Research Activities

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Agency for Healthcare Research and Quality

Highlights

Departments

Regular Features

AHRQ releases the first Comparative Effectiveness Review: Certain drugs are as effective as surgery for management of GERD

Drugs can be as effective as surgery for management of gastroesophageal reflux disease (GERD), according to a report released by the Agency for Healthcare Research and Quality. The report is the first Comparative Effectiveness Review to be released by AHRQ's new Effective Health Care Program.

GERD, one of the most common health conditions among older Americans, results in $10 billion annually in direct health care costs. It occurs when stomach acid enters the esophagus, causing heartburn and potential damage to the esophagus. The study compares treatment approaches for chronic uncomplicated GERD, where the condition is likely to require life-long management but does not involve more serious disease of the esophagus.

The report indicates that for the majority of patients with uncomplicated GERD a class of drugs called proton pump inhibitors (PPIs) can be as effective as surgery in relieving the symptoms and improving quality of life. Although surgery is sometimes chosen with the goal of removing the need to take medications, the evidence is unclear as to whether a significant number of surgical patients are eventually able to stop using medications. The studies reviewed for this report show that 10 to 65 percent of patients resumed the use of medications.

The report also reviews treatment alternatives for chronic GERD including over-the-counter medications; PPI drugs; fundoplication surgery (wrapping the top part of the stomach around the bottom of the esophagus); and endoscopic procedures. The findings in the report apply to patients who have undergone diagnostic testing, and thus there is a high degree of certainty that symptoms are due to GERD.

For chronic GERD, over-the-counter H2 receptor antagonist medications are not as effective as PPIs, although PPIs have more side effects (headache, diarrhea, and abdominal pain). Examples of H2 receptor antagonists include

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GERD

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Axid®, Pepcid®, Tagamet®, and Zantac®.

PPIs appear to have similar clinical effectiveness when compared with one another for treating GERD. Some statistically significant differences have been reported, but these differences are modest and the clinical implications are unclear. Examples of PPIs include AcipHex®, Nexium®, Prevacid®, Prilosec OTC, and Protonix®. Generic omeprazole is also available.

PPIs and fundoplication surgery appear to be similarly effective in relieving symptoms and improving quality of life.

The limited evidence suggests that medications and surgery have similar long-term effects for preventing the development of Barrett's esophagus or esophageal adenocarcinoma.

Clinical experience with newer endoscopic procedures is increasing, but too little research has been done so far to make meaningful comparisons between PPIs and surgery.

The GERD report was prepared by the Tufts-New England Medical Center Evidence-based Practice Center, one of 13 such centers working under contract with AHRQ to generate syntheses of evidence regarding health care issues. Along with the report, AHRQ also released plain-language summaries to help consumers and others review the findings quickly and understand them. In creating the program, Congress emphasized the need for conveying the information at different levels of detail for different audiences, with special attention to making the findings useful for consumers.

The report is available at www.effectivehealthcare.ahrq.gov. This Web site includes features for the public to participate in the Effective Health Care Program. Users can sign up to receive notification when new reports are available. They can also be notified when draft reports and other features are posted for comment, and comments can be submitted through the Web site. The public is also invited to use the Web site to nominate topics for review by the Effective Health Care Program. ■

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Patient Safety and Quality

Work hour limitations may improve resident quality of life, but other effects are unknown

The negative effects of sleep deprivation on residents was one factor behind the mandatory 80-hour work week restrictions instituted by the Accreditation Council for Graduate Medical Education (ACGME) in 2003. Studies suggest that residents' quality of life may improve with work hour limitations. However, studies on the topic thus far have used suboptimal study design and nonvalidated instruments. The long-term impact of reducing resident work hours on medical education and patient outcomes remains unknown, concludes a study supported in part by the Agency for Healthcare Research and Quality (HS11540).

The researchers state that more studies are needed to rigorously evaluate the link between resident working hours and their quality of life, burnout, quality of medical education, and quality of patient

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Resident quality of life

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care. They reviewed the research literature on the effect of interventions to reduce resident work hours on residents' education and quality of life. Interventions used to decrease resident work hours varied from use of night and day float teams to providing extra cross-coverage and use of physician extenders. Interventions (most made before the ACGME restrictions) generally improved residents' quality of life (such as their amount of sleep and sense of well-being), but had mixed effects on both residents' operative experience and on perceived educational quality (that is, operative experience, test scores, and satisfaction).

Some educators argue that reduced hours for residents may necessitate additional years of training. The benefit of fewer hours on reduced fatigue may be worthwhile if operative experience evens out over the course of training. However, reduced hours may be problematic if residents have less experience in their final year before leaving training, as was found in one study.

See "Effects of work hour reduction on residents' lives: A systematic review," by Kathlyn E. Fletcher, M.D., M.A., Willie Underwood III, M.D., M.S., M.P.H., Steven Q. Davis, M.D., and others, in the September 7, 2005 *Journal of the American Medical Association* 294(9), pp. 1088-1100. ■

Hospitalized patients can help improve patient safety by identifying medical errors not captured by hospital systems

Engaging hospitalized patients as partners to help identify medical errors and injuries is a potentially promising approach for enhancing patient safety, suggests a study supported by the Agency for Healthcare Research and Quality (HS11644). Saul N. Weingart, M.D., Ph.D., of Harvard Medical School, and colleagues interviewed 264 patients who were hospitalized at a Boston teaching hospital about adverse events (ADEs), including any problems, mistakes, or injuries that occurred during their hospital stay.

Among 228 patients admitted to the medical unit, the patient-reported ADE rate was nearly 9 per 100 admissions, with problems ranging from medication errors to falls, delayed provision of compression bandages, and nonprocessed laboratory samples. Serious injuries were uncommon, but two-thirds were judged preventable. Overall, 17 patients (8 percent) reported 20 ADEs, 1 of them serious. Eight patients (4 percent) reported 13 near misses, 5 of which were serious or life threatening.

Fifty-five percent of ADEs and 31 percent of near misses were documented in the medical records of these patients, yet none was submitted by clinicians to the hospital's incident reporting system. Patients with three or more drug allergies were more likely to report errors than patients without drug allergies. Also, patients on multiple medications were more likely to report adverse events, which is consistent with the link between ADEs and polypharmacy in nursing home and primary care settings.

The researchers suggest that patients and their families who identify errors and injuries or conditions that increase the risk of harm are a potentially useful source of information that can be used to guide patient safety improvement efforts.

See "What can hospitalized patients tell us about adverse events? Learning from patient-reported incidents," by Dr. Weingart, Odelya Pagovich, B.A., Daniel Z. Sands, M.D., M.P.H., and others, in the September 2005 *Journal of General Internal Medicine* 20, pp. 830-836. ■

Also in this issue:

Preprinted prescription forms can improve compliance with prescription guidelines in neonatal intensive care units

Harm or injury due to medication errors are three times more common among children than adults, especially among newborns. Handwritten, "free-form" medication prescriptions are a frequent source of medication errors among hospitalized children. Use of preprinted medication order forms can significantly improve compliance with medication prescription guidelines in neonatal intensive care units (NICUs), according to a study supported in part by the Agency for Healthcare Research and Quality (HS11583).

Researchers collected medication prescriptions received by a hospital pharmacy from the NICU over a 2-week period before and after introduction of the new forms and evaluated them for compliance with medication prescription guidelines. The preprinted form was designed to guide prescribers through the process of handwriting a complete inpatient prescription by using "forcing functions" (i.e., requiring the entry of order date and time, patient medication dosing weight, medication name, dose, route, frequency, reference dose, and printed name or pager number of the prescriber). About 60 percent of commonly prescribed pediatric medications were included on a single page, with blank fields only for the order components that were variable. Standard dose recommendations were printed on the form's reverse side.

Using the preprinted forms increased inclusion of prescription time from 86 to 99 percent, patient weight from 57 to 98 percent, weight-based dose from 37 to 91 percent, route of administration from 89 to 98 percent, and prescriber's name or pager number from 70 to 99 percent. An audit a year later revealed 99 to 100 percent inclusion of all these items. Preprinted forms help by reducing reliance on memory and reducing transcription and interpretation errors by limiting handwritten elements. They also make it easier to contact the provider for clarification or correction of intercepted errors.

See "Preprinted prescription forms decrease incomplete handwritten medication prescriptions in a neonatal intensive care unit," by Laurie A. Hogden, M.D., Jeffrey K. Low, Pharm.D., Kimberly D. Knoerlein, A.R.N.P., and William H. Edwards, M.D., in the June 2005 *Journal of Patient Safety* 1(2), pp. 100-104. ■

Studies examine barriers to self-management for patients with chronic illness and interventions that improve care

About half of the population in the United States (90 million people) live with one or more chronic illnesses such as diabetes, arthritis, depression, or congestive heart failure. A common aim of care models, such as the Chronic Care Model, is to involve patients in their care and to encourage them to follow sometimes complex self-care regimens to better manage their illness. A new study supported by the Agency for Healthcare Research and Quality (HS13603) identified several barriers to patient self-management. These ranged from depression and difficulty exercising to fatigue, pain, and financial problems. A second AHRQ-supported study (HS00059 and HS14151) found that interventions that contained at least one element of the Chronic Care Model improved outcomes and care for the chronically ill. Both studies are discussed here.

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Self-management

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Jerant, A.F., von Friederichs-Fitzwater, M.M., and Moore, M. (2005, June). "Patients' perceived barriers to active self-management of chronic conditions." *Patient Education and Counseling* 57, pp. 300-307.

Active self-management of chronic diseases often includes exercise and diet to reduce blood sugar, high blood pressure, and arthritic symptoms. Discussions with 54 chronically ill people in 10 focus groups revealed their thoughts about barriers to active self-management of their illnesses. The focus groups addressed perceived barriers to active self-management and to self-management support services and resources.

Focus group participants cited depression, pain, problems controlling weight, difficulty exercising regularly, and fatigue as barriers to self-management. They also cited lack of support from family, financial problems, and poor communication with physicians. Some felt rushed through doctor visits so that they could not gain adequate understanding of their diseases and how best to manage them.

