

More details are in "Association between helicopter and ground emergency medical services and survival for adults with major trauma," by Samuel M. Galvagno, Jr., D.O., Ph.D., Elliott R. Haut, M.D., S. Nabeel Zafar, M.B.B.S., M.P.H., and others in the April 18, 2012 *Journal of the American Medical Association* 307(15), pp. 1602-1610. ■ *DIL*



More hospitals with angioplasty capability have not improved access to the procedure

The number of hospitals in the United States that offer definitive heart attack care grew by 44 percent from 2001 to 2006, but only 1 percent of the population gained timely access to that care in the same period. Tufts Medical Center researchers, led by Thomas W. Concannon, Ph.D., found that interventional angioplasty (percutaneous coronary intervention) programs grew from 1,176 to 1,695 hospitals over 5 years, while access to the procedure held steady, rising less than 1 percent from 79 percent to 79.9 percent of the population.

When heart attack symptoms begin, access to definitive care depends largely on distance to hospitals with specialized treatment capability. For patients

with ST-segment elevation-myocardial infarction, timely angioplasty is better than intravenously administered clot-busting medication (fibrinolytic therapy) at reducing mortality. However, angioplasty is available only at hospitals with cardiac catheterization labs and fibrinolytic therapy remains the current standard of care in the majority of U.S. hospitals.

Study data also show that the average projected transport times to angioplasty hospitals were improved only 30 seconds by the new hospital programs. Other research has shown that angioplasty use rates have remained flat since 2001, suggesting that new programs are not meeting new emergency or

elective demand. Unanswered questions include whether the proliferation of angioplasty programs has improved outcomes through the reduction of time to treatment for previously underserved patients, or if it has worsened outcomes through reductions in procedure volumes. This study was supported in part by the Agency for Healthcare Research and Quality (HS17726).

See "A percutaneous coronary intervention lab in every hospital?" by Dr. Concannon, Jason Nelson, M.P.H., Jessica Goetz, M.P.H., and John L. Griffith, Ph.D., in *Circulation and Cardiovascular Quality Outcomes* 5, pp. 14-20, 2012. ■ *MWS*

Health Care Costs and Financing

Bariatric surgery is not linked to lower costs among individuals with diabetes

Bariatric surgery is an obesity intervention that produces sustained weight loss and improvement in many obesity-related conditions, including diabetes. However, contradicting previous cost studies, a new study found that individuals with type 2 diabetes did not have lower health care costs after the surgery than before the surgery. The study found total mean costs were \$9,326 presurgery, \$13,400 during the first year after surgery, and \$13,644, 6 years after surgery. The cost increases in the postsurgical period were due primarily to higher inpatient and outpatient costs. There was an increase in inpatient days and a decrease in primary care and specialist visits in the postsurgery periods compared with the presurgery period.

Patients with type 2 diabetes are a third of all patients undergoing bariatric surgery. The study tracked 7,306 privately insured patients (18 to 64 years of age) who received bariatric surgery for 6 years following their surgery. The researchers point out that, even if bariatric surgery is not cost-saving among adults with diabetes, a reduction or elimination of weight-related coexisting

conditions, improved quality of life, and improved mobility may make this a valuable procedure for this group of patients.

The researchers call for more studies to determine what conditions and services increase use of health care among this group; to understand whether an increase in elective procedures (e.g., knee replacements, plastic surgery) not available to patients before surgery partially explains increased cost and utilization postsurgery; and to understand clinical determinants of postoperative costs of bariatric surgery among adults with diabetes. This study was supported in part by the Agency for Healthcare Research and Quality (Contract No. 290-05-0034).

See “Impact of bariatric surgery on health care utilization and costs among patients with diabetes” by Sara N. Bleich, Ph.D., Hsien-Yen Chang, Ph.D., Bryan Lau, Ph.D., and others in *Medical Care* 50, pp. 58-65, 2012. ■ MWS

Bundling payments reduces health care spending

A new report from the Agency for Healthcare Research and Quality (AHRQ) found that health care spending and the use of health care services were reduced by the introduction of “bundled payments”—a system in which health care providers are reimbursed the expected cost of patient services in a single payment rather than receiving individual reimbursement for each service.

Evidence for the impacts of bundled payments on quality measures, however, was inconsistent and generally had small effects. Furthermore, the researchers found the overall evidence on bundled payments to be low, because most of the studies examined bundled payments for

single institutions and many had quality concerns.

However, according to lead researcher Peter S. Hussey, Ph.D., of the RAND Evidence-based Practice Center, the report provides policymakers some support that bundling payment is likely to be an effective strategy.

And while the method's effects on quality are less certain, the evidence does not support the worst concerns about potentially adverse effects. The report is part of AHRQ's “Closing the Quality Gap: Revisiting the State of the Science” series. For details, see *Bundled Payment: Effects on Health Care Spending and Quality* at the Effective Health Care Program Web

site at www.effectivehealthcare.ahrq.gov.

In another report in this series, the Vanderbilt University Evidence-based Practice Center researchers found that, as a whole, the evidence on the effectiveness of quality improvement initiatives to specifically reduce health care disparities has not been clearly demonstrated, although they did find a few studies showing that quality improvement interventions affected health care disparities in certain disadvantaged populations. The study was led by Melissa L. McPheeters, Ph.D. For details, see *Quality Improvement Interventions To Address Health Care Disparities* at www.effectivehealthcare.ahrq.gov. ■

Increased use of anesthesiologists in screening colonoscopy found to raise costs, but risks and benefits are still unknown

The involvement of anesthesiologists in screening colonoscopies for Medicare patients more than doubled from 2001, when Medicare began paying for this service, through 2006, according to a new study. This screening test provides physicians with the ability to find and remove colon polyps before they can develop into colorectal cancer (CRC), a disease that is associated with almost 50,000 deaths annually in the United States.

Screening guidelines, issued by the Centers for Disease Control and Prevention, recommend a colonoscopy every 10 years in patients over age 50 as one of several effective screening techniques for identification of CRC or treatable precancerous polyps in persons without symptoms.

In the past, a combination of midazolam and an opioid have been used to sedate patients undergoing screening colonoscopy, but an increasing number of patients are being sedated with propofol, a drug typically administered by an anesthesiologist. The researchers conducting the study analyzed Medicare payments for screening colonoscopy for a sample of 16,268 Medicare patients without a history of CRC over a 5-year period. They found that the involvement of anesthesiologists in screening colonoscopy grew from 11.0 percent of these procedures in 2001 to 23.4

percent in 2006. Screening procedures performed by a surgeon were most likely (24.2 percent) to involve an anesthesiologist, compared with 18.0 percent for those done by gastroenterologists, and 11.3 percent when done by primary care providers.

The average cost for a screening colonoscopy performed with and without the involvement of an anesthesiologist was \$678.30 versus \$575.20. Based on their findings, the researchers recommend that a new analysis be done to calculate the incremental cost-effectiveness per life saved by current recommendations for screening colonoscopy.

Their findings were based on data on patients not diagnosed with cancer from the Surveillance, Epidemiology, and End Results-Medicare database for 2001 through 2006. The study was funded in part by the Agency for Healthcare Research and Quality (HS17624).

