Agency for Healthcare Research and Quality

RESEARCH ACTIVITIES

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Highlights

Departments

Regular Features

Report finds that medications effectively reduce risk of breast cancer, but can cause other problems

Three drugs, including tamoxifen, reduce a woman's chance of getting breast cancer, but each drug carries distinct potential harms of its own, according to a new report from the Agency for Healthcare Research and Quality (AHRQ). Drugs to reduce the risk of breast cancer can be prescribed to women with a family history of breast cancer or other risk factors, but prescribing practices vary widely. The comparative effectiveness review found that all three drugs—tamoxifen, raloxifene, and tibolone—significantly reduce invasive breast cancer in midlife and older women who have not previously had breast cancer. However, the benefits and adverse effects can vary depending on the drug and the patient.

The report is the first to make a direct, comprehensive comparison of the drugs so that women and their health care providers can assess the medications' potential effectiveness and adverse effects. Tamoxifen, a selective estrogen receptor modulator (SERM), was approved by the U.S. Food and Drug Administration (FDA) in 1998 to prevent breast cancer in women at high risk of developing the disease. Tamoxifen's use to reduce the risk of breast cancer is accepted clinical practice, although the drug is primarily used for treatment rather than risk reduction.

Raloxifene, another SERM, is primarily used to prevent and treat osteoporosis, and was approved by the FDA for breast cancer risk reduction in 2007. The third drug, tibolone, has not been approved by the FDA for use in the United States, but is commonly used in other countries to treat menopausal symptoms and osteoporosis.

The most common side effects for tamoxifen are flushing and other vasomotor symptoms (e.g., night sweats, hot flashes), vaginal discharge and other vaginal symptoms such as itching or dryness. For raloxifene, side effects include vasomotor symptoms and leg cramps; and for tibolone, side effects include vaginal bleeding. Adverse effects of tamoxifen include a greater risk for endometrial cancer, hysterectomies, and cataracts compared with the other drugs. Tamoxifen and raloxifene increase risk of blood clots, although tamoxifen's risk is greater. Tibolone carries an increased risk of stroke.

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Breast cancer

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The report also examined the drugs' effectiveness and harms based on such factors as age, menopausal status, estrogen use, and family history of breast cancer, and sought to identify the kinds of women who might be good candidates for prevention therapy, although the evidence is limited in this area. AHRQ's new report, *Comparative Effectiveness of Medications to Reduce Risk of Primary Breast Cancer in Women*, is the latest analysis from the Agency's Effective Health Care Program. Information on the Program and the new report can be found at www.effectivehealthcare.ahrq.gov. ■

Women's Health

Older black women with breast cancer do not receive beneficial chemotherapy as often as white women

Older women (65 to 69 years old) with operable breast cancer that has spread to one or more lymph nodes often benefit from receiving chemotherapy, clinical trials show. However, black women in this age group do not receive chemotherapy as often as white women, a new study finds.

Researchers at the University of Texas used data from Medicare, the U.S. Census, and the National Cancer Institute's Surveillance, Epidemiology, and End Results cancer registry. They found 14,177 white women and 1,277 black women who were diagnosed with operable stage II or IIIA breast cancer with positive lymph nodes between 1991 and 2002.

For the 65-69 age group, 66 percent of white women received chemotherapy within 6 months of being diagnosed compared with 56 percent of black women. However, this racial disparity diminished with age. For instance, after age 74 there were no significant differences between the percentages of white and black women receiving chemotherapy.

When researchers adjusted the results to include socioeconomic status for women aged 65 to 69, poverty appeared to be at the root of the racial differences in who received chemotherapy. Despite being insured by Medicare, out-of-pocket costs and copayments may be burdensome for women without means, and women who live in poor areas may also have poor health, other health conditions, and employment difficulties. This study was funded in part by the Agency for Healthcare Research and Quality (HS16743).

See "Racial and socioeconomic disparities in adjuvant chemotherapy for older women with lymph node-positive, operable breast cancer," by Alessia Bhargava and Xianglin L. Du, M.D., Ph.D., in the July 1, 2009 *Cancer* 115(13), pp. 2999-3008. ■

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Also in this issue:

Children are commonly harmed by adverse events in intensive care units

When adverse events (AEs) occur in pediatric intensive care units (ICUs), one-third of such incidents result in physical injury to children, while two-thirds harm children in other ways, according to a new study. Johns Hopkins researchers analyzed data collected over a 2-year period describing safety incidents taking place in pediatric ICUs around the country. Providers were able to report such incidents and near misses through a Web-based incident reporting system called the Intensive Care Unit Safety Reporting System.

During the 2-year study period, 23 pediatric ICUs reported 464 incidents. Physical injuries harmed children in 35 percent of the incidents, while "any harm" occurred in 60 percent. There were three patient deaths from such incidents. Medication or therapy AEs accounted for 40 percent of all incidents and resulted in more near misses than other types. Compared with other incident types, medication-related ones were less likely to result in harm or physical injury. Line, tube, and airway events accounted for one-third of all cases, and were associated with more harm than other types of events. Equipment/devices were involved in 13 percent of AEs.

Patient contributing factors were the strongest predictor of harm, and training and education factors also played a role. To improve safety in pediatric ICUs, the researchers recommend developing protocols for high-risk procedures involving lines and tubes; improved monitoring; and staffing, training, and communication initiatives. The study was supported in part by the Agency for Healthcare Research and Quality (HS11902).

See "Pediatric safety incidents from an intensive care reporting system," by Julia Lynn Skapik, M.D., M.P.H., Peter J. Pronovost, M.D., Ph.D., Marlene R. Miller, M.D., and others, in the June 2009 *Journal of Patient Safety* 5(2), pp. 95-101. ■

Infants are at the highest risk for errors involving cardiovascular drugs

Physicians prescribe children cardiovascular medications for various conditions. For example, diuretics are often given to premature babies who have trouble breathing, and high blood pressure medications (antihypertensives) are often prescribed for overweight teens. A new study finds that the cardiovascular drugs most commonly associated with errors in children include diuretics and antihypertensives, and children under age 1 are especially vulnerable to experiencing a cardiovascular drug error.

David G. Bundy, M.D., M.P.H., of Johns Hopkins University, and colleagues analyzed the U.S. Pharmacopeia's MEDMARX®. database of error reports collected from 2003 to 2004. They found 821 cardiovascular medication error reports involving children at 147 facilities. These errors most commonly occurred in neonatal intensive care units (ICUs), general care units, pediatric ICUs, pediatric units, and inpatient pharmacies. Human error was cited as the cause in 74 percent of the cases.

Children are vulnerable to medication errors because dosing is based on weight and can require mathematical calculations, such as converting pounds to kilograms, which can lead to misplaced decimal points and incorrect doses. Indeed, the study found that improper dosing was the most common error. Fifty percent of errors occurred among children who were less than a year old; 90 percent of those errors occurred in children younger than 6 months. One intervention the authors suggest is recording pediatric patients' weight in kilograms only. They also recommend instituting standard concentrations, maximum allowed doses, physician order entry systems, and pharmacy-based dilutions to prevent incorrect, harmful dosing. This study was funded in part by the Agency for Healthcare Research and Quality (HS16774).

See "Cardiovascular medication errors in children," by Diana C. Alexander, M.D., M.P.H., Dr. Bundy, Andrew D. Shore, Ph.D., and others in the July 2009 *Pediatrics* 124(1), pp. 324-332. ■

Beta-lactams may be appropriate first-line treatment for pediatric skin infections in areas where MRSA is prevalent

In many regions of the country, community-acquired methicillin-resistant *Staphylococcus aureus* (MRSA) is now the most commonly identified cause of skin and soft-tissue infections, such as impetigo, cellulitis, and small abscesses. Most of these infections are treated with antibiotics without actually determining if MRSA or another organism is indeed present. A new study concludes that beta-lactam therapy is an effective treatment for these infections among children living in areas where MRSA is prevalent, when the infectious agent is unknown.

Researchers at the Center for Education and Research on Therapeutics (CERT) at the University of Pennsylvania School of Medicine looked at 2,096 children who were treated as outpatients for skin and soft-tissue infections, which were neither drained nor cultured at the initial visit. The children were selected from five pediatric practices in an urban area where MRSA was prevalent. All were treated with one of three antibiotic agents: beta-lactams, clindamycin, or trimethroprim-sulfamethoxazole (TMP-SMX).

After the antibiotic was given, 104 of the children (5 percent) were determined to have failed treatment, that is, they had to have a drainage procedure, were hospitalized, or had to change antibiotics or get a second antibiotic prescription within 28 days. Each child was then matched to 480 control patients who had been treated successfully. The use of clindamycin and TMP-SMX to treat community-acquired MRSA increased significantly from 16.4 percent in 2004 to 62.2 percent in 2007, while the use of beta-lactams decreased. In this study, TMP-SMX accounted for 19 percent of prescriptions, but was associated with double the treatment failure of beta-lactam therapy. There was no difference in the risk of treatment failure between clindamycin and beta-lactam. Additional factors associated with an increase in treatment failure included white race, being seen first in the emergency department, antibiotic use within the previous 6 months, fever, and the presence of an induration or small abscess. This study was funded in part by a grant from the Agency for Healthcare Research and Quality (HS10399) to the University of Pennsylvania School of Medicine CERT. For more information on the CERT program, please visit www.certs.hhs.gov/index.html.

See "Empiric antimicrobial therapy for pediatric skin and soft-tissue infections in the era of methicillin-resistant *Staphylococcus aureus*," by Daniel J. Elliott, M.D., M.S.C.E., Theoklis E. Zaoutis, M.D., M.S.C.E., Andrea B. Troxel, Sc.D., and others, in the June 2009 *Pediatrics* 123(6), pp. e959-e966. ■

Intervention leads to reduction in central venous catheter-associated blood stream infections for pediatric patients

Severely ill children in pediatric intensive care units (ICUs) often have central venous catheters (CVCs), thin flexible tubes inserted into the chest or arm to deliver medicine, fluids, nutrients, or blood products to aid recovery. Many caregivers in pediatric ICUs view CVC-associated blood stream infections (BSIs) as unavoidable byproducts of providing care to critically ill or injured children. However, a new study conducted at a collaborative of 26 hospitals found a 32 percent reduction in CVC-associated BSIs when care providers followed evidence-based guidelines for inserting and maintaining CVCs in pediatric ICUs. These guidelines include having care providers prepare the patient's skin with antiseptic, washing their hands thoroughly, and donning protective barriers, such as gloves, gowns, and masks to prevent infections.

