



RESEARCH ACTIVITIES

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AHRQ announces guide to help patients on Coumadin®/warfarin therapy

The Agency for Healthcare Research and Quality (AHRQ) has released a new consumer publication, *Your Guide to Coumadin®/Warfarin Therapy*. This 20-page, easy-to-read patient brochure explains what patients should expect and watch out for while undergoing Coumadin®/warfarin therapy.

In 2005, more than 3.8 million Americans were taking Coumadin®/warfarin, at an estimated cost of nearly \$963 million, according to the latest data from AHRQ. Warfarin is a blood thinner that is used to help prevent blood clots that can cause a stroke, heart attack, or other serious conditions. Clinicians sometimes prescribe it for other uses as well, and the booklet is intended to help patients who have been prescribed the drug use it as safely as possible. Warfarin is the second most common drug after insulin implicated in emergency room visits for adverse drug events, according to the Food and Drug Administration.

A simple blood test can quickly tell whether a patient is taking too much or too little warfarin. This brochure educates patients about

their medication therapy and potentially dangerous side effects, explains how to communicate effectively with their health care providers, and provides tips for lifestyle modifications. It also provides information on remembering when to take the medicine, learning how to stay safe while taking the medicine, maintaining a consistent diet, and alerting health care providers to concurrent drugs and/or supplements patients are taking to avoid any potential adverse interactions.

This publication was developed through one of AHRQ's Partnership for Implementing Patient Safety (PIPS) grant projects at Kirkwood Community College. The project was led by James Levett, M.D., chief medical officer at the Physicians Clinic of Iowa and Carla Huber, A.R.N.P., M.S., of the Cedar Rapids Healthcare Alliance. The purpose of PIPS grants is to assist consumers, clinicians, and health care institutions in implementing safe practices that may eliminate or reduce medical errors, risks, hazards, and harms associated with health care processes.

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Coumadin®/warfarin therapy

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The new booklet can be found online at www.ahrq.gov/consumer/

coumadin.htm. It is also featured on the SOS Rx Coalition's Web site, www.mybloodthinner.org. Free single copies of *Your Guide to Coumadin®/Warfarin Therapy*

(AHRQ Publication No. 08-0028-A) are available from AHRQ.* ■

Patient Safety and Quality

Doctors are willing to report and learn from medical mistakes, but find error-reporting systems inadequate

U.S. doctors are willing to report medical errors and learn from their mistakes. However, most doctors think that current systems to report and share information about errors are inadequate. They rely instead on informal discussions with their colleagues. As a result, important information about medical errors and how to prevent them is often not shared with the hospital or health care organization, concludes a study supported by the Agency for Healthcare Research and Quality (HS11890 and HS14020).

To assess physicians' attitudes about communicating medical errors with their colleagues and health care organizations, the study authors surveyed a diverse group of 1,082 physicians in two States in 2003 and 2004. Most physicians reported that they had been involved in an error—56 percent reported a prior involvement with a serious error, 74 percent with a minor error, and 66 percent with a near miss. More than half (54 percent) agreed with the statement that

“medical errors are usually caused by failures of care delivery systems, not failures of individuals.”

Most physicians agreed that they should report errors to their hospital or health care organization and needed to know about errors made in those organizations in order to improve patient safety. Yet only 30 percent agreed that current systems to report patient safety events were adequate. Physicians were more likely to discuss errors and near misses with their colleagues than to report them to a risk management or patient safety official. Surveyed doctors said they would be more willing to formally report error information if information would be kept confidential and nondiscoverable (88 percent); there was evidence that such information would be used for system improvements (85 percent) and not for punitive action (84 percent); the error-reporting process would take less than 2 minutes (66 percent); and the review

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Also in this issue:

Patient complaints and identifying safety hazards, see page 5

Multiple prescriptions and drug reactions in children, see page 9

Insurance status and access to specialty care for children, see page 11

Diagnosis of depression during primary care visits, see page 14

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Medical mistakes

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activities would be confined to their department (53 percent).

More details are in “Lost opportunities: How physicians communicate about medical errors,” by Jane

Garbutt, MB.Chb., F.R.C.P., Amy D. Waterman, Ph.D., Julie M. Kapp, Ph.D., M.P.H., and others, in the January/February 2008 *Health Affairs* 27(1), pp. 246-255. ■

Most patients want doctors to disclose severe medical errors

Doctors who make mistakes often hesitate confessing to patients, fearing lawsuits or other repercussions. However, if doctors are candid about their missteps, patients are 35 percent less likely to sue than if they'd been left in the dark, reveals a new study. Patients' sex, age, race, education level, or insurance status had no bearing on whether they wanted to be informed of an error.

Researchers presented error scenarios to 394 patients seen in an emergency department, asking them to assess the severity of the mistake. They then quizzed patients about their preferences when it came to disclosing errors. The more severe the error, the more likely patients were to desire its disclosure. For example, in 908 responses that rated error scenarios, patients determined 58 percent of errors were severe and

wanted disclosure for 98 percent of them. For 35 percent of responses, patients were less likely to obtain legal counsel if their doctor told them of the error. This finding suggests that disclosing an error may not increase the likelihood of a lawsuit. (See a related article by Kathleen M. Mazor, Ed.D., in the June 2004 *Research Activities*, page 22.)

For 45 percent of the scenarios, patients wanted the errors reported to a disciplinary body. Patients older than 55 (40 percent) were less inclined to inform a disciplinary body of an error when compared with patients aged 21 to 30 (54 percent). Patients who did not have a high school diploma were more likely to want to report the error to a disciplinary body (60 percent) than high school (44 percent) or college (43 percent) graduates. The authors

suggest that the more education a patient has, the more he or she may identify with a doctor who committed an error. Further, they suggest that the more social distance a patient has from a provider, the more the patient may feel the doctor should be held accountable. This study was funded in part by the Agency for Healthcare Research and Quality (HS00059).

See “Patient race/ethnicity, age, gender and education are not related to preference for or response to disclosure,” by Cherri Hobgood, M.D., Joshua H. Tamayo-Sarver, Ph.D., and Bryan J. Weiner, Ph.D., in *Quality and Safety in Health Care* 17(1), pp. 65-70, 2008. ■

Counting surgical sponges and instruments can prevent some being left in the patient, but better methods are needed

Sponges, needles, or surgical instruments are left in a patient's body once in every 7,000 surgeries (0.014 percent), estimates a new study. Operating room (OR) nurses typically count instruments before and after surgery to identify discrepancies. If an item is missing, OR staff locate it either in the OR or inside the patient before the surgical incision is closed. However, prolonged and complex surgeries that involve staff fatigue, changing teams, and interruptions can interfere with counting accuracy. The study of 153,263 coronary artery bypass graft (CABG) operations found that final count discrepancies identified 77 percent and prevented about half (54 percent) of retained surgical items.

When the final count was discrepant, the odds that a foreign body was inside the patient increased 113-fold. However, given the low incidence of retained foreign body cases, the positive predictive value of this approach was only 1.6 percent. In these cases, clinicians must consider the tradeoff between taking the time to reconcile a count discrepancy (when there is a 98.4 percent chance that there is no foreign body retained), for example, by having the patient wait in the OR for an x-ray, and raising patient risk by delaying closure of the operative site. Also, needles, some of which are undetectable by x-ray, are the items most often lost in the OR.

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Counting instruments

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The sequel of further tests and searches started by count discrepancies also raises the cost of the surgery. Based on this study's discrepancy rate (6.54 percent), the researchers calculated that a count discrepancy increased by \$932 the cost for CABG. This would amount to an additional \$24 million per year in OR CABG costs. These findings can be used to estimate the benefit of adopting technological alternatives, such as radio-frequency detection systems and bar-coded sponges, over the diagnostic accuracy of counting. The

findings were based on analysis of data from the Medical Event Reporting System-Total HealthSystem, administrative hospital, and the New York State Cardiac Surgery Report databases (2000 to 2004). The study was supported by the Agency for Healthcare Research and Quality (HS11095).

See "Managing the prevention of retained surgical instruments: What is the value of counting?" by Natalia N. Egorova, Ph.D., Alan Moskowitz, M.D., Annetine Gelijns, Ph.D., and others, in the January 2008 *Annals of Surgery* 247(1), pp. 13-18. ■

Intensive care nurses tend to identify patient safety practices from self-initiated tasks

Intensive care unit (ICU) nurses at four community hospitals who participated in a project to decrease catheter-related bloodstream infections (CRBSIs) did not generalize that experience to other aspects of patient safety. They also did not associate the project with management's interest in patient safety, reveals a new study. Despite safety education from management (classes, posters, and notices), these nurses continued to define patient safety primarily by their own experiences in patient care. They viewed patient safety as actions that they initiated each day, which have immediate results they can see, such as double-checking patients' medications and checking their restraints to make sure they

don't fall out of bed or pull out their intravenous lines.

Failing to vigilantly perform these tasks can result in obvious and immediate patient harm, such as falls and seizures. These are also the same tasks that comprised nearly half the checklist items from leadership walk-rounds. On the other hand, safety programs like the CRBSI project offer no immediate feedback on patient safety, whether catheter insertion followed protocols or not. Patient harm due to problems such as CRBSIs may not show up until the patient has left the hospital.

These findings are consistent with many adult learning theories, where self-initiated tasks, combined with immediate but temporary problem-solving, are stronger

learning forces than management-led activities with delayed feedback, explains University of Cincinnati researcher Nancy C. Elder, M.D. Dr. Elder and colleagues analyzed conversations among 33 nurses from 8 focus groups, safety climate survey responses of 92 nurses and managers, and review of 3 separate leadership walk-around checklists. The study was supported in part by the Agency for Healthcare Research and Quality (HS13914).

More details are in "Intensive care unit nurses' perceptions of safety after a highly specific safety intervention," by Dr. Elder, Suzanne M. Brungs, R.N., M.S.N., M.B.A., Mark Nagy, Ph.D., and others, in *Quality and Safety in Health Care* 17, pp. 25-30, 2008. ■

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 <http://psnet.ahrq.gov/>.

Patient complaints about poor coordination of care or other services may help identify patient safety hazards

Patients who are victims of a medical error or adverse event are more likely to complain about their care. In similar fashion, care complaints may be a tip-off that the patient has suffered an adverse event or medical error, suggests a new study. It found that a patient-reported deficiency in service quality (especially poor coordination of care, poor interpersonal skill, and unprofessional behavior) more than doubled the odds of finding evidence of an adverse event, close call, or low-risk error on review of the patient's hospital chart.

As attentive observers of care, patients may be particularly well-positioned to observe the types of lapses that could lead to errors that could harm them. Thus, listening carefully to patients' complaints of care service quality problems may help identify patient safety hazards, suggest the Massachusetts researchers. They interviewed 228 patients during and after hospital admission regarding problems they experienced during their hospitalizations in order to identify service quality

deficiencies: lack of respect for patient needs and preferences, waits and delays, poor communication, environmental issues and amenities, poor coordination of care, poor interpersonal skill, and unprofessional behavior.

Of the 52 incidents identified on chart review, patients experienced 34 adverse events, 11 close calls, and 7 low-risk errors. Any service quality deficiency more than doubled the odds of any of these. Service quality deficiencies involving poor coordination of care more than quadrupled the odds of adverse events and medical errors.

The study was supported in part by the Agency for Healthcare Quality and Research (HS11644).

See "Do medical inpatients who report poor service quality experience more adverse events and medical errors?" by Benjamin B. Taylor, M.D., M.P.H., Edward R. Marcantonio, M.D., M.Sc., Odelya Pagovich, M.D., and others, in the February 2008 *Medical Care* 46(2), pp. 224-228. ■

Studies examine racial/ethnic disparities and use patterns for nonsteroidal anti-inflammatory drugs

Nonsteroidal anti-inflammatory drugs (NSAIDs) are commonly used to treat inflammatory, arthritic, and musculoskeletal conditions. However, they can cause gastrointestinal (GI) and other complications, especially among the elderly. A new study reveals disparities in understanding and care related to NSAIDs among low-income, elderly blacks. A second study finds that individuals taking two NSAIDs have worse daily functioning than those taking just one, and may be self-treating unrelieved pain. Both studies were supported by the Agency for Healthcare Research and Quality (HS10389). They are briefly discussed here.

Fry, R.B., Ray, M.N., Cobaugh, D.J., and others. (2007,

December). "Racial/ethnic disparities in patient-reported nonsteroidal anti-inflammatory drug (NSAID) risk awareness, patient-doctor NSAID risk communication, and NSAID risk behavior." *Arthritis & Care Research* 57(8), pp. 1539-1545.

The research team analyzed survey data from the Alabama NSAID Patient Safety Study on predominantly low-income elderly persons currently taking prescription NSAIDs (one-third of the participants were black). The elderly blacks surveyed were less likely than their white counterparts to recognize any risk associated with over-the-counter (OTC) NSAIDs (13.3 vs. 29.3 percent) and prescribed NSAIDs (31.3 vs. 49.6 percent).

They were also less likely to report that their doctor discussed

with them possible NSAID-related GI problems (38 vs. 52.4 percent) and to take medications to reduce NSAID-related ulcer risk (30.5 vs. 50.2 percent). These racial/ethnic differences persisted after accounting for other factors.

Patients with lower income and education reported significantly less risk awareness for both OTC and prescribed NSAIDs. The study authors call for more efforts to promote safe NSAID use and to reduce ethnic/racial disparities.

Kovac, S.H., Saag, K.G., Curtis, J.R., and Allison, J. (2008, February). "Association of health-related quality of life with dual use of prescription and over-the-counter nonsteroidal anti-inflammatory drugs." *Arthritis*

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NSAIDs

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Care & Research 59(2), pp. 227-233.

Many individuals suffering from musculoskeletal conditions such as arthritis may take two prescription NSAIDs or one prescription and one OTC NSAID to reduce the pain and inflammation of their condition. However, use of two NSAIDs boosts their risk of NSAID-related complications such as stomach ulcers and bleeding. This study suggests that many of these individuals take two NSAIDs to self-manage their pain so that they can improve their daily functioning. It found, for example, that individuals taking two NSAIDs, whether they were both

prescription NSAIDs or one was an OTC NSAID, had worse health-related quality of life (HRQOL) than those who took only one NSAID. The study also found that physicians were often not aware that their patients were taking two NSAIDs.