The most common barriers to accessing self-management support resources, such as local cardiac rehabilitation programs or fitness centers, were lack of awareness of the resources, physical symptoms that limited mobility, transportation problems, and cost or lack of insurance coverage for certain resources. The researchers suggest that many of these barriers could be overcome through home-delivered programs, in which most participants expressed interest.

Tsai, A.C., Morton, S.C., Mangione, C.M., and Keeler, E.B. (2005, August). "A meta-analysis of interventions to improve care for chronic illnesses." *The American Journal of Managed Care* 11, pp. 478-488.

The Chronic Care Model (CCM) is aimed at improving the primary care of patients with chronic illnesses by fostering more productive interactions between prepared, proactive clinical teams and well-informed, motivated patients. The CCM identifies six elements deemed to be essential for providing high quality care to patients with chronic diseases: delivery system design (for example, care delivery/coordination and care management roles), self-management support (patient education and collaborative decisionmaking with patients), decision support (provider education and expert consultation support), clinical information systems for care management, community resources for patients and community, and health care organization (leadership support and provider participation). According to this study, clinical interventions that contain at least one element of the CCM improve outcomes and care for the chronically ill.

Researchers identified recently published systematic reviews and meta-analyses of four chronic illnesses: asthma, congestive heart failure (CHF), non-insulin dependent diabetes, and depression. They extracted data on clinical outcomes, quality of life, and processes of care for a meta-analysis of 112 studies: asthma, 27 studies; CHF, 21 studies; depression, 33 studies; and diabetes, 31 studies. The researchers found that interventions with at least one CCM element had consistently beneficial effects on clinical outcomes and processes of care across all conditions studied.

For example, interventions with at least one CCM element directed at diabetes care led to a 0.30 percent to 0.47 percent reduction in HbA1c (blood glucose) levels. Interventions directed at CHF led to a 5.6- to 6.7-point improvement in Chronic Heart Failure Questionnaire responses, slightly less than the 7- to 9-point difference that is regarded as a minimal clinically important difference on that scale. ■

Long waits for providers and lack of access are the most common frustrations among urban primary care patients

As part of a series of focus groups, adult patients indicate that primary care could be improved and made safer by boosting timely access to the patients' own physicians, shortening the time patients spend in waiting rooms, and adding staff to double-check prescriptions. Long waits for providers and lack of access (for example, waiting several months for an appointment or difficulty contacting providers for urgent problems) were the most common frustrations cited in the groups. Participants also cited understaffing, underfunding (for example, for health education and language translation), and lack of health insurance as contributing to poor quality of care.

In a study supported by the Agency for Healthcare Research and Quality (HS11955), researchers conducted 3 focus groups in 3 cities with 21 ethnically diverse patients (7 in each group) from 3 primary care clinics. Group discussions focused on what constituted good quality primary care and how the patients

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Urban primary care patients

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evaluated their own primary care. All but 2 percent of 187 distinct comments made during focus group discussions could be grouped into 4 categories: systems issues (44 percent of comments), interpersonal skills (37 percent), knowledge and technical skills (9 percent), and errors (7 percent).

Participants valued physician listening skills and felt that patient attitudes affected care. They also mentioned concern about medication errors, errors of inattention, and technical errors. Patients spontaneously identified several complex systems issues, including time issues, coordination of care, system resources, and the effects of insurance and financial status on services received. While patients expressed frustration with systems issues, they also showed understanding of the complex factors that create frustrating conditions. The groups also confirmed the importance of physician and staff interpersonal interactions with patients on quality of care.

See "Urban outpatient views on quality and safety in primary care," by Deborah Dowell, M.D., Linda Baier Manwell, M.S., Ann Maguire, M.D., M.P.H., and others in the *Longwoods Review* 3(1), pp. 2-8, 2005.

Editor's note: A related article describes the quality improvement process based on understanding primary care practices as complex adaptive systems. For more details, see Stroebel, C.K., McDaniel Jr., R.R., Crabtree, B.F., and others. (2005, August). "How complexity science can inform a reflective process for improvement in primary care practices." *Journal on Quality and Patient Safety* 31(8), pp. 438-446. ■

Patient Safety Indicators may be useful screening tools in Veterans Health Administration hospitals

The Patient Safety Indicators (PSIs), an administrative data-based tool developed by the Agency for Healthcare Research and Quality, are increasingly being used to measure potential in-hospital patient safety problems. PSIs may be useful as patient safety screening tools in Veterans Health Administration (VA) hospitals, concludes a new study. PSIs use hospital discharge data to flag potential safety problems.

In this study, researchers, including Anne Elixhauser, Ph.D., of the Center for Delivery, Organization, and Markets, Agency for Healthcare Research and Quality, applied AHRQ PSI software to VA administrative data to identify potential instances of compromised patient safety. Overall, they identified 11,411 potentially preventable PSI events in the VA nationwide in 2001. Slightly more than 2 percent of patients in VA hospitals experienced a PSI event. These low rates are consistent with the low incidence of PSI events reported in other studies. PSI rates per 1,000 discharges ranged from 0.007 for "transfusion reaction" to 155.5 for "failure to rescue" (failure to keep patients from dying of complications, such as pneumonia or blood infections).

The most frequent PSI events were failure to rescue, decubitus ulcer, and postoperative pulmonary embolism (blood clot lodged in the lungs) or deep vein thrombosis (blood clot in a deep leg vein). Patients hospitalized with PSI events had longer lengths of stay, higher mortality, and higher costs than those who did not experience PSI events.

See "Evaluating the patient safety indicators: How well do they perform on Veterans Health Administration data?" by Amy K. Rosen, Ph.D., Peter Rivard, M.H.S.A., Shibei Zhao, M.P.H., and others, in the September 2005 *Medical Care* 43(9), pp. 873-884. Reprints (AHRQ Publication No. 06-R012) are available from AHRQ.* ■

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.

Randomized trial reveals community-based case managers increase public insurance enrollment of uninsured Latino children

Currently, more than a fifth of Latino children in the United States have no public or private health insurance. This rate is higher than that of any other racial or ethnic group. A new study, supported in part by the Agency for Healthcare Research and Quality (HS11305), revealed that using bilingual community-based case managers to help poor Latino children enroll in Medicaid or State Children's Health Insurance Programs (SCHIP) reduced the proportion who were uninsured, and eliminated this racial/ethnic disparity in uninsurance.

Glenn Flores, M.D., of the Medical College of Wisconsin, and colleagues randomly assigned uninsured Latino children aged 18 and younger from two Boston-area communities to either an intervention group using trained case managers or a control group receiving traditional Medicaid and SCHIP outreach and enrollment. The researchers found that 96 percent of 139 uninsured children who received the intervention enrolled in either Medicaid or SCHIP between May 2002 and September 2003, compared with 57 percent of Latino children who did not receive the intervention.

When the researchers analyzed data for the follow-up period, which lasted to August 2004, they found that the children assisted by case managers were more likely than children who were not to remain continuously insured (78 versus 30 percent) and significantly less likely to be sporadically insured (18 versus 27 percent) or continuously uninsured (4 versus 43 percent).

The case managers helped the children and their families by providing information about the types of available insurance programs and eligibility requirements, working with parents to complete and submit application forms, and expediting final coverage decisions by State agencies. They also acted as family advocates when children were inappropriately deemed ineligible for insurance or had coverage inappropriately discontinued.

Efforts to make families of the children assigned to the control group aware of Medicaid and SCHIP included direct mail, newspaper and radio announcements, community health fairs, providing grants to local organizations to provide outreach and assistance with applications, and establishing a toll-free telephone number that parents could call for information about applying for health benefits.

See "A randomized controlled trial of the effectiveness of community-based case management in insuring uninsured Latino children," by Dr. Flores, Milagros Abreu, M.D., Christine E. Chaisson, M.P.H., and others, in the December 6, 2005 *Pediatrics* 116(6), pp. 1433-41. ■

Neither patient HMO membership nor physician HMO participation is greatly associated with racial disparities in primary care

Neither patient health maintenance organization (HMO) membership nor physician level of HMO participation is substantially associated with racial disparities in primary care, according to a new study. Thus, changes in HMO membership alone are unlikely to affect disparities in receipt of primary care for better or worse, conclude Kevin Fiscella, M.D., M.P.H., of the University of Rochester School of Medicine and Dentistry, and Peter Franks, M.D., of the University of California, Davis.

With support from the Agency for Healthcare Research and Quality (HS10910), the researchers used national data on primary care office visits derived from the National Ambulatory Medical Care Surveys for 1985, 1989-1992, and 1997-2000. They determined patient characteristics and HMO membership from reports by primary care physicians and physician HMO participation based on the proportion of the physician's patients who were enrolled in an HMO. After adjustment for other factors affecting receipt of primary care, blacks were less likely than whites to receive a Pap test, a rectal exam, smoking cessation advice, and mental health advice, but were more likely to receive advice on diet and weight and a follow-up appointment.

There were no significant interactions between receipt of primary care services and either patient HMO membership or physician level of HMO participation, patient race,

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HMO participation

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Medicaid insurance or percentage of Medicaid patients in the physician's practice, or duration of the visit. Previous findings have been mixed regarding the impact of HMOs on racial and ethnic disparities in health care, but prior studies only examined the effect of patient HMO membership on these disparities. This is the first analysis of disparities at the visit level to examine the relationship between physician level of HMO participation and disparities in primary care procedures.

See "Is patient HMO insurance or physician HMO participation related to racial disparities in primary care?" by Drs. Fiscella and Franks, in the June 2005 *American Journal of Managed Care* 11(6), pp. 397-402. ■

Black women are more likely than other women to have pregnancy and childbirth complications

Pregnancy and childbirth complications typically range from pregnancy-induced high blood pressure, gestational diabetes, and preterm labor to infection and hemorrhage. Black women suffer from more of these problems than white, Hispanic, and Asian/Pacific Island women, according to a study supported by the Agency for Healthcare Research and Quality (HS13056). Infection, gestational diabetes, and high blood pressure are the most preventable of these problems, notes Jay J. Shen, Ph.D., of Governors State University.

Researchers examined racial disparities in adverse maternal outcomes among the four ethnic groups using data from the Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS) of U.S. hospital discharges on over 1 million women aged 13 to 55 who delivered babies in 1998 and 1999. Maternal outcome measures included preterm labor, hypertensive disorders of pregnancy, gestational diabetes, antepartum hemorrhage, membrane disorders, cesarean section, and postpartum hemorrhage.