More details are in “Anesthesiologist involvement in screening colonoscopy: Temporal trends and cost implications in the Medicare population,” by Vijay S. Khiani, M.D., Pamela Soulos, M.P.H., John Gancayco, M.D., and others in the January 2012 *Clinical Gastroenterology and Hepatology* 10(1), pp. 58-64. ■ DIL

Child/Adolescent Health

Hospitalizations for kids with inflammatory bowel disease are frequent and costly

Inflammatory bowel disease (IBD), which includes Crohns disease (CD) and ulcerative colitis (UC), are chronic conditions that are often debilitating. For children affected by IBD, hospitalizations are frequent and costly, reveals a new study. Researchers at Cincinnati Children’s Hospital Medical Center analyzed data from the 2006 Kids’ Inpatient Database, which includes

information on hospitalizations for IBD in children and adolescents aged 20 years and younger.

The data encompass 3,739 hospitals from 38 States. The researchers looked at the length of hospital stay and accompanying charges. They also looked at patient demographics, insurance type, hospital characteristics, and illness severity.

Out of 10,777 IBD-related pediatric hospital visits, 6,599 were for CD and 4,178 were for UC. The average length of stay was 5.63 and 6.66 days, respectively. The total costs were \$66.3 million for CD and \$48.6 million for UC. Older adolescents (aged 16 to 20 years) had the highest number of IBD admissions. On the other hand,

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Inflammatory bowel disease

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younger patients (up to 5 years old) had the highest average length of stay and highest average cost for CD. In the case of UC, younger adolescents (aged 11 to 15 years) had the highest average length of stay and cost.

Costs for IBD were higher in the West and Northeast and slightly higher for Medicaid patients. Other factors related to increasing costs

were surgery, severity of illness, and various coexisting conditions, such as alcohol abuse, coagulopathy, peptic ulcer disease/bleeding, and valvular disease. The study was supported in part by a grant from the Agency for Healthcare Research and Quality (HS16957) to the Center for Education and Research on Therapeutics (CERT) at Cincinnati Children's Hospital Medical Center. For more information on the

CERT's program, visit www.certs.hhs.gov.

See "National burden of pediatric hospitalizations for inflammatory bowel disease: Results from the 2006 kids' inpatient database," by Pamela C. Heaton, Ph.D., Namita L. Tundia, M.S., Nicole Schmidt, Pharm.D., and others in the April 2012 *Journal of Pediatric Gastroenterology and Nutrition* 54(4), pp. 477-485. ■ KB

Consolidating blood draws may help reduce blood loss in critically ill children

Critically ill children treated in the pediatric intensive care unit (PICU) are often subjected to frequent and routine blood draws. These can lead to blood loss and anemia. A new study has identified a number of ways this blood loss can be minimized, such as use of small-volume phlebotomy tubes and consolidating tests whenever possible.

The study looked at 63 children who were admitted to a PICU at one institution. All stayed in the ICU for more than 2 days. The researchers reviewed patients' charts to determine the type and number of lab tests performed per each blood draw. They also calculated the minimum amounts of blood needed for a particular test. The tests included blood gas, complete blood count, blood chemistry, and coagulation studies.

The number of blood draws for each child averaged 2.7 per day. Such draws accounted for an average blood volume loss of 2.5 mL per each draw and totaled 34.0 mL for each PICU stay. The blood volume drawn in excess of lab requirements was 1.4 mL per draw. This resulted in an excess of 3.6 mL per day and 23 mL for

the entire stay of the child in the PICU. These excesses represented 210 percent of the volume needed by the lab—a two fold increase—and a 110 percent overdraw.

Blood draws were more likely to be overdrawn from a central venous catheter compared to arterial and peripheral intravenous catheters. Overdraws also occurred the most for one test compared to consolidated draws for 2, 3, and 4 tests. Blood drawn for a chemistry profile had the greatest chance of being overdrawn. Recommendations for minimizing blood loss in these children include using small-volume tubes and closed system, consolidating tests, and taking advantage of adjunct monitoring to measure end-tidal CO₂ and cerebral-mixed venous saturation. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00063).

See "Identifying factors to minimize phlebotomy-induced blood loss in the pediatric intensive care unit," by Stacey L. Valentine, M.D., and Scot T. Bateman, M.D., in *Pediatric Critical Care Medicine* 13(1), pp. 22-27, 2012. ■ KB

Study questions usefulness of hospital readmission rates as marker of care quality for pediatric sickle cell disease

Thirty-day readmission rates are gaining use in medicine as a marker of health care quality. However, the use of the 30-day readmission rate as a measure of care quality for sickle cell crisis is supported by only a few studies and debate remains about its value.

A new study assessing this measure in a large database has found that 17 percent of hospitalizations for children with sickle cell crisis result in readmission within 30 days. The Boston-based research team also found substantial variation in readmission rates among the 33 hospitals included in the study.

Older children, those treated with corticosteroids, and children hospitalized for pain were more likely to be readmitted within 30 days, while patients who received a red blood cell transfusion were less likely to be readmitted.

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Sickle cell disease

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After accounting for patient clustering, almost all hospitals had a significant drop in readmission rate. This means that a small number of patients account for a disproportionate number of admissions. It also suggests that crude readmission rates do not account for these patients, whose needs for both inpatient and outpatient services are significant.

The researchers believe that if readmission rates are going to be used as a care quality marker for sickle cell disease in children, that they be adjusted for case mix and for clustering by patient, given that this is a chronic disease where the burden on the health care system is often based on a subset of patients.

The study was based on 12,104 admissions for sickle cell crisis, representing 4,762 patients among 33 hospitals over a 2.5-year period.

The study was supported by the Agency for Healthcare Research and Quality (T32 HS00063).

See “Thirty-day readmission rates following hospitalization for pediatric sickle cell crisis at freestanding children’s hospitals: Risk factors and hospital variation” by Amy Sobota, M.D., Dionne A. Graham, Ph.D., Ellis J. Neufeld, M.D., Ph.D., and Matthew M. Heeney, M.D. in *Pediatric Blood Cancer* 58, pp. 61-65, 2012. ■ MWS

Mother-infant interactions associated with use of health services

Increased use of hospital and urgent care may be due to poor child health and inconsistent access to care. However, it may also reflect family characteristics, such as mother-child interactions, as a new study suggests. Mothers and children typically provide each other with cues and feedback that allow each individual to either adapt their own behavior or modify the other’s behavior.

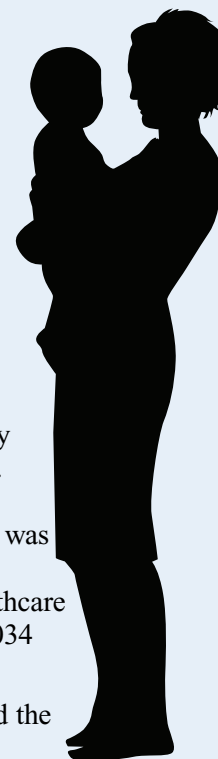
A team of researchers at the University of Rochester examined the link relating interactions between mothers and their 1-year-old infants and rates of four types of child health care encounters from birth to 2 years: hospitalizations, emergency department (ED) visits, and primary care sick-child and well-child visits in a low-income population. Better mother-child interactions, measured by a mother’s responsiveness to her child, were associated with half the odds of hospitalization, 35 percent less odds of ED visits that might be prevented with appropriate primary care, and 55 percent greater odds of well-child visits.