This could have two effects. The patients' pain may not be adequately managed by the physician, and the physician may not be aware of and cannot convey the risks of using two NSAIDs to these patients, explain the researchers. They interviewed patients from a managed care organization who filled one or more NSAID prescriptions over a 6-month period. They then compared the association between dual use NSAIDs and the Physical

Component Summary score (PCS-12) from the Short Form 12 (SF-12) Health Survey. About half of the patients had rheumatoid arthritis or osteoarthritis and about one-fourth had chronic back pain.

Overall, 26 percent of those interviewed reported use of two NSAIDs. Dual use independently predicted worse physical function scores on the PCS-12 after controlling for several patient and disease characteristics. These patients may have been seeking relief from inadequate pain management, suggest the researchers. Other significant factors associated with lower PCS-12 scores were being unemployed and having more coexisting medical conditions. ■

Hospital governing boards are actively engaged in quality oversight, especially those with a board quality committee

Hospital governing boards appear to be actively engaged in quality oversight, particularly in reviewing and tracking the organization's performance through use of internal data and national benchmarks. However, they could significantly improve their quality oversight with a board quality committee, suggests a new study. Agency for Healthcare Research and Quality investigators, H. Joanna Jiang, Ph.D., and Irene Fraser, Ph.D., in collaboration with researchers at The Governance Institute (TGI), examined data from a TGI survey of hospital and system leaders in 2006 with a total of 562 respondents. Funded and conducted by TGI, the survey included 27 questions about various aspects of board engagement in quality.

More than 80 percent of responding chief executive officers (CEOs) indicated that their governing boards establish strategic goals for quality improvement, use quality dashboards to track performance, and follow up on corrective actions related to adverse events. Nevertheless, less than half of responding CEOs considered their organization's governing board very effective in its quality oversight function, with only 61 percent indicating their boards had a quality committee.

Boards with a quality committee had lower mortality rates for six common medical conditions than boards without a quality committee (5.4 vs. 6 percent). They were also more likely to adopt various oversight practices. For example, 91 percent of boards with a quality committee used quality dashboards or scorecards compared with 79 percent of boards without a quality committee. Boards with a quality committee were also more likely to use a written policy on quality and formally communicate it throughout the organization (34 vs. 26 percent); establish strategic goals for quality improvement (90 vs. 68 percent); be involved in setting the quality agenda for the organization (72 vs. 53 percent) and the board's discussion on quality (49 vs. 33 percent); and mandate alignment on quality initiatives among key stakeholders in the organization (43 vs. 29 percent).

More details are in "Board engagement in quality: Findings of a survey of hospital and system leaders," by Dr. Jiang, Carline Lockee, Karma Bass, F.A.H.E., and Dr. Fraser, in the March/April 2008 *Journal of Healthcare Management* 53(2), pp. 121-135. Reprints (AHRQ Publication No. 08-R057) are available from AHRQ.* ■

Disparities/Minority Health

Minority status and vulnerable early life experiences prompt physicians' engagement in reducing care disparities

Many of the physicians most engaged in reducing health care disparities are either minorities themselves, had childhood experiences with minority neighbors, or experienced early discrimination or vulnerability, concludes a new study. The researchers conducted in-depth interviews with a group of 14 physicians with high engagement scores from an earlier survey of 836 primary care doctors on physician engagement in addressing racial/ethnic health care disparities. The interviews focused on how these physicians became interested in alleviating health care disparities and what strategies they used to improve care for their minority patients.

Half of the physicians identified themselves as minorities. The

remainder related extensive personal experiences with minorities, especially in their childhood. For example, one white doctor grew up in the Virgin Islands where he was in the minority and where he felt at-home with his nearly universal black neighbors. Not all those identifying as a minority were so by race or ethnicity; some felt that way by occupation, religion, and even non-mainstream medical training. Still others mentioned time spent in a developing country in their youth or their own periods of vulnerability, such as times without health insurance.

Many physicians expressed frustrations with some key barriers to equitable care, such as language barriers, resource limitations, lack of patient education, and low

patient empowerment. Strategies they suggested for reducing care disparities ranged from being interested in the patient (active listening, taking time with the patient, maintaining eye contact), speaking to the patient as an equal, and understanding their background and needs (social and environmental circumstances). The study was supported in part by the Agency for Healthcare Research and Quality (HS15699).

More details are in "A qualitative study of physicians' engagement in reducing healthcare disparities," by Susanne K. Vanderbilt, B.S., Matthew K. Wynia, M.D., M.P.H., Margaret Gadon, M.D., M.P.H., and G. Caleb Alexander, M.D., M.S., in the December 2007 *Journal of the National Medical Association* 99(12), pp. 1315-1322. ■

Elderly Asian Americans in traditional fee-for-service Medicare receive fewer needed services than their white counterparts

Elderly Asian Americans enrolled in traditional fee-for-service Medicare receive fewer needed services than their white counterparts, concludes a new study. Agency for Healthcare Research and Quality researchers Ernest Moy, M.D., M.P.H., and Linda G. Greenberg, Ph.D., along with Amanda Borsky of the CNA Corporation, examined the association of race/ethnicity and socioeconomic status (SES) with use of Medicare-covered services by the elderly in a unique database that merged improved race/ethnicity coding and SES indicators at the census block-group level with 2002 Medicare claims data. They examined Asian-

white differences in two cancer screening services (colorectal cancer screening and mammography) and three diabetes-related care services (measurement of blood-sugar levels, eye exam, and self-care instructions) in the metropolitan statistical areas (MSAs) with the largest number of elderly Asians in 2000, including Los Angeles, New York City, and Washington, D.C.

Elderly Asians were less likely than elderly whites to receive colorectal cancer screening in eight of nine MSAs and mammography in nine MSAs. Asian-white

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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.

Fee-for-service Medicare

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differences in diabetes care were less consistent. In two of nine MSAs, Asians were less likely than whites to receive physiological testing. Asians were less likely to receive eye exams in three MSAs outside of California. They were less likely to receive self-care instruction in the two East Coast MSAs (New York and Washington, D.C.) but more likely to receive it in the greater Los Angeles Area (LA and Orange County). Outside of the nine MSAs, Asian-white differences were significant across both cancer screening services and all three diabetic services. These findings are consistent with reports on the prevalence of Asian-white disparities at the national level. These care differences are important,

especially considering that cancer is the leading cause and diabetes is the fifth leading cause of death among Asians. These findings go beyond previous work by demonstrating disparities at the MSA and census tract levels and after stratifying for SES. Local leaders could use this information to set priorities and allocate resources to address specific care disparities in their communities.

More details are in "Community variation: Disparities in health care quality between Asian and white Medicare beneficiaries," by Drs. Moy and Greenberg and Ms. Borsky, in the March/April 2008 *Health Affairs* 27(2), pp. 538-549. Reprints (AHRQ Publication No. 08-R064) are available from AHRQ.* ■

Immigrants are likely to underreport a family history of cancer

People who have immigrated to the United States are a third less likely to report a family history of cancer to their clinicians, a study finds. Heather Orom, Ph.D., of Wayne State University, and colleagues used data collected by telephone for the 2005 Health Information Trends Survey to compare country of birth with variables typically associated with an individual knowing his or her family health history. For instance, married people are more likely to spend time with their family and know their health history and people with health insurance may be more aware of their family risk of cancer. Additional variables associated with reporting a family history of cancer were also considered, including

race, age, gender, and education level.

Of the 5,010 people who were surveyed, those born in foreign countries were a third as likely as U.S.-born respondents to report a family history of cancer. Even immigrants who acculturated to the United States were not likely to report a family history of cancer. The authors suggest that underreporting may occur because immigrants are separated from relatives and are unaware of their family's health history. If the individual's birth country is a developing nation, cancers simply may go undiagnosed and medical encounters are unlikely to emphasize a family cancer link. Finally, cultural beliefs that deem cancer as shameful or a punishment

may also contribute to secrecy and underreporting in immigrants.

Clinicians caring for foreign-born patients should consider the possibility that their patients may not report a family history of cancer yet should be still be screened, the authors suggest. Not doing so could contribute to the disparities reported in cancer screening for minorities. This study was funded in part by the Agency for Healthcare Research and Quality (HS13819).

See "Family history of cancer: Is it an accurate indicator of cancer risk in the immigrant population?" by Dr. Orom, Michele L. Coté, Ph.D., Hector M. Gonzalez, Ph.D., and others in the January 15, 2008 *Cancer* 112(2), pp. 399-406. ■

Child/Adolescent Health

Children with asthma and flu are more likely to end up in the hospital

Children with asthma who get the flu are more likely to have a hospital stay than healthy children infected with the flu, according to a recent study. Researchers looked at three counties' influenza hospitalizations for children aged 6 to 59

months from October 2000 to September 2004. Children with asthma had about four times as many hospitalizations and twice as many outpatient visits when they came down with the flu than when healthy

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Asthma and flu

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children succumbed to the flu. The average annual hospitalization rate for children with asthma was 1 case per 1,000 children, while that rate was .4 per 1,000 for healthy children. Outpatient visit rates were similar for the two groups during the 2002-2003 flu season, but rose in the 2003-2004 season (316 cases per 1,000 children with asthma versus 152 cases per 1,000 healthy children).

The authors posit that children with asthma may be more

susceptible to the flu, may have more severe illness when they get the flu, or their parents may be more likely to seek care because of flu symptoms. Additionally, these children may more frequently end up in the hospital because of concerns the flu will aggravate their asthma.

Although immunization for influenza is recommended for children with asthma, just 27 percent of parents of a child with asthma ensured their child received the flu vaccine. In contrast, 12 percent of healthy children seen as inpatients and 15 percent seen as

outpatients were immunized. The authors suggest that having these estimates of the influenza burden may improve vaccination rates for healthy children and children who have asthma. This study was funded in part by the Agency for Healthcare Research and Quality (HS13833).

See "Influenza burden for children with asthma," by E. Kathryn Miller, M.D., M.P.H., Marie R. Griffin, M.D., M.P.H., Kathryn M. Edwards, M.D., and others in the January 2008 *Pediatrics* 121(1), pp. 1-8. ■

Strep throat in children carries significant societal costs

When children are infected with strep throat, they need medical care and antibiotics. Parents usually miss work and incur transportation costs to take their child for care. When these costs are extrapolated, the burden of strep throat in the United States falls between \$224 and \$539 million each year, a study finds. Researchers in the Boston area conducted telephone surveys with 135 parents whose children had strep throat (group A streptococcal pharyngitis) and were seen in 2 pediatric practices between October 1, 2005, and January 25, 2006. On average, children with strep missed nearly two days of school and shared their strep with at least one other family member in 29 percent of families. Forty-two percent of parents missed an average of 1.8 days of work to care for their sick children; 80 percent of the caregivers were women.

Medical costs, including outpatient visits, antibiotics, and testing, averaged \$118 for a child's strep. Nonmedical costs for missed work and personal

time averaged \$87. The authors claim that the extrapolated totals that approach nearly \$540 million justify pursuing a vaccine for strep throat. One multivalent candidate for group A streptococcus that wards off pharyngitis, invasive disease, and rheumatic fever is currently in phase I/II clinical trials in the United States and Canada.

A vaccine could reduce the prevalence of strep not only in school-aged children, who tend to be sources of strep, but also in the larger community. By reducing annual cases of strep, antibiotic overuse and resistance may also decline. This study was funded in part by the Agency for Healthcare Research and Quality (HS13808).

See "Burden and economic cost of group A streptococcal pharyngitis," by Elizabeth Pfoh, B.A., Michael R. Wessels, M.D., Donald Goldmann, M.D., and Grace M. Lee, M.D., M.P.H., in the February 2008 *Pediatrics* 121(2) pp. 229-234. ■

Multiple prescriptions are linked to preventable drug reactions in children

Children's drugs are not as straightforward as adult medications. They come in tablets, drops, and liquids, and in many cases, the amount a parent must give depends on the child's weight. A new study finds that children who are prescribed multiple drugs at medical visits

have a higher risk for experiencing preventable adverse drug events (ADEs) than children who need only one drug.

Researchers studied 1,689 children who were seen from July 2002 to April 2003 at 6 sites in Boston. These children received a total of 2,155 prescriptions.

Through telephone calls and chart reviews, the researchers found 283 ADEs in 242 children (14 percent). Of these events, 57 were preventable in 56 children. Seventy percent of the preventable events occurred when parents were administering medication. The

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Multiple prescriptions

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authors suggest these events likely occurred because providers did not explain to parents how to deliver the correct dosage. This can be corrected by detecting parents' health literacy and tailoring medication information to a level appropriate for them.

More ADEs were discovered during chart reviews than phone interviews for children whose

parents have limited English skills or were black or Hispanic. A possible explanation is that those with limited English skills were not able to adequately explain the adverse events to a phone interviewer. On the other hand, blacks and Hispanics may be more conservative than their white counterparts in reporting the occurrence of ADEs. These groups may benefit from methods that increase awareness of how to

prevent ADEs. This study was funded in part by the Agency for Healthcare Research and Quality (HS11534).

See "Risk factors in preventable adverse drug events in pediatric outpatients," by Stephanie O. Zandieh, M.D., M.S., Donald A. Goldmann, M.D., Carol A. Keohane, R.N., B.S.N., and others in the February 2008 *Journal of Pediatrics* 152, pp. 225-231. ■

Zero tolerance of alcohol for drivers under age 21 reduces drinking and driving among college students

Zero tolerance laws that exact strict penalties for any alcohol use for drivers under age 21, enforced since 1998, have reduced drinking and driving among college students, a new study shows. Lan Liang, Ph.D., of the Agency for Healthcare Research and Quality, and Jidong Huang, of NERA Economic Consulting, used data from the 1993, 1997, and 1999 waves of the College Alcohol Surveys (CAS) to examine the effects of zero tolerance laws on drinking patterns.

