Agency for Healthcare Research and Quality

RESEARCH ACTIVITIES

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Highlights

Departments

Regular Features

Nonsurgical method for diagnosing breast cancer is safe and nearly as effective as surgical biopsy

Some methods of minimally invasive biopsy for breast cancer are nearly as accurate as surgical biopsy, but have much less risk of harm, according to a new report funded by the Agency for Healthcare Research and Quality (AHRQ).

The report compares traditional surgical biopsies with various types of "core needle biopsies," which involve removing tissue through a special large hollow needle inserted through the skin. The report, initiated in 2007, will provide important information so that women and their doctors can work together to make the best possible diagnostic choice for each individual patient.

Based on reviews of published scientific evidence to gauge the effectiveness, risk, and impact of core needle biopsies on patients, the report found that certain core needle biopsies could distinguish between malignant and benign lesions approximately as accurately as open surgical biopsy, which is commonly considered the "gold standard" method of evaluating suspicious lesions. Core needle biopsies also have a much lower risk of severe complications than open surgical procedures.

The report also found that women who are initially diagnosed with breast cancer by surgical biopsy are more likely to undergo multiple surgical procedures during treatment than women who are initially diagnosed with breast cancer by core needle biopsy. The report does not recommend changes to Federal policy or to decisions regarding insurance coverage, nor does it make clinical recommendations regarding under what circumstances open surgical biopsies or core needle biopsies should be pursued. These decisions should be made by a patient in consultation with her physician.

Open surgical biopsies, which involve removing a sample of tissue from the suspicious area through a surgical incision, are highly accurate. The procedure may be performed under general anesthesia, sedation plus local anesthesia, or local anesthesia only. While generally considered safe, open surgical biopsies are surgical procedures that, like all surgeries, carry a small amount of risk. Given that only a fraction of women who undergo breast biopsy procedures are diagnosed with cancer, use of

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Breast cancer

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traditional biopsy leads to large numbers of women who do not have cancer undergoing an invasive surgical biopsy.

In contrast, a core needle biopsy is a procedure that removes breast tissue through a hollow core needle inserted through the skin. The procedure is usually performed under local anesthesia. Multiple core-needle samples may be taken from the suspicious area. Because it is less invasive, core-needle biopsy costs less than open surgical biopsy, consumes fewer resources, and generally is preferred by patients, according to the report. It also noted that recent technological improvements to core needle biopsy, including stereotactic guidance, ultrasound guidance, and vacuum assistance, have improved the method's accuracy.

The report, *Comparative Effectiveness of Core Needle and Open Surgical Biopsy for the Diagnosis of Breast Lesions*, was prepared by the ECRI Institute's Evidence-based Practice Center under contract to AHRQ's Effective Health Care Program. The program is intended to provide information in order to help patients, doctors, nurses, and others choose the most effective treatments. Information, including the new report and summary guides for clinicians and patients, can be found at www.effectivehealthcare.ahrq.gov. ■

Patient Safety and Quality

Vaccines with names that look and sound alike can lead to vaccination errors

When it comes to vaccinating children, nurses refer to the "5 rights" to ensure the right vaccine is given to the right patient in the right dose by the right route at the right time. David G. Bundy, M.D., M.P.H., and his colleagues at Johns Hopkins University used this convention to determine at what point these rights go wrong and result in vaccine errors for children. After studying 607 vaccine error reports, the researchers found that the wrong vaccines, times, and doses were at the heart of most errors, but wrong route and wrong patient errors were rare.

Vaccine names were the culprit for many of the wrong vaccine errors. For example, tetanus group vaccines, accounting for 36 percent of wrong vaccine errors, not only look alike (Td, Tdap, TDap, and DT), but they also have brand names that sound alike (Adacel® and Daptacel®).

Wrong time errors most often occurred with scheduled vaccines being given earlier or later than recommended for a child's age. The authors suggest that inadequate vaccination records may cause wrong time errors. They add that even electronic vaccination records may not be robust enough to track

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Also in this issue:

Vaccination errors

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the 30 or more vaccinations U.S. children receive by the time they are 6 years old.

Technology, namely computerized provider order entry and prescription writing, may reduce wrong dose errors, which occur when the wrong volume or concentration of a vaccine is administered. For instance, doses of palivizumab, a vaccine to prevent lower respiratory tract infections, are based on a child's weight and resulted in nearly 60 percent of wrong dose errors. This study was funded in part by the Agency for Healthcare Research and Quality (HS16774).

See "Pediatric vaccination errors: Application of the '5 rights' framework to a national error reporting database," by Dr. Bundy, Andrew D. Shore, Ph.D., Laura L. Morlock, Ph.D., and Marlene R. Miller, M.D., in the June 2009 *Vaccine* 27(29), pp. 3890-3896. ■ *KFM*

Nonphysicians can be trained to assess residents' competence in catheter insertion

Residents are increasingly being taught hand-eye coordination skills through partial task simulators of catheter insertion and other practices that are potentially hazardous to patients. However, evaluation of the transfer of simulator training to actual patients can be difficult, because of the need to avoid bias on the part of clinician-instructors and to protect patient privacy. Leigh V. Evans, M.D., of Yale University School of Medicine, and colleagues found that undergraduate students, graduate students, and nursing and medical students who went through a 2-hour training course and a 2-hour testing session, could reliably rate residents' competence in performing ultrasound-guided insertion of a central venous catheter (CVC) on patients.

The researchers recruited 49 applicants to be trained as independent raters (IRs) of CVC procedures, and 38 of these applicants (78 percent) were selected to go through the training. The trainees went through a 2-hour session to teach them what was involved in CVC insertion and potential problems. They subsequently returned for an additional 2 hours to watch 5 of 10 choreographed videotapes of CVC insertion. The researchers evaluated the IR trainees on their ability to time the procedure, to accurately complete a 50-item checklist, and to identify all technical errors or complications shown in the video. Twenty-seven of the trainees (71 percent) were hired at $12.00/hr. to evaluate the quality of residents' CVC insertions on actual patients. The hired trainees had 97 percent agreement with the standard answer on the 50 procedural checkpoints observed. The only difference between the observations of the IRs and a clinically trained research associate had to do with the number of times the resident's hand left the guidewire.

The researchers did not find an association between the educational level of the trainees (undergraduate versus some postgraduate education) and whether or not the trainee was hired. There was also no difference between medical student trainees and all other trainees on the likelihood of being hired. Use of the IRs will permit evaluation of the effectiveness of the simulation training on developing CVC skills in residents, and is likely to prove useful in evaluating other procedural skills of residents or medical students in the hospital setting, the researchers suggest. The study was funded in part by the Agency for Healthcare Research and Quality (HS16725).

More details are in "The development of an independent rater system to assess residents' competence in invasive procedures," by Dr. Evans, James L. Morse, M.D., Cara J. Hamann, M.P.H., and others in the August 2009 *Academic Medicine* 84(8), pp. 1135-1143. ■ *DIL*

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.

Blacks express more concerns about telemedicine than Hispanics

Experts have touted telemedicine as a way to compensate for physician shortages and overcrowded health care facilities in inner-city areas. A new study finds that inner-city blacks and Hispanics view the benefits of the technology similarly, but blacks tend to be more wary of telemedicine. Richard Baker, M.D., at the Charles Drew University of Medicine and Science, and colleagues showed a video of a telemedicine encounter to five focus groups with 43 black participants and five groups with 44 Hispanics in South Central Los Angeles. Both blacks and Hispanics agreed that telemedicine reduced waiting times, was convenient for children and seniors, provided instant feedback, and gave better access to specialists and multiple medical opinions. Hispanics also said that because it uses computers, the technology afforded more accurate diagnoses and helped prevent any awkwardness surrounding patients' income levels.

On the other hand, blacks were not as comfortable as Hispanics with a doctor not being physically present. Further, blacks expressed concern about their ability to check a doctor's qualifications and with the telemedicine equipment's ability to protect privacy and confidentiality. These findings indicate the need for tailoring introductions to telemedicine when it is offered to different inner-city groups, the authors suggest. This study was funded in part by the Agency for Healthcare Research and Quality (HS14022).

See "Pre-experience perceptions about telemedicine among African Americans and Latinos in South Central Los Angeles," by Sheba M. George, Ph.D., Alison Hamilton, Ph.D., and Dr. Baker in the July/August 2009 *Telemedicine and e-Health* 15(6), pp. 1-6. ■ *KFM*

Immigrant labor negatively affects natives' health insurance coverage

From 1995 to 2005, the percentage of immigrant workers in the U.S. labor force rose from 16 to 20 percent. This swell coincided with more U.S.-born males having reduced access to health insurance, a new study finds. In fact, a 10 percent increase in immigrant labor supply reduced native males' rates of insurance by about .6 percent.

This decline in natives' insurance rates is likely a result of employers opting not to offer health insurance for two reasons. Their immigrant employees do not want health insurance or they believe it is not worth the cost, according to Agency for Healthcare Research and Quality (AHRQ) researcher Yuriy Pylypchuk, Ph.D. He also suggests that when most workers desire employer-sponsored health insurance, the employer typically offers it. However, when a large portion of workers, such as immigrants, do not value the insurance benefit, the employer may forego offering it. This, in turn, has a detrimental effect on native workers who value insurance more than immigrants.