Black women had a higher risk of having 10 of 11 maternal perinatal complications than white women. Black women were 71 percent more likely than white women to have preterm labor, and were more likely to experience preeclampsia, transient hypertension of pregnancy, pregnancy-induced hypertension, diabetes, placenta previa, placental abruption, premature rupture of membranes (PRM), infection of the amniotic cavity (IAC), and cesarean section. Hispanic women were more likely than white women to experience diabetes, placenta previa, IAC, and cesarean section. Asian/Pacific Islanders were more likely than other women to develop diabetes, placenta previa, PRM, IAC, and postpartum hemorrhage.

See "Disparities in maternal outcomes among four ethnic populations," by Dr. Shen, Catherine Tymkow, M.D., and Nancy MacMullen, Ph.D., in the Summer 2005 *Ethnicity & Disease* 15, pp. 492-497.

Editor's Note: Recognizing that race is missing in 24 percent of cases and missing for patients in specific States, AHRQ makes race/ethnicity data available to researchers on the NIS, allowing the records that include patient race/ethnicity to be used as a sample of convenience. For additional information on NIS and HCUP, see http://www.hcup-us.ahrq.gov/. ■

Black women who live in rural areas are less likely than white women to begin mammography screening

Regular mammography screening for breast cancer is recommended at least once every 2 years for women between 50 and 74 years of age. Once women begin mammography screening, they are likely to continue being screened. However, black women who live in rural areas are less likely than white women to get an initial mammogram, according to a study supported in part by the Agency for Healthcare Research and Quality (HS00007).

Researchers examined mammography screening over a 7-year period in a group of women aged 52 and older from the North Carolina Breast Cancer Screening Program who lived in rural areas. They compared baseline (1993-1994), first (1996-1997), and second follow-up (2000) interviews with 336 white and 314 black women. They evaluated baseline factors predictive of regular mammography screening (a mammogram in the past 2 years at all three interviews) and initiation of mammography for women who

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Mammography screening

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have not had prior regular mammograms.

Among all women, a mammogram in the past 2 years increased from 67 percent at the baseline interview to 78 percent at the second follow-up interview. Most of this increase occurred among women who had never had a mammogram, for whom recent screening increased from 27 percent to 58 percent. Among women who had never had a mammogram, white women were twice as likely as black women to begin having regular mammograms (29 versus 17 percent). White and black women were equally likely to receive regular mammograms if they had received one previously (i.e., if they had ever had a mammogram in the past). Younger women (aged 52 to 64) who had never received a mammogram were three times more likely than older women who had never received one to begin regular mammography screening. Physician recommendation was the strongest predictor of both initiation and maintenance of regular mammography screening.

See "Baseline predictors of initiation vs. maintenance of regular mammography use among rural women," by Garth H. Rauscher, Ph.D., M.P.H., Sarah Tropman Hawley, Ph.D., and Jo Anne L. Earp, Sc.D., in the June 2005 *Preventive Medicine* 40, pp. 822-830. ■

Acute Care/Hospitalization

Children hospitalized in the ICU or who have arterial catheters are at higher risk of dying from *Candida* blood infections

Many chronically or critically ill children suffer from blood infection with the fungus *Candida* (candidemia), which can result in death in up to 25 percent of children and 50 percent of infants. Children most likely to die from these infections are those who were in the pediatric intensive care unit (PICU) at the time of infection or who had an arterial catheter, according to a study supported in part by the Agency for Healthcare Research and Quality (HS10399).

Researchers at the Center for Education and Research on Therapeutics (CERTs), University of Pennsylvania School of Medicine, and colleagues retrospectively studied hospitalized children with positive blood cultures for *Candida* species at one large hospital from 1998 through 2001. The research center is a part of the CERTs network supported by the Agency. They collected data on children's demographic and clinical characteristics, presence of coexisting conditions, antifungal treatment, infecting *Candida* species, and use of central venous and arterial catheters. They assessed in-hospital death within 30 days of initial positive culture for *Candida*.

Of a total 168 patients, 17 percent died within 1 month of the first positive culture for *Candida*. Children in the PICU at the time of infection were 6.3 times more likely to die within 30 days. Children who had an arterial line were 2.4 times more likely than those without a line to die within 30 days. Duration of catheter use and antifungal therapies (usually amphotericin B) during infection were not significantly associated with mortality. Newer triazole antifungals such as voriconazole and echinocandins and other newer antifungal agents may change the treatment strategies used to treat candidemia in children in the future.

See "Risk factors for mortality in children with candidemia," by Theoklis E. Zaoutis, M.D., Susan E. Coffin, M.D., M.P.H., Jaclyn H. Chu, M.H.S., and others in the August 2005 *Pediatric Infectious Disease Journal* 24(8), pp. 736-739. ■

Anemia increases a patient's risk of dying after hospitalization for unstable angina or heart attack

Patients hospitalized for acute coronary syndrome (ACS), that is, unstable angina or heart attack, who are discharged with moderate to severe anemia, have a 2.5 times greater risk of dying within 2 years after discharge, according to a study supported by the Agency for Healthcare Research and Quality (HS11282). Researchers assessed the survival rate of 1,038 patients admitted to the hospital for ACS. They classified their discharge hematocrit values as normal (higher than 39 percent), mildly anemic (33.1 to 39 percent), and moderately/severely anemic (33 percent or lower).

Worsening anemia was associated with a decreased 2-year survival rate (normal, 95.8 percent; mild anemia, 91.2 percent; moderate/severe anemia, 81.5 percent). After adjusting for other factors affecting survival, patients discharged with moderate/severe anemia were more than twice as likely to die within 2 years.

Women and those with coexisting illnesses tended to be more anemic at discharge. Also, moderate/severe anemia at discharge was more common in patients who had suffered heart attacks than it was in patients who had unstable angina (63.7 vs. 36.3 percent). Additional factors significantly associated with mortality included older age, diabetes, chronic lung disease, previous heart attack, and cardiac ejection fraction less than 40 percent (indicating a weakened heart muscle).

See "Relation of anemia at discharge to survival after acute coronary syndromes," by Joseph Vaglio, M.D., M.B.A., David M. Safley, M.D., Mohamed Rahman, M.D., and others, in the *American Journal of Cardiology* 96, pp. 496-499, 2005. ■

Women's Health

Misconceptions about cancer screening may be common among women

Women's misconceptions about cancer screening may be common and possibly go unrecognized in clinical settings, having a profound influence on the medical decisions women make according to a study supported in part by the Agency for Healthcare Research and Quality (HS10856). Identifying and correcting misconceptions could improve cancer screening rates among women and help them make more informed decisions, suggest the researchers.

In interviews with 24 socioeconomically diverse white, black, Latino, and Chinese women aged 50 years and older, researchers found several misconceptions about cancer screening characterized by inaccuracies, distortions, and over-simplification. All women had been recruited from community general medicine practices and had access to cancer screening through Medicare or private insurance. Many women believed that screening was indicated only with symptoms or a family history of cancer. In addition, many felt that the only purpose of screening was to find cancer, suggesting that they did not understand the important role of screening to detect cells in the pre-malignant phase.

For many women, preventing cancer meant preventing death from cancer rather than preventing the development of cancer. Women also often held pessimistic beliefs — for example, that cancer was always found too late, was a death sentence, or that it always caused physical pain and suffering. Finally, many women had non-scientific, vague notions that cancer screening was intended for overall health benefits rather than specifically for cancer prevention.

See "Women's misconceptions about cancer screening: Implications for informed decision-making," by Thomas D. Denberg, M.D., Ph.D., Sabrina Wong, Ph.D., R.N., and Angela Beattie, Ph.D., in the June 2005 *Patient Education and Counseling* 57, pp. 280-285. ■

White women who suffer from obesity are less likely to undergo Pap testing for cervical cancer

Obesity is associated with a higher risk of cancer death, including death from cervical cancer. A study supported in part by the Agency for Healthcare Research and Quality (HS11683) indicates that white women who are obese are more likely than women of normal weight to delay Pap testing to screen for cervical cancer or to find it painful, uncomfortable, or embarrassing.

Christina C. Wee, M.D., M.P.H., and colleagues at Beth Israel Deaconess Medical Center and Harvard Medical School examined Pap testing in the preceding 3 years for 6,419 white, 1,715 black, and 1,859 Hispanic women aged 18 to 75 years, who responded to the 2000 National Health Interview Survey supplemental Cancer Control Module. They analyzed women's reasons for not undergoing Pap testing and the impact of body mass index (BMI), and examined whether unscreened women received physician recommendations for screening.

Overall, 86 percent of white, 88 percent of black, and 78 percent of Hispanic women reported Pap testing in the last 3 years. After adjustment for sociodemographic factors, health care access, and illness burden, white women who suffered from severe obesity (a BMI of 40+) were 9 percent less likely to undergo Pap testing compared with white women of normal weight. BMI was not associated with screening in black or Hispanic women.

Among all women who had seen a gynecologist or general practitioner in the previous year, those suffering from obesity were as likely as those who were normal weight to receive a recommendation from their physician for Pap testing. Although not the most common reason cited, white women who were obese were more likely than normal or overweight white women to report "discomfort and embarrassment" as a reason for not undergoing screening.

See "BMI and cervical cancer screening among white, African-American, and Hispanic women in the United States," by Dr. Wee, Russell S. Phillips, M.D., and Ellen P. McCarthy, Ph.D., M.P.H., in the July 2005 *Obesity Research* 13(7), pp. 1275-1280. ■

Cytokine genotypes may identify pregnant women who are at high risk of developing preeclampsia

Cytokine genotyping may prove to be an effective tool to screen for preeclampsia risk early in a woman's pregnancy, concludes a study supported in part by the Agency for Healthcare Research and Quality (HS10592). Researchers found an association between variants in cytokine genes and preeclampsia. Preeclampsia is a systemic inflammatory condition characterized by high blood pressure and excess protein in the urine, and is a leading cause of maternal and neonatal problems. Levels of plasma proinflammatory cytokines (such as tumor necrosis factor and interleukin) are higher in women with preeclampsia than in pregnant women with normal blood pressure. An exaggerated inflammatory response to pregnancy may occur among genetically susceptible women, such as those who carry cytokine gene variants that are known to up-regulate cytokine production, explain the researchers.