Mothers’ responsiveness to their children was measured by using an 11-item subscale from the Home Observation for Measurement of the Environment survey and children’s responsiveness to their mothers was measured by the 13-item subscale of the Nursing Child Assessment Satellite Training

Survey. Other characteristics measured included maternal depression, employment, social support, income, insurance, and household density.

This study analyzed data from the control group of a previously conducted randomized controlled trial. Eligible participants were pregnant women with no previous children who were recruited at a regional obstetrical clinic primarily used by Medicaid-eligible women. The women were interviewed by trained observers when their child was 12 months old. This study was supported by the Agency for Healthcare Research and Quality (T32 HS00034 and HS17737).

See “Mother-child interactions and the associations with child healthcare utilization in low-income urban families” by Margaret L. Holland, Ph.D., Byung-Kwang Yoo, Ph.D., Helena Temkin-Greener, Ph.D., and others in *Maternal and Child Health* 16, pp. 83-91, 2012. ■ MWS



Disparities/Minority Health

Many black parents believe soft bedding will keep their infants safe from sudden infant death syndrome

Creating a safe sleep environment is an important way to prevent sudden infant death syndrome. The American Academy of Pediatrics recommends using a firm, snug-fitting mattress and avoiding the use of pillows, quilts, blankets, bumper pads, and soft sleep surfaces. Despite these recommendations, however, many parents continue to use soft bedding and surfaces. This is more common in black families and among parents who share beds with their infants. In fact, a new study reveals that many black parents hold the mistaken belief that soft bedding will actually keep their infant safe. In addition, confusion exists over the meaning of a firm sleep surface.

The researchers interviewed 83 black mothers, 73 in focus groups and 10 in individual interviews. Mothers of both lower and higher socioeconomic status (SES) were

included in the study. The mothers were asked about their use of blankets and bumper pads, as well as their perceptions of sleep surfaces and how such surfaces feel to their infants.

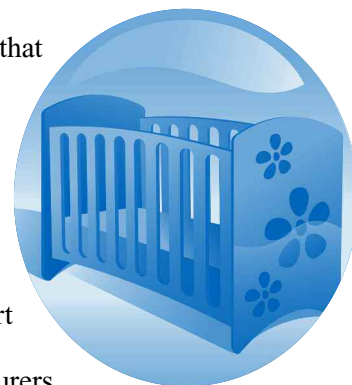
Regardless of SES or educational level, black mothers cited infant safety and comfort as the primary reasons for using soft bedding and soft sleep surfaces. Many believed that a soft environment and bumper pads would protect the baby from injury and falls. The mothers also had various perceptions of what a firm sleep surface meant.

Many believed that firm actually meant taut—that as long as a sheet was tucked tautly around a pillow or blanket, it would be okay to use these items. They also thought blankets were fine if they did not go past the shoulders of the infants or did not have holes in them, such as afghans. The researchers

conclude that more education and effective product design is necessary on the part of

manufacturers and health care providers. The study was supported in part by the Agency for Healthcare Research and Quality (HS18892).

See “Decisions of black parents about infant bedding and sleep surfaces: A qualitative study,” by Taiwo I. Ajao, M.P.H., Rosalind P. Oden, Brandi L. Joyner, B.S., and Rachel Y. Moon, M.D., in *Pediatrics* 128(3), pp. 494-502, 2011. ■ KB



Medicare, Medicaid, and uninsured patients less likely to receive drug-eluting stents than the privately insured

Drug-eluting stents (DES) were introduced in 2003 as an improvement on bare-metal stents (BMS) often inserted during coronary angioplasty to keep open arteries that had been unblocked. DES rates for both Medicaid and uninsured patients were significantly lower than rates for the privately insured from April 2003 to December 2008 even when comparing patients treated at the same hospitals, according to a new study.

DES rates for Medicare patients were also below rates for privately insured patients. Most patients receiving coronary stents have either Medicare (52.2 percent) or private insurance (38.5 percent). Only a small percentage have Medicaid (4.9 percent) or no insurance (4.4 percent).

Differences in DES rates by payer varied over time. For example, after large gaps initially, the difference with privately insured patients narrowed to roughly 1 to 2 points for Medicaid, uninsured, and Medicare patients by the fourth quarter of 2004. But by the end of 2008, the deficit was 9.4 points for Medicaid patients and 16.5 points for uninsured patients. Differences in DES rates by payer within hospitals were much greater than those between hospitals.

The authors suggest that their findings on payer differences in DES use are consistent with evidence that hospitals seem to treat cardiovascular patients differently depending on the generosity of their

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Drug-eluting stents

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insurance coverage. Also, hospital acquisition prices for DES have been much higher than for BMS, resulting in lower or even negative hospital profit margins for DES for all payer types. Because the margins for DES were even lower relative to BMS for Medicaid and uninsured patients, hospitals may have effectively encouraged cardiologists to concentrate on DES use among higher-

paying patients, particularly during the early supply shortages. This study was supported in part by the Agency for Healthcare Research and Quality (HS18403).

See “Variations in the use of an innovative technology by payer. The case of drug-eluting stents,” by Andrew J. Epstein, Ph.D., Jonathan D. Ketcham, Ph.D., Saif S. Rathore, M.P.H., and Peter W. Groeneveld, M.D., in the January 2012 *Medical Care* 50(1), pp. 1-9. ■ MWS

Studies find emotional and health problems and elevated deaths among recently released prisoners

Two studies by Ingrid A. Binswanger, M.D., M.P.H., of the University of Colorado School of Medicine, and colleagues reveal that recently released inmates face considerable health problems and risk of early death following release from prison. The studies, supported by the Agency for Healthcare Research and Quality (HS19464), are briefly described here.

Binswanger, I.A., Nowels, C., Corsi, K.F., and others. (2011). “From the prison door right to the sidewalk, everything went downhill. A qualitative study of the health experiences of recently released inmates.” *International Journal of Law and Psychiatry* 34, pp. 249-255.

In this study, the researchers investigated the transition from prison to the community and its health consequences as perceived by individual prisoners.

International studies have demonstrated a high risk of death after release from prison. To better understand this risk, the researchers created a conceptual model of the transitional experience focusing on four elements: (1) transitional challenges, (2) cognitive responses to these challenges, (3) emotional

elements of responses to the transition, and (4) the health behaviors and outcomes that occurred during or as a result of the transitional period.

The interviews with 29 recently released inmates from Colorado prisons revealed that the former inmates faced multiple systems challenges such as difficulties in locating jobs, places to live, and health care providers.

This struggle was combined with negative emotional reactions, which were likely contributors to poor health outcomes, including suicidality and worsened medical conditions. Health-related behavior occurred in the context of a complex life experience, with logistical problems exacerbated by emotional distress. Furthermore, a lack of medication continuity likely contributed to significant worsening in psychiatric symptoms.

The researchers recommend that correctional medical and mental health providers develop and implement structured transition plans for patients being released in consultation with the providers who will assume their care in the community.

Binswanger, I.A., Blatchford, P.J., Lindsay, R.G., and Stern, M.F. (2011). Risk factors for all-cause, overdose and early deaths after release from prison in Washington state.” *Drug and Alcohol Dependence* 117, pp. 1-6.