An alarming number of college students drove after drinking and binge drinking in the month prior to the surveys. For example, in 1999, more than two out of every five drinkers reported driving after drinking and one of every five reported driving after binge drinking (five or more drinks). Overall, zero tolerance laws reduced binge drinking, drinking away from home, and driving after drinking, especially among those who drank away from home.

Specifically, zero tolerance laws reduced binge drinking by 1.6 to 1.9 percentage points, a 3 to 4 percent reduction from pre-zero tolerance laws, and reduced drinking and driving among drinkers by 4 to 5 percent, a 14 to 17 percent reduction from the prelaw mean. Zero tolerance laws reduced drinking away from home by about 7 percent, but were not associated with any increase in home drinking among on-campus students. Zero tolerance laws were also associated with a 26 to 27 percent reduction in the probability of drinking and driving among those who reported drinking away from home.

See "Go out or stay in? The effects of zero tolerance laws on alcohol use and drinking and driving patterns among college students," by Drs. Liang and Huang, in *Health Economics*, 2008, which is available online at www.interscience.wiley.com. Reprints (AHRQ publication no. 08-R053) are available from AHRQ.* ■

Access to Care

Housing instability and food insecurity among low-income children are linked to diminished access to health care

Homelessness and hunger among low-income children are associated with poor access to health care. Housing instability and food insecurity also diminish access to care, although to a lesser extent, according to a recent study. It found that nearly 30 percent of children (12,746) in households with incomes of less than 200 percent of the Federal poverty line (less than \$40,000 for a family of four in

2006) suffered from housing instability and 39 percent from food insecurity.

The researchers defined housing instability as the inability of the family to pay their mortgage, rent, or utility bills. They defined food insecurity by affirmative answers to at least two of four questions asking about: worrying about running out of food and

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Housing instability

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lacking money to buy more; running out of food and lacking money to buy more; and whether and how often meals were reduced in size or skipped. The researchers found that both housing instability and food insecurity were independently associated with children's poor access to health care.

The rates of access to health care and of use of care for children experiencing housing instability and food insecurity were intermediate between those reported for children living in poverty and homeless children. For example, 11.9 percent of children with housing instability had no usual source of care compared with 6 percent of children living in poverty and 19 percent of homeless children. Also, 36.1 percent of children with

housing instability had an emergency department (ED) visit, compared with 20 percent of children living in poverty and 38 to 48 percent of homeless children. Food insecurity was independently associated with postponed medical care and postponed medications.

Given housing instability and food insecurity and the poor health care access and high ED use, clinicians should consider screening for housing instability and food insecurity to provide more comprehensive care. The study was supported by the Agency for Healthcare Research and Quality (HS11415).

See "Associations between housing instability and food insecurity with health care access in low-income children," by Christine T. Ma, M.D., Lauren Gee, M.P.H., J.D., and Margot B. Kushel, M.D., in the April 2008 *Ambulatory Pediatrics* 8(3), pp. 50-57. ■

Children with private insurance have better access to specialty care than those with public and no insurance

Uninsured children have less access to specialty care than publicly insured children who, in turn, have less access to specialty care than children who are privately insured. It is not clear which structure of insurance leads to the best use of appropriate specialty care by children, conclude University of North Carolina researchers, Asheley Cockrell Skinner, Ph.D., and Michelle L. Mayer, R.N., M.P.H., Ph.D. They reviewed 30 studies on the topic, which measured access as number of specialty visits or referrals to specialists.

The studies on uninsured children found that they used less specialty care and experienced greater delays in referrals to specialists than insured children. The lack of insurance may create a two-fold barrier to specialty care. Uninsured children have more

difficulty accessing primary care, which may be necessary for parents to even realize a need for specialty care. Even if they do receive primary care, the greater expense of specialty care may make it more difficult to access it, explain the researchers.

Many of the studies of access to specialty care for children insured by Medicaid or the State Children's Health Insurance Program suggest that children with public insurance have better access to specialty care than uninsured children. However, additional studies indicate that their access to specialists is worse and their specialists are less likely to be board-certified than privately insured children. For example, one study found that Medicaid-insured children with congenital heart disease were referred to pediatric cardiologists at older ages than children with managed care or

other private insurance. The findings of studies that investigated differences in specialty care access between children in managed care arrangements and those in other insurance arrangements were highly inconsistent. The study was supported in part by the Agency for Healthcare Research and Quality (HS13309 and T32 HS00032).

See "Effects of insurance status on children's access to specialty care: A systematic review of the literature," by Drs. Skinner and Mayer, in the *BMC Health Services Research* 7, 2007, which is available online at <http://www.biomedcentral.com/1472-6963/7/194>. ■

Preventive Care

Women over 40 responded to changes in mammogram recommendations

Prior to 1997, the general consensus among medical professionals was that women younger than 50 did not need screening mammograms. However, when the American Cancer Society (ACS) and the National Cancer Institute (NCI) publicized new recommendations in March 1997 that said women between the ages of 40 and 49 should receive screening mammograms every year (ACS) or every 1 to 2 years (NCI), these women took notice, a new study finds.

Lisa Calvocoressi, Ph.D., of Yale University, and colleagues interviewed 1,451 women who received screening mammograms at 1 of 5 hospital-based clinics from October 1996 to January 1998, a period that intersected with the recommendation changes. After asking how often they believed women their age should have screening mammograms, the team found that the percentage of women aged 40 to 49 who endorsed annual screening increased from 49 to 64 percent.

Further, 31.6 percent of women in the 40 to 49 age group who did not originally endorse annual screening changed their opinion and supported it in followup interviews.

Although women in their 40s said they supported annual screening mammograms, the researchers were not able to examine the link between belief and action. However, other studies have shown that after 1997, women in their 40s were less likely to have screening mammograms than women in their 50s and 60s. This study was funded in part by the Agency for Healthcare Research and Quality (HS11603).

See “Mammography screening of women in their 40s: Impact of changes in screening guidelines,” by Dr. Calvocoressi, Albert Sun, M.D., M.P.H., Stanislav V. Kasl, Ph.D., and others in the February 1, 2008 *Cancer* 120(3), pp. 473-480. ■

Hundreds of patients would need to undergo spirometry to defer a single acute exacerbation of COPD

A substantial number of smokers with severe airflow obstruction do not recognize or report respiratory symptoms to their doctor. This suggests that screening smokers for COPD might be beneficial. However, screening smokers for COPD using spirometry (which measures lung capacity when a patient breathes into a tube) is likely to identify mostly patients with mild to moderate airflow obstruction. For these patients, there is no evidence that medications are beneficial or that spirometry measurements motivate smokers to quit. Since most COPD patients are older than 50, screening would not necessarily increase the number of patients recommended to receive annual flu shots. Even in the best

case scenario, hundreds of patients would need to undergo spirometry to defer a single acute exacerbation of COPD, according to a new study by Kenneth Lin, M.D., and Mary Barton, M.D., M.P.P., of the Agency for Healthcare Research and Quality, and colleagues.

They summarized the evidence on spirometry screening for COPD for the U.S. Preventive Services Task Force. They examined eight key questions on the benefits and harms of screening. The evidence revealed that medications for COPD reduced acute exacerbations in patients with severe disease. However, severe COPD is uncommon in the general U.S. population.

Potential harms from screening identified in studies reviewed by the authors include false-positive results and adverse effects from subsequent unnecessary therapy. One limitation was that no studies provided direct evidence on health outcomes associated with screening for COPD.

More details are in “Screening for chronic obstructive pulmonary disease using spirometry: Summary of the evidence for the U.S. Preventive Services Task Force,” by Dr. Lin, Bradley Watkins, M.D., Tamara Johnson, M.D., M.S., Joy Anne Rodriguez, M.D., M.P.H., and Dr. Barton, in the April 1, 2008 *Annals of Internal Medicine* 148(7), pp. 535-543. Reprints (AHRQ publication no. 08-R058) are available from AHRQ.* ■

U.S. Preventive Services Task Force recommends that at-risk men and women be screened for certain sexually transmitted infections

Since 2000, the U.S. Preventive Services Task Force (USPSTF) has published eight clinical recommendations for sexually transmitted infection (STI) screening based on systematic reviews of the evidence. Agency for Healthcare Research and Quality researchers, David Meyers, M.D., and Tracy Wolff, M.D., M.P.H., and colleagues recently provided an overview of these recommendations. The USPSTF recommends that women at increased risk of infection (those who engage in high-risk sexual behaviors such as having multiple current partners, having unprotected sex, or having sex in exchange for money or drugs) be screened for chlamydia, gonorrhea, HIV, and syphilis. Men at increased risk should be screened for HIV and syphilis.

The USPSTF recommends that pregnant women be screened for hepatitis B, HIV, and syphilis. Pregnant women at increased risk for STIs should be additionally screened for chlamydia and gonorrhea. The USPSTF also recommends that all sexually active women

younger than 25 years be considered at increased risk for chlamydia and gonorrhea. Nonpregnant women and men, who are not at increased risk for STIs, do not require routine screening for STIs.

Because not all communities present equal risk of STIs, the USPSTF encourages doctors to consider expanding or limiting the routine STI screening they provide based on their community and populations they serve. Almost all USPSTF recommendations on STI screening agree with those of the Centers for Disease Control and Prevention (CDC) and the American Academy of Family Physicians, American Academy of Pediatrics, and the American College of Obstetricians and Gynecologists.

See “USPSTF recommendations for STI screening,” by Drs. Meyers and Wolff, Kimberly Gregory, M.D., M.P.H., and others in the March 15, 2008 *American Family Physician* 77(6), pp. 819-824. Reprints (AHRQ publication no. 08-R056) are available from AHRQ.* ■

Chronic Disease

Urban, low-income adults with high blood pressure are reasonably knowledgeable about their condition

More than one in four U.S. adults suffer from high blood pressure (hypertension), with blacks suffering higher rates and more hypertension-related complications such as heart problems, kidney failure, and stroke. A new study of predominantly low-income black women with hypertension found that nearly two-thirds (65 percent) of this group were fairly knowledgeable about their condition. Those less likely to be knowledgeable about hypertension (answering 7 or fewer of 10 questions correctly) were those who were 60 years or older, had less than a high school education, or were diagnosed more recently. Individuals who were

uncomfortable asking their doctors questions also had lower scores, but this was not significant.

A Tulane University team administered a 10-item test on hypertension to 296 adults with the condition at 1 urban clinic. Overall, 65 percent of the patients answered 8 or more of the 10 questions correctly. However, 40 percent incorrectly thought that 130/80 mm Hg was normal blood pressure (a blood pressure of less than 120/80 mm Hg is considered normal), and did not know that hypertension was a lifelong condition. Nearly 25 percent did not know that hypertension can cause kidney problems, despite the prevalence of kidney problems among blacks with hypertension.

If patients were aware that hypertension reduced their life expectancy, they may be more vigilant about taking their medication, note the researchers. They suggest that knowing the gaps in hypertension knowledge among this group could be used to target educational programs. Their study was supported by the Agency for Healthcare Research and Quality (HS11834).

More details are in “Hypertension knowledge among patients from an urban clinic,” by Shane Sanne, B.S., Paul Muntner, Ph.D., Lumie Kawasaki, M.D., and others, in the Winter 2008 *Ethnicity & Disease* 18, pp. 42-47. ■

Primary Care Research

Primary care doctors miss diagnosing two-thirds of people suffering from depression

Up to one in four primary care patients suffer from depression; yet, primary care doctors identify only one-third (31 percent) of these patients. They are slightly more likely to diagnose depression (38 percent of depressed patients) among patients with suicidal thoughts or who sleep all the time (hypersomnia) or can't sleep (insomnia), according to a new study. Routine screening of primary care patients for this problem may improve the number of depressed patients who are diagnosed by their doctors, suggest the California researchers.

They examined depression diagnosis among 304 primary care patients (mostly Latinos and blacks), who screened positive for depression at 2 large primary care practices. Of these patients, 75 percent were significantly depressed, and 58 percent had both significant depression symptoms and functional impairment (such as insomnia). Suicidal thoughts increased 5.4-fold the likelihood of physician diagnosis of depression, and hypersomnia or insomnia doubled the likelihood of diagnosis. Other depression symptoms

(for example, fatigue, poor appetite or overeating, excessive guilt, inability to concentrate, and agitation) and chronic medical conditions, such as high blood pressure and diabetes, had no effect on physician diagnosis of depression.

Nevertheless, there was little agreement between patients' initial structured depression assessments and physicians' appraisal of depression symptoms during the clinical visit (either elicited or documented in the patient's chart). The authors call for more studies to explore how physicians assess depression symptoms. The study was supported in part by the Agency for Healthcare Research and Quality (HS14022).

More details are in "Depression symptomatology and diagnosis: Discordance between patients and physicians in primary care settings," by Chizobam Ani, M.B.B.S., M.P.H., Mohsen Bazargan, Ph.D., David Hindman, Ph.D., and others, in the 2008 *BMC Family Practice* 9(1), available online at www.biomedcentral.com/1471-2296/9/1. ■

Quality of care for patients with coronary heart disease is not strongly influenced by medical practice characteristics

Quality of care for patients with common conditions such as coronary heart disease (CHD) is not strongly influenced by financial characteristics of medical practices, although there does seem to be some relationship between practice structure and quality, according to a new study. Researchers found that primary care patients in multi-site practices were 31 percent more likely to receive high quality of care for CHD than those in single-site practices.

Also, patients treated in midsize practices with between 4 and 9 doctors were 23 percent more likely than those in the largest practices to receive high quality care for CHD. The use of electronic medical records and other approaches to

care management were not associated with CHD care quality. Care quality was also not associated with capitation at the practice level (payment cap for each patient the practice serves, regardless of diagnosis), or the use of productivity-based compensation at the physician level, which have become a concern in the past few years.

Bruce E. Landon, M.D., M.B.A., M.Sc., of Harvard Medical School, and colleagues examined the link between the characteristics of 25 medical practices (such as size, financial arrangements, and management processes for cardiovascular disease) and quality of care for CHD based on quality measures documented in the medical records of 1,600 patients

with CHD. The researchers focused on a limited set of quality indicators for patients with CHD ranging from aspirin, beta-blocker, or other antiplatelet use after hospital discharge to cholesterol assessment and management to and control of cholesterol and hypertension among those with CHD and hypertension and/or diabetes. The study was supported by the Agency for Healthcare Research and Quality (HS11651).