After implementing the guidelines for 9 months, the hospitals saw a median reduction in CVC-associated BSIs from 6.3 to 4.3 per 1,000 CVC days. Further, researchers estimated that taking these measures prevented 69 CVC-associated BSIs for a cost savings of nearly $3 million in hospital and health care costs. For the 20 hospitals that completed an additional 12-month sustainment period, the median reduction dipped to 3.5 CVC-associated BSIs per 1,000 CVC days. Additionally, the measures prevented 198 infections for a cost savings of nearly $8.5 million.

While other studies have shown that CVC-associated BSIs may be preventable in adult populations when evidence-based guidelines are deployed, this is the first study to show significant and sustained reductions of these infections for children in ICUs. The authors also noted that a culture change may have occurred as a result of this study's success in that some

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Blood stream infections

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hospital teams shifted toward a zero tolerance of these infections instead of viewing them as inescapable realities in ICUs. This study was funded in part by the Agency for Healthcare Research and Quality (HS13698).

See "Prevention of central venous catheter-associated bloodstream infections in pediatric intensive care units: A performance improvement collective," by Howard E. Jeffries, M.D., M.B.A., M.P.H., Wilbert Mason, M.D., M.P.H., Melanie Brewer, D.N.Sc., and others in the July 2009 *Infection Control and Hospital Epidemiology* 30(7), pp. 645-651. ■

Patient Safety and Quality

Quality of care may be more important than volume when it comes to heart bypass surgery

When it comes to heart bypass surgery, the most experienced hospitals that perform a high volume of such surgeries typically have better outcomes than low-volume hospitals, including a lower risk of patient death. However, a new study finds that differences in the quality of care may be more important when patients are looking for the "best" hospital for their surgery.

Researchers examined administrative data from 164 U.S. hospitals on 81,289 adults who received coronary artery bypass graft surgery (CABG) from 1,451 surgeons from 2003 to 2005. They analyzed various quality measures, such as the timely use of aspirin, antibiotics, cholesterol-lowering drugs (statins), beta-blockers, and compression devices to improve blood flow after surgery.

They found that the lowest surgeon CABG case volume was associated with the highest mortality rates among the various hospitals and that the highest hospital volume of surgeries was associated with lower rates of readmission due to complications. However, quality of care measures were also important. Patients were at increased risk for dying if they did not receive aspirin or beta-blocker drugs during the first 2 days of surgery. Interestingly, if all quality measures were met, volume did not matter. There were similar mortality rates for both the lowest- and highest-volume hospitals when hospitals adhered to recommended care quality measures. When shopping for the right hospital, looking at higher volume centers is a good start. However, consumers should look deeper at quality measures when considering coronary artery bypass surgery, conclude the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS11416).

See "Shop for quality or volume? Volume, quality, and outcomes of coronary artery bypass surgery," by Andrew D. Auerbach, M.D., M.P.H., Joan F. Hilton, Sc.D., Judith Maselli, M.S.P.H., and others, in the May 19, 2009 *Annals of Internal Medicine* 150(10), pp. 696-704. ■

Visit the AHRQ Patient Safety Network Web Site

AHRQ's national Web site—the AHRQ Patient Safety Network, or AHRQ PSNet—continues to be a valuable gateway to resources for improving patient safety and preventing medical errors and is the first comprehensive effort to help health care providers, administrators, and consumers learn about all aspects of patient safety. The Web site includes summaries of tools and findings related to patient safety research, information on upcoming meetings and conferences, and annotated links to articles, books, and reports. Readers can customize the site around their unique interests and needs through the Web site's unique "My PSNet" feature. To visit the AHRQ PSNet Web site, go to psnet.ahrq.gov.

Safety awareness and technological adoption are keys to managing test results in family medicine offices

After finding great variation in how family medical practices receive and share patient test results, the authors of a new study recommend that guidelines and best practices be developed to assist office staff in providing quality care. Nancy C. Elder, M.D., of the University of Cincinnati, and colleagues interviewed and surveyed staff members and patients at four southwest Ohio family medicine offices. None of the four offices excelled at reporting patient test results. Although 87 to 100 percent of patients said they received their test results, just 58 to 85 percent of charts indicated that patient notification actually occurred.

Just two of the offices had written procedures for managing test results, and none routinely adhered to results management practices. Most of the offices' standardized steps entailed communicating with the testing facility and getting results to the physician. However, the standards tended to skip the crucial step of notifying the patient.

Two factors that researchers deemed important in managing test results were safety awareness and technological adoption. The former involves having leaders who are focused on quality and safety, stress communication and teamwork, and institute policies and procedures for staff to follow. The latter involves incorporating technology, such as electronic health records (EHRs) and communication links between the medical office and testing sites, to eliminate staff having to manually track results. Although offices without EHRs had to spend more time tracking, following up, and documenting test results, the presence of EHRs did not guarantee high-quality, safe care, the authors note. In fact, one office that had an EHR did not use it to track test orders. This study was funded in part by the Agency for Healthcare Research and Quality (HS13914).

See "Management of test results in family medicine offices," by Dr. Elder, Timothy R. McEwen, M.S., John M. Flach, Ph.D., and Jennie J. Gallimore, Ph.D., in the July/August 2009 *Annals of Family Medicine* 7(4), pp. 343-351. ■

Input from clinical staff helps when evaluating the purchase of equipment

The growing use of short-acting intravenous drugs for anesthesia and critical care require precision and accuracy hard to achieve with traditional gravity-fed drips. Thus a growing number of hospitals are using programmable, electromechanical infusion pumps. Hospitals considering the purchase of medical devices, such as infusion pumps, may want to use a more scientific approach when making these decisions, recommends a new study. It found that collaboration between human factors and clinical professionals can do much to inform equipment decisions and improve safety.

The finding comes from the experience of a large, urban teaching hospital that decided to replace 600 old infusion pumps with a new model. Researchers in human factors analysis were brought in to review four pumps under consideration. Data were collected on operator-pump interaction, including provider tasks, device design, user interface, and other factors. Video recordings were used to document each user's performance while programming an infusion with each pump under consideration for purchase.

There was no association between the clinical experience of a provider and their ability to program any of the four pumps being considered. Differences in the pumps' use and favorite or disliked features were discovered among providers. After the field of pumps was narrowed down to two, purchasing preferences rather than clinical considerations determined the final selection. By bringing hospital staff and medical professionals together, adequate scientific analysis of medical devices can inform purchase decisions in a positive way while at the same time counteracting some of the pressurized sales tactics used by equipment vendors on hospital purchasing professionals, conclude the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS17793).

See "Between choice and chance: The role of human factors in acute care equipment decisions," by Christopher Nemeth, Ph.D., Mark Nunnally, M.D., Yuval Bitan, Ph.D., and others, in the June 2009 *Journal of Patient Safety* 5(2), pp. 114-121. ■

Evaluating team member perceptions can help guide future failure mode and effects analysis activities

In order to address patient safety, health care organizations are using failure mode and effects analysis (FMEA) to define and eliminate failures from products and services. Most often, FMEA is used on high-risk patient care processes, including medication use, blood transfusions, and magnetic resonance imaging (MRI) safety. A new study suggests that evaluating perceptions of FMEA team member performance can improve the FMEA process and provide future guidance.

Researchers from the University of Wisconsin—Madison conducted structured interviews with members of two FMEA teams. One team was charged with implementing a new intravenous infusion pump, while the other team was asked to evaluate point-of-care bar code technology. Both teams resulted in 39 participants representing nurses, pharmacists, physicians, engineers, and others. Interviews were conducted 4 to 5 months after the pump team finished its work and toward the end of the bar code team's work.

Based on the results of the interviews, the researchers identified several key findings related to FMEA team performance. First, the process needs to be guided by a well-defined team objective. Administration and other leaders should demonstrate their support of the process and commit to using the team's findings to improve safety. It is also important that FMEA teams be multidisciplinary in nature with well-informed facilitators. Each member should have some knowledge about the technology being evaluated and the FMEA process. By evaluating the FMEA process through participant interviews, the answers obtained can help refine the process and lead to better team outcomes and satisfaction, conclude the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS14253).

See "FMEA team performance in health care: A qualitative analysis of team member perceptions," by Tosha B. Wetterneck, M.D., M.S., Ann Schoofs Hundt, Ph.D., and Pascale Carayon, Ph.D., in the June 2009 *Journal of Patient Safety* 5(2), pp. 102-108. ■

Instituting patient safety rounds can boost adverse event reporting in outpatient cancer clinics

Health care organizations that strive to protect their patients' safety often encourage staff members to report potentially harmful practices, such as providing the wrong dose of a medication or issuing identical hospital identification numbers. From 2003 to 2004, two chemotherapy infusion units at the Dana-Farber Cancer Institute in Boston conducted 45-minute patient safety rounds every other week to elicit reports about conditions that staff believed were unsafe for patients. As a result of the rounds, patient safety event reporting increased substantially, according to a new study by Saul N. Weingart, M.D., Ph.D., of Harvard Medical School, and colleagues.

To prepare staff members for biweekly rounds, one unit had a volunteer patient safety champion; the other had a recruited champion. These champions can positively influence incident reporting by encouraging participation in rounds, prompting staff to identify events, and educating staff, the authors suggest. In fact, the unit with the self-identified champion saw an increase from 5.6 incidents reported per day in 2003 to 8.7 incidents per day during 2004. Likewise, the unit with the recruited champion saw an increase from 5.4 incidents per day to 7.6 incidents per day. However, the researchers could not conclude that recruiting a champion led to the uptick in incident reporting for the unit. Instead, the maturing of the patient safety rounds

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Note: Only items marked with a single (*) asterisk are available from the AHRQ Clearinghouse. Items with a double asterisk (**) are available from the National Technical Information Service. 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.

Patient safety rounds

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program and the subsequent enhanced ability of staff members to identify potential harms may have prompted more reports, they assert.

The incidents reported most often involved medications (30 percent). For instance, on the unit with the self-identified champion, safety reports involving medications increased from 19 to 30 percent over the course of the study, and the recruited champion's unit saw reports rise from 19 to 43 percent. This study was funded in part by the Agency for Healthcare Research and Quality (HS11644).