To understand the epidemiology of death after release from prison, the researchers examined the risk factors for all-cause mortality, overdose mortality, and early deaths after prison release. Although high mortality rates after release from prison have been well-documented, little is known about the risk factors for these deaths. The researchers found that older age contributed to a higher risk of all-cause mortality, whereas longer incarceration time was associated with a lower risk of death.

Among recently released inmates under age 50, the danger of overdose death and death within 30 days was higher for each additional decade of age. Gender and community supervision (e.g., parole) were not significantly associated with risk of death in this study. The researchers call for intervention to reduce deaths among former inmates. ■ MWS

Men's Health

Intensity-modulated radiation therapy for localized prostate cancer yields fewer side effects than other radiation treatments

Men with localized prostate cancer who received intensity-modulated radiation therapy (IMRT) experienced fewer side effects than similar patients treated with two other forms of radiation therapy, according to a new study. Prostate cancer is the most common malignancy in men, accounting for more than 240,000 new diagnoses and 30,000 deaths each year. Advances in treatment technology have led to the development of newer, but more costly, treatments. For example, between 2000 and 2008, the use of IMRT rose from 0.15 percent to 95.9 percent in relation to the older technique of conformal radiation therapy (conformal RT).

The researchers compared 6,666 men who received IMRT with 6,310 who received conformal RT. The men treated using IMRT were 9 percent less likely to be diagnosed with gastrointestinal problems than those treated with conformal RT, 22 percent less likely to experience hip fracture, and 19 percent less likely to receive additional cancer therapy. However, the men treated with IMRT were 12 percent more likely to be diagnosed with erectile dysfunction.

When the researchers compared 684 men treated with IMRT and 684 treated with proton therapy, patients treated with IMRT were 34 percent less likely to be diagnosed with gastrointestinal problems, but were as likely to experience other side effects or undergo additional therapies as those treated with proton therapy. The findings were based on analysis of the National Cancer Institute's Surveillance, Epidemiology, and End Results data from 16 regional cancer registries, linked to Medicare administrative and health care claims (the SEER-Medicare database) for 2000 through 2007. The study was funded in part by the Agency for Healthcare Research and Quality (Contract No. 290-05-0040).

More details are in "Intensity-modulated radiation therapy, proton therapy, or conformal radiation therapy and morbidity and disease control in localized prostate cancer," by Nathan C. Sheets, M.D., Gregg H. Goldin, M.D., Anne-Marie Meyer, Ph.D., and others in the April 18, 2012 *Journal of the American Medical Association* 307(15), pp. 1611-1620. ■ *DIL*

Health Information Technology

Patients treated for heart failure in the emergency department fare better if there is an electronic health record available

When patients with heart failure are brought to an emergency department (ED) at a hospital that has electronic health records (EHRs), those with prior data in the EHR are less likely to die during hospitalization than similar patients without such data, concludes a new study. Typically, a sudden emergency such as heart failure causes a transition in care from the

community to the hospital ED without a chance for a patient to bring medical records. However, if the patient is taken to a hospital where they have been treated before, the ED providers can access the patient's EHR.

The researchers analyzed records for 5,166 patients with heart failure brought to three hospital EDs. They found that, at two EDs, patients

with prior electronic records ("internals") were 45 percent and 55 percent less likely, respectively, to die during hospitalization than those without prior records ("externals"). For these EDs, internal patients were also found to have 4.6 percent and 14 percent fewer laboratory tests performed in

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Electronic health records

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the ED, respectively, and received 33.6 percent and 21.3 percent fewer medications, respectively, than the external patients. Internal patients at one of these two EDs also had 63 percent lower chance of hospitalization.

The researchers found, however, that internal patients at the third ED differed from external patients only in experiencing a 32.3 percent

increase in their length of stay in the ED. The mixed results across the three settings may have been the product of differences in the EHR services deployed, the length of their deployment, and many other local contextual issues. The findings were based on a retrospective, observational study of all patients 18 years or older seen for heart failure at three selected EDs, each associated with a different health system but in the

same geographic area. The study was funded in part by the Agency for Healthcare Research and Quality (HS16155).

More details are in “The impact of electronic health records on care of heart failure patients in the emergency room,” by Donald P. Connelly, M.D., Ph.D., Young-Taek Park, Jing Du, and others in the May 2012 *Journal of the American Medical Informatics Association* 19(3), pp. 334-340. ■ DIL

Electronic standing orders increase delivery of preventive services

Implementing electronic standing orders for preventive services increased service delivery, according to a new study funded by the Agency for Healthcare Research and Quality (AHRQ). Published in *The Journal of the American Board of Family Medicine*, the study discusses how electronic standing orders, established rules that allow qualified staff to deliver certain types of care, can be used in primary care practices with an electronic health record (EHR). By checking the rules established by the standing orders against the patient's prior record of care, the EHRs were able to produce a list of necessary preventive services.

Since Americans receive only about half of all recommended preventive services, increasing

preventive service delivery is an important goal. Using their EHRs, the eight primary care practices that participated in this study developed standing orders for health screenings, immunization, and diabetes management. As a result, all of the practices improved delivery of six specific services. In addition, medical assistants' workflow and morale were optimized. To highlight the success of this initiative, AHRQ developed a video that details how this project improved service delivery, staff morale, and clinical workflow. You can view the video at <http://1.usa.gov/NReVsj>.

To access the study abstract, please visit PubMed at www.ncbi.nlm.nih.gov/pubmed/22956695. ■

Study finds personal health records do not impact hypertension care

Personal health records (PHRs) are growing in popularity among patients who desire to maintain control over their health and well-being. These systems help patients create specific profiles of their health, prescription drugs, and visits to providers. Currently, 10 percent of the public take advantage of PHRs.

However, privacy issues and access limitations remain a large concern. In fact, a new study found that few

patients with hypertension who were provided with a PHR actually used the system. Adoption of PHRs will require more education and provider intervention in order for them to have any significant impact on clinical outcomes, conclude the researchers.

They examined use of PHRs in two primary care practices in which patients of 24 providers were randomized into two groups. A group of 194 patients received a

PHR, while 252 patients received care as usual. All had a documented diagnosis of hypertension. Those in the intervention PHR group had access to educational materials, the ability to record and monitor blood pressure, secure messaging, and goal setting.

Among the patients offered the PHR, only 26 percent actually used the system frequently. Those who

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Hypertension care

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did use the PHR tended to be younger. Other factors associated with greater use included self-rated computer skills, higher Internet usage, and increased communication with providers.

The researchers found no impact of the PHR on blood pressure, patient activation, the patient's perceived

quality of life, or how well they used medical care. However, there was a 5.25-point reduction in diastolic blood pressure in patients using the PHR frequently. According to the researchers, more insight is needed about who is most likely to benefit from such systems and how such information can be jointly used by patients and providers to improve outcomes. The

study was supported by the Agency for Healthcare Research and Quality (HS17234).

See "Personal health records and hypertension control: A randomized trial," by Peggy J. Wagner, Ph.D., James Dias, Ph.D., Sharon Howard, M.S., and others in the July-August, 2012 *Journal of the American Medical Informatics Association* 19(4), pp. 626-634. ■ KB

Physicians optimistic about potential for electronic prescribing but barriers to adoption still exist

Electronic prescribing is growing in its use by clinicians, but physicians are wary of the burden placed by several techniques to provide security for electronic prescribing of controlled substances (EPCS), a new survey finds. The use of electronic prescribing for controlled substances was banned by the Drug Enforcement Administration prior to 2010 because of the potential for such drugs to be diverted or cause addiction.

