



Research Activities



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Agency for Healthcare Research and Quality

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Latest data show that use of antibiotics to treat ear infections is declining

The proportion of children who were given an antibiotic specifically to treat otitis media, a commonly diagnosed ear condition, declined from 14.4 percent in 1996 to 11.5 percent in 2001, according to new data from the Agency for Healthcare Research and Quality. The data also show declines in both the percentage of children reported to have otitis media and the percentage of children whose parents sought treatment for the condition.

The data, from AHRQ's Medical Expenditure Panel Survey, suggest that campaigns launched in the mid-1990s to reduce the overuse of antibiotics and prevent antibiotic-resistant infection may have been effective. The campaigns, which were conducted by the Centers for Disease Control and Prevention, the American Academy of Pediatrics and others, alerted parents and clinicians to the potential dangers of overuse of antibiotics and promoted appropriate use of these medications.

The majority of antibiotics prescribed for children in the United States are for

respiratory tract infections; treatment for otitis media accounts for about one-third of all antibiotics purchased for children. Respiratory tract infections may be caused either by bacteria that can be treated effectively with antibiotics or by a virus for which antibiotics are not effective.

The data also show that between 1996 and 2001, the percentage of children in the United States aged 14 and under who used an antibiotic for any reason during a given year declined from 39 percent to 29 percent. In addition, the average number of antibiotic prescriptions used by all children aged 14 and under during this period declined from 0.9 per child to 0.5 per child.

MEPS researchers also looked at trends in antibiotic use for children of different ages, races and ethnicities, household income, insurance status, health status, and geographic location. The data show that during the period 1996-2001, each subgroup of children experienced a

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Antibiotics for ear infections

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decline both in the percentage who used antibiotics and the average number of prescriptions for antibiotics.

MEPS collects information each year from a nationally representative sample of U.S. households about health care use, expenses, access, health status, and satisfaction with care. MEPS is a unique Government survey because of the degree of

detail in the data and the ability to link MEPS data on health services spending and health insurance with demographic, employment, economic, health status, and other characteristics of individuals and families.

Details are in *Trends in Children's Antibiotic Use: 1996 to 2001*, MEPS Research Findings No. 23, which is available online at www.meps.ahrq.gov. Print copies (AHRQ Publication No. 05-0020) are available from AHRQ.* See the

back cover of *Research Activities* for ordering information.

Editor's note: Another recently published MEPS report summarizes differences in health status, sociodemographic characteristics, and clinical conditions among various U.S. population groups. The report, *Demographic and Clinical Variations in Health Status*, MEPS Methodology Report No. 15, is also available online at www.meps.ahrq.gov or in print (AHRQ Publication No. 05-0022).* ■

Outcomes/Effectiveness Research

Long-term outcomes data do not support aggressive treatment of localized low-grade prostate cancer

A recent study supported by the Agency for Healthcare Research and Quality (HS09578) reports long-term outcomes of 767 men aged 55 to 74 who were diagnosed with clinically localized prostate cancer between January 1, 1971, and December 31, 1984. The study participants were managed conservatively—either by observation or by

androgen withdrawal therapy alone—and followed for a median of 24 years after diagnosis. The study was led by Peter C. Albertsen, M.D., M.S., of the University of Connecticut in Farmington.

Among those patients presenting with low-grade disease (Gleason score of 2-4) on biopsy, the risk of disease progression remained low even after more than 20 years. Only 7 percent of patients with low-grade disease died of prostate cancer, while 83 percent died from other identifiable or unknown causes. Twelve percent of the men were still alive 20-33 years after diagnosis. In contrast, among men with high-grade tumors (Gleason score of 8-10), a majority died of prostate cancer within 10 years, regardless of their age when diagnosed. Only 1 percent of patients with high-grade tumors survived to the end of the study. Those who had moderate-grade tumors had an intermediate long-term risk of dying as a result of their prostate cancer.

Findings from this study demonstrate that men with low-grade prostate cancer have only a small risk of prostate cancer progression even after 20 years of management by observation or androgen withdrawal therapy alone. These results do not support aggressive treatment of localized low-grade prostate cancer, concludes Dr. Albertsen.