See "Enhancing safety reporting in adult ambulatory oncology with a clinician champion: A practice innovation," by Dr. Weingart, Jessica Price, J.D., Deborah Duncombe, M.H.P., and others in the July-September 2009 *Journal of Nursing Care Quality* 24(3), pp. 203-210. ■

Elderly/Long-Term Care

Inappropriate medications raise the risk of adverse drug events among older adults

Reducing the use of inappropriate medications by older adults, along with decreasing the number of medications taken by this population, can reduce adverse drug events (ADEs), conclude Elizabeth A. Chrischilles, Ph.D., of the University of Iowa, and her colleagues. Because they take multiple drugs, older adults are especially susceptible to ADEs, which have been found to cause more deaths annually than motor vehicle accidents, breast cancer, or AIDS.

In a prospective study of 626 Iowa Medicare recipients, the researchers found that 22 percent of the group reported experiencing an ADE within the past year. Slightly more than half (51.4 percent) received at least one potentially inappropriate medication. Individuals with any inappropriate medication use had double the risk of a self-reported ADE than did those without inappropriate medication use, after adjusting for the patient's age, number of medications taken, and the number of mobility limitations. The most frequent inappropriate medications were drugs contraindicated for use in older adults and drugs that can produce a drug–disease interaction. Drug–drug interactions and duplications of drugs in the same therapeutic class were less common.

An earlier paper on this group of patients found that 83 percent of them contacted their doctor regarding the ADE(s) they experienced, and more than half (56 percent) stopped taking the medication they thought responsible. The study was funded in part by the Agency for Healthcare Research and Quality (HS16904).

More details are in "Inappropriate medication use as a risk factor for self-reported adverse drug events in older adults," by Dr. Chrischilles, Rachel VanGilder, Ph.D., Kara Wright, M.S., and others, in the June 2009 *Journal of the American Geriatrics Society* 37(6), pp. 1000-1006. ■

Use of restorative care improves nursing home resident functioning and nursing assistants' job satisfaction

In 1987, the Omnibus Budget Reconciliation Act mandated a restorative philosophy of care for nursing home residents. Such care is designed so that residents can maintain as much of their physical, mental, and psychosocial well-being as possible. The goal is to engage residents in physical activity and in performing tasks such as dressing, bathing, and eating, rather than doing the tasks for them, in order to maintain their independence and avoid further disability. A new study of 12 Maryland nursing homes found that use of restorative care (Res-Care) enhanced the job satisfaction of nursing assistants (NAs) and improved the functioning of residents in nursing homes. The study was led by Barbara Resnick, Ph.D., C.R.N.P., of the University of Maryland, Baltimore, and supported by the Agency for Healthcare Research and Quality (HS13372). The study's findings, published in two papers, are briefly summarized here.

Resnick, B., Gruber-Baldini, A. L., Galik, E., and others. (2009). "Changing the philosophy of

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Restorative care

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care in long-term care: Testing of the restorative care intervention." *The Gerontologist* 49(2), pp. 175-184.

The researchers examined the expectations and job satisfaction of 556 NAs from 12 Maryland nursing homes that were randomized to either the Res-Care group or a control group that used education about how to manage behavioral symptoms. Here's one example of how the approaches differed. In the Res-Care homes, NAs would ask a resident to move in bed and give the resident time to move, with step-by-step cues on how to move in bed. In a non-Res-Care approach, the NA would ask the resident to move in bed, but would not allow time for the resident to respond and would move the resident without asking the resident to help.

The researchers measured outcomes at baseline and then at 4 and 12 months after the Res-Care intervention was started. After 4 months, compared with NAs at the control sites, NAs at the Res-Care sites increased the amount of time they spent providing restorative care. After 12 months, NAs at Res-Care sites also had stronger beliefs in the benefits of restorative care for themselves and residents, as well as improved job satisfaction. Expectations of patients and job satisfaction remained stable in the control group through the 12 months.

However, the NAs involved in restorative care did report barriers to their ability to provide this type of care. Surprisingly, time to complete restorative care activities was not the major barrier. In fact, Res-Care saved time, because it helped residents complete tasks either alone or with limited support (e.g., positioning or supervision). The major barrier was nursing assistants' concern that families and administrative staff would accuse them of not doing their jobs adequately or being cruel and abusive to residents by encouraging them to perform physical and functional activities designated as restorative care goals.

Resnick, B., Gruber-Baldini, A. L., Zimmerman, S., and others. (2009, July). "Nursing home resident outcomes from the Res-Care Intervention." *Journal of the American Geriatric Society* 57, pp. 1156-1165.

For this part of the study, the researchers examined the functional outcomes of 487 residents from the same 12 Maryland nursing homes (256 from Res-Care homes and 231 from control homes) 4 and 12 months after initiation of the Res-Care intervention. At baseline, residents needed some assistance with activities of daily living, had between five and six muscle contractures, reported fair quality of life, and had strong self-efficacy and outcome expectations for performing functional activities. Sixty percent of residents were unable or unwilling to stand and ambulate.

At 4 months, there was significant improvement in overall mobility among the intervention group (from 4.74 to 5.70) compared with the control group (from 6.71 to 6.33), as well as balance (from 2.59 to 3.20 vs. from 3.50 to 3.28 in the control group). The intervention group also showed less decline in gait at 12 months (from 2.29 to 2.27 vs. from 3.18 to 2.32 in the control group).

There was no significant difference over time between groups with regard to muscle contractures, grip strength, quality of life, self-efficacy, or outcome expectations. According to the authors, these findings support the usefulness of Res-Care to maintain or improve the functioning of nursing home residents. ■

Chronic Disease

Chronic disease self-management program improves illness management for up to 6 months, then effectiveness wanes

One-on-one and group sessions led by peers are a means of teaching individuals how to cope with their chronic diseases, such as arthritis, asthma, chronic obstructive pulmonary disease, congestive heart failure, depression, and diabetes. A new study finds that individualized sessions in the patient's home bring only moderate, short-term improvements in chronic illness management self-efficacy, with no improvements in mental or physical health status or preventable hospitalizations. These findings raise questions about whether health care systems should spend limited resources on such programs, assert Anthony Jerant, M.D., of the University of California, Davis, and colleagues.

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Self-management program

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They recruited 415 patients with chronic illnesses in Northern California to participate in 6 sessions with a peer, either by phone (139 patients) or in person (138 patients). Compared with those receiving usual care (138 patients), participants in the in-home, peer-led sessions had higher illness management self-efficacy at 6 weeks and 6 months, but at the 1-year mark these advances disappeared. What's more, individuals did not improve their scores on physical and mental health status measures, and participating had no effect on hospitalizations or health care expenses. Telephone delivery of the peer intervention had no more benefits than usual care.

The authors note that their findings are similar to those of a 2007 Cochrane systematic review of 17 randomized controlled trials of peer-led illness self-management programs delivered to individuals or groups of patients. They suggest that these findings question the cost-effectiveness of the peer-led approach to improving chronic illness outcomes, which has been suggested as a key element in redesign of the U.S. health care delivery system. The study was funded in part by the Agency for Healthcare Research and Quality (HS13603).

See "Home-based, peer-led chronic illness self-management training: Findings from a 1-year randomized controlled trial," by Dr. Jerant, Monique Moore-Hill, M.S., and Peter Franks, M.D., in the July/August 2009 *Annals of Family Medicine* 7(4), pp. 319-327. ■

Medicare coverage gap may prompt some patients with diabetes to cut back on their medicines

When the Medicare Part D drug benefit became available in 2006, some feared that many patients with diabetes would fall into the "doughnut hole" coverage gap that occurs after their drug costs exceed $2,250. After reaching that limit, patients must reach into their own pockets and spend $3,600 for medications before Medicare kicks in again to pay for prescription drugs. This could be a problem for patients with diabetes, who typically depend on medications to control their blood glucose levels. Based on data from two large California plans, a new study found that a lower than expected percentage of patients with diabetes in Medicare Advantage plans actually entered the coverage gap in 2006. Nevertheless, this rate was higher than that for the overall Medicare Advantage Part D population.

The study also found that patients with diabetes who entered the coverage gap had lower than predicted subsequent monthly drug expenditures. While this may have been due to lower-than-expected drug costs and greater use of generic medications in managed care, it may potentially signal poorer drug adherence, the study authors suggest. For example, some patients may have deliberately chosen to use fewer diabetes medications so that they would not have to pay for the drugs once their spending reached the $2,250 mark.

Because not adhering to medication regimens is linked with poor health, the authors recommend that policymakers pay attention to the risk that the doughnut hole may pose for patients with diabetes enrolled in Medicare Part D plans. Their findings were based on analysis of 42,801 beneficiaries' costs from the Medicare Advantage Prescription Drug Plan in two large California health plans. The study was funded in part by the Agency for Healthcare Research and Quality (HS13902).

See "Medicare Part D coverage gap and diabetes beneficiaries," by Julie A. Schmittdiel, Ph.D., Susan L. Ettner, Ph.D., Vicki Fung, Ph.D., and others in the March 2009 *The American Journal of Managed Care* 15(3), pp. 189-193. ■

Nearly half of patients with depression drop out of treatment in a public clinic within 12 months

More than 20 million people in the United States suffer from depression, and about 3 out of 10 people get better with the first antidepressant they try. However, a new study finds that nearly half the 179 patients receiving guideline-based treatment for depression in 4 Texas public health clinics discontinued treatment within 12 months. Diane Warden, Ph.D., M.B.A., of the University of Texas Southwestern Medical Center, and colleagues studied data on adult patients who were diagnosed with major depressive disorder (MDD) to determine dropout predictors.

Patients who had fewer few side effects at baseline and younger patients tended to drop out more often in the first 6 months of treatment. In fact, the likelihood of abandoning treatment decreased 26 percent with every 5-year increase in age. At the 12-month mark, dropout predictors included younger age, negative attitudes about psychiatric medications, and higher perceived physical functioning. Additionally, making more frequent monthly visits to the clinic was associated with higher dropout rates. Frequent visits may be necessary to ensure patients are receiving the correct dose of antidepressants, to monitor side effects, which are common with antidepressants, and to change the antidepressant treatment approach if it is not working. However, numerous visits may pose a burden to patients. More frequent visits may also have meant that a patient was not getting better or suffering side effects—reasons that patients sometimes leave treatment.

These predictors point to a need for a personalized approach to treating patients with MDD, the authors suggest. All patients can benefit from basic education about depression. Discussing beliefs and attitudes about antidepressant medications with patients also allows clinicians to address any fears or misperceptions, which may help keep patients in treatment. This study was funded in part by the Agency for Healthcare Research and Quality (HS17189).