Although controlled substances account for only 11 percent of all prescriptions, they are ordered for patients by 90 percent of prescribing clinicians. The researchers found that 43 percent of the 246 clinicians who responded to their survey already used electronic prescribing for noncontrolled drugs.

The most common issues reported about written (non-electronic) controlled substance prescriptions were the pharmacy reporting lack of coverage by the patient's insurance (64 percent of prescribers), the patient reporting loss of a written prescription that had to be rewritten (60 percent of prescribers), or medication interactions that were unknown at the time the prescription was written (37 percent of prescribers). The researchers asked the clinicians whether proposed security measures for EPCS would likely prove to be an acceptably small, large but acceptable, or large but unacceptable burden.

Three measures were viewed as so inconvenient that about one-fourth of the clinicians reported they might not want to use EPCS for prescribing controlled medications. These included requiring a token or flash drive with the prescriber's electronic signature to be used to authenticate and send all controlled substance prescriptions (26 percent of clinicians); requiring the prescriber to keep the token in their possession at all times (35 percent); and requiring the report of a lost or stolen token within 12 hours (24 percent).

The researchers surveyed 246 clinicians who do outpatient prescribing (a response rate of 64 percent) affiliated with a regional health system in western Massachusetts. The study was funded by the Agency for Healthcare Research and Quality (HS17157). A follow up survey of prescribers 6 months after implementation of a pilot of EPCS in the same community setting has also been conducted, and is now under review.

More details are in "Prescribers' expectations and barriers to electronic prescribing of controlled substances," by Cindy Parks Thomas, Ph.D., M.S., Meelee Kim, M.A., Ann McDonald, and others in the May 2012 *Journal of the American Medical Informatics Association* 19(3), pp. 375-381. ■ DIL

Health information technology-supported quality improvement initiative reduces some ambulatory care disparities

Quality improvement initiatives supported by health information technology (IT) have reduced racial disparities in ambulatory care of some chronic conditions and preventive services. However, achieving equity in areas with persistent care disparities will require more targeted, patient-directed, and systems-oriented strategies, concludes a new study.

A team of Northwestern University researchers assessed the rate of change in 17 ambulatory care quality measures following the introduction of a health IT-supported, quality-directed quality improvement initiative. The measures ranged from use of beta-blockers for patients with a history of heart attack, and screening or treatment for diabetic nephropathy among patients with diabetes, to pneumococcal immunization and colorectal cancer screening.

The researchers found that quality of care improved for 14 measures among white patients and 10 measures among black patients.

Racial disparities narrowed for two measures: prescription of antiplatelet therapy for patients with coronary heart disease and colorectal cancer screening.

The study was done over a 2-year period in an academic general internal medicine practice in Chicago and included 8,919 black and white patients who were eligible for at least one of the 17 measures. Quality improved for black and white patients for five of the eight process-of-care measures, four of five preventive care measures, but none of the four intermediate outcome measures. It is notable that two of the three measures for which disparities widened were intermediate measures of disease control: glycemic control and cholesterol control for patients with diabetes.

The quality improvement initiative included electronic point-of-care clinical reminders, decision support tools within the electronic health record to promote adherence to clinical guidelines, and regular

provider feedback. The conditions covered included coronary heart disease, heart failure, hypertension, and diabetes.

The researchers recommend that to achieve more substantial improvements in health care equity, additional strategies, such as tools to improve patient engagement, patient-physician communication, and access to care, as well as systems-oriented strategies to improve care delivery, are still needed. This study was supported, in part, by the Agency for Healthcare Research and Quality (HS17163, HS15647).

See “Changes in disparities following the implementation of a health information technology-supported quality improvement initiative” by Muriel Jean-Jacques, M.D., Stephen D. Persell, M.D., Jason A. Thompson, B.A., and others in the *Journal of General Internal Medicine* 27(1), pp. 71-77, 2011. ■ MWS

Agency News and Notes

Procalcitonin guidance may lead to decreased antibiotic usage

Using procalcitonin, a biomarker of bacterial infection, as part of antibiotic therapy management has been shown to lead to reductions in antibiotic usage, according to a new Effective Health Care Program review by the Agency for Healthcare Research and Quality (AHRQ). The review, *Procalcitonin-Guided Antibiotic Therapy*, found that using procalcitonin to inform discontinuation of antibiotic therapy was

associated with reductions in antibiotic usage.

Procalcitonin-guided antibiotic discontinuation did not increase morbidity in critically ill patients.

In contrast, procalcitonin-guided intensification of antibiotic therapy to broaden the spectrum of bacterial coverage was found to worsen outcomes in critically ill patients.

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Procalcitonin guidance

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The review also found that in particular, among patients with respiratory tract infections (a type of infection that contributes substantially to the problem of antibiotic misuse), there was strong evidence to show that procalcitonin-guided treatment reduced antibiotic prescription rates and duration of antibiotic therapy in various clinical settings, without increasing morbidity or mortality.

The findings of this review are of particular interest because a biomarker, such as procalcitonin, that has the potential to inform decisions about initiating, discontinuing, or changing antibiotic therapy, could

have substantial clinical benefits for the treatment of bacterial infections.

The review notes that future studies will help determine if findings from this review will translate to high-risk groups, such as pregnant, immunocompromised, neonatal, and pediatric patients. Future research should also compare procalcitonin guidance to other methods for reducing unnecessary antibiotic use, including antibiotic stewardship programs and implementation of guidelines. To access this review and other AHRQ materials that explore the effectiveness and options for treatment of various conditions, visit www.effectivehealthcare.ahrq.gov. ■

Medicaid providers face common barriers to meaningful use

The Health Information Technology for Economic and Clinical Health Act authorized incentive payments through Medicare and Medicaid to clinicians and hospitals when they use electronic health records (EHRs) privately and securely. The goal is not just adoption of EHRs, but “meaningful use” of them—that is, their use by providers to achieve significant improvements in care, which are tied to the payment incentives.

A new report from the Agency for Healthcare Research and Quality examines challenges Medicaid providers face in achieving meaningful use of health information technologies. The

report finds that barriers to adoption and meaningful use of EHRs were not associated with serving a predominantly Medicaid-insured population. However, providers such as dentists, pediatricians, and nurse midwives who were only eligible for incentives under the Medicaid program, reported some difficulty finding a certified EHR appropriate for their specialty. Also, some required measures of care, such as blood pressure, were irrelevant due to the age of the patient groups they serve.

The reported barriers to adoption and achievement of meaningful use were consistent with those cited in

past studies, including limited awareness of the Medicaid EHR Incentive Program, difficulty in selection and functionality of EHRs, and limited ability to implement core measures of Stage 1 meaningful use.