Researchers examined cytokine genotypes among 150 women with preeclampsia and 661 women with normal blood pressure who were pregnant with their first child. White women with preeclampsia were 4 times more likely than those with normal blood pressure to carry the up-regulating tumor necrosis factor-alpha-308 A/A genotype. Black women with preeclampsia were nearly 12 times more likely and white women with preeclampsia were about 2 times more likely than their respective counterparts with normal blood pressure to carry the interleukin-1 alpha-producing-4845 G/G genotype; 5 times and 2 times (respectively) more likely to carry the -889 C/C genotype; and 3 times and 2 times (respectively) more likely to carry the interleukin-1 alpha-4845/interleukin-1alpha-889/interleukin-1B-3957 GCC/GCC haplotype.

See "Association between allelic variants in cytokine genes and preeclampsia," by Catherine L. Haggerty, Ph.D., M.P.H., Robert E. Ferrell, Ph.D., Carl A. Hubel, Ph.D., and others in the July 2005 *American Journal of Obstetrics and Gynecology* 193, pp. 209-215. ■

Computer kiosks help patients with diabetes and low literacy skills understand their susceptibility to complications

Patients with diabetes, especially those with low literacy skills, gain a better understanding of their susceptibility to complications when they use a computer kiosk that targets diabetes education. Researchers, supported in part by the Agency for Healthcare Research and Quality (HS11092), randomized 244 patients with diabetes to an intervention group and a control group. The intervention group used a computer kiosk provided in their physician's waiting room to view an audiovisual program that provided information about diabetes, psychological support, and diabetes self-management skills without extensive text or complex computer navigation. The control group had access only to quizzes on the kiosk.

After 1 year, researchers compared HbA1c (blood glucose) levels, body mass index, blood pressure, diabetes knowledge, self-efficacy, self-reported medical care, and perceived susceptibility to complications to their baseline measurements and among the two groups. There were no significant differences in changes for HbA1c, weight, blood pressure, knowledge, self-efficacy, or self-reported medical care between the intervention and control groups for the 183 patients who completed the trial. However, patients who had low health literacy skills in the intervention group showed a greater increase in perceived susceptibility to complications than patients who had low health literacy in the control group.

More details are in "Implementation and evaluation of a low-literacy diabetes education computer multimedia application," by Ben S. Gerber, M.D., Irwin G. Brodsky, M.D., M.P.H., Kimberly A. Lawless, Ph.D., and others, in the July 2005 *Diabetes Care* 28(7), pp. 1574-1580. ■

Concerns about medical malpractice suits may lead to more diagnostic mammograms and biopsy recommendations

The majority of community radiologists say that concern about medical malpractice lawsuits affects their interpretation of mammograms. Three out of four indicate that this concern led them to increase the number of their recommendations for diagnostic mammography and/or ultrasound, and one of two increased the number of breast biopsy recommendations. One out of three radiologists actually considered withdrawing from interpreting mammograms because of concerns about medical malpractice suits, according to a study supported in part by the Agency for Healthcare Research and Quality (HS10591).

Joann G. Elmore, M.D., M.P.H., of the University of Washington School of Medicine, and colleagues surveyed radiologists who routinely interpret mammograms in Washington, Colorado, and New Hampshire. The survey asked about demographics, practice environment, and attitudes about medical malpractice suits. Of the 124 radiologists who responded to the survey, about half (52.4 percent) reported a prior malpractice claim and 15 percent reported mammography-related claims.

Three out of every four radiologists (76 percent) expressed concern about the impact of medical malpractice suits on mammography practice. More than half (58.5 percent) indicated that their concern moderately to greatly increased their number of recommendations for breast biopsies.

See "Does litigation influence medical practice? The influence of community radiologists' medical malpractice perceptions and experience on screening mammography," by Dr. Elmore, Stephen H. Taplin, M.D., M.P.H., William E. Barlow, Ph.D., and others, in the July 2005 *Radiology* 236(1), pp. 37-46. ■

Clinical inertia in primary care contributes to poor diabetes control

Clinical inertia—the failure to intensify therapy by increasing the dosage or number of appropriate medications—contributes to high HbA1c (blood glucose) levels in adults with type 2 diabetes treated in a large municipal hospital primary care clinic, concludes a new study supported by part by the Agency for Healthcare Research and Quality (HS07922).

Researchers compared the care of predominantly black patients with type 2 diabetes receiving treatment at a medical clinic with similar patients being treated at a diabetes clinic. They measured patients' blood glucose during the visit, which was available to the provider during the visit, and data on the patients' current treatment recommendations at the time of the visit and medications prescribed at the end of the visit. Compared with patients from the diabetes clinic, patients at the medical clinic had worse glycemic control (higher blood glucose levels), were less likely to be treated with insulin, and were less likely to have their therapy intensified if glucose levels were elevated, regardless of the type of therapy they received.

Use of diet and oral agents alone was somewhat higher for patients in the medical clinic, but use of insulin was significantly lower in the medical clinic than in the diabetes clinic (40 versus 55 percent). When glucose levels exceeded 150 mg/dL, therapy was half as likely to be intensified for patients in the medical clinic as it was for patients in the diabetes clinic (32 versus 65 percent), even though average HbA1c levels were higher for patients in the medical clinic. Providers who intensified therapy more often tended to have patients with lower HbA1c levels. A single episode of intensification of therapy was independently associated with an average 0.7 percent reduction in HbA1c.

See "Clinical inertia contributes to poor diabetes control in a primary care setting," by David C. Ziemer, M.D., Christopher D. Miller, M.D., Mary K. Rhee, M.D., and others, in the July/August 2005 *Diabetes Educator* 31(4), pp. 564-571.

Editor's note: A related study found that a primary care-based quality improvement system achieved HbA1c and low-density lipoprotein reductions sufficient to reduce macrovascular and microvascular risk by about 50 percent. For more details, see Sperl-Hillen, J., and O'Connor, P.J. (2005, August). "Factors driving diabetes care improvement in a large medical group: Ten years of progress." *The American Journal of Managed Care* 11(5)S, p. S177-S185. ■

Acculturation, length of relationship, and physician ethnicity influence Japanese Americans' trust of doctors

English-speaking and Japanese-speaking Japanese Americans trust their doctors more than Japanese persons living in Japan, according to a recent study supported in part by the Agency for Healthcare Research and Quality (HS07370). Researchers administered a questionnaire assessing trust in their physicians to 539 English-speaking Japanese Americans, 340 Japanese-speaking Japanese Americans, and 304 Japanese living in Japan. They analyzed survey responses to examine the relationship between patient characteristics, religious beliefs, acculturation, physician ethnicity, and changes of physician due to insurance coverage, and the levels of trust these patients had in their physicians.

Greater acculturation, greater religiosity, less desire for autonomy, and longer physician-patient relationships were related to increased trust. Japanese Americans also trusted Japanese physicians more than they trusted other physicians. Survey respondents who did not want to switch physicians but were forced to do so because of insurance coverage reported significantly less trust in their current physicians than in their former physicians. Patients who found the physician change acceptable reported slightly more trust in their new physicians.

See "Trust in one's physician: The role of ethnic match, autonomy, acculturation, and religiosity among Japanese and Japanese Americans," by Derjung M. Tarn, M.D., M.S., Lisa S. Meredith, Ph.D., Marjorie Kagawa-Singer, R.N., Ph.D., and others, in the July 2005 *Annals of Family Medicine* 3(4), pp. 339-347. ■

Study examines factors that predict influenza vaccination status in older adults

U.S. adults who are older, who do not believe that the flu vaccine is detrimental, whose doctor or family recommended getting a flu shot, and who believe that influenza is a health risk are more likely to get a flu shot each year, concludes a new study.

Researchers, supported in part by the Agency for Healthcare Research and Quality (HS10864), examined correlates of repeat flu shots over a 3-year period among 253 predominantly low-income men and women aged 50 and older. Almost half of the participants (49 percent) had been vaccinated in each of the 3 years, 22 percent had been vaccinated once or twice over the 3 years, and 29 percent reported no vaccinations over the 3-year period.

Patients who were vaccinated in all 3 years chose to be vaccinated against influenza (75 percent), because they had the flu before (13 percent), or because a doctor or other medical professional recommended it (9 percent). Patients who reported being vaccinated in all 3 years were most frequently vaccinated at a regular doctor's visit (67 percent). About 19 percent received a flu shot at a clinic in the community. The most common reasons patients chose not to get vaccinated in all 3 years were previous bad or adverse reaction to the flu vaccine (26.5 percent), belief that they were unlikely to get influenza (25 percent), and fear of vaccine side effects (23.5 percent).

More details are in "What predicts influenza vaccination status in older Americans over several years?" by Melissa Tabbarah, Ph.D., M.P.H., Richard Kent Zimmerman, M.D., M.P.H., Mary Patricia Nowalk, Ph.D., and others, in the August 2005 *Journal of the American Geriatric Society* 53, pp. 1354-1359. ■

Both lack of patient awareness and physician counseling contribute to low rates of colon cancer screening

Colon cancer is the second leading cause of cancer deaths in the United States, yet national rates of colon screening are low. This low rate of screening appears to be due to lack of patient awareness and physician counseling rather than poor patient acceptance of screening, concludes a study supported in part by the Agency for Healthcare Research and Quality (HS11683).

Christina C. Wee, M.D., M.P.H., and colleagues from Beth Israel Deaconess Medical Center and Harvard Medical School used data from the 2000 National Health Interview Survey (NHIS) of U.S. households to examine the prevalence of colon cancer screening nationally and the reasons for low screening rates. Among 11,427 respondents to the NHIS Cancer Control Supplement, 16 percent reported annual fecal occult blood testing (FOBT) and 29 percent reported having undergone a sigmoidoscopy in the last 5 years or a colonoscopy in the last 10 years. After adjusting for age, sex, body mass index, health care access, and region of the country, Hispanics were 30 percent less likely to undergo FOBT and 20 percent less likely to undergo sigmoidoscopy or colonoscopy compared with whites. People with lower educational levels were also less likely to undergo screening.