For more information, see “20-year outcomes following conservative management of clinically localized prostate cancer,” by Dr. Albertsen, James A. Hanley, Ph.D., and Judith Fine, B.A., in the May 4, 2005 *Journal of the American Medical Association* 293(17), pp. 2095-2101. ■

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A delay of 2 or more days in surgical repair of hip fracture substantially increases mortality rates

An estimated 14 to 36 percent of individuals who suffer a hip fracture die within a year of the fracture. Delay of hip fracture repair surgery increases the risk of dying within a month, according to a study supported in part by the Agency for Healthcare Research and Quality (HS09460). The study found that patients with a closed hip fracture who had a delay in surgery of 2 or more days after hospital admission had a 17 percent higher chance of dying within 30 days than similar patients whose surgery was not delayed. Individuals whose surgery was delayed 3 or more days had a 21 percent higher chance of dying within a month.

Jeffrey H. Silber, M.D., Ph.D., of the Center for Outcomes Research, Philadelphia, and colleagues used the Pennsylvania Medicare database from 1995-1996 to examine the relationship between time from hip fracture diagnosis to surgical repair and death within 30 days for 18,209 Medicare patients aged 65 or older. Overall, 81 percent of patients were admitted from the emergency department, and 48 percent had other preexisting medical problems.

Nearly 7 percent of patients died within 30 days of hospital admission. Those whose surgery was delayed 2 or more days had a 17 percent higher risk of dying within a month, even after adjusting for severity of illness. Day of the week, as expected,

correlated with treatment. The mean time from admission to surgery was 1.17 days. However, admission on Saturday, Sunday, or Monday was associated with a mean delay of 1.22 days and was highly predictive of a delay in surgery of 2 or more days. Patients admitted Tuesday, Wednesday, Thursday, or Friday had a mean delay of 1.13 days. In clinical practice, the sickest patients most often have a deliberate delay to optimize their health status before surgery. They also are the patients most likely to die.

See “Delays until surgery after hip fracture increases mortality,” by Kevin J. McGuire, M.D., M.S.C.E., Joseph Bernstein, M.D., M.S., Daniel Polsky, Ph.D., and Jeffrey H. Silber, M.D., Ph.D., in the November 2004 *Clinical Orthopaedics and Related Research* 428, pp. 294-301.

Editor’s note: Another AHRQ-supported study on a related topic found that patients with elevated risk of relocation after hip fracture may be targets for intensive care coordination and care planning interventions. For more details, see Boockvar, K.S., Litke, A., Penrod, J.D., and others. (2004). “Patient relocation in the 6 months after hip fracture: Risk factors for fragmented care.” (AHRQ grants HS09973 and HS09459). *Journal of the American Geriatrics Society* 52, pp. 1826-1831. ■

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Prolonging clopidogrel therapy from 1 month to 1 year after coronary angioplasty with stent placement is cost effective

Over 500,000 percutaneous coronary interventions (PCIs)—coronary angioplasties—with stent placement are performed each year in the United States. During these procedures, a balloon-tipped catheter is inserted into the coronary artery, and the balloon is inflated to open up the blocked artery. A stent, which is a hollow mesh tube, is placed in the artery to keep it open.

Doctors prescribe the combination therapy of aspirin and the anti-clotting drug, clopidogrel, for 1 month after PCI to prevent further heart problems. However, prolonging clopidogrel therapy up to 1 year after PCI is economically attractive, particularly in patients at high risk for heart attack after PCI, according to findings from a recent study. The study was supported by the Agency for Healthcare Research and Quality (HS10548) through the Centers for Education and Research on Therapeutics (CERTs) program.

A research team at the Duke University CERT used decision analysis to compare the outcomes and cost of discontinuing clopidogrel treatment at 1 month after PCI with prolonging treatment up to 1 year after PCI. They based rates of major events after PCI (heart attack, death, and repeat revascularization) on 3,976 PCI patients who were treated between January 1999

and December 2001 at the Duke Medical Center and received no more than 1 month of post-PCI clopidogrel. The effect of prolonged clopidogrel therapy on event rates (heart attack, bleeding, repeat revascularization, death) was based on data from the Clopidogrel for the Reduction of Events During Observation (CREDO) trial.