These results demonstrate that a population's preferences can adversely affect the Nation's insurance rates. Further, the question of why immigrants do not value health insurance is also worthy of additional exploration. The author used AHRQ's Medical Expenditures Panel Survey data for this study.

See "Effects of immigration on the health insurance status of natives," by Dr. Pylypchuk in the September 2009 *Journal of Health Economics* 28(5), pp. 1028-1037. Reprints (AHRQ Publication No. 10-R007) are available from AHRQ.* ■ *KFM*

Health care costs of obesity are passed off to obese workers

Obesity increases health care costs, because obese individuals are more likely to suffer from chronic conditions such as diabetes, heart disease, and high blood pressure. Those who are obese can expect to have average annual medical expenditures that are $732 higher than normal-weight individuals. What's more, obese workers with employer-sponsored health insurance pay for these higher expenditures through lower cash wages, according to a new study. Stanford University researchers analyzed data from the Bureau of Labor Statistics, National Longitudinal Survey of Youth, and the Medical Expenditure Panel Survey. Information was obtained on factors such as gender, weight, height, hourly wage, insurance status, and length of employment.

The study found that, on average, obese workers with health insurance earned $1.42 per hour less than nonobese workers with health insurance. Among uninsured workers, the wage difference was only $0.25 and not statistically significant. Women were found to suffer more than men when it came to wage penalties for being obese. Obese men earned $1.21 per hour less than their nonobese peers. However, obese women earned $1.66 less than their nonobese counterparts. Finally, obese women whose employers provided health insurance endured a $2.64 wage penalty.

The greater wage penalty for obese women may be explained, in part, by their higher health care expenditures, note the researchers. Their findings on the incidence of the obesity wage premium suggest that pooling of the obese and nonobese does not occur in the employer-sponsored insurance market. The study was supported in part by the Agency for Healthcare Research and Quality (HS11668).

See "The incidence of the healthcare costs of obesity," by Jay Bhattacharya, M.D., Ph.D., and M. Kate Bundorf, Ph.D., M.P.H., M.B.A., in the 2009 *Journal of Health Economics* 28, pp. 649-658. ■ *KFM*

Medicare reimbursement changes lessen regional disparities for home health services

From the mid-1980s to mid-1990s, Medicare's costs for providing home health services soared from $2.6 billion to $17.5 billion a year, and spending in each Medicare region varied greatly. Medicare's introduction of two payment systems in 1997 and 2000 adjusted this regional variation in home health services by clamping down on how many home health visits a beneficiary could receive and who would provide care during the visits, according to a new study by John D. FitzGerald, M.D., Ph.D., of the University of California, Los Angeles, and colleagues.

Medicare's payment systems slightly affected regional variations in how many visits patients recuperating from joint replacement surgery could receive. For instance, in March 1996 patients who underwent surgery for hip fractures in the Dallas area received 72.5 home health visits in 120 days, but patients in Seattle received only 28 visits. By September 2001, visit numbers had fallen to 37.3 in Dallas and 18.3 in Seattle. The national average also fell from 47.1 visits in 1996 to 24.3 visits in 2001.

Cost control measures had little effect on Medicare regions with the highest and lowest use of home health services, however. In 1996 the Boston, Atlanta, and San Francisco regions offered home health services at high rates for joint replacement patients while the Chicago, Seattle, and Kansas City regions were not as generous. By 2001, the rankings stayed mostly the same, except that Dallas took Kansas City's spot in the bottom ranking.

Visits from home health aides, not physical therapy or nursing services, took the biggest cuts. In fact, the number of home health aide visits fell 39 percent for patients with joint replacements and 42 percent for patients with hip replacements. The authors were uncertain if the visit reductions were accompanied by poor outcomes or if family members became burdened with home care duties. This study, which examined Medicare claims data for patients who had surgery for joint replacement or hip fractures between 1996 and 2001, was funded in part by the Agency for Healthcare Research and Quality (HS13168).

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See "Changes in regional variation of Medicare home health care utilization and service mix for patients undergoing major orthopedic procedures in response to changes in reimbursement policy," by Dr. FitzGerald, W. John Boscardin, Ph.D., and Susan L. Ettner, Ph.D., in the August 2009 *Health Services Researc*h 44(4), pp. 1232-1252. ■ *KFM*

Outcomes/Effectiveness Research

Being overweight prior to transplant surgery slows improvement in the physical functioning of liver transplant patients

Approximately 30 percent of patients receiving liver transplants are obese. While obesity has not been found to influence survival after transplantation, a new study finds that being overweight or obese prior to the transplant slows improvement in the patient's physical health-related quality of life (HRQOL) compared with patients of normal weight. This is consistent with findings of less robust HRQOL among overweight or obese patients with chronic illness.

The patients used the Medical Outcomes Study Short Form 36 Health Survey to report their HRQOL before and after receiving a liver transplant. During the first year of followup after the liver transplant, both the mental and physical HRQOL improved over time for normal weight, overweight, and obese groups. Post-transplant differences in mental HRQOL by body mass index (BMI) were not significant. However, the improvement in physical HRQOL, which is linked to everyday functioning, was significantly greater during the first year after the transplant among patients with normal BMI compared with overweight or obese patients.

With longer followup, overweight and obese patients achieved comparable HRQOL scores, note the researchers. They collected data on HRQOL from 154 adult men and women who received liver transplants at a university transplant center between 2002 and 2008. The patients were grouped as normal weight (BMI = 18.5–24.9 kg/m2), overweight (BMI = 25.0–29.9 kg/m2), or obese (BMI ≥30.0 kg/m2). A combination of dietary counseling, physical exercise, and behavior therapy may help overweight and obese patients achieve better HRQOL during the first year after a liver transplant, suggest the authors. Their study was funded in part by the Agency for Healthcare Research and Quality (HS13833).

More details are in "The negative effect of pretransplant overweight and obesity on the rate of improvement in physical quality of life after liver transplantation," by Victor Zaydfudim, M.D., M.P.H., Irene D. Feuer, Ph.D., Derek E. Moore, M.D., M.P.H., and others in the August 2009 *Surgery* 146(2), pp. 174-180. ■ *DIL*

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.

COPD drug triad associated with reduced death and hospitalization rates

Coughing, wheezing, shortness of breath, and chest tightness are common symptoms of chronic obstructive pulmonary disease (COPD), the fourth leading cause of death in the United States. Physicians often prescribe the drug tiotropium (Spiriva®) along with inhaled corticosteroids (ICS) and long-acting beta-agonists (LABA) to open up patients' narrowed breathing passages and reduce COPD symptoms. This drug trio decreases the chance of death, reduces breathing crises (exacerbations), and curbs hospitalizations, finds a new study from the Chicago-area Developing Evidence to Inform Decisions about Effectiveness (DEcIDE) Program.

After studying medical records from 42,090 patients seen in the Veterans Affairs health care system, researchers found that patients who used tiotropium along with ICS and LABA had a 40 percent reduced risk of death, a 16 percent smaller risk of exacerbations, and 22 percent fewer hospitalizations compared with patients who received only ICS and LABA. These results were not consistently seen with other drug combinations and tiotropium, however. For example, when the three drugs were used along with ipratropium, researchers noted a 36 percent increased risk of death compared with patients who received only ICS and LABA.

The authors assert that these real-life studies provide valuable information that complements the results gathered from clinical trials, which typically include more restricted study populations and do not reflect how the drugs will actually be used once they become available. Further, these comparative effectiveness studies help clinicians and patients make treatment decisions on tailored therapies. This study was funded in part by the Agency for Healthcare Research and Quality (AHRQ, Contract No. 290-05-0038). For more information on the AHRQ-sponsored DEcIDE Network, visit effectivehealthcare.ahrq.gov/index.cfm/who-is-involved-in-the-effective-health-care-program1/about-the-decide-network.

See "Outcomes associated with tiotropium use in patients with chronic obstructive pulmonary disease," by Todd A. Lee, Pharm.D., Ph.D., Caitlyn Wilke, M.S., Min Joo, M.D., M.P.H., and others in the August 10, 2009 *Archives of Internal Medicine* 169(15), pp. 1403-1410. ■ *KFM*

Demographic and health factors influence the type of prostate cancer screening received by men over age 40

Prostate cancer screening patterns changed between 2002 and 2006 for black men over age 40 versus white men in the same age range. This indicates that physicians are becoming more aware of the higher risk for prostate cancer at a younger age among black men, and are increasing their screening in this group, a new study suggests. The study, involving 229,574 men in this age group without prostate cancer provides a 4-year snapshot of the use of the prostate-specific antigen (PSA) assay and digital rectal examination (DRE) in screening for the disease.

After adjusting for other demographic and health factors, black men had higher odds of having had a recent PSA test alone or both a PSA and a DRE test than did white men (67 percent vs. 61 percent higher, respectively). Hispanic men were more likely than white men to have had a recent PSA test, but less likely to have had a recent DRE test (61 percent higher and 22 percent lower, respectively). The use of both tests combined did not differ significantly between these two populations.