Neither race nor education had any bearing on whether patients followed physician recommendations for colon cancer screening. However, Hispanics and those with lower educational levels were less likely to receive counseling from their health provider about screening.

Among the 9,017 respondents who did not undergo FOBT, 64 percent were unaware they needed the test. Of those who had a provider visit in the previous year, 94 percent were not counseled by their doctor about the test. Less than 1 percent cited discomfort or cost as a deterrent.

Among the 7,863 respondents who did not undergo sigmoidoscopy or colonoscopy, 72 percent were unaware that they needed the procedure. Of these respondents, 5,096 had a provider visit within the past year and 92 percent were not counseled by their doctor about the procedure. Only 2 percent were deterred by discomfort or cost.

More details are in "Factors associated with colon cancer screening: The role of patient factors and physician counseling," by Dr. Wee, Ellen P. McCarthy, Ph.D., M.P.H., and Russell S. Phillips, M.D., in *Preventive Medicine* 41, p. 23-29, 2005. ■

Donepezil has a small effect in the treatment of dementia from Parkinson's disease

Over 30 percent of patients with Parkinson's disease (PD), which is characterized by motor tremors, develop dementia. Although dementia is associated with loss of independence and increased mortality, it is a largely untreated symptom of PD. The drug donepezil, which has been shown to improve cognition and daily functioning of patients with Alzheimer's disease, may also improve cognitive function in patients with PD, according to a new study.

Researchers, supported in part by the Agency for Healthcare Research and Quality (HS00004), found that donepezil was well tolerated among patients with PD and did not worsen their symptoms. In this study, 22 patients with PD and mild to moderate dementia were randomized into two groups. The first group received donepezil (5-10 mg/day) while the second group received a placebo that looked identical to donepezil. The treatment period lasted 10 weeks followed by a "washout" period of 6 weeks during which neither group received either donepezil or the placebo. After 6 weeks, patients in the first group who originally received the donepezil received the identical placebo, while the second group of patients received the donepezil. Again, the treatment period was 10 weeks.

The primary outcome measure was the Alzheimer's Disease Assessment Scale Cognitive Subscale (ADAScog). Researchers found that donepezil was well tolerated in 81 percent of patients and most adverse events were mild. There was no worsening of total or motor PD symptoms as measured by the Unified Parkinson's Disease Rating Scale. Donepezil had a modest effect on cognitive function. Although this is a small study, it is the largest reported randomized, blinded, placebo-controlled clinical trial of a cholinesterase inhibitor for PD-related dementia.

More details are in "Donepezil for dementia in Parkinson's disease: A randomized, double blind, placebo controlled, crossover study," by Bernard Ravina, M.D., Mary Putt, Sc.D., Andrew D. Siderowf, M.D., and others, in the July 2005 *Journal of Neurology, Neurosurgery, and Psychiatry* 76, pp. 934-939. ■

AHRQ sponsors *Medical Care* supplement on new HIV/AIDS empirical studies

The Agency for Healthcare Research and Quality recently sponsored the publication of a supplement to the journal Medical Care that features seven new empirical studies on health care for people with HIV disease. Five of the seven studies were based on data from the HIV Research Network (HIVRN). The HIVRN was established through a joint effort by AHRQ, the Substance Abuse and Mental Health Services Administration, the Health Resources and Services Administration, and the National Institutes of Health.

The studies summarized here examined data for both adults and children with HIV disease on hospitalizations, inpatient and outpatient visits, prophylaxis for opportunistic illnesses, and the impact of highly active antiretroviral therapy (HAART). A limited number of copies of the September 2005 supplement are available (AHRQ Publication No. OM06-0024).*

Betz, M.E., Gebo, K.A., Barber, E., and others. (2005, September). "Patterns of diagnoses in hospital admissions in a multistate cohort of HIV-positive adults in 2001." *Medical Care* 43(9 Suppl.), pp. III-3-III-14.

The introduction of HAART in the mid-1990s reduced morbidity, mortality, and hospitalizations among HIV-infected patients. Yet, by 2001, 5 years after the introduction of HAART, AIDS-defining illnesses (ADI) such as *Pneumocystis jiroveci* pneumonia (PCP) still accounted for the largest number of hospital admissions among HIV-infected patients (21.6

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HIV/AIDS studies

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percent) compared with other diagnoses. The researchers collected demographic and health care data for 8,376 patients from 6 U.S. HIV care sites in 2001 and compared patients with admissions for ADI with patients admitted for other diagnoses. Among patients hospitalized at least once, 28 percent were hospitalized for an ADI (most commonly PCP and pneumonia). The most common hospitalizations were ADI (21.6 percent), gastrointestinal diseases such as pancreatitis (9.5 percent), mental illnesses (9 percent), and circulatory diseases (7.4 percent).

Rutstein, R.M., Gebo, K.A., Flynn, P.M., and others. (2005, September). "Immunologic function and virologic suppression among children with perinatally acquired HIV infection on highly active antiretroviral therapy." *Medical Care* 43(9 Suppl.), III-15-III-22.

The advent of HAART has led to a marked decrease in morbidity and mortality among HIV-infected children. However, children on HAART are less likely to achieve HIV suppression than adults on HAART, and HIV tends to progress more rapidly among children. These researchers assessed the level of HIV suppression and immune function in 263 children on HAART. Nearly 29 percent had an AIDS diagnosis. Despite receiving HAART, few HIV-infected children in this study were able to reduce their HIV load below detectable levels. However, the majority of children had near-normal CD4 counts (an indicator of good immune system functioning).

Gebo, K.A., Fleishman, J.A., Reilly, E.D., and Moore, R.D. (2005, September). "High rates of primary *Mycobacterium avium* complex and *Pneumocystis jiroveci* prophylaxis in the United States." *Medical Care* 43(9 Suppl.), pp. III-23-III-30.

Researchers collected demographic, clinical, and pharmacy use data on adults with HIV from 10 U.S. HIV primary care sites in the HIV Research Network who were considered patients eligible for prophylaxis against opportunistic infections (OIs) such as *Pneumocystis jiroveci* pneumonia (PCP) or *Mycobacterium avium* complex (MAC). Among eligible patients, 88 percent received PCP prophylaxis and 88 percent received MAC prophylaxis, which is considerably higher than the 65 to 80 percent for PCP and 40 percent for MAC reported in previous studies.

About 80 percent of those receiving OI prophylaxis had four or more outpatient visits during the study year (quarterly visits are recommended for HIV patients). After adjustment for site of care, men were 47 percent more likely, those with Medicare coverage 60 percent more likely, and those with four or more outpatient visits in the year over twice as likely to receive PCP prophylaxis. Having four or more outpatient visits in the year was associated with 85 percent greater likelihood of receipt of MAC prophylaxis.

Rutstein, R.M., Gebo, K.A., Siberry, G.K., and others. (2005 September). "Hospital and outpatient health services utilization among HIV-infected children in care 2000-2001." *Medical Care* 43(9 Suppl.), pp. III-31-III-39.

Researchers in this study found lower hospitalization rates and similar outpatient care use among HIV-infected children in 2000 and 2001 compared with the pre-HAART era. Although the overall drop in children's care use may be the result of newer antiretroviral therapies, part of the difference might be a result of the general aging of the pediatric HIV-infected population, note the researchers. For example, in 1991 and 1992, 6 percent of pediatric patients were less than 1 year old with no child older than 12 years. In the current study, the age ranged from birth to 17 years and less than 7 percent were under 2 years. The researchers examined hospital and outpatient health care use among 303 HIV-infected children cared for at 4 U.S. HIV primary pediatric and specialty care sites in 2000 and 2001. During the 1-year period, 22 percent of children were hospitalized at least once. Hospitalization rates decreased significantly from 39.2 to 25.3 admissions per 100 patients. Hospitalizations were higher among children with more suppressed immune systems, those 2 years and under, and those with AIDS, but were not significantly related to receipt of HAART. Children 2 years and under, those on HAART, those with AIDS, and those with Medicaid insurance had significantly higher outpatient use.

Fleishman, J.A., Gebo, K.A., Reilly, E.D., and others. (2005, September). "Hospital and outpatient health services utilization among HIV-infected adults in care 2000-2002." *Medical Care* 43(9 Suppl.), pp. III-40-III-52.

Some studies have suggested that HIV-related hospitalization rates may be increasing as a result of liver complications due to hepatitis C, which coinfects many patients with HIV disease, or to complications of HAART, including diabetes, cardiovascular, or cerebrovascular disease. Yet, this study of adult HIV patients from
11 HIV primary and specialty care sites found minimal change in hospital use between 2000 and

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HIV/AIDS studies

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2002. The average number of admissions per person per year decreased from 0.40 in 2000 to 0.35 in 2002, a statistically insignificant difference. However, HIV hospitalization rates remained relatively high among minority or disadvantaged groups, such as intravenous drug users and Medicaid-insured patients, suggesting persistent disparities in care.

Average annual outpatient visits decreased from 6.06 to 5.66 visits per person per year. Inpatient costs per patient per month (PPPM) were estimated to be $514 in 2000, $472 in 2001, and $424 in 2002. Outpatient costs PPPM were estimated at $108 in 200l, $100 in 2001, and $101 in 2002. Patients on HAART had higher use and costs for outpatient care than those not on HAART, but receipt of HAART was not strongly related to reduced inpatient costs.

Hellinger, F.J., and Encinosa, W.E. (2005, September). "Inappropriate drug combinations among privately insured patients with HIV disease." *Medical Care* 43(9 Suppl.), pp. III-53-III-62.

Currently, 21 antiretroviral drugs are approved for the treatment of HIV disease, and the potential number of drug combinations available to treat the disease is overwhelming. People with HIV disease who receive inappropriate drug combinations are more likely to be hospitalized and have higher insurance claims costs than those who don't, according to a study by Agency for Healthcare Research and Quality investigators, Fred J. Hellinger, Ph.D., and William E. Encinosa, Ph.D. This study examined inappropriate drug combinations among privately insured patients with HIV disease using a database of claims information about enrollees in health benefit plans sponsored by 41 large employers. The researchers found an inappropriate drug combination in about 2 percent of the 2,110 person-years of data. Individuals who received an inappropriate drug combination were more than twice as likely as those who didn't to be hospitalized and to have higher claims costs during the year.