See "Predictors of attrition during one year of depression treatment: A roadmap to personalized intervention," by Dr. Warden, A. John Rush, M.D., Thomas J. Carmody, Ph.D., and others in the March 2009 *Journal of Psychiatric Practice* 15(2), pp. 113-124. ■

Physicians respond differently when recruited for public health and bioterrorism surveillance projects

Sudden outbreaks of infection and bioterrorism require the speedy response of clinicians to report clinical events to a central agency (sentinel surveillance). But what types of physicians are most likely to respond efficiently when time is of the essence? A new study finds that recruiting clinicians from established physician networks offers the best opportunity to get sentinel surveillance up and running when a sudden outbreak occurs.

Researchers recruited physicians for future surveillance activities from three types of provider groups in Wisconsin. The first group consisted of family physicians who belonged to a long-standing practice-based research network that conducted clinical research. A second group was composed of clinicians who regularly reported flu-like illness prevalence. Finally, a control group consisted of physicians who were general members of the Wisconsin Academy of Family Physicians. Various recruitment efforts were used, including telephone calls, e-mails, faxes, incentive payments, and promotion by leaders of each group.

Recruitment goals were achieved most efficiently for clinicians from the research network. Their members were recruited within 5 weeks. Clinicians from the other two groups required an additional 4 weeks to meet recruiting goals. Three hours of staff time were

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Surveillance projects

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required, on average, to recruit one clinician, resulting in 360 hours to reach recruitment goals. Clinicians in the influenza group returned consent forms faster than the other two groups. They also required the fewest reminders. Research network physicians responded the quickest to calls for participation and were more likely to respond positively to the request. Recruitment efforts worked best when phone, fax, and e-mail were used in combination with frequent, weekly contact. The most effective recruitment tool was buy-in and participation by the leaders of each clinician group. The study was supported in part by the Agency for Healthcare Research and Quality (HS14417).

See "Recruiting primary care clinicians for public health and bioterrorism surveillance," by Jonathan L. Temte, M.D., Ph.D. and Michael E. Grasnick, Ph.D., in the *2009 Wisconsin Medical Journal* 108(2), pp. 104-108. ■

Health Care Workforce

Doctors and nurses in teaching hospitals report widespread job stress and sleep deprivation

Despite recently mandated reductions in medical student workload hours, a new study reveals the widespread presence of job stress and sleep deprivation among physicians and nurses in teaching hospitals. When asked to keep a running account of work activity, patient load, and work stress using handheld computers, physicians reported much higher levels of work stress than nurses. Both groups reported more stress during patient care activities compared with activities such as patient education, transit, or communication.

California researchers studied 185 physicians (attending physicians, residents, and interns) and 119 nurses working in 4 teaching hospitals over an 18-month period. For one week, participants recorded their work activities and stress in handheld computers, whose content was sampled randomly over 90-minute intervals throughout each work day. The participants also completed more than 9,500 internal surveys on work stress during the study.

Emotional stress scores among physicians were nearly 50 percent higher than those of nurses. Physicians reported feeling less alert and more worried, tense, fatigued, unhappy, tired, upset, and stressed. Compared with physicians, nurses reported significantly higher levels of high physical demand and performance and lower levels of frustration. Direct and indirect care activities were associated with higher stress reports by both groups. Approximately one-fifth of doctors and nurses sampled daily indicated 5 or fewer hours of sleep the previous night. Lower sleep quality and quantity were predictors of higher work stress scores. Higher work stress and lower sleep quality were also associated with poorer memory performance. The study was supported in part by the Agency for Healthcare Research and Quality (HS14283).

More details are in "A real-time assessment of work stress in physicians and nurses," by Thomas Rutledge, Ph.D., Erin Stucky, M.D., Adrian Dollarhide, M.D., and others, in *Health Psychology* 28(2), pp. 194-200, 2009. ■

Subtask training is superior to total task training for medical students learning prostate surgery

Training prostate surgery as distinct subtasks is more beneficial to medical students than teaching it as an entire procedure, according to a new study from researchers at the University of Minnesota. The team used a previously studied virtual reality surgery simulator to teach 18 first- and second-year medical students at the University of Minnesota how to perform a surgery called transurethral resection of the prostate (TURP), which involves removing all or part of the prostate gland through a scope. Students were given 45 minutes to learn how to perform a TURP on the simulator, either by practicing four distinct subtasks or just repeating the full task from start to finish.

The group that learned with subtask training outperformed the full task training group on two measures: the total amount of tissue

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Prostate surgery

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that was resected and performance with the "cutting pedal" responsible for removing tissue during the procedure. The students who learned to perform a TURP in stages gave this approach an average grade of 4 on a 5-point scale, while the team that learned the procedure in one fell swoop rated their experience a 3.1. The authors suggest that this lower rating may be a result of the students' frustration at having to try to put numerous psychomotor skills together simultaneously.

The capacity of this virtual reality surgery simulator to break down complicated procedures and to measure progress enhances its usefulness as a training tool, the authors state. Having this tool is especially important because urology residents are unable to perform as many TURPS as they once did, because enlarged prostates can now also be treated though medication or other surgeries. This study was funded in part by the Agency for Healthcare Research and Quality (HS15597).

See "Task deconstruction facilitates acquisition of transurethral resection of prostate skills on a virtual reality trainer," by Thekke Adiyat Kishore, M.D., Richard Beddingfield, Timothy Holden, and others in the April 2009 *Journal of Endourology* 23(4), pp. 665-668. ■

Health Information Technology

Certain patients are more likely to e-mail their physicians

Although not common, more and more physicians are giving out their e-mail addresses to patients in an attempt to communicate better and improve care. A new study has found certain patient characteristics associated with the use of secure electronic messaging. Researchers looked at the messaging behaviors of 175,909 individuals enrolled in an integrated delivery system in the State of Washington. Both patients and providers could send secure, electronic messages to each other via a Web site. Providers in the system were given incentives to engage in e-mail with patients as part of the system's redesign focused on patient-centered access to care. Patients were also encouraged to e-mail their providers.

Among enrollees eligible to communicate in this fashion, 14 percent used the system to send out one or more messages to their primary care provider or a specialist during the study period (January 1, 2004 to March 31, 2005). Secure messaging accounted for 15 percent of all outpatient encounters for the 162 primary care providers who had eligible patients.

Women were more likely than men to e-mail their providers. Elderly patients and those insured by Medicaid were less likely to e-mail their provider, even when they had Internet access and registered on the Web site. Patients with higher overall levels of morbidity (coexisting illnesses) were the most active users of secure messaging; they were nearly six times more likely than other patients to e-mail their provider. Patients were also more likely to e-mail providers who had higher levels of messaging themselves (providers' use of e-mail ranged from 2.8 to 52 percent of outpatient encounters). These findings support the potential role of secure messaging in the patient-centered medical home, note the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS14625).

See "Patient use of secure electronic messaging within a shared medical record: A cross-sectional study," by James D. Ralston, M.D., M.P.H., Carolyn M. Rutter, Ph.D., David Carrell, Ph.D., and others, in the *Journal of General Internal Medicine* 24(3), pp. 349-355, 2009. ■

Mental illness was the most costly condition between 1996 and 2006

The number of Americans under care for depression and other mental illnesses nearly doubled between 1996 and 2006, and the overall cost of treating them jumped by nearly two-thirds, according to the Agency for Healthcare Research and Quality. The Agency's recent data analysis revealed that the number of patients treated for mental disorders, including depression and bipolar disease, increased from 19 million to 36 million. The overall treatment costs for mental disorders rose from $35 billion (in 2006 dollars) to nearly $58 billion, making it the costliest medical condition between 1996 and 2006.

In addition, the study concluded that:

- Heart disease, cancer, trauma-related disorders, and asthma joined mental disorders to comprise the five most costly conditions in both 1996 and 2006.
- Overall spending for heart disease treatment increased the least, from $72 billion in 1996 to $78 billion in 2006.
- Spending for cancer treatment went from $47 billion to $58 billion; asthma costs rose from $36 billion to $51 billion; and the cost to treat trauma-related disorders climbed from $46 billion to $68 billion.
- In terms of average per-patient cost, cancer accounted for the highest, up slightly from $5,067 to $5,178, but treatment costs for trauma and asthma rose more steeply, increasing from $1,220 to $1,953 and from $863 to $1,059, respectively. In contrast, average per-patient spending for heart conditions and mental disorders fell from $4,333 to $3,964 and $1,825 to $1,591, respectively.

These findings were based on analysis of the Medical Expenditure Panel Survey (MEPS), a detailed source of information on the health services used by Americans, how often they are used, the cost of those services, and how they are paid. For more information, see *The Five Most Costly Conditions, 1996 and 2006: Estimates for the U.S. Civilian Noninstitutionalized Population*, at www.meps.ahrq.gov/mepsweb/data_files/publications/st248/stat248.pdf. ■

Treating aging baby boomers costs hospitals $56 billion

U.S. hospitals spent roughly $56 billion in 2007—16 percent of their overall patient care costs—treating baby boomers aged 55 to 64, according to the latest data from the Agency for Healthcare Research and Quality (AHRQ). Due to the aging of the large baby boom population, by 2020, the age group over 65 will grow by 18 percent, faster than any other age group.

AHRQ's analysis also found that in 2007:

- Hospitals' costs to treat baby boomers were nearly equal to the older generation of 65- to 74-year-olds, $56 billion and $59 billion respectively. In contrast, baby boomers cost hospitals $10 billion more than the younger generation of patients 45 to 54 years old.
- The average hospital cost for a baby boomer patient was $11,900 compared with $10,400 for 45- to 54-year-olds.
- Baby boomers were two to three times more likely than 45-54-year-olds to be hospitalized for osteoarthritis, stroke, respiratory failure, irregular heart beat, chronic obstructive pulmonary disorder, blood infections, and congestive heart failure, as well as undergo knee and hip replacements and have heart bypass surgery.
- About 37 percent of baby boomer patients were covered by public insurance, mainly Medicaid, 52 percent had private insurance, and 6 percent were uninsured.