Most men (who were surveyed in 2002, 2004, and 2006) reported having both a PSA and DRE test in the past 2 years for each year surveyed. Factors associated with use of both tests included older age, being married or widowed, being employed, having higher levels of education and income, having health insurance, and having a personal health care provider or a usual source of care. The data were collected through the Behavioral Risk Factor Surveillance System, established by the Centers for Disease Control and Prevention, one of the largest State-based telephone health surveys ever implemented. The researchers recommend that further research be undertaken to see whether these patterns of screening test use, especially among black men, continue to change over time. The study was funded in part by the Agency for Healthcare Research and Quality (HS13353).

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Prostate cancer screening

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More details are in "Patterns in prostate-specific antigen test use and digital rectal examinations in the Behavioral Risk Factor Surveillance System, 2002–2006," by Louie E. Ross, Ph.D., Yhenneko J. Taylor, M.S., Lisa C. Richardson, M.D., M.P.H., and others in the April 2009 *Journal of the National Medical Association* 101(4), pp. 316-324. For a more detailed analysis of the black men in the study, see "Prostate-specific antigen test use and digital rectal examinations among African-American men, 2002–2006," by Dr. Ross, Shelly-Ann Meade, M.S., Barbara D. Powe, Ph.D, R.N., and others in the July 2009 *Journal of the National Black Nurses Association* 20(1), pp. 52-58. ■ *DIL*

Patients who are treated with empathy during office visits get over colds faster

Patients who rated clinicians as having "perfect" empathy during medical visits had shorter, less severe colds and greater activation of the immune system, found a new study. The cold duration in the perfect-score group of 84 patients was 7.10 days versus 8.01 for the 264 patients who rated their clinician's empathy as less than perfect. After adjusting for potential confounding demographic and psychosocial factors, differences between the two groups in cold length and severity were significantly lower among patients who rated clinician empathy as perfect. Patients who received more empathy also produced more nasal interleukin-8 (IL-8), a cytokine that plays an immune system role in reducing inflammation.

The researchers recruited 350 patients over 12 years old who were seen at a family practice clinic or a hospital's employee health clinic. Patients were asked to call the study staff at the first sign of a cold, and were set up with physicians' appointments. Some patients received a standard physician visit, others an enhanced physician visit that emphasized physician empathy. The patients filled out a Consultation and Relational Empathy (CARE) questionnaire, with 50 being a perfect physician empathy score. None of the patients were seen by their regular physician; they were seen by a study clinician once, at the beginning of the cold. They kept twice-daily symptom logs and returned after 48 hours and again when their colds had ended. They saw nonphysician study staff at those visits.

Replication of the findings in larger populations is needed, suggest the study authors. Nevertheless, they recommend that including empathy during a medical consultation is likely to have positive effects beyond the medical visit. The study was funded in part by the Agency for Healthcare Research and Quality (T32 HS00083).

More details are in "Practitioner empathy and the duration of the common cold," by David P. Rakel, M.D., Theresa J. Hoeft, Ph.D., Bruce P. Bartrett, M.D., Ph.D., and others, in the July/August 2009 *Family Medicine* 41(7), pp. 494-501. ■ *DIL*

Chronic Disease

Many patients with coronary artery disease who could benefit from cardiac rehabilitation are not referred for this treatment

Despite the proven benefits of cardiac rehabilitation and guideline recommendations, just over half of patients treated for coronary artery disease (CAD) are referred for cardiac rehabilitation after hospital discharge, according to a new study. Researchers analyzed data on 72,817 patients treated for a heart attack who underwent arterial catheterization to unblock coronary blood flow (percutaneous coronary intervention, or PCI) or who had coronary artery bypass graft surgery (CABG). The patients were discharged from 156 hospitals participating in the American Heart Association's Get with the Guidelines Program. Only 40,974 patients (56 percent) were referred for cardiac rehabilitation upon discharge. The median referral rate by hospital was 43 percent, with some hospitals making no referrals and others referring all eligible patients.

Overall, patients who were referred for rehabilitation tended to be younger, male, or white. Also, those who

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underwent PCI were nearly twice as likely and those who underwent CABG procedures were three times as likely to be referred for cardiac rehabilitation. Those who were over 80 years old, seen for unstable angina, were on chronic dialysis, or had an implantable pacemaker were 24 percent, 37 percent, 21 percent, and 26 percent less likely, respectively, to be referred for cardiac rehabilitation.

Limitations of the study include voluntary participation by the hospitals and large amounts of missing data about referral to cardiac rehabilitation in the patient records. If anything, the researchers write, the referral rate is likely to represent a best-case scenario among U.S. hospitals. They assert that increased physician awareness about the benefits of cardiac rehabilitation and initiatives to overcome barriers to referral are critical to improve the quality of care of patients with CAD. The study was funded in part by the Agency for Healthcare Research and Quality (HS13852).

More details are in "Predictors of cardiac rehabilitation referral in coronary artery disease patients. Findings from the American Heart Association's Get With the Guidelines Program," by Todd M. Brown, M.D., M.S.P.H., Adrian F. Hernandez, M.D., M.H.S., Vera Bittner, M.D., M.S.P.H., and others in the June 2009 *Journal of the American College of Cardiology* 54(6), pp. 515-521. ■ *DIL*

Computerized tomography angiography may help determine appropriate treatment for stroke patients

Two studies from the Screening Technology and Outcomes Project in Stroke (STOPStroke) suggest that early use of computed tomography (CT) of the head with contrast (also known as CT angiography, or CTA) can help clinicians decide on the proper treatment for stroke patients with artery blockages near the affected brain region (proximal arterial occlusions). Each study used the same population of 741 stroke patients at 2 university hospitals, enrolled in STOPStroke between March 2003 and January 2006, to investigate different aspects of the usefulness of CTA in these patients. All of the patients underwent CT scans without contrast, with contrast (CTA), and followup scans to confirm the presence of an infarct region (area of dead tissue due to lack of oxygen). The study was funded in part by the Agency for Healthcare Research and Quality (HS17344).

Maas, M. B., Furie, K. L., Lev, M. H., and others. (2009, September). "National Institutes of Health Stroke Scale score is poorly predictive of proximal occlusion in acute cerebral ischemia." *Stroke* 40(9), pp. 2988-2993.

The researchers sought to determine whether they could find a threshold score at hospital admission on the National Institutes of Health Stroke Scale (NIHSS) above which CTA was most useful for determining the presence of proximal arterial occlusion in stroke patients. A number of recent treatment studies have used a NIHSS score of 10 or higher as the cutoff for inclusion. However, limiting early use of CTA to this group of patients would miss a majority (55 percent) of patients with such blockages. Based on the sample, all patients with NIHSS scores of 2 or greater would have to undergo CTA to detect 90 percent of proximal occlusions. Yet nearly a third (29 percent) of patients with NIHSS scores as low as 0 had proximal occlusions, the researchers found. In fact, it is the patients with low-to-moderate NIHSS scores and presenting with proximal blockages who are ideal candidates for further interventions, note the researchers. That is because they are more likely to have a large region of tissue at risk of losing blood flow.

Maas, M. B., Lev, M. H., Ay, H., and others. (2009, September). "Collateral vessels on CT angiography predict outcome in acute ischemic stroke." *Stroke* 40(9), pp. 3001-3005.

This paper used CTA to monitor regional blood flow in stroke patients with proximal middle cerebral artery (MCA) occlusion at 1 hour after hospital admission and at 12 to 24 hours after admission. Most of the 134 patients who had early evidence of MCA blockage were able to increase the flow in nearby arteries to follow a clinical course similar to that of 235 stroke patients without MCA blockage, the researchers found. However, a group of patients with MCA blockage, who had continued reduced blood flow in nearby regions of the brain (the sylvan fissure, leptomeningeal convexity, or both), were nearly four times as likely as patients without MCA blockage to worsen (show increases in NIHSS scores) over 12 to 24 hours. The researchers suggest that this group of patients with diminished collateral blood flow may be an ideal population for receiving blood flow-enhancing treatments. ■ *DIL*

Many unhealthy people remain happy because they adapt to their medical conditions

Medical conditions that disrupt daily life, notably debilitating pain and urinary incontinence, are linked to unhappiness. However, less disruptive conditions do not necessarily sow discontent, according to a new study. Kenneth G. Saag, M.D., M.Sc., and colleagues at the University of Alabama at Birmingham delved into the relationship between health and happiness by surveying 383 adults aged 50 and older from primary care practices in Alabama.

Surprisingly, of the patients who rated themselves as unhealthy, many still considered themselves to be happy. The authors suggest that unhealthy but happy patients may have adapted to their illnesses or may have offset unhappiness by gaining more enjoyment from family and work. However, because debilitating pain and urinary incontinence are constant reminders of unhealthiness, patients may not be able to adapt or find substitute outlets for happiness.

Understanding which conditions are associated with unhappiness may assist researchers in targeting interventions to improve patient happiness, the authors note. They also found that asking patients to subjectively assess their health, rather than using objective measures like counts of coexisting illnesses, served as a better predictor of patient happiness. The exception was conditions that disrupt daily functioning or are associated with social stigma, like incontinence. This finding may prove useful for researchers exploring what factors promote happiness, which has been proposed by some as one factor in evaluating medical outcomes.