One half of all of the inappropriate drug combinations involved a single lipid-lowering agent (simvastatin). The patients who received protease inhibitors and simvastatin were more likely than others to suffer from muscle damage.

DeLorenze, G.N., Follansbee, S.F., Nguyen, D.P., and others. (2005, September). "Medication error in the care of HIV/AIDS patients: Electronic surveillance, confirmation, and adverse events." *Medical Care* 43(9 Suppl.), pp. III-63-III-68.

Researchers in this study examined several categories of medication errors that occurred during treatment of 5,473 HIV/AIDS outpatients enrolled in a large California health plan. Errors included: incorrect dosing, coadministration of contraindicated medications, antiretroviral monotherapy, duplicate medication, and sound alike/look alike medication errors. Among the five error categories, positive predictive values of errors identified by the computerized pharmacy databases ranged from a high of 80 percent for coadministration of contradindicated medications to less than 1 percent for antiretroviral monotherapy. Incidence of confirmed errors was 9.8 errors per 1,000 new prescriptions dispensed for incorrect dosing, 9.51 errors per 1,000 for contraindicated medications, and <1.0 for all other error categories. Contraindicated medications was the only error category associated with adverse drug events. ■

Emergency Medicine

Four clinical factors can help diagnose pneumonia in children seen in hospital emergency departments

Four clinical factors—respiratory rate, oxygen saturation, age, and nasal flaring—can help diagnose pneumonia in children who arrive at the emergency department (ED) with symptoms of lower respiratory tract infection, according to a study supported by the Agency for Healthcare Research and Quality (HS11038). Children with a respiratory rate of 50 breaths per minute or more are more than 3 times as likely to have x-ray evidence of pneumonia; those with oxygen saturation of 96 percent or less (hypoxia or oxygen deficiency) are nearly 5 times more likely; and those older than 12 months are 40 percent more likely. Finally, infants younger than 12 months who have nasal flaring are more than twice as likely to have x-ray evidence of pneumonia.

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Pneumonia in children

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Melinda Mahabee-Gittens, M.D., M.S., and colleagues at Cincinnati Children's Hospital Medical Center evaluated children aged 2 to 59 months who arrived at the hospital's ED in 2000-2002 with a cough and one or more of the following symptoms: labored, rapid, or noisy breathing; chest or abdominal pain; or fever. Out of a total of 510 children in the study, 8.6 percent had x-ray evidence of pneumonia. Children who had pneumonia differed from children who did not on four characteristics: older age (20.9 vs. 14.8 months); faster respiratory rate (49.8 vs. 42.7 breaths per minute); lower oxygen saturation (95.5 vs. 97.8); and nasal flaring (22.7 vs. 7.7 percent).

See "Identifying children with pneumonia in the emergency department," by Dr. Mahabee-Gittens, Jacqueline Grupp-Phelan, M.D., M.P.H., Alan S. Brody, M.D., and others, in the June 2005 *Clinical Pediatrics* 44, pp. 427-435. ■

Out-of-hospital rescuers receive little practice in performing endotracheal intubation

Emergency medical services (EMS) advanced life support rescuers, such as paramedics, prehospital nurses, and EMS physicians need regular clinical practice to perform endotracheal intubation (ETI) in a safe and effective manner. ETI requires great skill to perform in order to reduce the likelihood of adverse events such as airway injury, inadvertent oxygen deficiency, slowed heart rate, and death. Out-of-hospital ETI, an important and difficult means of resuscitating patients, is a rare event for most rescuers, according to a study supported in part by the Agency for Healthcare Research and Quality (HS13628). Thus, responder personnel have little opportunity to reinforce ETI training, notes Henry E. Wang, M.D., M.P.H., of the University of Pittsburgh School of Medicine.

Researchers analyzed a database of all EMS patient care reports in Pennsylvania to examine the frequency of ETI performance by that State's out-of-hospital rescuers in 2003. In 1,544,791 patient care reports, 11,484 ETIs were reported by 5,245 out-of-hospital rescuers. The median ETI frequency was one per rescuer. Of 5,245 rescuers, 67 percent performed 2 or fewer ETIs and 39 percent did not perform any ETIs. The median number of opportunities for performing ETI was three. ETI frequency was associated with patient volume and was higher for air medical and urban rescuers than for ground ambulance-based and rural rescuers, respectively. ETI frequency was not associated with response or transport times.

See "Procedural experience with out-of-hospital endotracheal intubation," by Dr. Wang, Douglas F. Kupas, M.D., David Hostler, Ph.D., and others in the August 2005 *Critical Care Medicine* 33(8), pp. 1718-1721. ■

Psychiatric emergency services vary widely in hospital emergency departments

Ten percent of emergency department (ED) visits nationwide are psychiatric emergencies. However, very few emergency physicians and nurses are trained to handle psychiatric emergencies. A growing number of hospitals are creating psychiatric consultation services within hospital EDs, but the psychiatric emergency services (PESs) they offer vary widely, reveals a study supported by the Agency for Healthcare Research and Quality (HS13859).

Jennifer Field Brown, M.S.N., Ph.D., of Norfolk State University, retrospectively examined the psychiatric consultation arrangements and outcomes of hospitals that had EDs in the year 2000. She used models to test the extent to which organizational and environmental characteristics influenced service arrangement and hospital-level outcomes. Another model examined the influence of the PES arrangement on patient outcomes. The study was conducted using data from the States of Maryland and South Carolina, the American Hospital Association, Area Resource File, and a hospital administrator survey about hospital PES arrangements and performance.

A total of 71 hospitals responded to the survey, with 45 percent indicating they had an in-house arrangement for PES; 41 percent had market contracting; and 14 percent had no PES. In-house

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Psychiatric emergenices

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arrangements were associated with decreased ED readmission rates. However, patient outcome was best predicted by a combination of the PES arrangement and personal characteristics. Patient disposition (discharge or hospital admission) was the only outcome for which organizational influences were more significant. Dr. Brown recommends in-house EDPES for hospitals that have any of the following conditions: a high frequency of psychiatric cases in the ED, a patient population that is low-income and high-acuity, and payer sources that provide relatively lower reimbursement for services.

See "Emergency department psychiatric consultation arrangement," by Dr. Brown, in the July 2005 *Health Care Management Review* 30(3), pp. 251-261. ■

Access to Care

Regional availability of specialists affects outcomes for patients with peripheral arterial disease

Peripheral arterial disease (PAD) is caused by atherosclerosis (blocked arteries) in the lower extremities. PAD prevents oxygen from reaching extremity tissues, causing pain, ulceration, and even gangrene, and sometimes leads to amputation. Bypass surgery or angioplasty can be used to restore circulation in the affected limbs to prevent amputation, but the likelihood that a patient will receive these procedures is often dependent on access to vascular specialists. Increasing the supply of vascular specialists who perform bypass surgery and interventional radiologists who perform angioplasty may help reduce amputations in patients with PAD in underserved areas, suggests a study supported by the Agency for Healthcare Research and Quality (HS11501).

Vivian Ho, Ph.D., of Rice University and Baylor College of Medicine, and colleagues identified elderly patients with PAD in the 1994 Medicare claims database and tracked their claims through 1999. They merged risk-adjusted data by Hospital Referral Region on 143,202 patients who survived through 1999 with information on local physician supply and other regional characteristics. Their goal was to test whether regional availability of vascular surgeons and interventional radiologists affected lower extremity bypass surgery or angioplasty and amputation rates for patients with PAD.

They found that increasing vascular surgeon supply in a region by about one standard deviation (.30/10,000 Medicare beneficiaries) was associated with a 0.9 percentage point increase in bypass surgery rates and a 1.6 percentage point reduction in amputation rates. They found weaker evidence that greater availability of interventional radiologists increased angioplasty rates and reduced amputation rates. Regions considered more attractive, by virtue of good climate, low crime, and other factors, were more likely to have a larger supply of vascular surgeons and interventional radiologists.

See "Physician supply, treatment, and amputation rates for peripheral arterial disease," by Dr. Ho, Douglas Wirthlin, M.D., Huifeng Yun, M.S., and Jeroan Allison, M.D., in the July 2005 *Journal of Vascular Surgery* 42, pp. 81-87. ■

Caps on malpractice awards increase the State supply of physicians, especially in rural areas

Twenty-eight States currently have caps on non-economic damages in medical malpractice cases. Proponents of capping medical malpractice awards contend that high medical malpractice insurance rates are driving physicians out of business or to States where such awards are capped. A new study by William E. Encinosa, Ph.D., and Fred J. Hellinger, Ph.D., senior economists in the Center for Delivery, Organization, and Markets, Agency for Healthcare Research and Quality, found that States with a cap have more physicians per capita and the amount of that cap influences the number of physicians practicing in those States.

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Malpractice caps

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The researchers analyzed county-level data on physician supply from all 50 States from years both before and after most States had adopted caps on non-economic damages (1985-2000). They examined the impact of the size of caps on malpractice awards on the supply of physicians in both rural and urban areas, as well as the impact caps had on the supply of surgeons and obstetrician-gynecologists (OB-GYNS) — two types of physicians that have been particularly hard hit by the surge in medical malpractice premiums.

Counties in States with a cap had 2.2 percent more physicians per capita because of the cap, and rural counties in States with a cap had 3.2 percent more physicians per capita. Rural counties in States with a $250,000 cap had 5.4 percent more OB/GYNS and 5.5 percent more surgical specialists per capita than did rural counties in States with a cap above $250,000.

More details are in "Have State caps on malpractice awards increased the supply of physicians?" by Drs. Encinosa and Hellinger, in the May 31, 2005 *Health Affairs*, pp. 250-258. Reprints (AHRQ Publication No. 06-R001) are available from AHRQ.* ■

Health Care Costs and Financing

Study strengthens argument against implementing rollbacks in the State Children's Health Insurance Program

Reduced Federal allocations for the State Children's Health Insurance Program (SCHIP) and high SCHIP enrollment has led a number of States to begin reversing the expansion in public coverage for children. However, a new study argues that rollbacks in SCHIP will not save that much money. The net cost of SCHIP—both to States and to the Federal Government—is substantially less than the average spending per enrollee would suggest, according to Thomas M. Selden, Ph.D., and Julie L. Hudson, Ph.D., economists at the Center for Financing, Access, and Cost Trends, Agency for Healthcare Research and Quality.