More details are in "The relationship between medical practice characteristics and quality of care for cardiovascular disease," by Dr. Landon, Sharon Lise T. Normand, Ph.D., Ellen Meara, Ph.D., and others in the April 2008 *Medical Care Research and Review* 65(2), pp. 167-186. ■

Emergency Medicine

Emergency departments vary in their approach to psychiatric emergencies, underscoring the need for standards

With the lack of State psychiatric facilities and community support, persons in psychiatric crisis, who are suicidal, suffering from hallucinations, or having severe anxiety attacks, often end up at the hospital emergency department (ED). Yet, there are no established best practices for managing these ED patients. In fact, hospital EDs vary tremendously in their approach and resources for management of these patients, according to a new study. Psychiatric emergency patients can be stressful for ED staff who often don't know how to handle them, and there are often insufficient ED on-site or on-call psychiatric personnel to manage them.

Improper triage, lengthy reviews with third-party payers to request preauthorization of care, inaccessible outpatient services, and lack of inpatient behavioral health beds further hinder emergency providers from obtaining the appropriate level of treatment for these vulnerable patients, explains Jennifer Field Brown, A.P.R.N., P.M.H., Ph.D., of Virginia Commonwealth University. Her survey of

ED administrators at 71 hospitals in 2 States found that 45 percent of hospitals used an in-house psychiatric service, 41 percent had a contractual structure, and 14 percent had no psychiatric services.

A hospital's approach to ED psychiatric emergencies tended to be largely influenced by its available resources and circumstances. For example, hospitals with an ED psychiatric emergency service (EDPES) had more inpatient psychiatric beds and a larger share of the market and served a greater volume of psychiatric patients. Those without an EDPES had a low volume of ED psychiatric visits and/or availability of other psychiatric emergency services in the area. Hospitals that used a contractual EDPES had the slowest response time and were more likely to contract for other clinical services as well. The study was supported by the Agency for Healthcare Research and Quality (HS13859).

See "A survey of emergency department psychiatric services," by Dr. Brown, in the November/December 2007 *General Hospital Psychiatry* 29, pp. 475-480.* ■

Hospital and demographic factors influence emergency department triage of patients with mini-strokes

One of every 1,000 persons in the United States visits the emergency department (ED) for transient ischemic attack (TIA), a so-called mini-stroke. Since a TIA is a strong predictor of subsequent stroke and death, deciding who should be admitted to the hospital or sent home (ED triage) is important. Clinical factors, such as complicating cardiac conditions and whether the patient is already on anticoagulants, play a role in triage. Yet, hospital and demographic factors also influence the ED triage of these patients, finds a new study.

A TIA occurs when blood supply to part of the brain is briefly interrupted. These mini-strokes last only a few minutes, and most symptoms (which range from numbness or weakness in the face, arm, or leg to confusion, trouble seeing or walking, and dizziness) generally persist for less than 24 hours. Guidelines for managing ED patients with TIA call for a medical

history and physical exam, electrocardiogram, routine blood work, and diagnostic brain imaging.

Jeffrey Coben, M.D. and Todd J. Crocco, M.D., at West Virginia University, and Agency for Healthcare Research and Quality researchers, Pamela L. Owens, Ph.D., and Claudia A. Steiner, M.D., M.P.H., looked at all 38,843 ED-treated TIA cases from community hospitals in 11 States. These cases were identified from the 2002 Healthcare Cost and Utilization Project. Over half (53 percent) of these patients were admitted to the hospital, while 47 percent were discharged home. Clinical characteristics were important to ED triage, with patients with complicating cardiac conditions more likely to be admitted, for example. However, after controlling for these clinical factors, hospital and sociodemographic characteristics also played a role in ED triage. For example, patients living in more rural

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Emergency department triage

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communities and arriving at smaller hospitals were more likely to be discharged home from the ED. Also, women were more likely to be admitted than men, as were those evaluated on weekends than those seen during weekdays, and those with Medicare instead of private or no health insurance.

See “Hospital and demographic influences on the disposition of transient ischemic attack,” by Drs. Coben, Owens, Steiner, and Crocco, in the February 2008 *Academic Emergency Medicine* 15, pp. 171-176. Reprints (AHRQ publication no. 08-R063) are available from AHRQ.* ■

HIV/AIDS Research

Physician experience may influence outcomes of hospitalized patients with HIV disease more than hospital HIV experience

Patients undergoing complex procedures typically fare better at hospitals that perform many of those procedures. For patients hospitalized with HIV disease, physician HIV experience seems to be more important than hospital HIV experience, suggests a new study by Fred Hellinger, Ph.D., of the Agency for Healthcare Research and Quality (AHRQ).

Dr. Hellinger analyzed discharge data from 43,325 patients hospitalized with HIV disease in 5 States in 2002, based on AHRQ's Healthcare Cost and Utilization Project State Inpatient Databases. One-half of all patients were cared for in a hospital that treated fewer than 597 HIV-positive patients during the year, and half of them were treated by a physician who

treated fewer than 17 HIV-positive patients during the year (only 5 percent of physicians treat more than that). The probability of dying in the hospital was 6 percent and the average length of stay was nearly 9 days.

The probability of dying in the hospital shrank by 3 percent for each increase of 100 HIV-positive patients treated by a hospital, and it decreased by 2.4 percent for each increase of 10 HIV-positive patients treated by a physician. However, the effect of hospital volume became insignificant when physician volume was included in the equation. This makes sense, given that the continual stream of new HIV medications and other factors prompt rapidly changing standards for treating these patients. It is

more difficult for doctors who treat only a small number of patients with HIV disease to keep abreast of and assimilate these changes into their practice, explains Dr. Hellinger. His is the first volume-outcome study of hospitalized patients with HIV disease that used data collected after diffusion of highly active antiretroviral therapy in 1996 and 1997.

See “Practice makes perfect: A volume-outcome study of hospital patients with HIV disease,” by Dr. Hellinger, in the February 1, 2008 *Journal of Acquired Immunodeficiency Syndrome* 47(2), pp. 226-233. Reprints (AHRQ publication no. 08-R052) are available from AHRQ.* ■

Health Care Costs and Financing

Children often lose Medicaid coverage when their parents do, even though they are still eligible

The recent economic downturn and budget shortfalls have prompted all States to implement some form of cost containment in their Medicaid programs. However, States should be aware of the adverse impact on children when adults lose Medicaid coverage, according to a new study. Based on experience in Oregon, when adults lose Medicaid coverage, their children often lose coverage as well. That State's Medicaid program, which previously

provided insurance to entire eligible households, implemented cost containment policies in March 2003.

Over 10 percent of eligible children were uninsured, and over 25 percent of them had gaps in insurance coverage during the 12-month study period following the policy implementation. Half of the uninsured children lived in a household with at least one adult who had recently lost Medicaid coverage compared

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Medicaid coverage

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with only 40 percent of insured children. Similarly, over 51 percent of children with a recent gap in insurance coverage had an adult in the household who recently lost Medicaid coverage compared with only 38 percent of children without coverage gaps.

Jennifer E. DeVoe, of the Oregon Health and Science University, and colleagues suggest that, whenever possible, programs designed to expand coverage for children should focus on providing stable coverage for entire households. They point out that, despite continued comprehensive public health coverage for children in Oregon, the percentage of uninsured children rose from 10.1 percent in 2002 to 12.3 percent in 2004 (over 110,000 uninsured children).

Their findings were based on analysis of State-wide data from low-income households enrolled in Oregon's food stamp program, whose children were presumed eligible for publicly funded health insurance programs. The researchers surveyed parents of these households about their child's insurance coverage during the year following implementation of Oregon's Medicaid cost containment policies. The study was supported in part by the Agency for Healthcare Research and Quality (HS14645 and HS16181).

See "Uninsurance among children whose parents are losing Medicaid coverage: Results from a statewide survey of Oregon families," by Dr. DeVoe, Lisa Krois, M.P.H., Tina Edlund, M.Sc., and others in the February 2008 *HSR: Health Services Research* 43(1, Part II), pp. 401-418. ■

As parents gain a job with private health insurance coverage, their children may lose public coverage

More than 9 million U.S. children have no health insurance coverage, despite expansions in State Medicaid insurance and the State Children's Health Insurance Program (SCHIP). An Oregon study found a higher rate of uninsured children among privately insured parents than parents covered by public insurance. This suggests that when parents succeed in pulling themselves out of poverty and gaining employment with private health insurance coverage, their children may lose public insurance, notes Jennifer E. DeVoe, M.D., Ph.D. Dr. DeVoe and colleagues at Oregon Health and Science University studied families enrolled in Oregon's food stamp program, which has eligibility requirements similar to Oregon's Medicaid program. They examined the link between parental insurance status and type and children's insurance status.

Nearly 11 percent of children, presumed eligible for public insurance, were nonetheless uninsured. Children more likely to be uninsured were those who had an employed parent, were Hispanic, or came from families with higher household earnings (from \$26,616 to \$36,996 per year, 133 to 185 percent of the Federal poverty level).

Children with an uninsured parent were 12 times more likely to be uninsured than children with insured

parents. Yet children of privately insured parents were more than four times more likely to be uninsured than children whose parents were covered by public insurance such as Medicaid. Thus, low-income Oregon parents at the higher end of the public insurance income threshold and those with private insurance were having the most difficulty keeping their children insured. This finding contrasts with previous reports that employees with single coverage, who decline employer-sponsored family coverage, enroll their children in public programs.

Privately-covered parents with uninsured children may not be able to afford the premiums for family coverage, or employers may not offer coverage to children who qualify for public coverage. On the other hand, parents may think that their children are not eligible for Medicaid or SCHIP once adults are no longer covered, which is often not the case. The study was supported in part by the Agency for Healthcare Research and Quality (HS14645 and HS16181)

More details are in "Uninsured but eligible children: Are their parents insured? Recent findings from Oregon," by Dr. DeVoe, Lisa Krois, M.P.H., Christine Edlund, M.Sc., and others in the January 2008 *Medical Care* 46(1), pp. 3-8. ■

The financial burden of health care felt by low-income families a decade ago may now affect middle-income families

With soaring health care costs, private insurance may no longer provide sufficient financial protection for a growing number of American families, reveals a new study. Jessica S. Banthin and Didem M. Bernard, of the Agency for Healthcare Research and Quality, with colleague Peter Cunningham of the Center for Studying Health System Change, analyzed data from the national Medical Expenditure Panel Survey (MEPS) from 2001 to 2004. They found that the rise in out-of-pocket health care expenses, along with stagnant incomes, led one in five privately insured people in middle-income families to face a high financial burden by 2004. Two times as many poor and low-income, privately insured persons faced high financial burdens in that

year. Also greatly affected were individuals with nongroup coverage, whose financial burden increased by more than a third from 2001 to 2004.

This situation creates problems because families who find it hard to pay their medical bills often delay or forego needed medical care, note the researchers. They defined health care burden as the ratio of total family out-of-pocket spending for health care services and premiums to total family income. Even after accounting for inflation, total spending for premiums and services rose \$553 to \$3,211, a 21 percent increase over the period, while family incomes were largely unchanged. The increase in families' financial burdens was driven entirely by people with private (employer-sponsored)

insurance. Among persons with nongroup insurance plans, 52.7 percent had high out-of-pocket burdens in 2004, an increase from 39 percent in 2001. There was no change in financial burdens among the uninsured and those with public coverage. Recent projections estimate that both overall private health insurance costs and out-of-pocket spending will continue to rise by about 6-7 percent annually through 2016.

See "Financial burden of health care, 2001-2004," by Drs. Banthin, Cunningham, and Bernard, in the January/February 2008 *Health Affairs* 27(1), pp. 188-195, 2008. Reprints (AHRQ publication no. 08-R032) are available from AHRQ.* ■

Public health insurance coverage continues to play an important role for working families with children

A growing number of families with access to job-based insurance are relying on public coverage for at least some family members. In the past decade, the State Children's Health Insurance Program (SCHIP) and other public programs have provided a vital safety net for families, note two economists at the Agency for Healthcare Research and Quality (AHRQ). Jessica P. Vistnes, Ph.D., and Barbara S. Schone, Ph.D., analyzed data from the Medical Expenditure Panel Survey for 1997 and 2005, spanning the 8-year period following passage of SCHIP. The authors speculate that the increased availability of public insurance and the high cost of purchasing job-based insurance for family coverage led to the trends of increased public coverage.

For families without access to job-based insurance, roughly two-thirds of single-parent and over half of two-parent families with children had at least one family member covered by public insurance in 2005. Yet, even among families with access to job-based insurance, nearly half of minority single-parent families had at least one family member with public coverage.

For families with access to job-based insurance, the proportion of single- and two-parent families with children who were covered by only private insurance declined from 67 percent to 54 percent and from 85 to 80 percent, respectively. At the same time, the rate at which such families obtained full coverage either through public coverage alone or in combination with private coverage increased for both single- and two-parent families. The rise in the mixture of public and private coverage for single-parent families mostly reflects a large increase in the rate at which adults elected private coverage and enrolled all of their children in public insurance. For example, the proportion of single-parent families in which adults had private coverage and the children were publicly insured tripled from 5.1 to 15.5 percent.

More details are in "Pathways to coverage: The changing roles of public and private sources," by Drs. Vistnes and Schone, in the January/February 2008 *Health Affairs* 27(1), pp. 44-57. Reprints (AHRQ publication no. 08-R033) are available from AHRQ.* ■

The Medicare Part D prescription drug benefit has modestly boosted drug use and reduced average out-of-pocket expenses

The Medicare Part D prescription drug benefit, begun in 2006, saved elderly participants about \$9 a month and gave them an average extra 14 days of pills, estimates one of the first studies of the drug benefit. Researchers found that prescription drug use by the elderly increased by nearly 6 percent and out-of-pocket expenditures decreased 13 percent. The study used data on Medicare beneficiaries from a national pharmacy chain from September 2004 to April 2007 to examine the impact of the Part D drug benefit on drug use and costs. They compared drug use and expenses for persons age 66 to 79 years, who were eligible for the Part D benefit, with a control group of persons

aged 60 to 63 years, who were ineligible for the benefit.