This study was funded in part by a grant from the Agency for Healthcare Research and Quality (HS10389) to the University of Alabama at Birmingham Center for Education and Research on Therapeutics (CERT). For more information on the CERTs program, visit www.certs.hhs.gov.

See "Health and happiness among older adults: A community-based study," by Erik Angner, Ph.D., Midge N. Ray, M.S.N., M.Ed., R.N., Dr. Saag, and Jeroan J. Allison, M.D., M.S., in the May 2009 *Journal of Health Psychology* 14(4), pp. 503-512. ■ *KFM*

Medicaid drug restrictions may lead to adverse events for psychiatric patients

Patients who suffer from depression, schizophrenia, or other psychiatric ailments often need medications to manage their conditions. However, to keep Medicaid drug costs low, many States employ cost-control strategies, including preferred drug lists, prior authorization requirements, mandated use of generic drugs, medication limits, and step therapies. Yet these cost-control strategies can make getting medications problematic for patients with psychiatric conditions, causing them to experience sometimes-dangerous adverse events, finds a new study.

After surveying 857 psychiatrists in 10 States about medication access for their 1,625 Medicaid patients, researchers found that 48 percent of patients reported at least 1 problem in getting medications. A quarter of the patients stopped taking their medications because of the hurdle. For example, 34 percent of patients were not able to obtain refills or new prescriptions, because Medicaid did not cover them. For 29 percent of patients, clinicians were not able to prescribe certain drugs, such as second-generation antipsychotics or sedatives, either because Medicaid did not cover them or the patient could not afford a copayment.

Overall, 72 percent of patients with psychiatric problems who had trouble obtaining their medications ultimately experienced an adverse event compared with 49 percent of patients who did not have trouble getting their medications. Adverse events included emergency visits, psychiatric hospitalizations, suicidal behavior, homelessness, and incarcerations.

Cost-control practices varied among the 10 States, with New York, Texas, and California having the fewest medication access problems. The authors suggest that these States' policies deserve

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examination, because they do not overly constrain patient access to prescriptions with the cost-control measures that were studied. This study was funded in part by the Agency for Healthcare Research and Quality (HS16097).

See "Medicaid prescription drug policies and medication access and continuity: Findings from ten states," by Joyce C. West, Ph.D., Joshua E. Wilk, Ph.D., Dondal S. Rae, M.A., and others in the May 2009 *Psychiatric Services* 60(5), pp. 601-610. ■ *KFM*

Child/Adolescent Health

Children with cerebral palsy who undergo gait assessment before surgery are less likely to need additional surgery later

Children with cerebral palsy who have problems walking often undergo several rounds of surgery to correct their gait. If they have clinical gait analysis (GA) before their initial corrective surgery, they are less likely to need additional orthopedic surgery later, according to a new study. This reduction in future surgeries means less disruption in the children's lives in later years. GA assesses a child's multiple joints in multiple planes of motion to better identify the causes of gait problems, so that the orthopedic surgeon can intervene at multiple levels to correct them during the initial surgery.

After adjusting for differences in age and severity of functional problems between the 313 children who received GA and the 149 children who received no GA (NGA) before their initial surgery, the GA children had more distinct procedures during the initial surgery than did the NGA children (5.8 vs. 4.2). However, only 11 percent of the GA children needed additional surgery in contrast to 32 percent of the NGA children. The cost of the initial surgical session was higher for the GA children than those in the NGA group (mean of $43,006 vs. $35,215). However, the additional cost per person-year was $916 for the GA group versus $3,009 for the NGA children. This led to a nonsignificant difference in total cost per person-year ($20,448 vs. $19,535).

The researchers acquired their data by a retrospective review of all ambulatory patients with cerebral palsy who underwent orthopedic hip, leg, or foot surgery to correct their gait at the Children's Hospital of Los Angeles between 1991 and 2005. Only patients with at least a 6-month followup were included. Because the study was retrospective, it was not able to look at outcomes such as functional improvement, participation in activities, and quality of life. The study was funded in part by the Agency for Healthcare Research and Quality (HS14169).

More details are in "Effect of pre-operative gait analysis on costs and amount of surgery," by Tishya A.L. Wren, Ph.D., Michael M. Kalisvaart, M.D., Christine E. Ghatan, B.S., B.A., and others in the September 2009 *Journal of Pediatric Orthopaedics* 29(6), pp. 558-563. ■ *DIL*

Pneumonia vaccine has not increased dangerous methicillin-resistant *Staphylococcus aureus* in children

Past studies have shown that children whose noses harbor colonies of the bacteria that cause pneumonia (*Streptococcus pneumonia*) tend to have few colonies of *Staphylococcus aureus* bacteria that in some forms can be resistant to antibiotics and an increasing public health problem. The widespread pneumonia vaccination effort for children that began in 2000 has not greatly upset the bacteria balance or increased colonization with methicillin-resistant *Staphylococcus aureus* (MRSA) in children age 6 and younger, a new study finds.

That's good news, since MRSA infection is typically resistant to most antibiotics and kills 1 in 20 hospitalized patients with the infection, according to recent data from the Agency for Healthcare Research and Quality (AHRQ). In this study, Boston researcher Grace M. Lee, M.D., M.P.H., and colleagues swabbed the nostrils of 1,968 children in 16 primary care practices in Massachusetts from 2003 to 2004 and 2006 to 2007. During the study periods, colonies of pneumonia strains susceptible to the vaccine decreased from 3.4 percent to 1 percent, respectively,

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Pneumonia vaccine

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while other pneumonia strains not susceptible to the vaccine rose from 19.4 percent to 29.1 percent. At the same time, colonization with *S. aureus* remained between 14 and 15 percent, and colonization with MRSA remained stable at less than 1 percent.

Children younger than 5 and children who recently received antibiotics were less likely to host colonies of *S. aureus*, regardless of the antibiotic they took. Many antibiotics, including trimethoprim/sulfamethoxazole, tetracycline, mupirocin, vancomycin, and linezolid, were able to vanquish *S. aureus* isolates. However, erythromycin and clindamycin were not as powerful against *S. aureus* in the 2006-2007 samples. This study was funded in part by the Agency for Healthcare Research and Quality (HS13908).

See "Epidemiology and risk factors for *Staphylococcus aureus* colonization in children in the post-PCV7 era," by Dr. Lee, Susan S. Huang, M.D., M.P.H., Sheryl L. Rifas-Shiman, M.P.H., and others in the July 11, 2009 *BMC Infectious Diseases* 9, pp. 1-10. ■ *KFM*

Youth with HIV/AIDS and conduct disorder are less likely to use or adhere to antiretroviral therapy

Like their adult counterparts, adolescents with HIV/AIDS suffer from higher rates of anxiety and depression than their peers without HIV/AIDS. However, these psychiatric problems do not seem to affect their initiation of antiretroviral therapies (ART) or their adherence to their medication regimen. On the other hand, youth with HIV/AIDS and conduct disorder are less likely than those without conduct disorder to begin ART and to adhere to their drug regimen if they do begin ART, according to a new study. An association was found between ART use and number of visits to health care providers. Regardless of psychiatric status, those with more than 10 visits a year were significantly more likely to receive ART. Visit frequency was also significantly related to adherence.

Rutgers University researchers examined 1999-2000 Medicaid claims for pharmacy and medical services data from 4 States for youth 12 to 17 years old. A total of 834 adolescents were identified who received care for HIV/AIDS. Researchers compared this group with 272,157 youth who did not have HIV infection. Youth with HIV/AIDS were more likely to have Medicaid claims related to depression or anxiety compared with others, with 8.4 percent diagnosed with anxiety and 14.6 percent diagnosed with depression. A higher percentage of these youth also had claims for targeted case management compared with youth without HIV/AIDS (13.6 vs. 7 percent).

A total of 73 percent of youth with HIV/AIDS received ART during the study period. Adolescents aged 16 to 17 were only about half as likely to receive ART as those aged 12 to 13. Youth with comorbid conduct or emotional disorders were significantly less likely to receive ART. However, once ART was initiated, medication adherence did not significantly differ between adolescents living with a psychiatric condition and those who were not. The exception was adolescents with conduct disorder, who had lower medication adherence rates than others. The study was supported in part by a grant from the Agency for Healthcare Research and Quality (HS16097) to the Rutgers University Center for Research and Education on Mental Health Therapeutics, part of AHRQ's Centers for Education and Research on Therapeutics (CERTs) Program. For more information on the CERTs Program, visit www.certs.hhs.gov.

See "Psychiatric diagnosis and antiretroviral adherence among adolescent Medicaid beneficiaries diagnosed with human immunodeficiency virus/acquired immunodeficiency syndrome," by James Walkup, Ph.D., Ayse Akincigil, Ph.D., Scott Bilder, M.S., and others in the May 2009 *Journal of Nervous and Mental Disease* 197(5), pp. 354-361. ■ *KB*

Only one-third of adolescents are screened for emotional health during routine physicals

Most mental health problems begin in adolescence, with half of all lifetime mental health disorders starting by age 14. Yet only about one-third of adolescents reported discussing their emotional health during well-care visits with their primary care providers, according to a new study. This rate of screening for emotional distress is lower than screening rates for smoking, substance abuse, and sexual activity, note Elizabeth M. Ozer, Ph.D., of the University of California, San Francisco, and colleagues.