The researchers conducted a variety of simulations, all reaching the same basic conclusion: budgetary data greatly overstate the true net costs of SCHIP, thereby overstating the potential savings from SCHIP rollbacks that might reduce enrollment. Net State savings may be only one-half to one-third what one might surmise based on State SCHIP spending per enrollee, assert the authors.

They calculated the annual SCHIP expenditure per child ever enrolled was $878 in their analysis of the 2000 Medical Expenditure Panel Survey. However, that figure can be misleading, because it ignores the public expenditures that would have occurred had these children not been enrolled in SCHIP. For instance, absent SCHIP more children would have qualified for Medicaid medically needy coverage, offsetting $275 of SCHIP costs. Similarly, in the absence of SCHIP, more children would have been covered by private insurance, which is itself subsidized through the tax code. This results in a $54 offset to net SCHIP cost.

But in the absence of SCHIP, they estimated that increased private employment-related coverage would lead to $54 in increased tax subsidies, offsetting about 6 percent of SCHIP's costs. The frequency of medically needy coverage in the absence of SCHIP would be 2 percent (an offset of $275 per former SCHIP enrollee and $324 per uninsured children who do not shift to private coverage). They also calculated that 6 percent of SCHIP enrollees would have generated uncompensated care in that program's absence. This translates into average uncompensated care of about $104 per SCHIP enrollee. They assumed that half of this amount ($52) would be funded by public sources within the State.

Combining these estimates, the net Federal and State cost of SCHIP falls from $878 to $498 (a reduction of 43 percent). From the State perspective, the net cost of SCHIP drops from $282 to $97—a two-thirds reduction. From the Federal perspective, the net cost of SCHIP is $401 versus $596, a one-third reduction.

More details are in "How much can really be saved by rolling back SCHIP?" by Drs. Selden and Hudson, in the Spring 2005 *Inquiry* 42, pp. 16-28. Reprints (AHRQ Publication No. 05-R063) are available from AHRQ.* ■

Hospital admissions of patients with HIV have fallen by more than half since 1995

The number of hospital admissions for people diagnosed with HIV infection in the United States declined from a high of 149,000 in 1995 – just before approval of life-prolonging protease inhibitor drugs known as the "AIDS cocktail" – to 70,000 admissions in 2003, according to statistics released by the Agency for Healthcare Research and Quality. During the same period, the percentage of patients with AIDS who died in the hospital dropped by 32 percent – from a death rate of 12.5 percent in 1995 to 8.5 percent in 2003.

The data also show that the percentage of women with HIV increased during this time period. In 1995, 26 percent of hospital patients with HIV were women, but this increased to nearly 34 percent in 2003.

The burden of payment shifted during this time as well. Medicaid's share of the bill declined from 53 percent of all HIV hospital stays in 1995 to 49 percent in 2003. The share of HIV stays billed to commercial insurers also declined — from 22 percent to 17 percent. On the other hand, Medicare's share increased from 11 percent of HIV stays in 1995 to nearly 17 percent in 2003. The percent of HIV hospital stays that were uninsured increased from 8 percent to nearly 11 percent.

The statistics are from AHRQ's Nationwide Inpatient Sample, part of the Healthcare Cost and Utilization Project – a Federal-State-industry partnership that provides a powerful source of all-payer health care data for evaluation, planning, policy development, and research. To access HCUPnet, an on-line query system that provides access to health statistics and information on hospital stays, as well as more information on AHRQ's Healthcare Cost and Utilization Project, go to http://www.ahrq.gov/data/hcup/. ■

AHRQ launches project to develop guide for patient registries

The Agency for Healthcare Research and Quality is developing a "how-to" reference guide to help health care organizations in creating patient registries to track the outcomes of medical treatments, including pharmaceutical therapies. The guide will help both the government and private-sector entities in designing and operating successful registries. It will also provide criteria for evaluating registries and the quality of their data, as well as guidance on how registry data can be used to conduct valid scientific research.

The guide will help the Medicare program when it elects to provide coverage for a treatment accompanied by development of further evidence about the treatment. In some instances of such "coverage with evidence development," Medicare collaborates with health professional organizations and other stakeholders to provide expanded coverage for a medical intervention. One requirement is that the covered patients are enrolled in a registry so that further information about the appropriateness of treatment outcomes can be obtained.

The guide will be developed through an inclusive process that will call on the expertise of researchers and others who have successfully developed and used patient registries. Experts will submit a series of papers to inform the project, and a national workshop will be conducted next spring.

The project will be organized by Outcome Science, Inc. of Cambridge, Mass., under a contract with AHRQ. Additional scientific advice will be provided by Duke University. The reference guide on patient registries is to be completed by the end of 2006 and is being developed as part of AHRQ's new Effective Health Care program (www.effectivehealthcare.ahrq.gov). ■

New video shows clinicians how to treat children exposed to chemicals used in bioterrorist attacks

The Agency for Healthcare Research and Quality has released *"The Decontamination of Children: Preparedness and Response for Hospital Emergency Departments,"* a 27-minute video that trains emergency responders and hospital emergency department staff how to decontaminate children after they have been exposed to hazardous chemicals during a bioterrorist attack or other disaster.

This video provides a step-by-step demonstration of the decontamination process in real time and trains clinicians about the nuances of treating infants and children, who require special attention during decontamination procedures. For example, children may be frightened by the emergency situation itself and by undergoing decontamination without their parents. Children also take longer to go through the decontamination process than adults.

Produced for AHRQ's Bioterrorism Preparedness Research Program by Michael Shannon, M.D., M.P.H., Chief of the Division of Emergency Medicine at Children's Hospital, Boston, the video outlines key differences between decontaminating children and adults; provides an overview for constructing portable and permanent decontamination showers and designating hot and cold zones; and provides steps to establishing and maintaining pediatric decontamination capacity in a hospital emergency department.

A short clip from *"The Decontamination of Children"* as well as more information about the Agency's emergency preparedness research can be found online at http://www.ahrq.gov/browse/bioterbr.htm. A free, single copy of the video in DVD format (AHRQ Product No. 05-0036-DVD) or VHS format (AHRQ Product No. 05-0036-VHS) is available from AHRQ.* ■

AHRQ releases evidence reports on work-related asthma and other topics

The Agency for Healthcare Research and Quality recently released evidence reports and summaries on the diagnosis and management of work-related asthma, the effects of omega-3 fatty acids on eye health and child and maternal health, the use of spirometry for chronic obstructive pulmonary disease, evaluation and treatment of acute stroke, and impaired glucose tolerance and fasting glucose.

The reports were prepared by Evidence-based Practice Centers (EPCs) supported by AHRQ. There are 13 AHRQ-supported EPCs. They systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments.

The goal is to inform health plans, providers, purchasers, and the health care system as a whole by providing essential information to improve health care quality. All of AHRQ's EPC reports and technical reviews that have been published to date are available online and through the ARHQ Clearinghouse. Visit the AHRQ Web site at www.ahrq.gov and click on "Clinical Information" or see the back cover of *Research Activities* for ordering information.

Diagnosis and Management of Work-related Asthma. **Evidence Report/Technology Assessment No. 129 (AHRQ Publication No. 06-E003-1, summary, and 06-E003-2, full report).***

Occupational asthma has become the most prevalent occupational lung disease in developed countries. More than 250 asthma-causing agents have been identified, and new causes are identified each year. Approaches to managing the illness range from pharmacological treatment to removing the worker completely from the site of exposure. Decisions about treatment have important economic implications

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Evidence Reports

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for workers, industry, health care providers, and society as a whole.

The American College of Chest Physicians requested this study, and proposed to translate the findings into an evidence-based guideline for health care providers and consumers. Researchers at the University of Alberta EPC conducted a systematic review of the scientific literature and found that additional research is needed to guide clinicians in the diagnosis and management of work-related asthma.

There is no definitive diagnostic test for the condition. Highly specific tests for particular asthma-causing agents, called "specific inhalation challenges," are often cited as a "gold standard" for diagnosis. These tests, where the patient is exposed to the suspected asthma-causing agent, are not widely available and cannot be used with some patients or in situations where the asthma-causing agent has not been identified. The researchers concluded that, in situations where a specific inhalation challenge cannot be performed, other diagnostic tests could be used. For example, specific skin prick tests or a nonspecific bronchial provocation challenge may help support or rule out a diagnosis, but no single test yet yielded results that would warrant its use as a substitute for a specific inhalation challenge. A review of the literature found support for combined testing (such as using the specific skin prick test to enhance the specificity of a non-specific bronchial provocation challenge); however, more research is needed to determine which combination of tests would be an adequate replacement for a specific inhalation challenge.

Researchers also found that workers who remain exposed to the agents that cause asthma will experience decreasing lung capacity over time. Workers whose exposure ceases will generally experience improvement, but many will continue to have symptoms and need medical treatment. The evidence is insufficient to draw conclusions about those workers who reduce rather than cease their exposure.

Other recent reports have been issued on the following topics:

- *Effects of Omega-3 Fatty Acids on Eye Health.* Evidence Report/Technology Assessment No. 117 (AHRQ Publication No. 05-E008-1, summary, and 05-E008-2, full report).*
- *Effects of Omega-3 Fatty Acids on Child and Maternal Health.* Evidence Report/Technology Assessment No. 118 (AHRQ Publication No. 05-E025-1, summary, and 05-E025-2, full report).*
- *Use of Spirometry for Case Finding, Diagnosis, and Managemetn of Chronic Obstructive Pulmonary Disease (COPD).* Evidence Report/Technology Assessment No. 121 (AHRQ Publication No. 05-E017-1, summary, and 05-E017-2, full report).*
- *Acute Stroke: Evaluation and Treatment.* Evidence Report/Technology Assessment No. 127 (AHRQ Publication No. 05-E023-1, summary, and 05-E023-2, full report).*
- *Diagnosis, Prognosis, and Treatment of Impaired Glucose Tolerance and Impaired Fasting Glucose.* Evidence Report/Technology Assessment No. 128 (AHRQ Publication No. 05-E026-1, summary, and 05-E026-2, full report).* ■

HHS Secretary appoints new members to AHRQ National Advisory Council

HHS Secretary Mike Leavitt has appointed five new members to serve on the National Advisory Council for the Agency for Healthcare Research and Quality. In addition, the terms of two current members were extended. The Council provides advice to the Secretary and to the Director of the Agency. The Council consists of 21 members from the private sector and 7 ex-officio members from other Federal health agencies.