The report recommended greater collaboration between all stakeholders to provide more targeted technical assistance tools and development of a body of knowledge to address the socio-cultural, technical, and training needs of Medicaid providers. You can access the full report at <http://healthit.ahrq.gov/BarrierstoMeaningfulUseFinalReport>. ■

Progestogens effective for preventing preterm births in single pregnancies

There is moderate evidence that progestogen treatments, such as 17 alpha-hydroxyprogesterone caproate (17-OHP), prevent preterm birth when used by women who are having only one child and who have a history of spontaneous preterm birth (PTB), concludes a new report by the Agency for Healthcare Research and Quality (AHRQ). Progestogen is a hormone used for inhibiting the uterus from contracting and to maintain pregnancy. While effective for a singleton pregnancy, progestogens appear to be ineffective in preventing PTB among women carrying twins or triplets.

There continues to be a lack of research to evaluate progestogens’ influence on near-term outcomes like neonatal death and birth defects. More research is also needed to determine whether progestogens achieve the ultimate desired outcome of preventing preterm birth deaths and promoting normal childhood development.

Preterm birth is defined as delivery prior to 37 full weeks of pregnancy (39 weeks is normal). Early births are associated with more than 85 percent of all birth defects

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Preventing preterm births

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and deaths and are the leading cause of infant mortality and long-term disability. Death and birth defects caused by PTB represent distress for families, as well as significant costs to patients, health care systems, and payers. Average neonatal care costs are estimated to be \$17,300 greater for preterm infants relative to term

infants, amounting to more than \$8.6 billion of annual medical spending in the United States.

These findings can be found in the research review, *Progestogens for Prevention of Preterm Birth*. Visit Inside Track (www.ahrq.gov/clinic/insidetrack), AHRQ's Effective Health Care Program newsletter, to learn more about important health news and developments. ■

Announcements

AHRQ-funded report shows promise in detecting surgical site infections

A new report explores ways to enhance the detection and surveillance of inpatient-acquired surgical site infections. The report by the Agency for Healthcare Research and Quality, *Improving the Measurement of Surgical Site Infection (SSI) Risk Stratification and Outcome Detection*, focuses on the development and testing of a computer-assisted algorithm for retrospective assessment

of medical records, laboratory test results, and demographic data to identify patients with potential surgical site infections. The algorithm was able to flag the records of patients who were most likely to have an SSI, reducing the workload of the human record reviewers and creating significant resource savings. You can read the report at www.ahrq.gov/qual/ssi. ■

AHRQ offers free toolkit to strengthen medication reconciliation

A free toolkit to help acute care and post-acute care facilities evaluate and improve their current medication reconciliation process is now available from the Agency for Healthcare Research and Quality at www.ahrq.gov/qual/match/match.pdf.

"Medications at Transitions and Clinical Handoffs (MATCH) Toolkit for Medication Reconciliation" can help facilities reduce patient harm due to adverse drug events or medication errors.

MATCH offers the following advantages:

- Promotes compliance with The Joint Commission's National Patient Safety Goal for maintaining and communicating accurate patient medication information
- Can lead to better care transitions and fewer unnecessary readmissions by helping to ensure patients

receive the right medication in the right dose at the right time

- Provides a framework to capture complete, accurate medication information through electronic health records
- Enables building a medication reconciliation process from scratch or redesigning an existing process.

MATCH features a comprehensive work plan with procedural guidelines and flowcharts, modifiable templates, pilot-tested recommendations, and other resources to help your facility improve its medication reconciliation process step by step.

For a free toolkit, please email AHRQpubs@ahrq.hhs.gov or call 1-800-358-9295. ■

Health Services Research extends call for papers on health IT

Health Services Research has extended a request for papers for their special issue on health information technology (IT). The issue will feature research that demonstrates trends in adoption and meaningful use of health IT and the role of health IT in enabling improvements in health care delivery and outcomes. Topics of special interest include building health IT

infrastructure, developing innovative approaches to performance measurement, and translating short-term health IT investments into measurable improvements in cost, quality, and population health. The deadline for submissions is December 28, 2012. For more information please refer to the guidelines available at www.hsr.org/hsr/information/authors/instruauthors.jsp. ■

Research Briefs

Abraham, J., Kannampallil, T.G., and Patel, V. (2012). “Bridging gaps in handoffs: A continuity of care based approach.” (AHRQ grant HS17586). *Journal of Biomedical Informatics* 45, pp. 240-254.

To gain deeper insights about the handoff process, the authors developed a clinician-centered methodological approach. It is predicated on understanding the handoff communication activity within the context of clinician workflow. It uses the “continuity of care” model not only to capture the nuances of the handoff process and potential interdependencies within the process, but also to trace interdependent activities that mediate and affect the communication exchanges between clinicians.

Caverly, T.J., Al-Khatib, S.M., Kutner, J.S., and others. (2012, July). “Patient preference in the decision to place implantable cardioverter-defibrillators.” (AHRQ grant HS16964). *Archives of Internal Medicine* 172(14), pp. 1104-1105.

The researchers conducted a study to determine how physicians weigh patient preferences and the evidence of mortality benefit in their decision to recommend an implantable cardioverter-defibrillator for primary prevention to potentially eligible patients. Their survey of 1,210 cardiologists found that for 85.6 percent, mortality benefit data mattered “a great deal,” while

patient preferences mattered “a great deal” for only 37.7 percent.

Chang, S.M. and Slutsky, J. (2012). “Debunking myths of protocol registration.” Reprints (AHRQ Publication No. 12-R089) are available from the Agency for Healthcare Research and Quality.* *Systematic Reviews* 1(4), pp. 1-2.

Developing and registering protocols may seem like an added burden to systematic review investigators. However, these authors discuss benefits of protocol registration and debunk common misperceptions of the barriers of protocol registration. Protocol registration is easy to do, reduces the duplication of effort and benefits the review team by preventing later confusion.

Etchegaray, J.M., and Thomas, E.J. (2012). “Comparing two safety culture surveys: Safety Attitudes Questionnaire and Hospital Survey on Patient Safety.” (AHRQ grant HS17145). *BMJ Quality and Safety* 21, pp. 490-498.

This study found that two patient safety culture surveys, when administered to the same participants, had similar reliability and predictive validity. The study is the first to directly compare the ability of these two surveys to predict self-reported safety outcomes and whether or not the survey scores can be converted. The scores could be converted between the surveys, although much variance remained unexplained.

Gagne, J.J., Rassen, J.A., Walker, A.M., and others. (2012, March). “Active safety monitoring of new medical products using electronic healthcare data. Selecting alert rules.” (AHRQ grant HS18088). *Epidemiology* 23(2), pp. 238-246.

The researchers compared the performance of five classes of algorithms in simulated data using a sequential matched-cohort framework. They applied the results to two electronic health care databases to replicate monitoring of cerivastatin-induced rhabdomyolysis. They found substantial variation in performance of algorithms that could be used to generate safety alerts in prospective medical product monitoring systems, such as the Food and Drug Administration’s Sentinel System.

Graber, M.L., Kissam, S., Payne, V.L., and others. (2012). “Cognitive interventions to reduce diagnostic error: A narrative review.” Reprints (AHRQ Publication No. 12-R090) are available from the Agency for Healthcare Research and Quality.* *BMJ Quality and Safety* 21, pp. 535-557.

The authors conducted an analytic review of the literature to identify interventions to reduce the likelihood of cognitive errors or error-related harm in health care. They found a surprisingly wide range of possible approaches to reducing the cognitive contributions to diagnostic error. Not all the suggestions have been tested and, of those that have, the evaluations

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typically involved trainees in artificial settings, making it difficult to extrapolate the results to actual practice.