They assessed providers' rates of screening for emotional distress among a clinic-based sample and a population-based sample of adolescents aged 13 to 17. The clinic-based sample included 1,089 adolescents who had well visits to pediatric clinics of a managed care plan. The population-based sample included 899 adolescents who participated in the California Health Interview Survey (CHIS). Screening for emotional distress was based on adolescent self-report.

In both groups, significantly higher screening rates were reported by females. For example, in the population-based CHIS sample, female adolescents (37 percent) were more likely than males (26 percent) to report talking with their doctor about their emotional mood, and 36 percent of females were screened compared with 30 percent of males in the clinic sample. In the pediatric clinic group, older teens (aged 15-17) and Latinos were more likely to be screened. This pattern is consistent with growing rates of depression among Latinos.

Overall, nearly 70 percent of teens who reported depressive symptoms on the population-based survey had not had a recent discussion about their mood with their provider. Recent guidelines for general adolescent care advise providers to query about emotional functioning and depression. Yet the opportunities for such screening are not being well utilized, suggest the authors. They encourage primary care providers to use the primary care visit to screen adolescents for emotional health. This study was funded in part by the Agency for Healthcare Research and Quality (HS11095).

See "Are adolescents being screened for emotional distress in primary care?" by Dr. Ozer, Elaine G. Zahnd, Ph.D., Sally H. Adams, Ph.D., and others in the *Journal of Adolescent Health* 44, pp. 520-527, 2009. ■ *MWS*

Emergency Care

Primary care doctors often don't know that a child sought care for asthma in the emergency department

When a patient with asthma seeks care for symptoms at an emergency department (ED), the ED staff should take steps to alert the patient's primary care physician (PCP) so the PCP is aware of changes to medications and can avoid medical errors. However, a recent study finds that PCPs are not always informed that their patients visited EDs. Richard N. Shiffman, M.D., M.C.I.S., and his colleague at Yale University School of Medicine reviewed medical records of 350 children who regularly received care at community health centers (CHCs), but ended up in an ED after experiencing an asthma flareup.

Nearly 63 percent of patient records at the CHC contained faxed discharge summaries or a note from the ED provider, but the remaining 37 percent of records had no mention of the child's ED visit. Faxes were the most common way (48 percent) EDs notified PCPs that a visit occurred. However, of the 168 faxes EDs sent, 98 percent did not state how long the asthma medications were to be used, 36 percent were missing dosing information, 34 percent did not include how often the drug was to be taken, and 11 percent lacked medication instructions or names. The authors suggest that e-mail and computerized notifications may be more reliable than faxes and phone calls for alerting PCPs of a patient's ED visit.

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Asthma care

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Further, nearly two-thirds of patients did not follow up with their PCP after an ED visit for asthma. Automating notifications would remove the burden that falls on patients to arrange followup care and would transfer responsibility for initiating an office visit to the PCP, the authors suggest. This study was funded in part by the Agency for Healthcare Research and Quality (HS15420).

See "Dropping the baton during the handoff from emergency department to primary care: Pediatric asthma continuity errors," by Allen L. Hsiao, M.D., and Dr. Shiffman in the September 2009 *The Joint Commission Journal on Quality and Patient Safety* 35(9), pp. 467-474. ■ *KFM*

ICU scoring system better predicts the risk of death for trauma patients

Care providers in intensive care units (ICUs) can calculate a patient's risk of dying with the Acute Physiologic and Chronic Health Evaluation (APACHE) II, which is based on 12 clinical and biochemical parameters, the patient's age, and pre-existing illnesses. Some deem this score as invalid for trauma patients in ICUs because those patients are typically younger and healthier than other ICU patients. However, a new study finds that APACHE II is actually a better predictor of death in ICU trauma patients than two commonly used trauma scores, the injury severity score (ISS) and the Trauma and Injury Severity Score (TRISS).

Researchers studied 1,019 trauma patients' scores from APACHE II, ISS, and TRISS. APACHE II was more accurate than the other two at predicting both death and how long the patient would stay in the ICU. In fact, TRISS resulted in 144 unexpected survivors and 91 unexpected deaths. APACHE II is a better predictor, because its scores are based upon deviations from normal physiology, with the greater the deviation resulting in a higher score and worse outcomes, the authors state. Conversely, ISS is based on anatomic grading of injury severity and TRISS uses physiologic variables collected during admission,

The authors caution against using APACHE II as a "one size fits all" measure for assessing care quality in ICUs or gauging physician performance. They recommend that future benchmarking initiatives instead focus on population and sub-population scores to more accurately predict risk of death among ICU patients. This study was funded in part by the Agency for Healthcare Research and Quality (HS13833).

See "Revisiting the validity of APACHE II in the trauma ICU: Improved risk stratification in critically injured adults," by Lesly A. Dossett, M.D., M.P.H., Leigh Ann Redhage, M.D., Robert G. Sawyer, M.D., and Addison K. May, M.D., F.A.C.S., F.C.C.M., in the September 2009 *Injury* 40(9), pp. 993-998. ■ *KFM*

Trauma triage system tends to overestimate injury severity

First responders at disaster scenes have used the simple triage and rapid treatment (START) system since the 1980s to quickly sort casualties, by severity, into four categories: red, yellow, green, and black. Red represents patients who are in the most dire need of care, yellow means the patient transport to the hospital can be delayed, and green indicates the patient has only minor injuries. Black indicates the patient is dead. Christopher A. Kahn, M.D., M.P.H., and colleagues at the University of California, Irvine, found that the START system overestimated injuries of 79 victims involved in a 2002 train crash and underestimated the condition of 3 patients.

The authors examined 148 patient records at 13 hospitals and found that just 66 patients were triaged into the correct category, for an accuracy rate of 45 percent. For example, of the 22 patients triaged as red, only 2 patients truly belonged in that category. For the 68 patients triaged as yellow, only 26 met that category's standard. And, for the 58 triaged as green, 120 actually belonged in that category.

The authors found that while the system does do a good job of identifying patients with minor injuries, it does not excel at differentiating between patients who

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Trauma triage

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need immediate care and those who have significant but stable injuries. During disaster responses, this mismatch could result in a hospital system being overwhelmed by noncritical patients who use up resources needed for truly critically injured individuals. The START was effective in ensuring patients who were put in the red category got to the hospital faster than those in the yellow and green categories. This study was funded in part by the Agency for Healthcare Research and Quality (HS15768).

See "Does START triage work? An outcomes assessment after a disaster," by Dr. Kahn, Carl H. Shultz, M.D., Ken T. Miller, M.D., Ph.D., and Craig L. Anderson, Ph.D., in the September 2009 *Annals of Emergency Medicine* 54(3), pp. 424-430. ■ *KFM*

Use of bedside ultrasound by hospital emergency departments is not yet common practice in California

A survey of California hospitals found that bedside ultrasound is only in the early stages of diffusing into the daily practice of emergency medicine in the State. Those emergency departments (EDs) involved in resident training (academic EDs) were more likely to use bedside ultrasound to evaluate patients than were EDs that had no training programs (community EDs). The academic EDs with bedside ultrasound also had a higher fraction of ED physicians credentialed for the technology than community EDs (60 vs. 41 percent of physicians).

The researchers contacted all California EDs that had in-house coverage by a physician around the clock. All of the 293 EDs surveyed responded to the 2-question primary survey (did they use bedside ultrasound and did they train ED residents). Bedside ultrasound was used in some form by 34 percent of the EDs. Sixty-eight percent of the 40 academic EDs in the State used bedside ultrasound compared with 29 percent of the 253 community EDs. Overall, 92 percent of hospital EDs using bedside ultrasound had equipment solely for their own use, 5 percent of the hospitals shared the equipment with the radiology department, and 3 percent of the hospitals had other arrangements.

Focused examination with sonography for trauma (FAST) and scans of the liver, heart, aorta, and pelvis were indications for bedside ultrasound use in more than 70 percent of the EDs. Community EDs were less likely than academic EDs to use bedside ultrasound for aortic or renal indications, or for basic or advanced procedures. The proportion of hospitals with full-time bedside ultrasound devices did not differ between academic and community EDs. However, only a third of all EDs using bedside ultrasound had a quality assurance program in place for monitoring the accuracy of interpretation by emergency physicians. The study was funded in part by the Agency for Healthcare Research and Quality (HS15569).

More details are in "A survey of bedside ultrasound use by emergency physicians in California," by John C. Stein, M.D., Gerin River, B.A., Irina Kalika, M.D., and others in the June 2009 *Journal of Ultrasound in Medicine* 28, pp. 757-763. ■ *DIL*

End-of-Life Care

Doctors typically agree with surrogates' decisions on care

When medical conditions render hospitalized patients unable to make decisions about their care, responsibility typically falls on family members or friends to act as surrogates in deciding what care should be provided. A new study finds that, for the most part, physicians agree with the care decisions that surrogates make. Of the 281 physicians interviewed in the Chicago area, nearly three quarters (73 percent) made major medical decisions with surrogates in the previous month. Common joint decisions addressed palliative or hospice care, changes in code status, or life support withdrawal.