The effects of Part D were modest on average, but nevertheless substantial for those who enrolled. Persons who enrolled the earliest had the largest decrease in drug expenditures and largest increases in prescription drug use. The finding that late enrollees experienced small decreases in expenditures, but large jumps in drug use, may be due to unmet demand among these seniors before Part D, suggest the researchers.

During the penalty-free Part D enrollment period (January to May 2006), average monthly drug use increased by 1.1 percent and out-of-pocket expenditures decreased by 8.8 percent. After enrollment stabilized (June 2006 to April

2007), average monthly drug use increased by 5.9 percent and out-of-pocket expenditures decreased by 13.1 percent. Compared with eligible nonenrollees, enrollees had higher out-of-pocket expenditures and use at baseline, but experienced significantly larger decreases in expenditures and increases in drug use after enrollment. The study was supported in part by the Agency for Healthcare Research and Quality (HS15699).

See “The effect of the Medicare Part D prescription benefit on drug utilization and expenditures,” by Wesley Yin, Ph.D., Anirban Basu, Ph.D., James X. Zhang, Ph.D., and others, in the February 2008 *Annals of Internal Medicine* 148(3), pp. 169-177. ■

Emergency department bills exceed payments over 9-year period

Average emergency department (ED) charges per visit nearly doubled from 1996 to 2004. While payments for those visits also increased, they did not keep pace with charges, a new study finds. Researchers analyzed ED data from the Medical Expenditure Panel Survey-Household Component, which provides data on health care use and spending from a nationally representative sample of the United States. They found that average ED charges increased from \$713 in 1996 to \$1,390 in 2004. Average payments for those emergency visits grew as well, from \$410 in 1996 to \$592 in 2004. Despite the increases, the overall proportion of charges to payments ebbed from 57 percent in 1996 to 42 percent in 2004.

The Emergency Medical Labor and Treatment Act of 1986 requires emergency departments to treat all comers, regardless of their ability to pay. This study showed that many hospitals are not being fully reimbursed for the care they provide. While patients with private insurance typically paid 56 percent of their charges in 2004, those insured by Medicaid paid just a third of their total bill and uninsured patients paid 35

percent of their fee. One State has seen 12 percent of its EDs close (though the number of beds rose by 16 percent), a decision the authors surmise may have been partly related to financial concerns.

The authors suggest that charges jumped for several reasons, including escalating costs of providing care due to higher salaries for nurses and use of expensive technologies that aid in diagnosis and treatment. One concern is that hospitals may resort to inflating charges in order to receive a reasonable reimbursement because insurers have greatly limited the amount they will pay. This practice will inevitably do most harm to the uninsured, who will face even higher charges for ED care. This study was funded in part by the Agency for Healthcare Research and Quality (HS13920).

See “Decreasing reimbursements for outpatient emergency department visits across payer groups from 1996 to 2004,” by Renee Y. Hsia, M.D., M.Sc., Donna MacIsaac, M.S., and Laurence C. Baker, Ph.D., in the March 2008 *Annals of Emergency Medicine* 51(3), pp. 265-274 and pp. 274e1-274-e5. ■

Acute Care/Hospitalization

Patient safety problems are relatively infrequent among hospitalized children

Conditions indicating patient safety problems (patient safety indicators, PSIs), such as postoperative respiratory failure or infections due to medical care, are infrequent among hospitalized children, reveals a new study. Three types of hospital-level effects models, which accounted for hospital differences, found few and similar problems at 34 academic, freestanding children's hospitals. Anthony D. Slonim, M.D., Dr.P.H., of the George Washington University School of Medicine, and colleagues examined a database of all pediatric discharges from the hospitals in 2003.

They computed PSI rates for all discharged children, and calculated the patient and hospital characteristics associated with these PSIs. The researchers used three increasingly conservative models to control for hospital-level effects: robust standard error estimation, a fixed effects model, and a random effects model. The PSIs were relatively infrequent events in the hospitalized children, ranging from 0 per 10,000 (postoperative hip fracture) to 87 per 10,000 (postoperative respiratory failure).

Significant factors associated with PSIs included neonatal age, white race, public insurance status, extreme severity of illness, and

hospital size of over 300 beds. All these groups had higher rates of PSIs than their reference groups. There were similarities in both the clinical and statistical significance of the PSIs across each of the three models. The study was supported by the Agency for Healthcare Research and Quality (HS14009 and HS13179).

More details are in "Pediatric patient safety events during hospitalization: Approaches to accounting for institution-level effects," by Dr. Slonim, James P. Marcin, M.D., M.P.H., Wendy Turenne, M.A., and others, in the December 2007 *HSR: Health Services Research* 42(6), pp. 2275-2293. ■

State policies can influence the safety of hospitalized children via Medicaid payments

The care and safety of hospitalized children is influenced by the policies of State governments through their prominent role as payer of hospital pediatric services. For example, the likelihood of a pediatric adverse event is much greater in hospitals in markets in which Medicaid payers face relatively little competition. The researchers examined the association between Medicaid patient, hospital, and market characteristics and the likelihood of two adverse events, decubitus ulcers (severe pressure sores) and accidental puncture or laceration (also called patient safety indicators, PSIs).

They used pediatric discharge data from the 1999 to 2001 State Inpatient Databases from the AHRQ Healthcare Cost and Utilization Project, which they merged with American Hospital Association annual survey data, and Medicaid data from Florida, New York, and Wisconsin.

Overall, Medicaid patients experienced two fewer adverse events than privately insured patients for every

10,000 discharges for each type of patient at risk, a significant difference.

However, at the hospital level, hospitals with higher Medicaid service levels, either in terms of the proportion of Medicaid patients or in Disproportionate Share payments received, had higher PSI rates. In multivariate analysis, patients in markets in which Medicaid payers faced relatively little competition were 60 percent more likely to experience a PSI, while patients in markets in which hospitals faced relatively little competition were 31 percent less likely to experience an adverse event. Medicaid characteristics (which differed among the three states) were not significantly associated with the incidence of a PSI.

See "Medicaid markets and pediatric patient safety in hospitals," by Richard B. Smith, Ph.D., Robyn Cheung, R.N., Ph.D., Dr. Owens, and others, in the October 2007 *HSR: Health Services Research* 42(5), pp. 1981-1998. Reprints (AHRQ Publication No. 08-R018) are available from AHRQ.* ■

Agency News and Notes

Book chapter provides strategies and tips for addressing health literacy

Addressing health literacy is an important component of improving patient safety, and patients and families can bolster health literacy's contribution to creating a safe care experience, notes Cindy Brach, of the Center for Organization, Delivery, and Markets, Agency for Healthcare Research and Quality, in a recent book chapter. Ms. Brach and coauthor, Cezanne Garcia, M.P.H., of the University of Washington, provide strategies and tips for addressing health literacy, and

examples of provider organizations working with patients and their families. The chapter is in the newly published book, *Engaging Patients as Safety Partners*. The authors review techniques for helping patients and families understand and act on patient safety information, as well as techniques for including them as partners in the patient safety process. They also describe health literacy organizational assessment tools such as the Pharmacy Health Literacy Assessment Tool and the

forthcoming Health Literacy CAHPS® instrument. Finally, they offer tips for building a health literacy curriculum and including patients and families as training partners.

More details are in "Integrating health literacy into patient safety partnerships," by Ms. Brach and Ms. Garcia, in *Engaging Patients as Safety Partners: A Guide for Reducing Errors and Improving Satisfaction* (editor: Patrice L. Spath); Chicago: Health Forum Inc., 2008. ■

Asian-Pacific Islanders are more likely to die from serious, but treatable, hospital complications

Asian-Pacific Islanders are 16 percent more likely than whites to die from serious, but treatable, complications in U.S. hospitals, according to data from the Agency for Healthcare Research and Quality (AHRQ). Asian-Pacific Islanders also experience significantly higher rates of many non-fatal complications and injuries.

The approximately 12.5 million Asian-Pacific Islanders in the United States include native Hawaiians, Samoans, and people who trace their origin to countries such as China, Viet-Nam, the Philippines, and India. Experts who study health care quality believe Asian-Pacific Islanders may experience potentially avoidable complications more for several possible reasons, including being cared for in hospitals that provide less quality care; not receiving the same quality of care as other patients; having cultural or linguistic issues when communicating with doctors and nurses that may affect their care; or being sicker and more vulnerable to complications than other patients.

AHRQ's new analysis also found that, compared with white patients, Asian-Pacific Islanders having surgery were:

- 42 percent more likely to develop a blood infection (sepsis).

- 34 percent more likely to suffer kidney failure.
- 21 percent more likely to bleed internally or develop a large blood clot.
- 14 percent more likely to need a ventilator to breathe.

In addition, Asian-Pacific Islander patients hospitalized for surgical as well as medical care are 12 percent more likely to experience accidental punctures or cuts.

The report uses statistics from a special disparities analysis file created from the Healthcare Cost and Utilization Project (HCUP) 2005 State Inpatient Databases (SID). This file is designed to provide national estimates on disparities for the National Healthcare Disparities Report using weighted records from a sample of hospitals with good reporting of race and ethnicity from 23 States. The sample is designed to approximate a 40 percent stratified sample of short-term, non-Federal hospitals. The data include all patients, regardless of insurance type, as well as the uninsured. For more information, see *Racial and Ethnic Disparities in Hospital Patient Safety Events, 2005*, Statistical Brief #53, (www.hcup-us.ahrq.gov/reports/statbriefs/sb53.pdf). ■

Hospital emergency departments treat mostly poor children

Lower-income children made almost twice as many visits to hospital emergency departments than higher-income children in 2005. The analysis compared rates of emergency room visits by children from low-income communities, where the average household income was \$36,999, with those of children from high-income communities with an average household income of over \$61,000. The rate for those from low-income communities was 414 visits for every 1,000 children. For children from high-income communities, the rate was 223 visits for every 1,000 children. The study was based on more than 12 million emergency department

visits by children under age 18 in 23 States. The analysis also showed:

- In 96 percent of all visits, children were treated and released. Those cases included respiratory conditions; superficial injuries such as bruises; middle ear infections; open wounds such as cuts and scrapes on arms and legs; and muscle sprains and strains.
- For the 5 percent of children admitted to hospitals, the top reasons were pneumonia, asthma, acute bronchitis, appendicitis, dehydration and other fluid and electrolyte disorders, depression and other mood disorders, and epileptic convulsions.

- Roughly 45 percent of the visits were covered by Medicaid, 43 percent were covered by private insurance, 9 percent were uninsured, and 3 percent had other types of coverage.

For more information, see *Pediatric Emergency Department Visits in Community Hospitals from Selected States, 2005*, Statistical Brief No. 52, at www.hcup-us.ahrq.gov/reports/statbriefs.jsp. The report uses statistics from the Healthcare Cost and Utilization Project's State Emergency Department Databases and State Inpatient Databases from 23 States. ■

Hospitalizations for ischemic stroke drop by one-third

Hospitalizations for ischemic stroke fell by a third between 1997 and 2005, according to a recent report from the Agency for Healthcare Research and Quality (AHRQ). An ischemic stroke is when a blood clot blocks the flow of blood to the brain. While 54 of every 10,000 Americans aged 45 and older were hospitalized for ischemic stroke in 1997, the ratio dropped to 36 of every 10,000 Americans the same age in 2005. Hospitalizations for hemorrhagic stroke, caused by a ruptured blood vessel that leads to bleeding within the brain, meanwhile, remained relatively steady during the same period, ranging from 9 to 11 for every 10,000 individuals aged 45 and older. AHRQ's data also found that in 2005:

- Twenty-five percent of hemorrhagic stroke patients died while hospitalized, compared with 6 percent of those with ischemic stroke.
- The portion of hospitalized patients transferred to rehabilitation facilities or nursing homes varied by

condition: 44 percent of those with ischemic stroke; 37 percent with hemorrhagic stroke; 13 percent with mini-strokes that involve shorter-lasting stroke symptoms but are often precursors to strokes; 5 percent with blocked or narrowed arteries—conditions that can lead to strokes.

- While stroke occurs most often in older people, 1 in 10 admitted for hemorrhagic stroke was under 45 years of age.

For more information, see *Hospital Stays for Strokes and Other Cerebral Vascular Diseases, 2005*, Statistical Brief #51, at www.hcup-us.ahrq.gov/reports/statbriefs/sb51.pdf. The report uses statistics from the 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. ■

Most American adults have at least one chronic medical condition

About six of every 10 people in the United States age 18 and older have at least one chronic medical condition, according to data from the Agency for Healthcare Research and Quality (AHRQ). A chronic condition is one that can be expected to last at least one year and result in limitations or the need for ongoing medical care. For example, in 2005 about 22 million Americans received medical care for osteoarthritis and related conditions, 49 million for asthma or chronic obstructive pulmonary disease, 17 million for diabetes, 45 million for high blood

pressure, and 19 million for heart disease.

After analyzing chronic conditions as a whole in 2005, the data indicate that:

- Nearly 4 in 10 Americans between 18 and 34 years of age had at least 1 chronic condition, as did 9 of every 10 aged 65 and older.
- About 77 percent of Americans aged 65 and older had two or more chronic conditions. Only 14 percent of those 18 to 34 had two or more conditions.
- Nine of every 10 dollars spent for medical care (excluding expenses for dental care and

medical equipment and supplies) on adults in the United States was spent to treat persons with chronic conditions.

These findings are 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, the cost of those services, and how they are paid. For more information, go to *Health Care Expenses for Adults with Chronic Conditions, 2005*, MEPS Statistical Brief #203, at www.meps.ahrq.gov. ■

One in four disabled seniors use risky or ineffective medicines

Roughly a quarter of Americans aged 65 and older with disabilities reported using at least one prescription drug deemed inappropriate for persons his or her age, according to the Agency for Healthcare Research and Quality's (AHRQ) 2007 *National Healthcare Disparities Report*. Only about half as many (13 percent) elderly people without disabilities used inappropriate drugs, according to the analysis of 2004 data.