The findings are based on data in Statistical Brief #79, *Hospital Utilization Among Near-Elderly Adults, Ages 55 to 64 Years, 2007* (www.hcup-us.ahrq.gov/reports/statbriefs/sb79.jsp). The report uses statistics from the 2007 Nationwide Inpatient Sample, a database of hospital inpatient stays that is nationally representative of inpatient stays in all short-term, non-Federal hospitals. The data are drawn from hospitals that comprise 90 percent of all discharges in the United States and include all patients, regardless of insurance type, as well as the uninsured. ■

Hospitalizations for coronary artery disease, heart attack, and stroke are down significantly

The number of Americans admitted to hospitals for treatment of coronary artery disease (CAD) declined by 31 percent between 1997 and 2007, according to the latest data from the Agency for Healthcare Research and Quality (AHRQ). In people with CAD, fatty deposits clog heart arteries, restricting the flow of blood to the heart and increasing the risk of a heart attack. With the decline in CAD, coronary heart disease no longer ranks as the leading disease treated in hospitals. It is now ranked number 3.

The analysis from 1997 to 2007 also found:

- Hospitalizations for heart attacks declined by 15 percent, falling from 732,000 to 625,000. Heart attacks are now ranked number 10 on the list of diseases treated in hospitals, down from number 4.
- Hospitalizations for stroke fell 14 percent, going from 616,000 to 527,000 and a drop in rank from number 6 to number 15.
- In contrast, hospitalizations for irregular heartbeat such as atrial fibrillation or tachycardia rose by 28 percent from 572,000 to 731,000. Its rank stayed at number 7.
- Hospitalizations for congestive heart failure rose by 3 percent, going from 991,000 to just over 1 million. Its rank moved from number 3 to number 2, behind pneumonia, the most common disease treated in hospitals in 2007.

These findings are based on data from page 19 in *HCUP Facts and Figures 2007* (http://www.hcup-us.ahrq.gov/reports/factsandfigures/2007/TOC_2007.jsp), which provides highlights of the latest data from the 2007 Nationwide Inpatient Sample, a part of AHRQ's Healthcare Cost and Utilization Project. The report provides data on leading reasons for hospitalization, such as arthritis, asthma, childbirth, cancer, diabetes, depression, and heart conditions; on procedures performed on hospital patients; and on related topics. ■

Blood transfusions have more than doubled

The number of hospital stays for patients who received blood transfusions more than doubled (from 1.1 million to nearly 2.7 million) between 1997 and 2007, according to the latest data from the Agency for Healthcare Research and Quality (AHRQ). This represented the largest increase in procedures over the 11-year period not involving pregnancy or childbirth. Patients need blood transfusions because of sudden loss of blood from injuries; low red blood cell count before, during, or after surgery; cancer; or moderate to severe anemia.

AHRQ also found that other procedures not related to pregnancy or childbirth increased significantly during the period, including:

- Knee surgeries—up 86 percent, from 329,000 to 611,000 stays.
- Hemodialysis for people with poor kidney functioning or end-stage renal disease—up 66 percent, from 473,000 to 786,000 stays.
- Respiratory intubation and mechanical ventilation for people with respiratory failure—up 48 percent, from 919,000 to 1.4 million stays.
- Percutaneous transluminal coronary angioplasty, a procedure to open blocked arteries in the heart—up 24 percent, from 581,000 to 722,000 stays.

These findings are based on data from page 30 in *HCUP Facts and Figures 2007* (www.hcup-us.ahrq.gov/reports/factsandfigures/2007/TOC_2007.jsp), which provides highlights of the latest data from the 2007 Nationwide Inpatient Sample, a part of AHRQ's Healthcare Cost and Utilization Project. The report provides data on leading reasons for hospitalization, such as arthritis, asthma, childbirth, cancer, diabetes, depression, and heart conditions; procedures performed on hospital patients; and related topics. ■

Particle beam radiation therapy is promising, but unproven for treating cancer

Particle beam radiation therapy, a technology used to treat several types of cancer, is considered by some clinicians to be better than traditional radiation. However, there is limited evidence about its safety compared with other types of radiation therapy, according to a new comparative effectiveness report funded by the Agency for Healthcare Research and Quality (AHRQ).

Particle beam radiation therapy—also known as charged particle radiation therapy or proton beam radiation therapy—uses beams of protons or other charged particles for cancer radiation treatment. Particle beam radiation therapy is an alternative to other types of cancer radiation therapy such as external radiotherapy with ionizing photon (X- or gamma-ray) beams or brachytherapy with implanted radioactive sources.

All types of radiation therapy can harm both cancerous and healthy tissues, so clinicians strive to target the radiation to the cancer while avoiding adjacent healthy tissues. This is particularly important for tumors adjacent to critical body parts such as those in the eye, brain, head, and neck. Particle beam radiation therapy can target the radiation with a high degree of precision, but its potential advantages over other radiotherapy alternatives have not been verified in long-term outcome studies, according to the new AHRQ technical brief.

Particle beam radiation therapy was introduced as an experimental treatment in the 1950s but was not cleared for widespread use by the U.S. Food and Drug Administration (FDA) until 2001. The technology is very expensive—an estimated $175 million for each device—and is usually only available in large academic medical centers. Only seven centers in the United States currently provide the therapy, with an additional center currently under construction and expected to be operational by 2010.

The technical brief did not indicate that particle beam radiation therapy is riskier than conventional radiation therapy. However, most studies about the therapy were conducted on small numbers of patients and did not compare the safety of particle beam radiation therapy against other therapies. For many cancers other than head and neck cancers, there are not enough comparative studies in the literature to base an evaluation of the clinical or cost effectiveness of particle beam radiation therapy compared with other treatments. AHRQ is currently reviewing scientific studies on radiation therapies for head and neck cancers that will evaluate the clinical effectiveness of particle beam radiation therapy for those cancers.

The report, *Technical Brief: Particle Beam Radiation Therapies for Cancer*, is the Agency's first in a series of technical briefs—rapid-turnaround reports that summarize key issues regarding emerging treatments. Technical briefs highlight where more research is needed and where research may be sufficient to warrant a full systematic review. Technical briefs are produced by AHRQ's Effective Health Care Program. Future briefs will describe the evidence on fetal surgery, stereotactic surgery for nonbrain cancers, and percutaneous heart valves. This brief can be found on AHRQ's Effective Health Care Program Web page (www.effectivehealthcare.ahrq.gov). ■

Task force finds insufficient evidence to screen for newborn jaundice to prevent a more serious chronic condition

According to a new recommendation from the U.S. Preventive Services Task Force, there is insufficient evidence to assess the balance of benefits and harms of screening infants for hyperbilirubinemia to prevent chronic bilirubin encephalopathy. Hyperbilirubinemia is a condition marked by a high level of bilirubin in the blood, which is often apparent as yellow-colored skin and eyes (jaundice).

About 60 percent of all infants have jaundice, and it generally clears up without any medical treatment. However, in some infants, hyperbilirubinemia may lead to chronic bilirubin encephalopathy, a rare but devastating neurological condition also called kernicterus. This condition may result in cerebral palsy, auditory processing problems, gaze and vision abnormalities, and cognitive problems. The number of children who develop chronic bilirubin

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Jaundice

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encephalopathy is unknown and difficult to determine.

There is evidence that screening using risk factor assessment or bilirubin level measurement can identify infants at risk of developing hyperbilirubinemia. However, there is no known screening test that will reliably identify all infants at risk of developing chronic bilirubin encephalopathy. Not all infants with chronic bilirubin encephalopathy have a history of hyperbilirubinemia, and not all infants who have extremely high levels of bilirubin develop chronic bilirubin encephalopathy.

In assessing the potential benefits and harms of screening infants for hyperbilirubinemia, the Task Force looked for evidence that screening reduced the number of new cases of chronic bilirubin encephalopathy. No studies have directly addressed whether screening, either risk-factor assessment or bilirubin testing, reduced the number of new cases of chronic bilirubin encephalopathy. The current evidence on screening has evaluated the effectiveness of screening to identify infants for treatment intended to reduce high levels of bilirubin.

The Task Force found that the evidence is currently insufficient regarding whether treating infants with high levels of bilirubin results in fewer children developing chronic bilirubin encephalopathy. When the Task Force finds insufficient evidence to make a recommendation, it does not mean a clinician shouldn't provide a service, but that the evidence is lacking, and if a service is offered, patients should understand the uncertainty about the balance of benefits and harms.

Efforts have been made by clinicians to eliminate this rare disorder by applying measures to screen for and aggressively manage high bilirubin levels. Universal screening for jaundice is widespread in the United States, and clinicians and parents should continue to work together to decide whether to screen in the face of insufficient evidence. Clinicians must remain aware that screening and resulting treatment of hyperbilirubinemia have potential harms such as weight loss, gastrointestinal problems, and disruption of the mother-infant bonding.

The Task Force is the leading independent panel of experts in prevention and primary care. The Task Force, which is supported by the Agency for Healthcare Research and Quality, conducts rigorous, impartial assessments of the scientific evidence for the effectiveness of a broad range of clinical preventive services, including screening, counseling, and preventive medications. Its recommendations are considered the gold standard for clinical preventive services. These and prior Task Force recommendations are available on the AHRQ Web site at www.ahrq.gov/clinic/uspstf/uspshyperb.htm. ■

Task force finds insufficient evidence for using nontraditional risk factors to screen for coronary heart disease

The current evidence is insufficient to assess the balance of benefits and harms of using several nontraditional risk factors to screen asymptomatic men and women with no history of coronary heart disease to prevent coronary heart disease events. That's the conclusion of the U.S. Preventive Services Task Force (USPSTF) in its new recommendation. The nontraditional risk factors included in the recommendation are: high-sensitivity C-reactive protein, ankle-brachial index, leukocyte count, fasting blood glucose level, periodontal disease, carotid intima-media thickness, coronary artery calcification score on electron-beam computed tomography, homocysteine level, and lipoprotein(a) level. The recommendation is published in the October 6 issue of *Annals of Internal Medicine* and can be viewed on the AHRQ Web site at www.ahrq.gov/clinic/uspstf/uspscoronaryhd.htm.

The USPSTF is the leading independent panel of experts in prevention and primary care. The Task Force, which is supported by AHRQ, conducts rigorous, impartial assessments of the scientific evidence for the effectiveness of a broad range of clinical preventive services, including screening, counseling, and preventive medications. Its recommendations are considered the gold standard for clinical preventive services. ■

Childbirth and deliveries are becoming more complicated

The number of hospital stays for childbirth increased 16 percent from 4.3 million to 5 million between 1997 and 2007. However, the number of hospital stays for women who had a normal or uncomplicated birth declined by 43 percent, from 544,000 to 312,000 stays, according to the latest data from the Agency for Healthcare Research and Quality (AHRQ).