The five new Council members are:

- Dale W. Bratzler, D.O., M.P.H., Principal Clinical Coordinator, Oklahoma Foundation for Medical Quality, Inc., Oklahoma City, OK
- Patricia Flatley Brennan, R.N., Ph.D., F.A.A.N., F.A.C.M.I., Moehlman Professor of Nursing and Industrial Engineering, University Wisconsin-Madison, WI
- Ada Sue Hinshaw, Ph.D., R.N., Dean and Professor of Nursing, University of Michigan, Ann Arbor, MI
- Carlos Roberto Jaen, M.D., Ph.D., Professor and Chairman, Department of Family and

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AHRQ National Advisory Council

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Community Medicine, University of Texas Health Science Center, San Antonio, TX

- Munr Kazmir, M.D., Founder and CEO of Direct Meds, Inc., Leonia, NJ

Appointments were extended for two Council members:

- Brent C. James, M.D., Vice President of Medical Research and Executive Director, Institute for Health Care Delivery Research, Intermountain Health Care, Salt Lake City, UT
- The Honorable Newt Gingrich, Ph.D., Senior Fellow, American Enterprise Institute, Washington, DC ■

Research Briefs

Frisse, M.E. (2005, September). "State and community-based efforts to foster interoperability." (AHRQ Contract No. 290-05-0006). *Health Affairs* 24(5), pp. 1190-1196.

This paper describes the success of a regional health information technology demonstration project in the southwest region of Tennessee, the MidSouth eHealth Alliance. The project's goal was to create a health information infrastructure that improves the care of people in three urban and rural southwest counties of the State. The author attributes success in the Alliance's first year to sustained leadership, a systematic assessment of regional needs and capabilities, a flexible technical architecture, and a critical review of best practices from four different data exchange models already operating in other States. Long-term evolution to a truly interoperable health information infrastructure will depend on the extent to which consumers and practitioners find the alliance of value.

Lanier, D. (2005, September). "Lost in translation: The value of qualitative data." *Journal of the American Board of Family Practice* 18(5), pp. 409-410. Reprints (AHRQ Publication No. 06-R008) are available from AHRQ.*

Qualitative data that provide a better understanding of clinical practice and better ways of facilitating positive practice change should be routinely collected as part of research efforts, asserts the author of this commentary. He discusses the rich qualitative data provided by a study in which an intervention increased documentation of mammograms and Pap smears among eligible women in less than a third of primary care practices. According to the author, the descriptions of the initial conditions in these practices—including the values of the practice leaders, the relationships among clinicians and staff, and methods of responding to the often chaotic health care environment—adds greatly to our understanding of why practice change in the United States is often so difficult. He notes that such information is all too frequently not collected or not included in published reports of more quantitative research.

Mandelblatt, J., M.P.H., Schechter, C., Yabroff, K., and others. (2005, June). "Toward optimal screening strategies for older women." *Journal of General Internal Medicine* 20, pp. 487-496. Reprints (AHRQ Publication No. 05-R072) are available from AHRQ.*

The optimal age to stop breast cancer screening remains uncertain. According to a recent study, however, lifetime screening is not cost-effective at $151,434 per life-year saved (LYS) if women receive idealized treatment (treatment and survival that is comparable to clinical trials). Researchers, including William Lawrence, M.D., M.Sc., now with the Agency for Healthcare Research and Quality, conducted the study using a model to simulate the life history of women to evaluate the incremental societal costs and benefits of biennial screening from age 50 until age 70, 79, or a lifetime. The model incorporated age-related differences in tumor biology and emulated the effects of age or life expectancy to address the optimal time to stop screening. The researchers concluded that if all women receive idealized treatment, the benefits of mammography beyond age 79 are too low relative to their costs to justify continued screening. However, if treatment is not ideal, extending screening beyond age 79 could be considered, especially for women in the top 25 percent of life expectancy for their age.

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Research briefs

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Simonsen, L., Viboud, C., Elixhauser, A., and others. (2005, September). "More on RotaShield and intussusception: The role of age at the time of vaccination." *Journal of Infectious Diseases* 192, pp. S36-S43. Reprints (AHRQ Publication No. 06-R002) are available from AHRQ.*

RotaShield, a vaccine intended to prevent severe rotavirus diarrhea among infants and children, was withdrawn in July 1999 because of a temporal link between the vaccine and intussusception (intestinal obstruction) in vaccinated infants. However, the incidence of intussusception associated with the first dose of RotaShield increases with age, concludes this study. The researchers reanalyzed a case-control database of the Centers for Disease Control and Prevention by using a 21-day window to define vaccine-associated events. They combined that data with data on vaccine use and data on incidence of intussusception to estimate how absolute risk varied with age. Infants 90 days old and older accounted for 80 percent of cases of intussusception associated with the first dose of RotaShield. The researchers calculated that a two-dose neonatal vaccination schedule administered at 0-29 days and 30-59 days of age would greatly reduce the risk of intussusception. This vaccination schedule would lead to, at most, a 7 percent increase in the incidence of intussusception above the annual background incidence.

Terrin, N., Schmid, C.H., and Lau, J. (2005, September). "In an empirical evaluation of the funnel plot, researchers could not visually identify publication bias." (AHRQ grant HS10254). *Journal of Clinical Epidemiology* 58, pp. 894-901.

Publication bias and related biases can lead to overly optimistic conclusions in systematic reviews of research studies. The funnel plot, which is frequently used to detect such biases, has not yet been subjected to empirical evaluation as a visual tool. Authors and readers of systematic reviews need to be aware of the limitations of the funnel plot (which displays the relationship of effect size to sample size), conclude these investigators. They asked 41 medical researchers, faculty in clinical care research, and experienced systematic reviewers to complete a questionnaire with funnel plots containing 10 studies each. On average, participants correctly identified 52.5 percent of the plots as being affected or unaffected by publication bias.

Wallstrom, G.L., Wagner, M., and Hogan, W. (2005, August). "High-fidelity injection detectability experiments: A tool for evaluating syndromic surveillance systems." (AHRQ Contract No. 290-00-0009). *Morbidity and Mortality Weekly Report* 54(Suppl.), pp. 85-91.

When public health surveillance systems are evaluated, the Centers for Disease Control and Prevention (CDC) recommends that the expected sensitivity, specificity, and timeliness of surveillance systems be characterized for outbreaks of different sizes, etiologies, and geographic or demographic scopes. High-Fidelity Injection Detectability Experiments (HiFIDE) is a software tool that enables public health departments to perform system validations recommended by the CDC, concludes this study. The researchers describe HiFIDE and illustrate how it can be used to investigate the detectability of a water-borne *Cryptosporidium* outbreak in the Washington, D.C. area by assessing data from sales of over-the-counter diarrheal remedies.

Young, G.J., White, B., Burgess Jr., J.F., and others. (2005, May). "Conceptual issues in the design and implementation of pay-for-quality programs." (AHRQ grant HS13591). *American Journal of Medical Quality* 20(3), pp. 144-150.

The authors of this article identify and discuss key conceptual issues in the design and implementation of pay-for-quality programs. Such programs offer financial incentives to providers, often physicians, for achieving predefined quality targets. More than 35 pay-for-quality programs now exist in the United States, in both the private and public sectors. The purpose of the article is to provide health care professionals with a framework for designing, implementing, and evaluating pay-for-quality programs. The authors draw examples from the Rewarding Results demonstration project, for which they serve as the national evaluation team. ■

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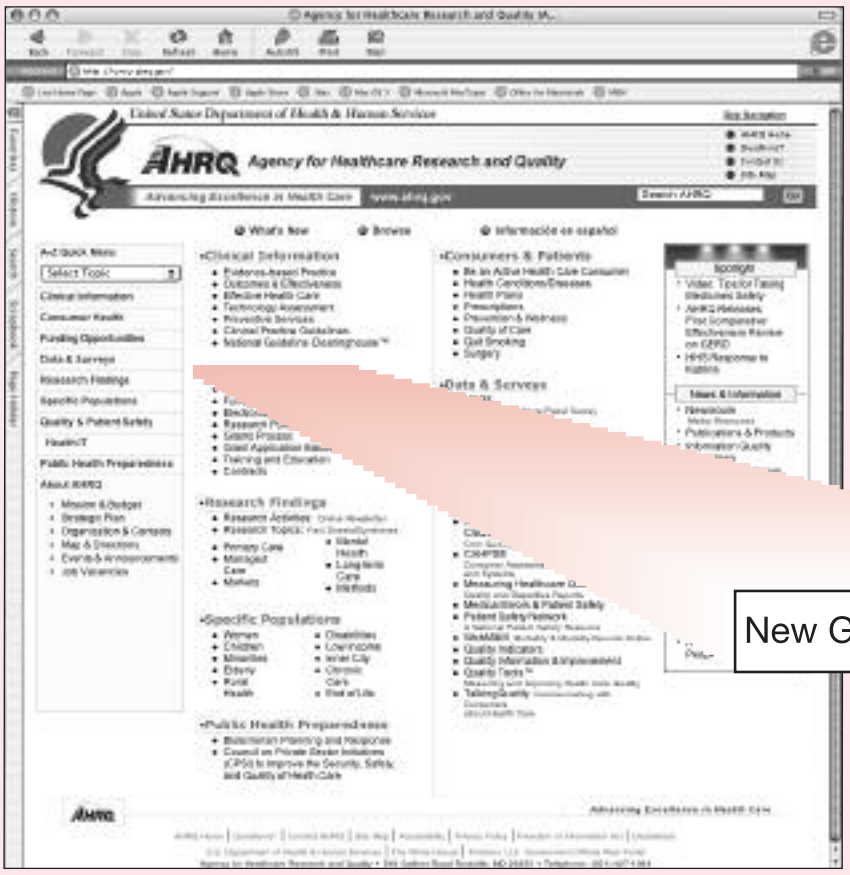

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