Extending clopidogrel therapy from 1 month to 1 year after PCI cost \$879 per patient (\$775 for high-risk patients) and reduced the risk of heart attack by 2.6 percent (by 3.5 percent in high-risk patients from 8 percent to 4.5 percent). Assuming heart attack decreases life expectancy by 2 years, prolonged therapy would cost \$15,696 per year of life saved (\$10,333 for high-risk patients). The economic attractiveness of therapy varied with patient baseline risk, the effect of prolonged therapy on heart attack risk, and the price of clopidogrel (an expensive \$3.22 per day).

See “Economic effects of prolonged clopidogrel therapy after percutaneous coronary intervention,” by Patricia A. Cowper, Ph.D., Krishna Udayakumar, M.D., M.B.A., Michael H. Sketch, Jr., M.D., and Eric D. Peterson, M.D., M.P.H., F.A.C.C., in the February 1, 2005 *Journal of the American College of Cardiology* 45(3), pp. 369-376. ■

Researchers examine effects of quality improvement on depression care for adolescents and adults

From 15 to 20 percent of adolescents will experience major depression at some point. Improving access to effective treatment for adolescent depression in primary care settings leads to better patient outcomes, according to a recent study. A second study shows that depression is diagnosed much more often among women

than men. Both studies show that when adolescents and adults are given better access to medication and therapy through a primary care quality improvement program for depression, quality of care and outcomes are improved relative to usual care. The studies, which are summarized here, were supported in

part by the Agency for Healthcare Research and Quality.

Asarnow, J.R., Jaycox, L.H., Duan, N., and others. (2005, January). “Effectiveness of a quality improvement intervention for adolescent depression in

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Depression care

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primary care clinics.” (AHRQ grant HS09908). *Journal of the American Medical Association* 293(3), pp. 311-319.

The researchers conducted a randomized controlled trial between 1999 and 2003 involving 418 primary care patients with depressive symptoms, aged 13 through 21 years, from five health care organizations. The organizations included managed care, public clinics, and academic medical center clinics in the United States. Subjects were randomized to quality improvement (QI) care or usual care (UC). QI care included expert leader teams at each practice site, care managers who supported primary care clinicians in evaluating and managing patients’ depression, training for care managers in cognitive behavior therapy for depression, and patient and clinician choice of treatment options, including medication and/or therapy. The research team studied depressive symptoms after 6 months of care for the UC group (207) and the QI group (211).

Six months after initial assessments, QI patients reported significantly fewer depressive symptoms than UC patients (19 vs. 21.4), higher mental health-related quality of life scores (44.6 vs. 42.8), and greater satisfaction with mental health care (3.8 vs. 3.5 on a 5-point scale). QI patients also had higher rates of mental health care (32 vs. 17 percent) and psychotherapy or counseling (32 vs. 21 percent).

Sherbourne, C.D., Weiss, R., Duan, N., and others. (2004, December). “Do the effects of quality improvement for depression care differ for men and women?” (AHRQ grant HS08349). *Medical Care* 42(12), pp. 1186-1193.

These researchers randomized 46 primary care practices within 6 managed care organizations to usual care or one of two QI programs: QI-Meds or QI-Therapy. The QI programs supported QI teams, provider training, nurse assessment and patient education, and resources to support medication management or

psychotherapy. The researchers compared the outcomes of UC and QI for adult men and women (a total of 1,299 primary care patients) who completed at least one of five patient assessment questionnaires during the course of 2 years.

Women were more likely to receive depression care than men over time, whether they were in the UC or QI groups. The effect of QI-Meds on probable depression was delayed for men, but the effect was significantly greater for men than for women. QI-Therapy reduced the likelihood of probable depression equally for men and women. However, QI-Therapy had a greater impact on mental health-related quality of life and work status for men than for women. QI-Meds improved these outcomes for women. The authors conclude that QI programs may need to facilitate access to both medication management and effective psychotherapy to improve depression care for both men and women and reduce male-female differences in outcomes. ■

Low literacy is associated with several adverse health outcomes

Low literacy is common in the United States, with 90 million adults unable to understand information from complex texts or perform calculations requiring two or more sequential operations. Low literacy interferes with functioning in society and achieving goals, and it also is linked with poorer health outcomes.