Greevey, R.A., Grijalva, C.G., Roumie, C.L., and others. (2012). “Reweighted Mahalanobis distance matching for cluster-randomized trials with missing data.” (AHRQ Contract No. 290-10-00016). *Pharmacoepidemiology and Drug Safety* 21(S2), pp. 148-154.

The researchers introduce an improved tool for designing matched-pairs randomized trials. This tool, reweighted Mahalanobis distance (RMD) matching, provides a user-friendly method for researchers to incorporate into the matching process their clinical knowledge and the relative difficulty of balancing important covariates. The RMD matching achieved better balance than simple randomization or MD randomization.

Hammill, B.G., Curtis, L.H., and Setoguchi, S. (2012). “Performance of propensity score methods when comparison groups originate from different data sources.” (AHRQ grant HS17731). *Pharmacoepidemiology and Drug Safety* 21(S2), pp. 81-89.

The researchers examined the performance of propensity score-based methods for estimating relative risks when exposed and comparison subjects are selected from different data sources. When so used, propensity score methods resulted in consistent estimates of relative risk in most situations reflected in the simulation study.

Hebert, P.L., Sisk, J.E., Tuzzio, L., and others. (2011). “Nurse-led disease management for hypertension control in a diverse urban community: A randomized trial.” (AHRQ grant HS10859). *Journal of General Internal Medicine* 27(6), pp. 630-639.

For a group of black and Hispanic patients with treated but uncontrolled hypertension, this study tested the effectiveness on blood pressure of home blood pressure monitors alone or in combination with follow-up by a nurse manager. It found that the combined effect of a home blood pressure monitor plus follow-up by nurse manager over 9 months was associated with a statistically significant reduction in systolic, but not diastolic, blood pressure compared to usual care.

Hilligoss, B., and Cohen, M.D. (2012, May). “The unappreciated challenges of between-unit handoffs: Negotiating and coordinating across boundaries.” (AHRQ grant HS18758). *Annals of Emergency Medicine* [Epub ahead of print].

The authors argue that the structural features of between-unit handoffs create several contextual factors that produce unique challenges for negotiating and coordinating during between-unit transitions. They draw on their examinations of the literature and their own observations of both physicians and nurses engaged in within-unit handoffs in pediatrics, general internal medicine, critical care, and the emergency department.

Jena, A.B., Meltzer, D.O., Press, V.G., and Arora, V.M. (2012). “Why physicians work when sick.” (AHRQ grant HS16967).

***Archives of Internal Medicine* 172(14), pp. 1107-1109.**

The researchers surveyed 150 resident physicians to discover whether they had worked with flu-like symptoms in the prior training year and, if so, their reasons for doing so. Over half reported working with such symptoms in the last year. The most frequently reported reasons were obligations to colleagues and patients.

Koo, D., Feliz, K., Dankwa-Mullan, I., and others. (2012). “A call for action on primary care and public health integration.” Reprints (AHRQ Publication No. 12-R091) are available from the Agency for Healthcare Research and Quality.* *American Journal of Preventive Medicine* 42(6S2), pp. S89-S91.

In 2012, the Institute of Medicine (IOM) released a report exploring the integration of primary care and public health. This article introduces an online-only, jointly published supplement that complements the recent IOM study. Four Federal agencies (the Agency for Healthcare Research and Quality, the Center for Disease Control and Prevention, the Health Resources and Services Administration, and the National Institute of Minority Health and Health Disparities) sponsored the supplement to showcase and support additional efforts in this critical area.

Meltzer, D. (2012). “Economic analysis in patient safety: A neglected necessity.” (AHRQ grant HS16967). *BMJ Quality and Safety* 21, pp. 443-445.

In arguing for economic analysis in this area, the author states that

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because of costs involved, efforts to improve patient safety typically mean foregoing other initiatives that could improve health. He discusses reasons why there are not many studies in this area, for example, patient safety should be pursued for its own sake and economic evaluations of patient safety interventions are not easy to do. He believes that economic analysis can strengthen the scientific basis of patient safety.

Nelson, H.D., Bougatsos, C., and Blazina, I. (2012). "Screening women for intimate partner violence: A systematic review to update the U.S. Preventive Services Task Force Recommendation." (AHRQ Contract No. 290-07-10057). *Annals of Internal Medicine* 156(11), pp. 796-808.

The panel reviewed new evidence on the effectiveness of screening and interventions in reducing intimate partner violence (IPV) and related health outcomes, the diagnostic accuracy of screening instruments, and adverse effects of screening and interventions. It found that screening instruments accurately identify women experiencing IPV and that screening can provide benefits that vary by population. Potential adverse effects have minimal effect on most women.

Neugebauer, R., Fireman, B., Roy, J.A., and others. (2012). "Dynamic marginal structural modeling to evaluate the comparative effectiveness of more or less aggressive treatment intensification strategies in

adults with type 2 diabetes." (AHRQ Contract No. 290-05-0033). *Pharmacoepidemiology and Drug Safety* 21(S2), pp. 99-113.

The authors reviewed the principles behind dynamic marginal structural modeling (MSM) and describe its application in an observational study of type 2 diabetes patients. They concluded that inverse probability weighting estimation to fit dynamic MSM is a viable and appealing alternative to inadequate standard modeling approaches in many comparative effectiveness problems, where time-dependent confounding and informative loss to followup are expected.

Pham-Kanter, G., Alexander, G.C., and Nari, K. (2012, May). "Effect of physician payment disclosure laws on prescribing." (AHRQ grant HS18960). *Archives of Internal Medicine* 172(10), pp. 819-821.

The researchers studied States that have implemented sunshine laws requiring pharmaceutical manufacturers to disclose certain payments made to physicians to determine if these laws affected the prescribing of brand-name statins and selective serotonin reuptake inhibitors. These are two drug classes within which individual drugs are highly substitutable for one another. The researchers observed minimal switching from brands to generics.

Polinski, J.M., Schneeweiss, S., Glynn, R.J., and others. (2012). "Confronting confounding by health system use in Medicare Part D: Comparative effectiveness of propensity score approaches to confounding adjustment." (AHRQ grant

HS18088) *Pharmacoepidemiology and Drug Safety* 21(S2), pp. 90-98.

The researchers studied death and cardiovascular health outcomes among patients who reached the Medicare Part D coverage gap spending threshold for prescription drugs. They found that having no financial assistance to pay for drugs in the coverage gap was associated with no greater likelihood of death or cardiovascular outcomes during the coverage gap period. Although the propensity score-matched analysis suggested elevated but non-significant hazards of death among patients with no financial assistance during the gap, the high-dimensional propensity score produced lower estimates that were stable across sensitivity analyses.

Porterfield, D.S., Hinnant, L.W., Kane, H., and others. (2012). "Linkages between clinical practices and community organizations for prevention. A literature review and environmental scan." (AHRQ Contract No. 290-06-00001).

***American Journal of Preventive Medicine* 42(6S2), pp. S162-S171.** The researchers conducted a literature review and environmental scan to develop a framework for interventions that use linkages between clinical practices and community organizations for the delivery of preventive services. They found 49 interventions, of which 18 described their evaluation methods or reported any intervention outcomes. Few conducted evaluations that were rigorous enough to capture changes in intermediate or long-term health outcomes.