Nearly 80 percent of the physicians thought communication with the surrogate was effective, and 82 percent were satisfied with the outcome. Agreement between the physician and surrogate most likely occurred when the patients were in the intensive care

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Surrogates

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unit or were older. Just 5 percent of physicians reported having conflicts with a surrogate.

Although 90 percent of patients had surrogates, physicians reported difficulty locating surrogates in 21 percent of cases. Further, physicians reported that only 10 percent of patients had living wills. The authors suggest that physicians should communicate with patients while they are lucid so they can assist surrogates later with making decisions.

Surprisingly, only 1 in 5 physicians had a previous relationship with the patient. This gap may be due in part to the emergence of hospitalist physicians or the team approach many academic medical centers take toward patient care, the authors suggest. Almost a quarter of the physicians said making decisions with surrogates caused them a great deal of stress. This suggests that negotiating decisions with surrogates may be an underappreciated cause of stress for physicians. The study was funded in part by the Agency for Healthcare Research and Quality (HS15699).

See "Physicians' experience with surrogate decision making for hospitalized adults," by Alexia M. Torke, M.D., M.S., Mark Siegler, M.D., Anna Abalos, M.D., and others in the September 2009 *Journal of General Internal Medicine* 24(9), pp. 1023-1028. ■ *KFM*

Rural Health

Rural residents depend on physician offices for their osteoporosis testing

Patients suspected of having osteoporosis typically are measured for bone mass with central dual-energy X-ray absorptiometry (DXA). However, fewer than one-third of older women and 5 percent of older men get this testing. Making it more available is important. However, cuts in reimbursing DXA provided in physician offices or outpatient settings may reduce availability, particularly for rural residents, caution the authors of a new study. They found that travel distance was strongly associated with DXA testing and that rural residents heavily depended on having such testing available in physician offices.

The researchers identified claims submitted to Medicare for bone mass measurement during the period between 1999 and 2006. Information was obtained on the locations of facilities providing DXA testing and the patients receiving such testing. Travel distance was determined from the Medicare patient's residence to the nearest DXA provider.

During 2006, 2.9 million DXAs were performed, a 103 percent increase since 1999. From 2005 to 2006, 8 percent of individuals were tested at nonfacility sites, such as physician offices, compared with 4.2 percent of persons tested at facility sites, such as hospitals. The more miles required to travel to get tested, the lower the likelihood of actually receiving DXA testing. This was true even after the researchers controlled for such factors as patient age, sex, and other health conditions. Nonfacility DXA providers performed about two-thirds of DXA testing during the 8 years of the study. Based on travel distance, rural residents would have reduced access to testing if nonfacility providers were to stop performing the procedure. The study was supported in part by the Agency for Healthcare Research and Quality (HS16956).

See "The geographic availability and associated utilization of dual-energy X-ray absorptiomety (DXA) testing among older persons in the United States," by Jeffrey R. Curtis, M.D., Ph.D., Andrew Laster, M.D., David J. Becker, Ph.D., and others in the 2009 *Osteoporosis International* 20, pp. 1553-1561. ■ *KB*

Emergency departments treat 3.5 million crash victims a year

About 3.5 million motor vehicle crash victims were treated in emergency departments (EDs) in 2006 for injuries ranging from scrapes and bruises to life-threatening trauma, according to the latest data from the Agency for Healthcare Research and Quality (AHRQ). Roughly 85 percent, or 3 million, of the crash victims were treated and released, while another 321,000 were admitted to the hospital or transferred to another acute care hospital for inpatient care. About 8,000 victims died in the ED.

AHRQ's analysis of motor vehicle accident victims treated in hospital EDs in 2006 also found that:

- Thirty-seven percent of crash victims were treated in hospital trauma centers that were equipped to provide comprehensive emergency medical care to people who suffer life-threatening injuries. The remaining patients were treated in hospitals not designated as trauma centers.
- About 25 percent of the victims were uninsured; 55 percent had private health insurance; 10 percent were covered under Medicaid; 4 percent, under Medicare; and the remaining 7 percent had other types of coverage.
- Sprains accounted for 44 percent of the injuries treated; superficial injuries such as scrapes accounted for 35 percent; open wounds, 10 percent; and head injuries accounted for 5 percent of the motor vehicle injuries seen in the ED. Other types of injuries included fractures (about 15 percent) and internal injuries of the thorax, abdomen, and pelvis (3 percent).

These data come from the report, *Emergency Department Visits Associated with Motor Vehicle Accidents, 2006*. The report uses statistics from the 2007 Nationwide Inpatient Sample, a database of nationally representative hospital 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. You can view the full report at www.hcup-us.ahrq.gov/reports/statbriefs/sb84.pdf. ■

One in 13 U.S. adults report access to specialists to be a "big problem"

Among the 36 percent of U.S. adults aged 18 and older who needed to see a specialist in 2007, about 8 percent reported that getting to see one was a big problem, according to a national survey from the Agency for Healthcare Research and Quality (AHRQ). While the survey did not ask respondents why this was a big problem, research shows that reasons for difficulty accessing specialty care can include lack of health insurance, specialist non-participation in patients' health insurance plans, difficulty contacting specialists, lengthy wait times to get an appointment, and specialist location.

AHRQ's study also found that among those with a reported need for specialist care in 2007:

- The proportion of adults who reported difficulty getting specialty care was substantially higher for people who didn't have a usual source of care (e.g., family physician) than for people who did (16 vs. 6 percent).
- Non-elderly adults without insurance were much more likely to report difficulty seeing a specialist (26.5 percent) than non-elderly adults with public coverage (16 percent) or private insurance (6 percent).
- Elderly people with Medicare and supplemental public insurance were much more likely to report access was a big problem (11 percent) than those with Medicare only (5 percent) or with Medicare and supplemental private coverage (2.5 percent).

The data were taken from the Medical Expenditure Panel Survey (MEPS), a detailed source of information on the health services used by Americans, the frequency with which they are used, their cost, and how they are paid. For more information, see MEPS Statistical Brief #274, *Perceived Need and Access to Specialty Care among Adults in the U.S. Civilian Non-Institutionalized Population, 2007* at www.meps.ahrq.gov/mepsweb/data_files/publications/st274/stat274.pdf. ■

AHRQ releases new health literacy tool

AHRQ recently released the Consumer Assessment of Healthcare Providers and Systems™ (CAHPS) Item Set for Addressing Health Literacy in English and Spanish. The primary purpose of the CAHPS Item Set for Addressing Health Literacy is to measure, from the patients' perspective, how well health care professionals communicate with their patients. Only 12 percent of U.S. adults have proficient health literacy. Over a third of U.S. adults—77 million people—could have difficulty with common health tasks, such as following directions on a prescription drug label or adhering to a childhood immunization schedule using a standard chart. The Item Set for Addressing Health Literacy offers:

- The ability to identify specific topic areas for quality improvement (e.g., communication about test results, medications, and forms)
- A measure of health care professionals' health literacy practices
- The ability to recognize behavior that inhibits effective communication (e.g., talking too fast)
- Assistance in designing a safer, shame-free environment where patients feel comfortable discussing their health concerns (e.g., by showing interest in their questions)

The CAHPS Item Set for Addressing Health Literacy consists of 29 supplemental items designed for use with the CAHPS Clinician and Group Survey. The items address six areas: communication with doctors, communication about health problems and concerns, communication about medications, communication about tests, communication about forms, and communication about disease self-management. You can view the health literacy tool at www.cahps.ahrq.gov/content/products/HL/PROD_HL_Intro.asp?p=1021&s=215. ■

Research Briefs

Baron, S., McPhaul, K., Phillips, S., and others. (2009). "Protecting home health care workers: A challenge to pandemic influenza preparedness planning." ***American Journal of Public Health*** **99 (Supp 2), pp. S301-S307. Reprints (AHRQ Publication No. 10-R015) are available from AHRQ.***

The home health care sector is a critical element in the response to a pandemic influenza emergency. The authors summarize findings from a national stakeholder meeting that highlighted the need to integrate home health care employers, workers, community advocates, and labor unions into the preparedness planning process. The meeting discussed the following topics: the home health care workforce; in-home care provider models; home health care workers in a pandemic; ability and willingness to respond; communication and training; prevention and protection; and economic, legal, and ethical issues. The stakeholders recommended that: (1) Federal, State, and local pandemic preparedness planners should consider approaches to help home health care workers maintain their ability to work during a pandemic; (2) all home health workers should receive high priority for vaccinations and treatments related to protecting their health; and (3) communication strategies should emphasize maintaining a constant state of preparedness during the regular influenza season.

Berner, E. S. (2009). "Diagnostic error in medicine: Introduction." (AHRQ grant HS17406). ***Advances in Health Science Education*** **14, pp. 1-5.**

The author summarizes a journal supplement containing reports from a conference on diagnostic errors in medicine. The May 2008 meeting, cosponsored by the Agency for Healthcare Research and Quality and the American Medical Informatics Association, included experts representing four research areas: medical problem solving, normative decisionmaking, clinical diagnostic decision support research, and patient safety research. It was the first national effort to bring researchers from the disparate research areas together to address this important issue. The following subjects were discussed: the challenge of diagnostic errors, perspectives on clinical decisionmaking, the settings and sources of diagnostic errors,

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educational approaches to reducing diagnostic errors, and reducing diagnostic errors with clinical decision support. The final part of the supplement discusses what is known from previous research and the questions that remain unanswered.