Thirty-three medications are regarded as inappropriate for people 65 and older. These medicines, including drugs such as Xanax, Demerol, Darvon, and Procardia, should be avoided either because they are ineffective, pose a high risk of side effects, or may be avoided in favor of a safer alternative. AHRQ's analysis of medication use among older people also found:

- Use of these drugs was more common among people with complex disabilities (27 percent) than those with basic disabilities (23 percent). Complex

disabilities limit a person's ability to work or socialize, while basic disabilities limit a person's ability to walk, bathe, or carry out other everyday activities.

- Older people with disabilities, regardless of their race or ethnicity, were at least twice as likely as older people without disabilities to have used an inappropriate prescription drug.
- Seniors with disabilities who never finished or stopped at high school were more likely to use potentially inappropriate drugs than those who went on to college.

For more information, go to the 2007 *National Healthcare Disparities Report* (www.ahrq.gov/qual/qdr07.htm), which examines disparities in Americans' access to and quality of health care by race, ethnicity, income, and education. ■

Only about 1 in 10 adult Americans have all the skills needed to manage their health

Just 12 percent of America's 228 million adults have the skills to manage their own health care proficiently, according to data from the Agency for Healthcare Research and Quality's 2007 *National Healthcare Disparities Report*. These skills, known collectively as health literacy, describe a person's ability to obtain and use health information to make appropriate health care decisions. These skills include weighing the risks and benefits of different treatments, knowing how to calculate health insurance costs, and being able to fill out complex medical forms.

A person with poor health literacy may not get good results

from their health care and increase the risks of medical errors. A 2003 survey of health literacy skills classified adults into four categories: proficient, intermediate, basic, and below basic. In addition to the 12 percent deemed proficient, the survey found that:

- 53 percent had intermediate skills, such as being able to read instructions on a prescription label and determine the right time to take medication.
- 22 percent had basic skills, such as being able to read a pamphlet and understand two reasons why a disease test might be appropriate despite a lack of symptoms.

- 14 percent had below basic skills, meaning they could accomplish only simple tasks such as understanding a set of short instructions or identifying what is permissible to drink before a medical test. Of these, 7 million were nonliterate in English.

For more information, go to the 2007 *National Healthcare Disparities Report* (www.ahrq.gov/qual/qdr07.htm), which examines the disparities in Americans' access to and quality of health care, with breakdowns by race, ethnicity, income, and education. ■

AHRQ report indicates that gene-based tests need better monitoring

A new report on genetic testing from the Agency for Healthcare Research and Quality (AHRQ) calls for the creation of improved public health surveillance databases and health information technologies to monitor the use of gene-based tests and their impact on patient outcomes. Funded by the Centers for Disease Control and Prevention, the report, titled *Infrastructure to Monitor Utilization and Outcomes of Gene-based Applications: An Assessment*, found current public health monitoring systems lack the capability to monitor the use or outcomes of gene-based tests and treatments. Report authors identified several limitations of existing databases and potential solutions to overcome these limitations.

Researchers agreed that the development of gene-based tests is outpacing the evaluation of their accuracy and clinical utility. Gene-based tests may, in some cases, help make early diagnosis of a disease, improve risk prediction, and target therapies for both traditional gene-based disorders as well as common chronic diseases. However, since all tests and treatments are not expected to have the same amount of benefit, experts said it is important to distinguish beneficial tests and treatments from those that have little or no benefit or that may even harm the public.

Many gene-based tests are only recommended for people with certain risk factors. For example, the U.S. Preventive Services Task Force (Task Force) recommends primary care physicians should refer only high-risk women for genetic counseling and testing to detect gene mutations associated with breast or ovarian cancers. The Task Force recommends that women who do not have a family history of either breast or ovarian cancer and are unlikely to test positive for the mutations should not be referred for testing, as there are potential harms involved in genetic testing, including false-positive test results. Also, the Task Force recommends against routine genetic screening in the general population for hereditary hemochromatosis, a genetic disease that causes the body to absorb and store too much iron.

Better monitoring capabilities would help identify which gene-based tests improve patient outcomes and are cost-effective, researchers found. By 2009, the world market for gene-based testing is expected to reach \$12.5 billion.

More than 1,000 gene-based tests are now available to consumers via their clinicians, and many more are expected to become available in the near future. Some

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Gene-based tests

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of these tests are marketed directly to consumers. The Federal Trade Commission has issued a consumer alert on at-home genetic testing and urges consumers to be skeptical of claims made by companies that are

marketing these tests directly to consumers. AHRQ recommends patients consult with their clinicians to evaluate their risk factors and determine their need for genetic testing.

The report is available online at <http://effectivehealthcare.ahrq.gov/>. ■

Announcements

New toolkit can help improve care for patients with chronic care conditions

The Agency for Healthcare Research and Quality has released a new toolkit that will help improve care for patients who need chronic care. *Toolkit for Implementing the Chronic Care Model in an Academic Environment* presents a range of materials for implementing the Chronic Care Model in academic health care settings. The toolkit can be adapted and used to teach medical residents the essential components of the Chronic Care Model, such as how to work in a team environment and improve care for patients with chronic illnesses.

In 2005, the Association of American Medical Colleges launched an initiative to promote this innovative approach in academic clinics throughout the country. As part of the Academic Chronic Care Collaborative, it selected four high-performing residency programs to share their successes, challenges, and lessons learned in this interactive toolkit.

Designed to transform the way chronic care is delivered, the Chronic Care Model creates a unique, multidisciplinary team approach that empowers patients to become active participants in their

own care. The lessons learned by the organizations involved in the Academic Chronic Care Collaborative provide a guide to others implementing the model. Each section is self-contained and addresses the topics of engaging leadership, harnessing the academic culture, putting the Chronic Care Model into practice, and health professions education for chronic care.

To view the toolkit, go to www.ahrq.gov/populations/chroniccaremodel. ■

HCUP 2006 Kids' Inpatient Database (KID) is now available

Released every three years, the Agency for Healthcare Research and Quality's Healthcare Cost and Utilization Project (HCUP) Kids' Inpatient Database (KID) featuring 2006 data is now available. The KID is the only dataset on hospital use, outcomes, and charges designed to study children, and includes all patients under age 21 regardless of payer (privately insured, Medicaid, uninsured). The data can be weighted to produce national estimates, allowing researchers and policymakers to use the KID to identify, track, and analyze

national trends in pediatric health care issues on utilization, access, charges, quality, and outcomes. Such topics include:

- Rare conditions, such as congenital anomalies.
- Common conditions, such as asthma.
- Economic burden of pediatric conditions, such as adolescent pregnancy.
- Access to services.
- Quality of care and patient safety.
- Impact of health policy changes.

Earlier KIDs exist for data years 1997, 2000, and 2003. As part of the HCUP database family, the KID is considered by health services researchers to be one of the most reliable and affordable databases for studying important pediatric health care topics. Please go to www.hcup-us.ahrq.gov/kidoverview.jsp for additional information about the KID, including how to purchase the data. Data from the 2006 KID can also be accessed via HCUPnet at <http://hcupnet.ahrq.gov/>, the free online data query system. ■

AHRQ's HCUP 2006 Nationwide Inpatient Sample (NIS) now available

AHRQ's Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS) featuring 2006 data was released in May. This inpatient care database includes all patients, regardless of payer—including people covered by Medicare, Medicaid, private insurance, and the uninsured. The data can be weighted to produce national estimates, allowing researchers and policymakers to use the NIS to identify, track, and analyze national trends in health care utilization, access, charges, quality, and outcomes.

As part of the HCUP database family, health services researchers consider the NIS one of the most reliable and affordable databases for studying important health care topics. Please go to www.hcup-us.ahrq.gov/nisoverview.jsp for additional information about the NIS including how to purchase the data. Data from the 2006 NIS can also be accessed via HCUPnet (<http://hcupnet.ahrq.gov/>), the free online data query system. ■

New evidence provides clinicians with better tools to help smokers quit

An updated clinical practice guideline released by the U.S. Public Health Service (PHS) has identified new counseling and medication treatments that are effective for helping people quit smoking. *Treating Tobacco Use and Dependence: 2008 Update* was developed by a 24-member, private-sector panel of leading national tobacco treatment experts that reviewed more than 8,700 research articles published between 1975 and 2007. The review found that there are now seven medications approved by the Food and Drug Administration as smoking cessation treatments that dramatically increase the success of quitting: bupropion SR, nicotine gum, nicotine inhaler, nicotine lozenge, nicotine nasal spray, nicotine patch, and varenicline.

The 2008 PHS guideline update also found evidence that counseling by itself or especially in conjunction with medication can greatly increase a person's success in quitting. In particular, quitlines were found to be effective and can reach a large number of people.

A consortium of eight Federal and private-sector, nonprofit

organizations collaborated to sponsor the 2008 PHS guideline update. They are: the Agency for Healthcare Research and Quality (AHRQ), which coordinated the update; the Centers for Disease Control and Prevention; the National Cancer Institute; the National Heart, Lung, and Blood Institute; the National Institute on Drug Abuse; the Robert Wood Johnson Foundation; the American Legacy Foundation; and the Center for Tobacco Research and Intervention at the University of Wisconsin School of Medicine and Public Health. In addition, more than 40 broad-based organizations have endorsed the guideline.

Other recommendations issued in the 2008 PHS guideline update include the following:

- Clinicians, in their offices and in the hospital, should ask their patients if they smoke and offer counseling and other treatments to help them quit. According to AHRQ's 2007 National Healthcare Quality Report, the percentage of hospitalized heart attack patients who were counseled to quit smoking has increased from 42.7 percent in 2000-2001 to 90.9 percent in

2005. Moreover, 48 States, Puerto Rico, and the District of Columbia all performed above 80 percent on this measure in 2005.

- If tobacco users are unwilling to make an attempt to quit, clinicians should use the motivational treatments that have been shown effective in promoting future attempts to quit.
- Individual, group, and telephone counseling are effective, and their effectiveness increases with treatment intensity. Counseling should include two components: practical counseling and social support.
- Tobacco cessation treatments also are highly cost-effective relative to other clinical interventions. Providing coverage for these treatments increases quit rates. Insurers and purchasers should ensure that all insurance plans include the counseling and medication treatments that have been found to be effective in the 2008 PHS guideline update.
- Counseling treatments have been shown to be effective for

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New evidence

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adolescent smokers and are now recommended. Additional effective interventions and options for use with children,

adolescents, and young adults need to be determined.

The 2008 PHS guideline update and its companion products, which include a consumer guide and a pocket guide for clinicians, are

available online at www.surgeongeneral.gov/tobacco/default.htm. Copies of the 2008 PHS guideline update products are also available by calling 1-800-358-9295. ■

Research Briefs

Arbogast, P.G., Kaltenbach, L., Ding, H., and Ray, W.A. (2008, January). "Adjustment for multiple cardiovascular risk factors using a summary risk score." (AHRQ grant HS10384). *Epidemiology* 19(1), pp. 30-37.

Studies that use large databases on medical care encounters for cardiovascular disease often include confounding patient risk factors such as cardiovascular medications and coexisting illnesses. The standard method of controlling for such confounding is to fit multiple-regression models that include each of the potential confounders. However, using a summary risk score can be a reasonable approach for summarizing many risk factors in large cohort studies, concludes this study. The authors conducted simulation studies comparing regression models adjusting for all risk factors with models using a summary risk score (created from regression models relating these risk factors to outcome) to adjust for multiple cardiovascular risk factors for large cohort studies. The standard errors from the regression models using the summary risk score were similar to the standard errors from regression models directly adjusting for all risk factors.

Austin, E.L., Andersen, R., and Gelberg, L. (2008). "Ethnic differences in the correlates of

mental distress among homeless women." (AHRQ grant HS08323). *Women's Health Issues* 18, pp. 26-34.

To study ethnic differences in the correlates of mental distress among homeless women, the authors conducted face-to-face interviews with 821 homeless women in the Los Angeles area, of whom 67 percent were black, 17 percent Hispanic, and 16 percent white. Almost half of the women studied had a mental distress score suggesting the need for further evaluation and possible clinical intervention. Black women reported the lowest overall mental distress scores (43 percent compared with 51 percent for both white and Hispanics), as measured by the Mental Health Index (MHI-5). Nearly twice as many white women as Hispanic or black women reported childhood or recent physical or sexual assault. More than one-third of these homeless women had been physically or sexually abused during childhood or physically assaulted in the past year. One striking finding is the high level of mental distress associated with being partnered for black women without children and among white women, regardless of parenting status. These and other differences should be considered in the development of culturally appropriate services for the homeless population.

Clancy, C.M. (2008, February). "Bariatric surgery: What women need to know." *Nursing for Women's Health* 12(1), pp. 21-24.

Bariatric surgery, such as gastric bypass, can lead to dramatic weight loss of 57 to 66 percent. This much weight loss has led to resolving diabetes in 77 percent of patients. Clearly, bariatric surgery can be a lifesaver in many cases, notes Carolyn M. Clancy, M.D., Director of the Agency for Healthcare Research and Quality, in this commentary. Bariatric surgery is recommended for patients with a body mass index (BMI) of at least 40 or with a BMI of at least 35 plus serious medical conditions such as severe sleep apnea and diabetes. Although the safety of bariatric surgery has improved (death rates of 0.19 percent in 2004), it still remains a high-risk procedure with 4 in 10 patients developing a complication within 6 months. Given the necessary lifestyle changes that must accompany bariatric surgery, the role of nurses really can "make or break" the surgery's success for women, notes Dr. Clancy. Reprints (AHRQ publication no. 08-R061) are available from AHRQ.*

Clancy, C.M. (2008). "Clinical research training: Scientific literacy for the twenty-first century." *Journal of General*

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Research briefs

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Internal Medicine 23(2), pp. 219-220.

Health information technology holds great promise for delivering evidence-based information to the point of care and shortening the oft-discussed delay in incorporating scientific advances into routine practice. Use of this evidence demands clinicians with strong skills in information management, interpretation, and application, notes Carolyn M. Clancy, M.D., Director of the Agency for Healthcare Research and Quality. She contends that the capacity to understand how evidence is generated, synthesized, and applied to the care of an individual patient with unique characteristics and preferences can no longer be considered a special interest. Rather, for clinicians, who need to understand clinical research methods and clinical methods, it is becoming a required skill set. Programs that incorporate these skills into clinical training time increase the potential for that training to influence how residents consider the strength of clinical evidence in their daily work.