The Federal study also found an increase in stays for women who had:

- A previous cesarean section—107 percent (from 271,000 to 562,000).
- High blood pressure that complicated their pregnancy or childbirth—28 percent (185,000 to 235,000).
- Perineal trauma during childbirth—22 percent (713,000 to 868,000).
- In contrast, stays for women who had umbilical cord complications fell 15 percent (259,000 to 219,000).

These findings are based on data from page 30 in *HCUP Facts and Figures 2007* (www.hcup-continus.ahrq.gov/reports/factsandfigures/2007/TOC_2007.jsp), which provides highlights of the latest data from the 2007 Nationwide Inpatient Sample, a part of AHRQ's Healthcare Cost and Utilization Project. The report provides data on leading reasons for hospitalization, such as arthritis, asthma, childbirth, cancer, diabetes, depression, and heart conditions; procedures performed on hospital patients; and related topics. ■

Falls send more than 2 million seniors to emergency departments

Hospital emergency departments (EDs) treated more than 2 million seniors for broken bones, head wounds, cuts, and other injuries caused by falls in 2006, costing hospitals about $7 billion for emergency and subsequent inpatient care, according to the latest data from the Agency for Healthcare Research and Quality (AHRQ). Falls are the leading cause of fatal and nonfatal injuries among Americans aged 65 and older. The cost for medical treatment, which is paid mainly by Medicare, is expected to increase as the number of older Americans grows.

AHRQ's analysis of hospital ED data for the elderly treated for injuries caused by falls shows that:

- One in 10 ED visits by seniors was for injuries related to falls. ED visits related to injurious falls increased with age. Indeed, one in ten men and one in seven women over the age of 85 had an ED visit for an injurious fall.
- Of the seniors who went to the ED due to falls, 41 percent had fractures, primarily of an upper extremity or a hip. Other common injuries resulting from falls included open wounds (21 percent of visits for falls), sprains and strains (10 percent), injuries to internal organs (5 percent), and joint dislocations (1.5 percent).
- About 63 percent of the patients who had injuries to an internal organ and 51 percent of people with fractures were hospitalized.
- About 41 percent of patients with fractures and 33 percent of those who sustained internal organ injuries were transferred to a nursing home or other type of long-term care facility.

These findings are based on data in HCUP Statistical Brief #80, Emergency Department Visits for Injurious Falls Among the Elderly, 2006 (http://www.hcup-us.ahrq.gov/reports/statbriefs/sb80.pdf). The report uses statistics from the 2006 Nationwide Emergency Department Sample (http://www.hcup-us.ahrq.gov/nedsoverview.jsp), a new AHRQ database that contains 26 million records from ED visits from approximately 1,000 community hospitals nationwide. This represents 20 percent of all U.S. hospital EDs. ■

New tools help emergency planners select alternate care facilities and transfer patients during disasters

Two interactive computer tools released by the Agency for Healthcare Research and Quality (AHRQ) will help emergency planners and responders select and run alternate care facilities during disaster situations. In such instances, hospitals experiencing a surge in seriously ill patients requiring acute care may need to efficiently transfer less ill patients to alternate care sites.

Alternate care facilities are locations that can easily and quickly be equipped to augment or replace health care services when hospitals and other traditional care sites are inoperable or overwhelmed. Potential alternate care sites include college campuses, gymnasiums, schools, community centers, health clubs, convention centers, or climate-controlled warehouses.

The two tools allow users to input information on their specific medical care needs and receive feedback on which facilities can become alternate care sites or which patients can appropriately be moved to those sites.

"Disaster Alternate Care Facilities Selection Tool" is an interactive worksheet that assists users in selecting sites and identifying what they need to prepare these sites for use. It evaluates the characteristics of several potential facilities and calculates the results into weighted scores, which planners can use to select appropriate sites for care and plan for operations during a disaster.

"Disaster Alternate Care Facility Patient Selection Tool" is a decision support tool that matches a hospitalized patient's clinical needs with the capabilities of an alternate care facility. This information may help clinicians determine which patients might be eligible for discharge or transfer to an alternate care facility to increase a hospital's capacity for incoming patients.

Under contract to AHRQ, Denver Health developed these new tools for AHRQ as an update of a previous alternate care site selection tool that it developed in 2004. In addition to changes that make the tools more user-friendly, they have the capability to capture richer demographic information, a simplified system to rate facility characteristics, and a "necessity level" indicator that allows users to evaluate individual facility characteristics based on local or regional need.

AHRQ led development of the tools with funding from the Health Resources and Services Administration's Bioterrorism Hospital Preparedness Program. The Department of Health and Human Services Office of the Assistant Secretary for Preparedness and Response also provided input. The two tools are available on AHRQ's Web site at www.ahrq.gov/prep/acfselection.

AHRQ's role in Federal public health emergency preparedness efforts is to conduct research and develop evidence-based tools and resources that emergency planners and responders can implement in the field prior to and during disaster response operations. AHRQ has developed more than 60 emergency preparedness-related resources. For more details, visit: www.ahrq.gov/prep. ■

Free tool helps calculate return on investment from better asthma care

Employers are seeking solutions that can help reduce their health care costs without sacrificing the health care services provided to their employees or harming worker productivity. A new online, evidence-based tool, the Asthma Return-on-Investment Calculator developed by the Agency for Healthcare Research and Quality (AHRQ), can help employers decide whether it is cost-effective to establish an asthma care management program for employees and their families. According to AHRQ's 2008 *National Healthcare Quality Report*, the annual cost of treating asthma is nearly $20 billion, which includes nearly $15 billion in direct medical costs and another $5 billion in costs due to lost productivity.

The Asthma Return-on-Investment Calculator can be used to calculate how a group of employees would fare under an asthma care management program. For example, if 10,000 privately insured New York employees who visited the hospital emergency

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Asthma care

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department for asthma were enrolled in a care management program, ED visits could shrink by about 4,700. This reduction could save close to $1 million in hospital emergency room costs. After factoring in money saved by not admitting patients to hospitals and decreased use of asthma medications, an additional $4.2 million in savings could be realized.

To see how businesses can improve their bottom line by improving asthma care for employees, view AHRQ's free Asthma Return-on-Investment Calculator at statesnapshots.ahrq.gov/asthma. ■

Free toolkit helps researchers obtain informed consent

The Agency for Healthcare Research and Quality (AHRQ) is offering a free toolkit to help researchers obtain research participants' informed consent and authorization to use their health data in accordance with the Privacy Rule of the Health Insurance Portability and Accounting Act (HIPAA). The toolkit provides information on how to ensure that people of all health literacy levels understand what studies entail and to what they are consenting when they agree to participate.

AHRQ developed the toolkit because researchers often use long consent forms that potential study participants can find difficult to comprehend. Research also shows that a large proportion of study participants did not understand what they had consented to when they joined a study. There is also evidence that Institutional Review Boards often fail to meet their own standards for the reading level of consent and data-use forms.

The AHRQ Informed Consent and Authorization Toolkit for Minimal Risk Research, which was tested by researchers from Boston University, includes recommendations for improving the informed consent and authorization process; sample consent and HIPAA authorization documents in English and Spanish; recommendations for adapting and testing the documents; statutory requirements and exceptions; and a tool for researchers' certification of consent and authorization. It is available at www.ahrq.gov/fund/informedconsent. ■

Research Briefs

Brooks, J. M., and Fang, G. (2009). "Interpreting treatment-effect estimates with heterogeneity and choice: Simulation model results." (AHRQ grant HS016094). *Clinical Therapeutics* 31(4), pp. 902–919.

Health services researchers and clinicians are realizing that the effect of a certain treatment cannot be assumed to be the same for comparable patients receiving it, but that the treatment's effects more often are different across patients with similar diagnoses. The various treatment-effect estimators in use may essentially be identifying different concepts of treatment effect. Based on their results using simulation models, the authors suggest that health services researchers carefully define the model of treatment choice being used before they estimate treatment effect and interpret those estimates using observational data. According to the authors, this study's simulation results support published theories using models of treatment choice with heterogeneous treatment effects. Such models supply the foundation for establishing and interpreting boundaries for results, the reason for the source of instrumental variables, and the theoretical basis for the source of confounding.

Clancy, C. M. (2009, July). "Finding your way: Talking about end-of-life treatment decisions." (2009, July). *AARP Bulletin Today* (bulletin.aarp.org). Reprints (AHRQ Publication No. 09-R078) are available from AHRQ.*

The author discusses how important it is for individuals to create advance directives for health care, legal documents that allow you to convey your decisions about end-of-life care well before they are needed. Fewer than half of severely or terminally ill patients have advance directives in their medical records, according to research sponsored by the Agency for Healthcare Research and Quality. Further, there is greater need for doctors and patients to discuss these topics—as many as three-

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Research briefs

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quarters of physicians whose patients had advance directives did not know that these documents existed, and relatively few patients with advance directives had received input from their doctors in preparing the documents. The form of an advance directive will depend on the State of patient's residence, but may include a living will, a durable power of attorney (or health care proxy), and a do-not-resuscitate order, the author notes.

Clancy, C. M. (2009). "Reengineering hospital discharge: A protocol to improve patient safety, reduce costs, and boost patient satisfaction." *American Journal of Medical Quality* 24, pp. 334–346. Reprints (AHRQ Publication No. 09-R082) are available from AHRQ.*

In this commentary, the author notes that hospital discharge has been a nonstandard process in most hospitals, resulting in substantial costs from unnecessary rehospitalizations (defined as readmission within 30 days of a discharge) and visits to the emergency department (ED). One in five hospitalizations is complicated by an adverse event after discharge, and a similar proportion of Medicare beneficiaries is readmitted within 30 days without having seen a physician for followup care. To address these problems, a program called Project RED (for Reengineered Discharge) was developed by a research team at Boston Medical Center to educate patients about their care needs after discharge from the hospital. The redesigned discharge process uses specially trained registered nurses, called discharge advocates, to help patients arrange followup appointments, confirm medication routines, and understand their diagnoses. A pharmacist calls patients 2 to 4 days after discharge to reinforce the medical plan and to answer their questions. In one study, the 370 patients who participated in Project RED were one-third less likely to be readmitted to the hospital or visit the ED than the 368 patients who did not. The Project RED patients almost all left the hospital with followup appointments. Project RED also saved substantial amounts of money compared with the control group, an average lower cost of $412 per person.

Devine, E. B. (2009, March). "The art of obtaining grants." (AHRQ grant HS14739). *American Journal of Health-System Pharmacy* 66(6), pp. 580–587.