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Powers, B., Coeytaux, R.R., Dolor, R.J., and others. (2012). "Updated report on comparative effectiveness of ACE inhibitors, ARBs, and direct renin inhibitors for patients with essential hypertension: Much more data, little new information." (AHRQ Contract No. 290-02-0025). *Journal of General Internal Medicine* 27(6), pp. 716-729.

This updating of a 2007 systematic review found that in spite of substantial new evidence, none of the conclusions from the 2007 review changed. The updated review included 36 studies new since 2007. The level of evidence remains high for equivalence between angiotensin-converting enzyme inhibitors and angiotensin II receptor blockers (ARBs) for lowering blood pressure and use as single hypertension agents, as well as for superiority of ARBs for short-term adverse events.

Rassen, J.A., Shelat, A.A., Myers, J., and others. (2012). "One-to-many propensity score matching in cohort studies." (AHRQ grant HS18088). *Pharmacoepidemiology and Drug Safety* 21(S2), pp. 69-80.

The researchers evaluated several methods of propensity score matching in cohort studies through simulation and empirical analyses. These included a commonly used greedy matching technique, pairwise nearest neighbor matching with a caliper, and a balanced pairwise nearest neighbor approach. Variable ratio, parallel, balanced nearest neighbor matching generally yielded the lowest bias and mean-squared error.

Reid, M.C., Bennett, D.A., Chen, W.G., and others. (2011).

"Improving the pharmacologic management of pain in older adults: Identifying the research gaps and methods to address them." (AHRQ grants HS18721, HS19461). *Pain Medicine* 12, pp. 1336-1357.

A expert panel convened by several of the National Institutes of Health discussed identifying research priorities that could, if addressed, lead to improved pharmacologic management of chronic pain in older adults. Analyses of data from electronic health care databases, observational cohort studies, and ongoing cohort were felt to be practical methods for building an age-appropriate evidence base to improve pharmacologic management. Specific focus was on identifying gaps about use of opioid and nonsteroidal anti-inflammatory medications, because of continued uncertainty about their risks and benefits.

Schneeweiss, S., Seeger, J.D., and Smith, S.R. (2012). "Methods for developing and analyzing clinically rich data for patient-centered outcomes research: An overview." (AHRQ Contract No. 290-05-0016).

***Pharmacoepidemiology and Drug Safety* 21(S2), pp. 1-5.**

This editorial introduces a supplement representing some of the presentations from a symposium convened in June 2011 by the Agency for Healthcare and Quality on research methods for comparative effectiveness and patient-centered outcomes research. It is intended to be a resource for researchers interested in learning, applying, and improving different methodological approaches to the

design and analysis of patient-centered outcomes research studies.

Shamiliyan, T., Wyman, J.F., Ramakrishnan, R., and others. (2011). "Benefits and harms of pharmacologic treatment for urinary incontinence in women." (AHRQ Contract No. 290-07-10064). *Annals of Internal Medicine* 156(12), pp. 861-874.

The authors conducted a systematic literature review of drugs for urgency urinary incontinence (UI) in women. Ninety-four randomized controlled trials were eligible, but the studies' inconsistent definitions of reduction in UI and quality of life hampered synthesis of evidence. The authors concluded that drugs for urgency UI showed similar small benefit. Evidence for long-term adherence and safety of treatments is lacking.

Shamiliyan, T., Kane, R.L., and Jansen, S. (2012). "Systematic reviews of synthesized evidence without consistent quality assessment of primary studies examining epidemiology of chronic diseases." (AHRQ Contract No. 290-07-10064). *Journal of Clinical Epidemiology* 65, pp. 610-618.

The authors evaluated how systematic reviews assess the quality of primary studies of incidence, prevalence, or risk factors for chronic diseases. They concluded that only rarely have systematic reviews of observational nontherapeutic research evaluated internal and external validity of individual studies. Diversity in how quality assessments are performed reflects the absence of uniformly

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accepted standards and tools to examine the quality of these studies.

Sobieraj, D.M., Lee, S., Coleman, C.I., and others. (2012, May). “Prolonged versus standard-duration venous thromboprophylaxis in major orthopedic surgery: A systematic review.” (AHRQ Contract No. 290-07-10067). *Annals of Internal Medicine* 156(10), pp. 720-727. This systematic review compared the benefits and harms of prolonged versus standard-duration thromboprophylaxis after major orthopedic surgery in adults. Eight randomized controlled trials met the inclusion criteria. The findings suggest that the balance of benefits and harms is favorable for prolonged-duration prophylaxis, because it reduced the incidence of symptomatic venous thromboembolism, pulmonary embolism, and deep vein thrombosis. However, it did increase the risk for minor bleeding.

Souza, L.C.S., Payabvash, S., Wang, Y., and others. (2012). “Admission CT perfusion is an independent predictor of hemorrhagic transformation in acute stroke with similar accuracy to DWI.” (AHRQ grant HS11392). *Cerebrovascular Diseases* 33, pp. 8-15. This study compared the utility of admission computerized tomographic perfusion (CTP) to that of magnetic resonance diffusion-weighted imaging (DWI)

as a predictor of hemorrhagic transformation in acute stroke. The researchers found that the detection of severely ischemic tissue can be accomplished using CTP imaging with similar accuracy to that of DWI. These results suggest that CTP may have added value in the evaluation of acute stroke patients when magnetic resonance imaging is not available or contraindicated.

Toh, S., Rodriguez, L.A.G., and Hernan, M.A. (2012). “Analyzing partially missing confounder information in comparative effectiveness and safety research of therapeutics.” (AHRQ grant HS19024). *Pharmacoepidemiology and Drug Safety* 21(S2), pp. 13-20. Partially missing confounder information is common in comparative effectiveness and safety research of therapeutics. The researchers applied several methods to dealing with missing confounder information using data from a primary care electronic medical records database from the United Kingdom. They concluded that the unweighted complete-case analysis, the missing-category/indicator approach, and single imputation require often unrealistic assumptions and should be avoided.

Weiner, J.P., Fowles, J.B., Chan, K.S. (2012). “New paradigms for measuring clinical performance using electronic health records.” (AHRQ Contract No. 290-05-0034). *International Journal for Quality in Health Care* 24(3), pp. 200-205. The objectives of this article are to offer a typology of electronic

measures of quality and safety and to identify key challenges, opportunities, and future priorities related to the development and application of these measures. If public and private systems of care are to effectively use health information technology to support and evaluate health care system quality and safety, the quality measurement field must embrace new paradigms and strategically address a series of technical, conceptual, and practical challenges.

Weiss, C.O., Segal, J.B., and Varadhan, R. (2012). “Assessing the applicability of trial evidence to a target sample in the presence of heterogeneity of treatment effect.” (AHRQ Contract No. 290-05-0034). *Pharmacoepidemiology and Drug Safety* 21(S2), pp. 121-129. The authors propose methods for the quantitative assessment of the applicability of evidence from a trial to a target sample using individual data in the presence of heterogeneity of treatment effect (HTE). These methods use individual-level data from both a trial and a target population, focus on HTE, and present an assessment of applicability through graphical presentation of the joint distribution of both beneficial and harmful treatment effects. They also address the practical issues of measurement discrepancy and missing data that can be important for patient-centered outcomes research. ■

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