Cook, R.I., Wreathall, J., and Smith, A., and others. (2007, December) "Probabilistic risk assessment of accidental ABO-incompatible thoracic organ transplantation before and after 2003." (AHRQ grant HS12461). *Transplantation*, 84(12), pp. 1602-1609.

Following an accidental ABO-incompatible thoracic organ transplantation in 2003, the authors of this study undertook a probabilistic risk assessment (PRA) of the donor-recipient matching processes for thoracic organ transplantation before and after 2003. PRA, a quantitative method

for system risk assessment, uses mathematical models to determine the effect of specific process faults on various types of transplant failure. In the model, transplantation matching is a series of five events, starting with the use of a match-list or open offer and proceeding to confirmation testing of ABO compatibility versus no confirmation testing. According to findings generated from the PRA, the initially low likelihood of an ABO-incompatible thoracic organ transplantation event was reduced by about sixtyfold because the United Network for Organ Sharing changed its procedures following the March 2003 incident. At a likelihood of 1 in 4.5 million instances of transplantation, such an event is on an order of risk of being killed by lightning in the next year.

Cox, E.D., Smith, M.A., Brown, R.L., and Fitzpatrick, M.A. (2008). "Assessment of the physician-caregiver relationship scales (PCRS)." (AHRQ grant HS13183). *Patient Education and Counseling* 70, pp. 69-78.

As with physician-patient relationships, physician-caregiver relationships determine adherence to physician guidance, health outcomes, and care satisfaction. However, measures of this important relationship are lacking. Toward this end, these authors developed and validated the physician-caregiver relationship scales (PCRS), incorporating the relationship domains of liking, understanding, and dominance. They analyzed videotapes of 100 children's medical visits using verbal measures (personal remarks, laughter, agreements, approvals, concerns, reassurances, back channels, and empathy) and nonverbal measures (touch initiations, upright postures, and leaning toward a participant), as

well as summary measures (physician portion of total talk and number of questions). The findings supported the value of the PCRS domains of liking, understanding, and dominance as measures of physician-caregiver relationships.

Curtis, J.R., Xi, J., Patkar, N., and others. (2007, December). "Drug-specific and time dependent risks of bacterial infection among patients with rheumatoid arthritis who were exposed to tumor necrosis factor alpha antagonists." (AHRQ grant HS10389). *Arthritis & Rheumatism* 56(12), pp. 4226-4227.

Patients with rheumatoid arthritis (RA) who are treated with tumor necrosis factor alpha (TNF alpha) antagonists incur an increased risk of being hospitalized with a serious bacterial infection, as compared with those patients with RA who receive methotrexate (MTX), according to an earlier study by these researchers. To further characterize drug-specific risks, they evaluated the comparative effects of antibody-based and non-antibody-based TNF alpha antagonists on the risk of hospitalization for bacterial infection. The patients who were studied following the initiation of TNF alpha therapy consisted of one group (850) who received the antibody-based infliximab and another group (1,412) who received the non-antibody-based etanercept. The comparison group (2,933) received MTX only. The incidence of a serious bacterial infection was highest during the first 6 months after initiation of a TNF alpha antagonist; however, this finding was only significant among patients exposed to antibody-based infliximab. This risk did not persist beyond 6 months. Since there is a

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relatively low absolute risk of infection, for many, the expected benefits likely will outweigh even the modestly increased risks of associated adverse events.

Geisinger, K.R., Vrbic, C., Grzybicki, D.M., and others. (2007). "Interobserver variability in human papillomavirus test results in cervicovaginal cytologic specimens interpreted as atypical squamous cells." (AHRQ grant HS13321). *American Journal of Clinical Pathology* 128, pp. 1010-1014.

Greater knowledge about possible interobserver variability (IOV) in the interpretation of Pap tests may help to enhance its accuracy, suggest the authors of this study. They examined interpretations of Pap specimens by five pathologists in the same laboratory over a 2-year period to determine variability in the proportions of human papillomavirus (HPV) DNA specimen cells interpreted as belonging to one of two categories. These cells may be classified as either atypical squamous cells of undetermined significance (ASCUS) or atypical squamous cells that cannot exclude high-grade squamous intraepithelial lesion (ASC-H). Overall, among 3,680 specimens reviewed by a pathologist over the 2-year period, 1,299 (35.3 percent of all pathologist diagnoses) had an interpretation of ASCUS and 222 (6.0 percent of all pathologist diagnoses) had an interpretation of ASC-H. During this same interval, a diagnosis of low-grade squamous intraepithelial lesion (LSIL) or high-grade squamous intraepithelial lesion (HSIL) was made in 1,444 specimens (7.1 percent of total specimens), making the ratio of

ASCUS plus ASC-H/SIL to be 1.05. This ratio varied among the five pathologists from 0.58 to 1.53. Although these differences were not statistically significant, the researchers believe that this is the first time such objective IOV has been shown.

Gelberg, L., Lu, M.C., Leake, B.D., and others. (2008). "Homeless women: Who is really at risk for unintended pregnancy?" (AHRQ grant HS08323). *Maternal and Child Health* 12, pp. 52-60.

One-third of homeless women surveyed in Los Angeles used contraception rarely or never in the past year, found this study. Women who had a partner, were monogamous, and did not engage in the sex trade were 2.4 times more likely to not use or rarely use contraception. Women who disliked their partner or were uncertain about which contraceptive to use were 2.6 times more likely to fail to use contraception. Having a regular source of care and having been encouraged to use contraception protected against failure to use contraception. Clearly, homeless women, even those at apparently low risk for unintended pregnancy, need to be targeted with integrative services that include contraception education, a regular source of medical care, and encouragement to use contraception, suggest the researchers. Their findings were based on a survey of 974 homeless women in Los Angeles County in 1997.

Glance, L.G., Osler, T.M., Mukamel, D.B., and Dick, A.W. (2008, February). "Impact of the present-on-admission indicator on hospital quality measurement." (AHRQ grant HS13617). *Medical Care* 46(2), pp. 112-119.

The Agency for Healthcare Research and Quality has constructed Inpatient Quality Indicator (IQI) mortality measures to assess hospital quality using routinely available administrative data. However, with the exception of California, New York, and Wisconsin, administrative data do not include a present-on-admission (POA) indicator to distinguish between a patient's preexisting conditions and complications of their hospital stay. This could distort ratings of hospital quality performance, assert the authors of this study. They retrospectively examined the impact of the POA indicator on hospital quality assessment based on over 2 million inpatient admissions between 1998 and 2000 in the California State Inpatient Database. The inclusion of the POA indicator frequently resulted in changes in the quality ranking of hospitals classified as high-quality or low-quality using routine administrative data. These findings emphasize the need to include a POA indicator if administrative data are to serve as the information infrastructure for reporting of care quality.

Green, N.S., Rinaldo, P., Brower, A., and others. (2007, November). "Committee report: Advancing the current recommended panel of conditions for newborn screening." *Genetics in Medicine* 9(11), 792-796.

The Advisory Committee on Heritable Disorders and Genetic Diseases in Newborns and Children is charged with advising the secretary of the Department of Health and Human Services in areas relevant to heritable conditions, especially newborn screening (NBS). This report summarizes a new process to nominate and review conditions to

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the recommended universal NBS panel. The process consists of the following stages proposed by the Criteria Work Group: submission of a nomination form; an administrative review of the form led by the Health Resources and Services Administration; a review by the Committee to determine if the nomination should go to a formal scientific review conducted by an Evidence Review Work Group or be deferred for review until additional information can be provided by the nominator. Conditions proposed for newborn screening occur at very low frequency in children, but pose serious health risks to those affected. These conditions usually lack studies based on randomized controlled trials. This means that new ground rules for weighing evidence will be needed to assess the validity of claims for health benefits to justify newborn screening for each disorder.

Hill, S. (2007/2008, Winter). "The accuracy of reported insurance status in the MEPS." *Inquiry* 44, pp. 443-468.

The author assessed the level of accuracy in the reporting of private insurance and uninsurance among the nonelderly by the Medical Expenditures Panel Survey Household Component (MEPS-HC), a nationally representative household survey conducted by the Agency for Healthcare Research and Quality. He used four methods of validation, including surveys of employers and providers, and enrollees' documentation of insurance such as insurance cards or policy booklets. He also reviewed survey methodology and validation studies of reported insurance status; described various features of MEPS-HC; discussed variables

associated with misreporting and nonresponse analyses; and compared his findings with other studies. Based on a variety of validation data, reported private insurance and lack of insurance in the MEPS-HC is reasonably accurate, with families, employers, and insurance companies agreeing about private insurance status for 97 percent of the nonelderly. The author concluded that this high level of accuracy supports using MEPS-HC to track trends and analyze policies. Reprints (AHRQ publication no. 08-R051) are available from AHRQ.*

Hsieh, M., Auble, T.E., and Yealy, D.M. (2008, January). "Validation of the acute heart failure index." (AHRQ grant HS10888). *Annals of Emergency Medicine* 51(1), pp. 37-44.

Acute care and emergency physicians often overestimate the probability of short-term death or severe complications for heart failure patients, and tend to treat them in more intense care settings. To improve physician risk assessment and more appropriately guide site of care, the authors of this study validated a clinical prediction rule for heart failure patients admitted through the emergency department. They retrospectively studied 8,384 adult patients admitted to Pennsylvania hospitals in 2003 and 2004 with a diagnosis of heart failure. They reported the proportions of inpatient death, serious medical complications before discharge, and 30-day death in the patients identified as low-risk by the prediction rule. The prediction rule classified 19.2 percent of patients as low-risk. In this group, there were 0.7 percent inpatient deaths, 1.7 percent of patients survived to hospital discharge after a serious complication, and 2.9 percent died

within 30 days after hospitalization. The findings suggest the rule could assist physicians in making site-of-care decisions for this group.

Hughes, R.G. and Clancy, C.M. (2008, January). "Research linking nurses' work hours to errors prompts more state restrictions." *AORN Journal* 87(1), pp. 209-211.

Based on evidence linking nurses' fatigue from long work hours to a higher risk for medical errors, more than a dozen States now either prohibit or restrict mandatory overtime. Whether the solution is a ban or a restriction on mandatory overtime, it is necessary to create working conditions that ensure the safety of patients and well-being of nurses, assert the authors of this paper. They summarize findings of several studies that demonstrate significant risk to patient safety when nurses work beyond 12 hours. In one study, 65 percent of nurses in critical care units reported struggling to stay awake at work at least 1 day during the 28-day study period, and 27 percent reported making at least one error during that time. Another study found that nurses who work more than 12.5 consecutive hours have three times the risk of making an error than nurses who work fewer hours.

Hyle, E.P., Bilker, W.B., Gasink, L.B., and others. (2007). "Impact of different methods for describing the extent of prior antibiotic exposure on the association between antibiotic use and antibiotic-resistant infection." (AHRQ grant HS10399). *Infection Control and Hospital Epidemiology* 28(6), pp. 647-654.

The use of different methods for describing the extent of a person's

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prior antibiotic exposure may substantially alter the identified risk factors for infection with antibiotic-resistant organisms. This has important implications for the choice of antibiotics, note the authors of this study. They systematically reviewed studies that investigated the risk factors for extended-spectrum Beta-lactamase (ESBL)-producing *Escherichia coli* and *Klebsiella* species to identify variability in past methods for describing the extent of antibiotic use. The 25 studies revealed a variety of methods used to describe the extent of a patient's prior antibiotic exposure, with results varying substantially depending on the methods used. For example, use of third-generation cephalosporins was a risk factor for infection with ESBL-producing *E. coli* and *Klebsiella* species when antibiotic use was described as a continuous variable, but not when antibiotic use was described as a categorical variable.

Kelly, P.J., Morrow, J.D., Ning, M-M., and others. (2008, January). "Oxidative stress and matrix metalloproteinase-9 in acute ischemic stroke." (AHRQ grant HS11392). *Stroke* 39, pp. 100-104.

Experimental cell culture and animal stroke model studies indicate that oxidative stress is a key factor in ischemic brain injury. Oxidative stress is also implicated in activation of matrix metalloproteinases (MMPs) and blood-brain barrier injury after ischemia-reperfusion. This study measured F2-isoprostanes (F2IPs), free-radical induced products of neuronal arachadonic acid peroxidation, in acute ischemic stroke, to determine the change in plasma F2IP levels over time and

their relationship with plasma MMP-9 in tPA-treated and tPA-untreated stroke patients. Individuals without prior stroke were controls. In 52 cases and 27 controls, early (median 6 hours postonset) F2IPs were elevated in stroke cases compared with controls. No difference in F2IPs was present at later time points. Early plasma F2IPs correlated with MMP-9 in all patients and the tPA-treated subgroup. This evidence of increased oxidative stress and a relationship with MMP-9 expression in early human stroke supports findings from experimental studies.

Kent, D. M., Ruthazer, R., Griffith, J.L. and others. (2008). "A percutaneous coronary intervention-thrombolytic predictive instrument to assist choosing between immediate thrombolytic therapy versus delayed primary percutaneous coronary intervention for acute myocardial infarction." (AHRQ grant HS08212). *American Journal of Cardiology* 101, pp. 790-795.

Primary percutaneous coronary intervention (PCI) has been found to decrease mortality for patients with ST-segment elevation myocardial infarction (STEMI), especially for those at high risk. For physicians considering the risks and benefits of delayed PCI compared with more immediate thrombolytic therapy, the researchers, building on a previously developed thrombolytic predictive instrument (TPI), developed a mathematical model (PCI-TPI) that can be adapted for incorporation into a conventional computerized electrocardiogram (ECG). The model's predictions were tested using data on 377 patients from the Atlantic Cardiovascular Patient Outcomes Research Team's trial of

PCI versus thrombolytic therapy at 11 Massachusetts and Maryland hospitals. The mean predicted 30-day mortality from those in the thrombolytic therapy arm was 6.3 percent (compared with an actual 6.0 percent); for those in the PCI arm, the mean predicted 30-day mortality was 4.5 percent (compared with an actual 3.9 percent). If incorporated into conventional computerized ECGs, the PCI-TPI could potentially be used in emergency departments and prehospital emergency medical settings to assist physicians considering tradeoffs between immediate thrombolytic therapy and PCI with some delay.