Researchers at the RTI International-University of North Carolina Evidence-based Practice Center (EPC), which is supported by the Agency for Healthcare Research and Quality (contract 290-02-0016) and led by Kathleen N. Lohr, Ph.D., conducted a review of the published evidence from 1980 to 2003 on literacy and health outcomes and produced an evidence report on the topic.

A total of 73 articles met inclusion criteria, and 44 of those addressed the questions in the evidence report. Patients with low literacy had poorer health

outcomes, including health knowledge, intermediate disease markers, measures of morbidity, general health status, and use of health resources. Patients with low literacy were generally 1.5 to 3 times as likely as more literate patients to experience a given poor outcome. For instance, Medicare enrollees with lower literacy were nearly twice as likely not to have had a Pap smear or mammogram in the previous 2 years as patients with higher literacy, after controlling for age, race, and other factors.

Low-literacy patients with diabetes were twice as likely to have poor control of type 2 diabetes as more literate diabetes patients. Also, men with poorer reading ability were more likely to be diagnosed with late-stage prostate cancer than those with better reading ability. Finally, low literacy level was

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Low literacy and health

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significantly associated with increased risk of hospitalization. The average quality of the studies reviewed was fair to good.

See “Literacy and health outcomes: A systematic review of the literature,” by Darren A. DeWalt, M.D., M.P.H., Nancy D. Berkman, Ph.D., Stacey Sheridan, M.D., M.P.H., and others, in the December 2004

Journal of General Internal Medicine 19, pp. 1228-1239.

Editor’s note: The evidence report and a summary, *Literacy and Health Outcomes*, Evidence Report/Technology Assessment No. 87, are available online from the AHRQ Web site at www.ahrq.gov. Print copies (04-E007-1, summary, 04-E007-2, full report)* are available from AHRQ. See the back cover of *Research Activities* for ordering information. ■

Clinical Decisionmaking

Missing clinical information during primary care visits is commonplace and can adversely affect patient care

In one of seven primary care visits, some important piece of data—a laboratory result, a letter from a consultant, a radiology report, or a hospital history—is not available at the time the patient is in the office, according to a study supported in part by the Agency for Healthcare Research and Quality (HS11878). The study was carried out by researchers at the University of Colorado Health Sciences Center in Denver.

Missing information leads to a waste of time and resources, and it may adversely affect patients. For example, in 60 percent of primary care visits with missing clinical information, clinicians reported that the lack of data was likely to result in either a delay in care or duplicate medical services. In 44 percent of such visits, physicians believed that the patients’ well-being was likely to be placed at risk.

The researchers surveyed 253 clinicians in 32 primary care clinics within a Colorado consortium of practice-based research networks. The clinicians reported on 1,614 patient visits (patient and visit characteristics, including missing information) that occurred between May and December 2003. Clinicians

reported missing clinical information in nearly 14 percent of visits. Missing information included laboratory results (6.1 percent of visits), letters/dictation (5.4 percent), radiology results (3.8 percent), history and physical examination findings (3.7 percent), and medication information (3.2 percent).

Missing information was reported to be somewhat likely to adversely affect patients (44 percent of visits) and to potentially result in delayed care or the need for additional services (59.5 percent of visits). Missing information was about twice as likely when patients were recent immigrants, new to the practice, or had multiple medical problems compared with no problems. Missing information was much less likely in rural practices, where patients see fewer health care providers, and in practices with full electronic records.

See “Missing clinical information during primary care visits,” by Peter C. Smith, M.D., Rodrigo Araya-Guerra, B.A., Caroline Bublitz, M.S., and others, in the February 2, 2005 *Journal of the American Medical Association* 293(5), pp. 565-571. ■

Use of maximal sterile barriers when placing central venous catheters may reduce the risk of catheter-related infections

Central venous catheters (CVCs) provide access for intravenous therapy for patients in intensive care units and for outpatients needing long-term IV therapy. Unfortunately, CVCs are commonly associated with bacterial colonization of the

catheter, local infection at the insertion site, and catheter-related bloodstream infection (CR-BSI). While more cumbersome, time-consuming, and expensive than other techniques, use of maximal sterile barriers (MSBs) when placing CVCs may reduce the risk

of infections, according to a study supported in part by the Agency for Healthcare Research and Quality (HS11540).