Clancy, C. M. (2009, June). "Reducing central line-related bloodstream infections." *AORN* 89(6), pp. 1123-1125. Reprints (AHRQ Publication No. 10-R009) are available from AHRQ.*

Catheter-related bloodstream infections are common and, too often, deadly. They are also preventable. In the intensive care unit (ICU), providers traditionally viewed the baseline rate of occurrence of such infections—about five per 1,000 catheter days—as the price of inserting central lines. This mindset, thankfully, is changing, according to the author, Director of the Agency for Healthcare Research and Quality (AHRQ). The solution is a simple, low-cost checklist of five basic steps, all of which are backed by scientific evidence. Researchers from Johns Hopkins University introduced five interventions to assist clinicians in complying with the guidelines summarized in the checklist. Over a 5-year period, the Johns Hopkins surgical ICU was able to reduce the infection rate from 11.3 per 1,000 catheter days to zero. Under a new $3 million grant from AHRQ, the Johns Hopkins researchers are taking their comprehensive unit-based safety program to hospitals in 10 States.

Clancy, C. M. (2009). "Healthcare quality and disparities. Attacking problems at their root." *Journal of Nursing Care Quality* 24(4), pp. 269-272. Reprints (AHRQ Publication No. 10-R012) are available from AHRQ.*

U.S. health care quality continues to lag. *The National Healthcare Quality Report* and its companion, *The National Healthcare Disparities Report*, recently published by the Agency for Healthcare Research and Quality (AHRQ), document that health care quality remains suboptimal and continues to improve at a slow pace, while disparities persist in quality and access. The author, the Director of AHRQ, notes that the reports indicate that the U.S. health care system has many opportunities for improvement. Although there is progress in select areas, the system is not achieving the more substantial strides needed to close the "quality chasm" that exists. The system achieves higher performance on measures related to acute treatment, such as that for heart attacks, as opposed to prevention and anticipatory treatment of chronic illnesses, such as cancer screening and diabetes management. Some of the reasons why quality lags and disparities persist have to do with rising costs, diminished access, and primitive use of information technology. Significant investments in quality improvement are being made through the American Reinvestment and Recovery Act of 2009.

DeVoe, J. E. (2009, March). "Educaid: What if the US systems of education and health care were more alike?" (AHRQ grant HS16181). *Family Medicine* 41(9), pp. 652-655.

In order to highlight the failings of the U.S. health care system, the author develops a scenario around a future system of education transformed to include many of the features of today's health care system. A central premise of the scenario is a State insurance program for low-income children called "Educaid." The scenario includes events such as: a child becoming eligible for Educaid (and thus admission to a school) only when his father loses his job; delays of many weeks until the Educaid card arrives in the mail; and many teachers refusing to accept students with Educaid coverage. These events are interlaced with actual quotes from parents. These quotes were originally about the experiences of families in the current health care system and have been slightly altered to apply to the hypothetical education examples (e.g., "clinic" has been changed to "school" and "doctor" to "teacher"). In closing, the author suggests consideration of a primary health care system analogous to the public education "ideal" with safe clinics for every neighborhood, community involvement, regional planning, and adequate funding.

Griffin, M. R., Braun, M., and Bart, K. J. (2009). "What should an ideal vaccine postlicensure safety system be?" *American Journal of Public Health* 99 suppl. 2, pp. S345-S350.

Preventing infectious diseases through immunization programs depends on ensuring the safety of vaccines and effectively communicating their benefits and risks. In 2007, the National Vaccine Program, along with the Centers for Disease Control and Prevention, the Food and Drug Administration, the National Institutes of Health, and the Health Resources and Services Administration, sponsored a public conference on "Vaccine Safety Evaluation: Post Marketing Surveillance." The conference's objective was to discuss enhanced

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approaches to postlicensure evaluation of vaccine safety, including active and passive surveillance systems and special studies. The participants reviewed the evolution of vaccine safety assessments, detailed current national approaches to postmarketing safety, and offered new approaches to evaluating vaccine safety. The authors summarize the major meeting presentations and discussions.

He, Y., and Zaslavsky, A. M. (2009, September). "Combining information from cancer registry and medical records data to improve analyses of adjuvant cancer therapies." (AHRQ grant HS09869). *Biometrics* 65, pp. 646-952.

Cancer registry records contain valuable data on provision of adjuvant therapies for cancer patients. Previous studies, however, have shown that these therapies are underreported in registry systems. Therefore, direct use of the registry data may lead to invalid analysis results. The authors first impute correct treatment status, borrowing information from an additional source such as medical records data collected in a validation sample, and then analyze the imputed data. They extend their models to multiple therapies using multivariate probit models with random effects. Their model takes into account the associations among different therapies in both administration and probability of reporting, as well as the multilevel structure (patients clustered within hospitals) of registry data. They use Gibbs sampling to estimate model parameters and impute treatment status. They apply their proposed methodology to the data from the Quality of Cancer Care Project, in which stage II or III colorectal cancer patients were eligible to receive adjuvant chemotherapy and radiation therapy.

Kelz, R. R., Tran, T. T., Hosokawa, P., and others. (2009, October). "Time-of-day effects on surgical outcomes in the private sector: A retrospective cohort study." (AHRQ grant HS11913). *Journal of the American College of Surgeons* 209(4), pp. 434-445.

It is known that aspects of timing can affect health care outcomes. To inform decisionmaking and resource allocation for surgical procedures, the researchers examined surgical patients' outcomes in the American College of Surgeons Private Sector Study (PSS), according to start, duration, and end times of their surgical procedures during the course of the day. The PSS data set contained records for 56,920 patients who underwent general or vascular surgical procedures at one of 14 academic medical centers. The researchers found that nonemergency cases performed overnight (after 5:30 PM) faced an elevated risk of mortality, and emergency cases (7,370 of the 56,920 cases) performed overnight faced an elevated risk of morbidity. Risk adjustment was made for patient and procedure characteristics. The following factors may contribute to these differences in outcomes: human performance factors such as fatigue, system performance factors such as resource availability, and unidentified biological patient effects.

Lau, D. T. and Kirby, J. B. (2009, October). "Living arrangement and colorectal cancer screening: Updated USPSTF Guidelines." *American Journal of Public Health* 99(10), pp. 1733-1734.

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In a recent article, the researchers examined the relationship between living arrangement and preventive care use among community-dwelling persons aged 65 years and older in the United States by analyzing the 2002-2005 Medical Expenditure Panel Survey. Of the six preventive services examined, they defined adherence to recommended colorectal cancer screening (either fecal occult blood test within the past year or sigmoidoscopy within the past 5 years) according to the 2002 United States Preventive Services Task Force (USPSTF) guidelines. After the USPSTF revised its guidelines in 2008 to offer separate recommendations for those older than 85 and those between 76 and 85 years, the researchers performed additional analyses on the subgroup of those between 65 and 75 years. They found that elderly persons who lived with a spouse were just as likely to get colorectal cancer screening as those living alone. However, elderly persons who lived with an adult offspring, regardless of the presence of a spouse, were significantly less likely to get screening than either those who lived with a spouse or those who lived alone.

Lautenbach, E. (2009). "Antimicrobial resistance in gram-negative pathogens: Crafting the tools necessary to navigate the long ascent out of the abyss." (AHRQ grant HS10399). *The Journal of Infectious Diseases* 200, pp. 838-840.

The unrelenting increase in the prevalence of antimicrobial resistance is of great concern. The

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importance of gram-negative organisms as causes of health care-acquired infections may be resurgent. These resistant organisms include multidrug-resistant (MDR) *Pseudomonas aeruginosa*, among others. The author reviews a new study in the same issue of this journal that characterizes the importance of person-to-person spread in the emergence of imipenem-resistant *P. aeruginosa*. The author places this study, the largest of its kind, in the context of other studies in this area. Since this study and others employ different definitions of person-to-person transmission, he argues the need for a common definition. The author also finds that a clear message of this study is how complex the emergence of drug resistance is and how little we really understand it at this time.

Meltzer, D. O., Basu, A., and Meltzer, H. Y. (2009, July). "Comparative effectiveness research for antipsychotic medications: How much is enough?" (AHRQ grant HS16967). July 21, 2009 *Health Affairs Web Exclusive*, pp. w794-w808.

Second-generation antipsychotic drugs differ from first-generation antipsychotic drugs in having a diminished risk of symptoms such as extreme restlessness and involuntary movements. However, they have other side effects and are much more costly. A study by the National Institute of Mental Health (NIMH) comparing the effectiveness of perphenazine, a first-generation antipsychotic, and all second-generation antipsychotics found that perphenazine could not be rejected as an inferior treatment. However, the design of the NIMH study has been criticized for its use of time to drug discontinuation as the primary outcome. Using data from the literature on schizophrenia prevalence and mortality and data from the NIMH study on the effects of treatments on quality of life, the authors of this study estimated that the NIMH finding that initial assignment to typical antipsychotics is cost-effective had a 55 percent chance of being wrong. The authors conclude that future research on this class of medications is likely to be of immense value to people with schizophrenia today and those who will develop it over the next 20 years.