The author discusses strategies for researchers to improve their chances at success in obtaining grants, while keeping the effort put into writing the grant proposal to a minimum. The focus is on pharmacy research, although the strategies are applicable to most biomedical research. Specific examples of nongovernmental funding sources are aimed at pharmacy researchers, however. Besides sources of funding, the author discusses whether it is better to start as a coinvestigator on a grant obtained by a more experienced researcher, or to pursue a small grant as a sole principal investigator. Other sections of the article describe writing and submitting grant proposals, what to expect in the grant review process, and how to manage a grant once it has been awarded.

Effken, J. A. and Abbott, P. (2009). "Health IT-enabled care for underserved rural populations: The role of nursing." (AHRQ Contract No. 290-04-0016). *Journal of the American Medical Informatics Association* 16(4), pp. 439–445.

The authors of this white paper propose a fundamental transformation in rural health care through the application of information technology (IT). They state that since nurses provide much of the health care in rural communities, the nursing profession should assume leadership roles in using IT to transform rural care. With training, rural nurses can make use of various IT instruments as appropriate (e.g., electronic health records, telehealth and tele-home care, social networking, distributed e-learning, and personal health records) and play a critical role on IT-enabled care management teams for patients in rural communities. Changes are needed in nursing policy, education, practice, and funding if this new model of rural health care is to be achieved. Toward this end, the authors call for development of a partnership of providers, rural nurses, nursing informatics specialists, professional organizations, the health IT industry, and funding bodies.

Ford, D., Zapka, J. G., Gebregziabher, M., and others. (2009). "Investigating critically ill patients' and families' perceptions of likelihood of survival." (AHRQ grant HS10871). *Journal of Palliative Medicine* 12(1), pp. 45–52.

The authors surveyed 100 patients treated in an academic medical intensive care unit (MICU) for longer than 3 days, or their surrogates, to study the perception of the chance of survival among these critically ill patients (23 respondents) or their family members (77 respondents). Patient

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or surrogate perceptions were compared with actual survival and scores on a tool that provides clinical estimates of disease severity (Acute Physiology and Chronic Health Evaluation II). The respondents were more optimistic about the chance of survival than was supported by either actual survival or medical estimates of illness severity. In particular, blacks and those reporting that faith influenced their health decisionmaking were more optimistic when other factors were accounted for, the authors note. Only patients who had been transferred to the MICU after prior hospitalization were less optimistic than indicated by actual survival or illness severity. Clinicians should pay more attention to discussing prognosis and treatment preferences with MICU patients and their families, the authors conclude.

Frisse, M. E. (2009, March). "Health information technology: One step at a time." (AHRQ Contract No. 290-05-0006). *Health Affairs—Web Exclusive*, pp. 379–384.

The author of this commentary discusses the potential role of the American Recovery and Reinvestment Act of 2009 in developing health information technology (IT). He cautions that simply spending more on existing types of systems without improving the focus and operation of existing initiatives may not guarantee improved benefits to society or health outcomes. Despite this, the law provides potential for incremental change, a shift in incentive strategies, and funding for States to migrate toward a common technology architecture, he says. The author cautions that the health IT policy committee and other advisory groups established by this law should strongly consider a policy of restrained incrementalism.

Glance, L. G., Osler, T. M., Mukamel, D. B., and others. (2009, June). "TMPM–ICD9: A trauma mortality prediction model based on ICD-9-CM codes." (AHRQ grant HS16737). *Annals of Surgery* 249(6), pp. 1032–1038.

This paper presents an improved approach to predicting deaths from injuries by using a regression model of injury severities. For the past 20 years, the American College of Surgeons has established and maintained the National Trauma Databank (NTDB), which now includes data from 1.5 million patients from 70 percent of the Level I trauma centers in the United States. Mortality estimates have been based on expert consensus-based Abbreviated Injury Scale (AIS) coding of injury severity. To improve the quality and clinical value of the NTDB, a 2008 data standard now mandates use of ICD-9-CM codes to characterize injury diagnoses, replacing AIS for coding anatomic injuries. The authors propose the new model, the Trauma Mortality Prediction Model (TMPM)-ICD9, and compare it with two previous mortality prediction models. The TMPM-ICD9 provided better discrimination and calibration than the older ICD9-based models. Thus, the authors suggest that it should be used in risk-adjusting trauma outcomes when injuries are recorded using ICD-9-CM codes.

Holtrup, J. S., Stommel, M., Corser, W., and Holmes-Rovner, M. (2009, March). "Predictors of smoking cessation and relapse after hospitalization for acute coronary syndrome." (AHRQ grant HS10531). *Journal of Hospital Medicine* 4(3), pp. E3–E9.

Being hospitalized for a major heart condition prompts many, but not all, smokers to quit. This paper looked at the factors that predicted whether patients hospitalized with acute coronary syndrome (ACS) quit smoking and were able to remain nonsmokers during followup. The subjects, 136 patients hospitalized with ACS who smoked at the time of admission, were interviewed at baseline (1–4 weeks after hospital discharge) and at 3 and 8 months posthospitalization. The authors found that 33 percent of patients continued to smoke at baseline and at subsequent interviews. Nearly half of the patients (48 percent) had quit smoking at baseline and remained nonsmokers for at least 3 months. Nineteen percent of the patients reported quitting smoking at baseline, but had resumed smoking by the 3- or 8-month interview. Using regression modeling, the authors found that the significant predictors of successful quitting were higher income, no other smokers in the household, and being a lighter smoker. Patients with a history of depression and heavier smokers had higher rates of relapsing. Successful interventions for smoking cessation in ACS patients should include other family members and use specialized methods for heavy smokers, the authors conclude.

Hughes, R. G. and Clancy, C. M. (2009, July–September). "Complexity, bullying, and stress. Analyzing and mitigating a challenging work environment for nurses." *Journal of Nursing Care Quality* 24(3), pp. 180–183. Reprints (AHRQ Publication No. 09-R081) are available from AHRQ.*

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Every workplace has its pressures, but these are magnified in the health care environment, which is fast-paced and in which errors can lead to serious harm. Nurses are central to the successful provision of health care, even under conditions that may be chaotic, loud, and confusing, the authors note in this commentary. Specific sources of stress for nurses (and other members of the health care team) include the complexity of care, the presence of bullying, the structure of the workplace, the gap between education and reality, and the impact of the demands of the job on the nurse's personal life. Complexity is inherent in health care processes and technologies, patient needs, and in the health care organizations themselves. The hierarchical nature of many hospital units providing health care can lead to bullying by physicians or administrators, the authors note. Nurses' drive for professional autonomy at work can clash with many physicians' views of themselves as the team leader in providing care, and physician-focused decisionmaking can undercut the empowerment of nurses and other care team members. Nurses often find large discrepancies between their education (especially at the graduate level) and what is expected of them on the clinical unit. This problem and conflicts with the nurses' home life prompt many to leave patient care.

Kern, L. M., Dhopeshwarkar, R., Barron, Y., and others. (2009, July) "Measuring the effects of health information technology on quality of care: A novel set of proposed metrics for electronic quality reporting." (AHRQ grant HS17067). *The Joint Commission Journal on Quality and Patient Safety* 35(7), pp. 359–369 [online only].

This paper describes an effort to develop a set of measures for the effects of health information technology, specifically electronic health records (EHR) with health information exchange, on the quality of patient care. No such set of metrics exists at present, so the researchers examined 17 sets of measures to identify a set of metrics that could be retrieved electronically. From more than 1,000 individual quality metrics, the authors and an expert panel narrowed the group down to 18 quality measures. This group of measures dealt with the quality of care for asthma, cardiovascular disease, congestive heart failure, diabetes, medication and allergy documentation, mental health, osteoporosis, and prevention. In addition, the authors and their expert panel developed 14 new measures to address test ordering, medication management, referrals, followup after discharge, and revisits. The novel set of 32 metrics is proposed as suitable for electronic reporting to capture the potential quality effect of EHRs with health information exchange. This metric set may have broad utility as health information technology becomes increasingly common with Federal stimulus and other funds, note the researchers.

Kieckhefer, G. M., Trahms, C. M., Churchill, S. S., and Simpson, J. N. (2009) "Measuring parent-child shared management of chronic illness." (AHRQ grant HS13384). *Pediatric Nursing* 35(2) pp. 101–127.

To develop a tool nurses can use in developing family care management plans, the researchers asked 129 parents of children with one or more chronic conditions to fill out a 103-item self-report survey. Their analysis found that parent-child shared management at home of the child's chronic condition(s) progresses through stages as the child grows up. Management shifts from total parental responsibility for the very young child to parental continued involvement in supporting better physiologic control for the adolescent. Based on these results, researchers developed a tool that accurately gauges parents' desires for, knowledge of, and current actions in support of parent-child shared management—data nurses need to individualize care management plans. This tool can also be used to determine where to begin the discussion of parent-child shared management with a family.

Lin, K. W., and Slawson, D. C. (2009, July). "Identifying and using good practice guidelines." *American Family Physician* 80(1), pp. 67–69. Reprints (AHRQ Publication No. 09-R079) are available from AHRQ.*

A good, evidence-based practice guideline can be hard to find among the many guidelines issued by professional organizations, disease advocacy groups, government agencies, and insurance plans. Guidelines issued, even by professional associations, are too often based on expert opinion or consensus, rather than on conclusive evidence, note the authors of this commentary. They suggest that a good practice guideline should be based on a comprehensive and systematic search of the evidence; use a strength-of-recommendation grading system linked to the evidence; use recommendations based on patient-oriented (not disease-oriented) outcomes; be developed through a transparent

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process that reveals possible conflicts of interest, which could bias the recommendations; and acknowledge situations where clinical decisions are not clear-cut. Most importantly, the test of a good guideline is whether its adoption has been shown to improve patient-oriented outcomes in real-world settings. Finally, the authors encourage clinicians who find a good practice guideline to share it with their colleagues.

Lin, K. W. (2009, July). "[Tips from Other Journals] Simple charts compare health risks for adults." *American Family Physician* 80(1), pp. 86–90. Reprints (AHRQ Publication No. 09-R080) are available from AHRQ.*

The author reprints (with permission) and explains charts, for men and women separately, that give the risk of death from major diseases by age per 1,000 individuals. The data are categorized as death from vascular disease (heart disease, stroke), cancer (lung, colon, prostate for men; lung, breast, colon, ovarian, cervical for women), infection (pneumonia, flu, AIDS), lung disease (chronic obstructive pulmonary disease), or accidents. For each 5-year age point, the risk is listed separately for current smokers and those who never smoked. Although the charts appear to indicate a "protective" effect for smokers from colon cancer (in men older than 65 years) and breast cancer (in women 55 to 70 years old), this is actually the result of smokers dying earlier from other causes of death, the author notes.