Use of MSBs, which is recommended by experts, requires

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that the person inserting the CVC wear a head cap, face mask, sterile body gown, and sterile gloves and use a full-size sterile drape around the insertion site. Less-stringent measures usually require only sterile gloves and a small regional sterile drape.

Lead investigator Kent K. Hu, M.D., of the University of Washington, and his colleagues developed a decision model in which a patient could have a CVC placed

using either MSB or a less stringent technique. They then calculated total direct medical costs and the incidence of CR-BSI, bacterial colonization of the catheter, and/or death.

Use of MSBs lowered costs from \$621 to \$369 per catheter insertion and decreased the incidence of CR-BSIs from 5.3 percent to 2.8 percent, catheter colonization with local infection from 5.5 percent to 2.9 percent, and death from 0.8 percent to 0.4 percent. This formal economic evaluation suggests that for every 270 catheters placed with use of MSBs, about \$68,000 would be

saved, seven episodes of CR-BSI would be avoided, and one death would be prevented. These results strongly support use of MSBs during all nonemergency CVC placements in hospitalized patients, concludes Dr. Hu.

See "Use of maximal sterile barriers during central venous catheter insertion: Clinical and economic outcomes," by Dr. Hu, David L. Veenstra, Pharm.D., Ph.D., Benjamin A. Lipsky, M.D., and Sanjay Saint, M.D., M.P.H., in the November 15, 2004 *Clinical Infectious Diseases* 39, pp. 1441-1445. ■

Use of a clinical decision rule can improve the accuracy and efficiency of orthopedists in diagnosing deep vein thrombosis

Patients who undergo orthopedic surgery or suffer orthopedic injuries are at substantial risk for developing proximal deep vein thrombosis (PDVT). This blood clot in the popliteal vein of the knee and above is important to diagnose because it can become life-threatening if it travels to the lungs. Orthopedists could improve their diagnosis of PDVT by using a clinical decision rule, according to two recent studies. The studies were supported in part by the Agency for Healthcare Research and Quality (HS13059) and led by Daniel L. Riddle, Ph.D., P.T., of Virginia Commonwealth University.

In the first study, Dr. Riddle and his colleagues assessed whether a set of clinical characteristics, a so-called clinical decision rule, was valid for diagnosing or ruling out PDVT in outpatients with musculoskeletal disorders. A score of 3 or more on a list of clinical findings (for example, entire leg swelling, calf swelling of at least 3 cm more than the asymptomatic leg, paralysis or immobilization of the lower extremities, recently bedridden for more than 3 days, or major surgery within 4 weeks) equaled a high probability of PDVT. A score of 1 or 2 indicated a moderate probability of PDVT, and 0 equaled a low probability of PDVT.

The researchers used data collected from 464 outpatients with surgical and nonsurgical

musculoskeletal disorders and found that 5.6 percent of patients in the low probability group had PDVT compared with 14.1 percent in the moderate probability group and 47.4 percent in the high probability group.

In the second study, Dr. Riddle and his colleagues surveyed a nationally representative random sample of 676 orthopedists. The orthopedists were asked to estimate the probability of PDVT among six hypothetical clinical vignettes using defined criteria. For the moderate and high risk vignettes, orthopedists' planned diagnostic tests agreed with the gold standard (clinical decision rule and evidence-based diagnostic test recommendations) about 70 percent of the time. The researchers conclude that orthopedists could probably improve their diagnosis of PDVT by applying the clinical decision rule and current evidence on use of diagnostic tests.

More details are in "Preliminary validation of clinical assessment for deep vein thrombosis in orthopaedic outpatients," by Dr. Riddle, Marnix R. Hoppener, M.Sc., Roderik A. Kraaijenhagen, M.D. and others; and "Improving the diagnostic process for deep vein thrombosis in orthopaedic outpatients," by Dr. Riddle, Bruce E. Hillner, M.D., Philip S. Wells, M.D., and Robert E. Johnson, Ph.D., in the March 2005 *Clinical Orthopaedics and Related Research* 432, pp. 252-257, 258-266. ■

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.