Keohane, C.A., Bane, A.D., Featherstone, E., and others. (2008, January). "Quantifying nursing workflow in medication administration." (AHRQ grant HS14053). *The Journal of Nursing Administration* 38(1), pp. 19-26.

New medication administration systems, such as barcoding technology, show promise for improving patient safety at the point of care. However, organizations need to know how nurses spend their time, so that the new systems can support nurses' workflow and maximize time spent at the patient's bedside. Toward that end, this time-motion study measured the proportion of time that nurses spent on 112 discrete patient care tasks, including medication administration, during a 2-hour period. These observations were performed on the inpatient units of an academic medical center over a 6-month period. Findings from 116 2-hour observation periods revealed that nurses spent 26.9 percent of their time on medication-related activities and 73.1 percent of their time on other

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activities. The average time spent on medication-related activities ranged from 22.8 percent in the intensive care unit setting to 29.1 percent in combined medical/surgery units.

Kraus, S., Barber, T.R., Briggs, B., and others (2008, February). “Implementing computerized physician order management at a community hospital.” (AHRQ grant HS15076). *The Joint Commission Journal on Quality and Patient Safety* 34(2), pp. 74-84.

Four community hospitals belonging to the same health system decided to implement computerized physician order management (CPOM) as the first phase of an electronic medical record project. The project created an organizational structure consisting of a steering committee, a medical executive committee, physician and patient advisory groups, an implementation committee, and task forces on communications, process redesign, training, and security. Work-flow redesign and software configuration were the most intense efforts of the project. A new process was devised for developing regional standard order sets to move toward evidence-based practice and reduce undesirable variation. Although verbal orders were to be discouraged, a process for verbal ordering was also developed. Physicians received 3 hours of training focused on using the computer to create patient lists, enter orders, and use order sets. After two pilot projects in obstetrics and behavioral medicine, one of the four hospitals took the lead in implementing a full CPOM system. After 1 month, the hospital had achieved the first-year goal of 40

percent physician entry; by the end of the first year, physician entry had reached 75 percent.

Linkin, D.R., Fishman, N.O., Landis, R., and others. (2007, December). “Effect of communication errors during calls to an antimicrobial stewardship program.” *Infection Control and Hospital Epidemiology* 28(12), pp. 1374-1381.

Hospital antimicrobial stewardship programs (ASPs) seek to improve antibiotic prescribing practices by antimicrobial formulary restrictions, education, and prior-approval requirements. In prior-approval programs, hospital clinicians obtain permission from ASP practitioners (typically infectious disease-trained physicians or pharmacists) to prescribe restricted antibiotics. However, this study found that inaccurate communication of patient data, particularly microbiological data, during prior-approval calls was associated with double the likelihood of inappropriate antibiotic recommendations from the ASP. The authors suggest that clinicians and ASP practitioners work to confirm that critical data has been communicated accurately prior to use of that data in prescribing decisions. Their findings were based on analysis of 163 ASP prior-approval telephone calls at one medical center.

Lipkus, I.M. (2007, September). “Numeric, verbal, and visual formats of conveying health risks: Suggested best practices and future recommendations.” (AHRQ contract no. 290-05-136). *Medical Decision Making* 27, pp. 696-713.

The author of this paper reviews the strengths and weaknesses of

numeric, verbal, and visual formats for conveying health risks. Numbers are precise, convey an aura of scientific credibility, can be converted from one metric to another, can be verified for accuracy (assuming enough observations), and can be computed using algorithms. However, they lack sensitivity expressing gut-level reactions and intuitions. Verbal terms allow for fluidity in communication; express the level, source, and imprecision of uncertainty; encourage one to think of reasons why an event will or will not occur; and may better capture a person’s emotions. However, they are subject to a high degree of variability in interpretation. Visual displays, increasingly used as adjuncts to numeric and verbal communications of risk, are able to summarize a great deal of data, and reveal patterns that would otherwise go undetected. However, they can mislead by calling attention to certain elements and away from others. Given the current lack of critical tests and theoretical inadequacies, few overall recommendations can be made across the three formats. The author recommends areas for future research.

Melnyk, B.M., Fineout-Overhold, E., Hockenberry, M., and others. (2007, December). “Improving healthcare and outcomes for high-risk children and teens: Formation of the national consortium of pediatric and adolescent evidence-based practice.” (AHRQ grant HS11675). *Pediatric Nursing* 33(6), pp. 525-529.

Many evidence-based interventions shown to improve child and adolescent health and development are not being used in clinical practice. Conversely, many

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clinical practices are being implemented without sufficient evidence to support their use. This paper describes the processes used and outcomes generated from the first Evidence-Based Practice (EBP) Leadership Summit focused on children and adolescents, which was held in February 2007. Several nationally recognized EBP experts and health care leaders from a number of children's hospitals and colleges of nursing across the U.S. participated in the summit. One outcome of the summit was the launching of the new National Consortium for Pediatric and Adolescent EBP. Future Consortium initiatives will include the development of evidence-based clinical practice guidelines, collaborative research/EBP initiatives, tools/resources, and the development of EBP mentors to improve the care and health of the nation's children and adolescents.

Moy, E., and Dayton, E. (2007, November). "Frontiers in gender-based research: Health care quality data." *Women's Health Issues* 17, pp. 334-337.

The *National Healthcare Disparities Report* (NHDR), produced by the Agency for Healthcare Research and Quality, reports only a handful of measures from the perspective of gender-based research each year. Given that women have higher rates of certain illnesses than men and are also disproportionately more likely to live in poor households, it is appropriate to highlight some underused data sources included in the NHDR appendices that are useful for gender-based analyses. The authors briefly discuss nine different data sources of possible interest to researchers. For example, the Centers for Medicare &

Medicaid Services sponsors an End Stage Renal Disease Clinical Performance Measures Project and the United States Renal Data System (USRDS) with data on kidney disease, dialysis, transplantation, survival, and costs. Another example sponsored by the Centers for Disease Control and Prevention is the National Asthma Survey, the most comprehensive national data set on asthma prevalence and care. These and other surveys mentioned in this article offer great possibilities for future research, especially with regard to some components of care of particular importance to women. Reprints (AHRQ publication no. 08-R048) are available from AHRQ.*

Murray, D.J., Boulet, J.R., Avidan, M., and others. (2007). "Performance of residents and anesthesiologists in a simulation-based skill assessment." (AHRQ grant HS16652). *Anesthesiology* 107, pp. 705-713.

These researchers sought to determine if a group of simulations could be used to provide a reliable and valid measure of anesthesia residents' and anesthesiologists' performances in a simulated intraoperative environment. They tested a dozen scenarios with 99 participants who were residents beginning their first year, advanced first-year residents, second- and third-year residents, and experienced anesthesiologists. Each 5-minute scenario involved an electromechanical mannequin undergoing an event such as acute hemorrhage, anaphylaxis, blocked endotracheal tube, and bronchospasm. Participants were instructed to perform all diagnostic or therapeutic actions in "real" time and verbalize each step they were performing to allow accurate coding and response by simulation

staff to any requests by the participant. Scoring measured three to six key diagnostic or therapeutic actions. The majority of more experienced participants readily managed many of the easier scenarios. The authors concluded that the scenarios provided a valid method to discriminate between residents beginning their first year and those with greater anesthesia practice experience and training.

Oken, A, Rasmussen, M.D., Slagle, J.M., and others. (2007, December). "A facilitated survey instrument captures significantly more anesthesia events than does traditional voluntary event reporting." (AHRQ grant HS11521). *Anesthesiology* 107, pp. 909-922.

Certain areas of suboptimal care may not be captured by traditional quality assurance (QA) clinician self-reporting methods. Such reporting may also be limited by cognitive bias and the reluctance of clinicians to report mistakes. In order to develop a supplement to traditional QA reporting, the researchers conducted a pilot study of nonroutine events (NREs) for patients receiving anesthesia using a Comprehensive Open-ended Nonroutine Event Survey (CONES). The surveillance system used in CONES (open-ended questions, live interviewers) is designed to avoid precategorized events, be nonjudgmental in character, facilitate discovery of latent conditions, and provide ample data to inform intervention strategies. During a 30-month study period at a hospital where 8,303 procedures with anesthesia were performed, 183 CONES surveys were administered. Of this sample, 183 (31.1 percent) of the cases contained an NRE, compared with 159 evaluated by traditional QA

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analysis. The results of the CONES survey, when extrapolated, suggest a higher overall incidence of anesthesia-related injury than that found (7.7 percent vs. 1.0 percent) by the traditional QA method.

Perry, M., Williams, R.L., Wallerstein, N., and Waitzkin, H. (2008, February). "Social capital and health care experiences among low-income individuals." (AHRQ grant HS09703). *American Journal of Public Health* 98(2), pp. 330-336.

Social capital—social support, psychosocial interconnectedness, and community participation—is associated with the health care experiences of low-income individuals, found this study. The researchers conducted a Statewide survey of 1,216 low-income New Mexico residents to examine associations between social capital and barriers to health care access, use of care services, satisfaction with care, and quality of provider communication. Social support was inversely related to reported barriers to care, but was not associated with care use or satisfaction or perceived quality of provider communication. Psychosocial interconnectedness was significantly associated with care satisfaction, but not with care access or use or perceived quality of provider communication. These findings provide further support for the theory that community dynamics influence health.

Riegel, B., Moser, D. K., Rayens, M.K., and others. (2008). "Ethnic differences in quality of life in persons with heart failure." (AHRQ grant HS09822). *Journal of Cardiac Failure* 14(1), pp. 41-47.

Much has been written about the Hispanic paradox, which refers to the epidemiologic finding that Hispanics in the United States tend to paradoxically have significantly better health than non-Hispanic whites, despite their higher poverty rate, less education, and worse care access. The major finding of this study, supported by earlier research, was that Hispanics with heart failure improved more over time than whites or blacks after controlling for demographic, clinical, and treatment group differences. Explanations for this phenomenon such as illness chronicity, some inherent cultural strengths, or differences in language will require further research. The study compared health-related quality of life (HRQL) in 1,212 adult heart failure patients who were Hispanic (63 percent), black (19 percent), and white (18 percent). The Minnesota Living with Heart Failure Questionnaire, a 21-item disease-specific measure of HRQL available in either English or Spanish versions, was used to track HRQL at baseline and 3 and 6 months later.

Stukenborg, G.J., Wagner, D.P., Harrell, F.E., and others. (2007). "Which hospitals have significantly better or worse than expected mortality rates for acute myocardial infarction patients?: Improved risk adjustment with present-at-admission diagnoses." (AHRQ grants HS10134 and HS11419). *Circulation* 116, pp. 2960-2968.

Reports on hospital mortality rates for heart attack patients are widely used indicators of hospital quality of care. These reports have been based on logistic regression models and related methods using existing hospital data that do not include present-at-admission

diagnoses. No prior studies have examined how the availability of present-at-admission diagnoses influences risk-adjusted comparisons of hospital heart attack mortality rates. To improve the fairness of hospital comparisons based on earlier statistical models and to better identify hospitals with higher- or lower-than-expected mortality, the researchers applied patient-level risk adjustment models using present-at-admission diagnoses and three statistical methods (indirect standardization, adjusted odds ratios, and hierarchical models) to recalculate standardized mortality ratios. The study included 120,076 heart attack patients discharged from 416 California hospitals from January 1996 through November 1998. Each of the three models using present-at-admission diagnoses identified fewer hospitals as outliers than did California model A (based on the earlier methods). This large improvement in statistical performance is related to the newer models' inclusion of many more variables for comorbid disease.

Sulkowski, M.S., Mehta, S.H., Torbenson, M.S., and others. (2007, October). "Rapid fibrosis progression among HIV/hepatitis C virus-co-infected adults." (AHRQ grant HS07809). *AIDS* 21(16), pp. 2209-2216.

Between 15 and 30 percent of HIV-infected individuals are co-infected with the hepatitis C virus (HCV). HIV co-infection is associated with more rapid progression of liver fibrosis leading to cirrhosis, with HCV-related liver disease being a leading cause of death among HIV-infected individuals. These researchers sought to determine the incidence of liver fibrosis progression among

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co-infected adults receiving HIV care and to test the hypothesis that HCV and HIV treatment alters the risk of liver disease. In a study population of 174 noncirrhotic patients, mostly black men being treated for HIV, there was little or no fibrosis in 136 patients (77 percent) at the time of initial liver biopsy. Followup biopsies performed at a median interval of 2.9 years revealed significant fibrosis progression in 41 patients (24 percent). HCV treatment, received by 37 patients (21 percent), was not associated with fibrosis progression and antiretroviral therapy was not associated with liver disease progression. The researchers conclude that factors other than

HCV or HIV treatment alter the risk of fibrosis progression.

Wren, T.A.L., Do, K. P., Hara, R., and others. (2007, October/November). "Gillette gait index as a gait analysis summary measure. Comparison with qualitative visual assessments of overall gait." (AHRQ grant HS14169). *Journal of Pediatric Orthopaedics* 27(7), pp. 765-768.

The Gillette Gait Index (GGI) is a summary measure incorporating 16 clinically important motion and time parameters for children with cerebral palsy. The researchers used the GGI to determine characteristics of the gait of 25 children with cerebral palsy as measured before and 1 year after corrective leg surgery. GGI scores, calculated from the large amount of data produced by modern

computerized gait analysis, have been shown to correlate with other measures of gait. Since the researchers wanted to establish whether the GGI reflects observers' overall impressions of gait, they compared GGI scores with qualitative visual assessments of overall gait in individual patients. Twelve observers reviewed video recordings of 25 children with diplegic and quadriplegic cerebral palsy, who underwent multilevel lower extremity orthopaedic surgery to correct gait problems. The GGI scores were consistent with the mean scores of the observer group in 24 of 25 patients. The researchers concluded that the results support the validity of the GGI as a gait analysis summary score and suggest that GGI may be a useful outcome measure in patients undergoing gait analysis. ■

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