Mark, B., Harless, D. W., and Spetz, J. (2009, February). "California minimum-nurse-staffing legislation and nurses' wages." (AHRQ grant HS10153). *Health Affairs—Web Exclusive*, pp. W326–W334.

This study used several databases to look at the impact of minimum-nurse-staffing legislation on pay for registered nurses (RNs) and licensed practical nurses, comparing pay before and after the 2004 implementation of the staffing requirements. The researchers found that the growth in real wages for RNs in metropolitan areas of California between 2000 and 2006 was up to 12 percent higher than in comparable areas in other States not implementing minimum nurse staffing. This confirmed the argument made before the legislation passed that the staffing legislation would increase the demand for nurses, and thus increase the wages of RNs. Because of the limitations of different databases (only the National Sample Survey of Registered Nurses, sponsored by the Bureau of Health Professions at the Health Resources and Services Administration, distinguished between nurses working in hospital inpatient and outpatient settings), it is hard to be sure about the true magnitude of the wage differential. In the end, policymakers will have to weigh the potential for wage increases from minimum-nurse-staffing legislation with the potential benefit to quality of care, the authors conclude.

Mayer, M., Beil, H. A., and Allmen, D. (2009). "Distance to care and relative supply among pediatric surgical subspecialties." (AHRQ grant HS13309). *Journal of Pediatric Surgery* 44, pp. 483–495.

Little is known about geographic access to pediatric surgical care. The researchers conducted the first study ever to estimate distances to care and relative supply of pediatric surgical specialists in the United States. They used data from the American Medical Association's Physician Masterfile and the Claritas Pop-Facts Database to calculate distances. For five of the seven pediatric surgical specialties studied, approximately 25 percent of the population younger than 18 years of age lives more than a 1-hour drive from a provider. Across pediatric surgical specialties, average distances to the nearest provider ranged from 27.1 miles for pediatric surgery to 100.9 miles for pediatric cardiothoracic surgery. The findings suggest that pediatric surgical specialties may face many of the distributional challenges plaguing pediatric medical subspecialties.

Meyerhoefer, C. D. and Zuvekas, S. H. (2009). "New estimates of the demand for physical and mental health treatment." *Health Economics* (Online at www.interscience.wiley.com). Reprints (AHRQ Publication No. 09-R056) are available from AHRQ.*

Consumer price responsiveness is central to health care reform proposals, but the best available estimates are more than 23 years old. The researchers, using data from the Medical Expenditures Panel Survey, estimated health care demands by calculating expected end-of-year prices and incorporating them into a zero-inflated ordered probit model applied to several overlapping panels of data from 1996 to 2001. Their findings indicate that the price responsiveness of ambulatory mental health treatment has decreased substantially and is now slightly lower than physical health treatment. In general, price responsiveness was greatest among

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the privately insured population, which represents 58 percent of the overall population. Most importantly, their estimates imply that the demand for outpatient mental health visits has become substantially less price elastic over the last 25 years. The researchers suggest that rapid advances in medical technology and the diffusion of managed care may account for some of this change.

Pitzer, V. E., Viboud, C., Simonse, L., and others. (2009, July). "Demographic variability, vaccination, and the spatiotemporal dynamics of rotavirus epidemics." ***Science*** **325, pp. 290–294. Reprints (AHRQ Publication No. 09-R084) are available from AHRQ.***

Rotavirus as a leading cause of diarrhea among children in both developed and developing countries has captured the attention of policymakers and vaccine manufacturers in recent years. Rotavirus is transmitted by fecal-oral transmission but adults are typically asymptomatic. In the United States, annual rotavirus activity has started in the Southwest in late fall and ended in the Northeast 3 months later; however, this trend has diminished in recent years. Traveling waves of infections or local environmental drivers cannot account for these patterns. A transmission model calibrated against epidemiological data shows that spatiotemporal variation in birthrate can explain the timing of rotavirus epidemics. The recent large-scale introduction of rotavirus vaccination provides a natural experiment to further test the impact of susceptible recruitment on disease dynamics. The researchers' model predicts a pattern of reduced and lagged epidemics post vaccination, closely matching the observed dynamics.

Poon, E. G., Cusack, C. M., and McGowan, J. J. (2009) September/October). "Evaluating healthcare information technology outside of academia." (AHRQ Contract No. 290-04-0016). ***Journal of the American Medical Informatics Association*** **16(5), pp. 631–636.**

The Agency for Healthcare Research and Quality's (AHRQ's) National Resource Center for Health Information Technology (NRC) was formed in 2004 as part of the AHRQ health information technology (IT) portfolio to support the implementation and evaluation efforts of AHRQ health IT grantees. One of the core functions of the NRC was to assist grantees in their evaluation efforts of health IT. The authors discuss the activities of the NRC's Value and Evaluation group in assisting evaluation efforts by grantees and in gathering lessons learned from grantees. These activities included 1-hour tutorials delivered by teleconference; development of a written evaluation toolkit, workshop curricula, and case studies; and holding of "office hours" via teleconference to answer grantee questions. This process led to a structured and quantitative evaluation of evaluation plans submitted by 15 recipients of implementation grants. From this process, the NRC was able to highlight some common challenges experienced by health IT project teams at nonacademic institutions. These problems included inappropriately scoped and resourced evaluation efforts, inappropriate choice of metrics, inadequate planning for data collection and analysis, and lack of consideration of qualitative methodologies.

Rowe, V. T., Blanton, S., and Wolf, S. L. (2009, May-June). "Long-term follow-up after constraint-induced therapy: A case report of a chronic stroke survivor." (HS37606). ***American Journal of Occupational Therapy*** **63, pp. 317–322.**

An innovative technique called "constraint-induced therapy" has shown promise for stroke survivors with mild to moderate hemiparesis. This case report describes the long-term maintenance of improvements in impairments, function, and health-related quality of life associated with this therapy in a patient with a partially paralyzed right hand and arm. The constraint involved the wearing of a mitt on the patient's left hand for 90 percent of her waking hours for 14 consecutive days. Training with a rehabilitation specialist was done for an average of 5.5 hours each weekday. Pre- and post-training assessments were conducted around the time of the training, and then 4 and 5 years after the training. Improvements were maintained in reported use and ability of the arm and hand, time to complete functional tasks, and physical aspects of health-related quality of life. The improved upper-extremity function continued over a 5-year period after the therapy, although poststroke fatigue remained an important limiting factor.

Sarkar, U., Wachter, R. M., Schroeder, S. A., and Schillinger, D. (2009, July). "Refocusing the lens: Patient safety in ambulatory chronic disease care." (AHRQ grants HS17594, and HS17261). ***The Joint Commission Journal on Quality and Patient Safety*** **35(7), pp. 377–383.**

Ambulatory visits constitute the overwhelming majority of medical care encounters. The authors

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decided to extend the Chronic Care Model by using theoretical work in patient safety to develop a model for chronic disease safety. To describe the adaptation of this well-established model to ambulatory patient safety, they discuss the community and health system, the productive interactions between health systems and patients and providers, and the effects of patient and provider behavior on chronic disease safety. To elucidate elements of the model, they present a series of case vignettes focusing on health information decentralization, transitions, inadequate health literacy, patient-physician communication, caregiving and medication misuse, and symptom recognition. The authors conclude by making the following points: ambulatory health systems need more surveillance for patient safety problems; providers and policymakers must examine the safety consequences of chronic disease treatment intensifications; and all stakeholders must attend to chronic disease disparities to improve patient safety.

Vasilevskis, E. E., Kuzniewicz, M. W., Cason, B. A., and others. (2009). "Mortality probability model III and simplified acute physiology score II." (AHRQ grant HS013919). *Chest* 136(1), pp. 89–101.

Even after adjusting for patient risk factors, intensive care unit (ICU) patients, the hospital's sickest, receive the highest level of resource-intensive care. Significant variation exists in these patients' ICU length of stay (LOS). If risk-adjusted ICU LOSs were to be calculated accurately, a better assessment of ICU performance would be facilitated. To identify the best available ICU LOS risk-adjustment model, researchers compared three mortality or LOS prediction models: (1) the recalibrated acute physiology and chronic health evaluation (APACHE) IV-LOS model; (2) the mortality probability model III at zero hours (MPM0 III); and (3) the simplified acute physiology score (SAPS) II mortality prediction model. They studied 11,295 ICU patients in 35 hospitals in the California Intensive Care Outcomes Project to compare the predictions of these 3 prediction models with actual patient outcomes. The researchers concluded that APACHE IV and MPM0 III were more accurate than SAPS II for prediction of LOS. However, if the cost burden of data collection required by APACHE IV or treatment effect bias is a consideration, the MPM0 III model may be a reasonable alternative.

Weidmer-Ocampo, B., Johansson, P., Dalpoas, D., and others. (2009, August). "Adapting CAHPS® for an American Indian population."(AHRQ grants HS09204 and HS16980). *Journal of Health Care for the Poor and Underserved* 20(3), pp. 695–712.

This paper describes the development of a Consumer Assessment of Healthcare Providers and Systems (CAHPS®) American Indian Survey instrument as a true collaborative effort between the Choctaw Nation Health Services (CNHS) and the CAHPS® program. CNHS had asked the CAHPS® program to develop a survey instrument for evaluation of Choctaw patient experiences at the tribe's different Indian Health Service (IHS) clinics in Oklahoma. The IHS had also expressed interest in the CAHPS® program developing culturally appropriate, reliable, and valid survey instruments for use in assessing the different health care experiences of different American Indian tribes. The CAHPS® program is funded and administered by the Agency for Healthcare Research and Quality working with a consortium of public and private organizations. The authors note that this CNHS request was the first opportunity for CAHPS® partners to design and test a survey instrument specifically with and for a traditionally underserved ethnic or linguistic minority population. Results showed the CAHPS® American Indian Survey developed for the Choctaw Nation to be useful for assessing Choctaw patients' perceptions of the care they received in IHS clinics. The CAHPS® program can use this survey as the basis for developing other survey instruments for the IHS to measure quality of care across various health care programs serving different tribes in different parts of the country. ■

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