Ngo, V. K., Asarnow, J. R., Lange, J., and others. (2009). "Outcomes for youths from racial-ethnic minority groups in a quality improvement intervention for depression treatment." *Psychiatric Services* 60(10), pp. 1357-1364.

Evidence-based mental health interventions have been found effective for youths from ethnic minorities. However, they are less likely to receive high-quality mental health services. The researchers studied the impact of a quality improvement intervention designed to improve access to evidence-based depression care for minority youths. The quality improvement program featured cognitive behavioral therapy and care management services. Of the 418 initially enrolled youths, 344 completed the 6-month followup assessment. To diagnose depression, the researchers used the Composite International Diagnostic Interview; for the 6-month followup, they used the Center for Epidemiological Studies Depression Scale. Results showed a significant reduction in depression symptoms among blacks in the intervention group. Among Latinos in the intervention group, the only significant improvement was in care satisfaction. No intervention effects were found for whites.

Plantinga, L. C., Fink, N. E., Coresh, J., and others. (2009). "Peripheral vascular disease-related procedures in dialysis patients: Predictors and prognosis." (AHRQ grant HS 08365). *Clinical Journal of the American Society of Nephrology* 4, pp. 1637-1645.

Peripheral vascular disease (PVD) is common among dialysis patients, many of whom receive PVD-related procedures such as nontraumatic amputation and revascularization. The authors of this study examined the risk factors for and prognosis after such procedures were performed in dialysis patients with and without diabetes. For those patients without diabetes, only a history of PVD and increased fibrinogen were associated with PVD-related procedures. For those patients with diabetes, increased serum phosphate along with decreased albumin, increased C-reactive protein and fibrinogen, and lower systolic blood pressure were associated with the risk of PVD-related procedures. Patients who had PVD-related procedures after the start of dialysis had more cardiovascular events, hospitalizations related to infection, PVD-related mortality, and all-cause mortality than those who did not have these procedures. For example, 68 percent of those who had a PVD-related procedure experienced a cardiovascular event versus 30 percent for those who did not.

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Rassen, J. A., Brookhart, M. A., Glynn, R. J., and others (2009). "Instrumental variables I: Instrumental variables exploit natural variations in nonexperimental data to estimate causal relationships." (AHRQ grant HS10881). *Journal of Clinical Epidemiology* 62, pp. 1226-1232.

In many cases where randomized controlled trials are impractical or unethical, instrumental variable (IV) analysis offers a nonexperimental alternative based on many of the same principles. The authors introduce the use of IV analysis as a supplement to standard epidemiologic methods. They outline the analytical method and the assumptions required for IV analysis and offer several examples to illustrate the strengths and potential pitfalls of the IV approach. Topics discussed include: interventional and IV approaches; the three basic assumptions of IV analysis; compliance and the effect on the marginal subject; treatment-effect heterogeneity; IV variables in epidemiology; and making use of natural variation in treatment choice. The authors believe that with proper design and due caution, IV analysis is a sensible addition to the toolbox of clinical epidemiology.

Rassen, J. A., Brookhart, M. A., Glynn, R. J., and others (2009). "Instrumental Variables II: Instrumental variable application—in 25 variations, the physician prescribing preference generally was strong and reduced covariate imbalance." (AHRQ grant HS10881). *Journal of Clinical Epidemiology* 62, pp. 1233-1241.

Instrumental variable (IV) analysis joins other techniques that attempt to mitigate the bias introduced by measured and unmeasured confounding present in nonexperimental data. To provide reliably consistent estimates of effects, IVs should be both valid and reasonably strong. Physician prescribing preference (PPP) is an IV that uses variation in doctors' prescribing to predict drug treatment. As reduction in covariate imbalance may suggest increased IV validity, the researchers examined the covariate balance and instrument strength of 25 formulations of the PPP IV in two cohort studies. The PPP IV was applied to assess antipsychotic medication use and subsequent death among two cohorts of elderly patients. The researchers varied the measurement of PPP, performed cohort restriction and stratification, and modeled risk differences with two-stage least square regression. They concluded that most of the 25 formulations of the PPP IV were strong IVs and resulted in a strong reduction of imbalance in many variations.

Seow, H., Snyder, C. F., Mularski, R. A., and others. (2009, December). "A framework for assessing quality indicators for cancer care at the end of life." (AHRQ Contract No. 290-05-0034). *Journal of Pain and Symptom Management* 38(6), pp. 903-912.

The lack of readily available data on quality of care for patients with advanced cancer has been a major barrier to improving palliative and end-of-life care. Measuring and improving the quality of cancer end-of-life care requires indicators that are reflective of the domains of quality cancer care, feasible to implement, and supported by experts and research evidence. A framework conceptualizing quality end-of-life cancer care and informing the development and evaluation of quality indicators could advance the field of cancer quality measurement and improvement, note these authors. To develop this framework, they built on previous initiatives, updated reviews of existing indicators and data sources, and obtained input from experts through a national symposium. The framework presents the population of focus, 10 broad quality domains, 4 steps in the care process, and evaluation criteria for quality indicators.

Seow, H., Snyder, C. F., Shugarman, L. R., and others. (2009, September). "Developing quality indicators for cancer end-of-life care." (AHRQ Contract No. 290-05-0034). *Cancer* 115(17), pp. 3820-3829.

Quality indicators applicable to cancer end-of-life care exist, but have not been widely implemented. In-depth discussions based on a conceptual framework and specific domains may help to identify cross-cutting issues and future priorities for the field, note these authors. They worked with the Agency for Healthcare Research and Quality, the National Cancer Institute, experts in the field, and other stakeholders to organize a national symposium on this topic. They report that the symposium discussed eight domains from which cross-cutting themes emerged (pain; dyspnea; communication, care planning and decisionmaking; psychosocial issues; communication about chemotherapy; depression; continuity, coordination, and care transitions; and spirituality and closure) along with each domain's priority issues and potential solutions. Symposium participants

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concluded that only by developing better quality indicators and improving their use can it be determined where providers most need to improve.

Spetz, J., and Keane, D. (2009, September). "Information technology implementation in a rural hospital: A cautionary tale." (AHRQ grant HS10960). *Journal of Healthcare Management* 54, pp. 337-348.

A growing number of hospitals are implementing electronic medical records and other information technology (IT) systems, and national policy is focused on fostering expansion of these systems. The researchers evaluated what happened when a 100-bed acute care hospital implemented an integrated hospital IT system with electronic medical records and computerized physician order entry. The goals were to improve overall patient safety, decrease medication errors, and offer physicians remote access to data. However, the introduction of the Patient Care Documentation System was followed by increased rates of medication errors, patient care incidents, and procedure errors. Problems occurring during the implementation period included changes in nurse leadership, inadequate staff preparation, computer malfunctions, an overly aggressive schedule, and a vendor whose products were not ready in time. The researchers concluded that the hospital suffered a number of setbacks during the implementation that could provide lessons to other hospitals and may explain the substantial boost in adverse patient events at the hospital.

Tsai, C., Clark, S, Sullivan, A. F., and Camargo, C. A. (2009). "Development and validation of a risk-adjustment tool in acute asthma." (AHRQ grant HS13099). *HSR: Health Services Research* 44(5), pp. 1701-1717.

Risk adjustment is an important method in health services research, particularly when profiling provider performance and adjusting capitation-based payment. However, risk-adjustment tools for acute respiratory disorders, such as acute asthma, are very limited. The researchers developed and prospectively validated risk-adjustment tools for acute asthma using data from two large multicenter studies. They chose hospital admission as a potentially important outcome measure and profiled admission practices across more than 60 emergency departments (EDs). A model was constructed from the derivation cohort (3,515 patients with acute asthma) comprised of 9 variables that included demographics, chronic asthma-related factors, acuity at ED presentation, and initial ED treatments. When the derivation model was applied to the validation cohort (3,986 patients), in all deciles of admission probability the predicted probabilities of admission were fairly consistent with actual risks of admission. The researchers concluded that this tool could be used for profiling admission practices across hospitals.

Whelan, C. T., Kaboli, P., Zhang Q., and others. (2009). "Upper gastrointestinal hemorrhage: Have new therapies made a difference? (AHRQ grant HS10597). *Journal of Hospital Medicine* 4(7), pp. E6-E10.

Upper gastrointestinal hemorrhage (UGH) is a common cause of acute admission to the hospital. In contrast to previous studies, this study examined the distribution of etiologies and risk factors of UGH in the era of widespread use of effective preventive therapy for erosive disease (ED) and peptic ulcer disease (PUD). Of the 227 patients with UGH, 44 percent had ED, 33 percent had PUD, and 17 percent had variceal bleeds. The most common risk factors for UGH among the patients were the use of aspirin (25 percent), nonsteroidal anti-inflammatory drugs, and COX-2 inhibitors (5 percent). Also, prior history of UGH (43 percent) was a major risk factor. ED was more common among patients from academic medical center 1 (59 percent) than academic medical center 2 (19 percent), while variceal bleeding was more common among patients from center 2 (34 percent) than center 1 (6.5 percent). ■

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