Patients like access to their electronic medical record and e-mailing their doctor, but doctors still prefer the telephone

Patients like having access to their electronic health record (EHR) and communicating with their doctor by e-mail for certain things, but doctors still prefer the telephone to e-mail, according to a recent study that was supported by the Agency for Healthcare Research and Quality (contract 290-00-0003).

Andrea Hassol, M.S.P.H., of Abt Associates, Inc., and her colleagues conducted an online survey of 4,282 members of the Geisinger Health System, who are registered users of the computer application, MyChart. MyChart allows patients to communicate electronically with their providers and view selected portions of their EHRs. The researchers also conducted focus groups with 25 patients who were using the system and one-on-one interviews with 10 primary care

clinicians about patient access to the EHR and use of e-mail communication between patients and doctors.

The majority of users found the system easy to use (mean scores of 78 to 85 on a 1-100 scale) and reported that their medical record information was complete, accurate, and understandable (mean scores from 65 to 85). Only a minority of users were concerned about the confidentiality of their information or about seeing abnormal test results as an explanatory electronic message from their providers. Patients with less than a high school education had more difficulty understanding medical information and test results than high school graduates, but even among this group, the scores averaged above 70.

Patients preferred e-mail communication for some interactions—for example, requesting prescription renewals and obtaining general medical information—while they preferred in-person communication for others—for example, getting treatment instructions. Telephone or written communication was never their preferred communication channel. In contrast, physicians preferred communicating by telephone rather than e-mail.

See “Patient experiences and attitudes about access to a patient electronic health care record and linked Web messaging,” by Andrea Hassol, M.S.P.H., James M. Walker, M.D., David Kidder, Ph.D., and others in the November 2004 *Journal of the American Medical Informatics Association* 11(6), pp. 505-513. ■

Use of an interactive computer program can help patients and staff improve diabetes care in primary care practices

Interactive computer programs, which include specific diabetes care protocols and customized self-management action plans, can improve diabetes care in typical primary care practices, according to a study supported by the Agency for Healthcare Research and Quality (HS10123). Researchers led by Russell E. Glasgow, Ph.D., of Kaiser Permanente Colorado, compared the ability of an interactive CD-ROM-assisted Diabetes Priority Program to improve laboratory tests, patient-centered care, and outcomes of 886 patients with type 2 diabetes. The researchers randomized 52 primary care physicians in Colorado (and their 886 patients) to the computer program (intervention) or a control group.

The intervention group completed a computerized touch screen assessment that included questions about receipt of recommended procedures such as foot examinations and dilated eye exams, as well as five

laboratory assessments and four patient-centered activities such as self-monitoring of blood glucose. Patients were also asked about smoking, exercise, and eating patterns and received feedback on each of these. They next selected a behavior change goal in the area of smoking, eating, or exercise. The program generated a self-management action plan, which was also printed out for the doctor and care manager.

Patients in the control group completed a computer assessment and received a printout on general health risk reduction. They did not have a care manager. More than half of patients (from 58 to 99 percent) were already receiving recommended services. Despite this high initial level of care, the intervention group received rates of care averaging 17 percent higher than the control group, with greatest differences in medical nutrition therapy, self-management goal setting,

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Diabetes care

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dilated eye exams, and foot exams. Outcomes such as blood-sugar levels improved overall, with no significant difference between groups.

See “Randomized effectiveness trial of a computer-assisted intervention to improve diabetes care,” by Dr. Glasgow, Paul A. Nutting, M.D., M.S.P.H., Diane K. King, M.S., O.T.R., and others, in the January 2005 *Diabetes Care* 28(1), pp. 33-39.

Editor’s note: A second report by the same researchers found that patients were very willing to participate in the computer-assisted intervention, and staff in primary care offices can consistently deliver an intervention of this nature. However, most physicians were unwilling to participate in the study, requiring

implementation of computer-assisted care during regular primary care visits. See Glasgow, R.E., Nutting, P.A., King, D.K., and others. (2004, December). “A practical randomized trial to improve diabetes care.” (AHRQ grant HS10123). *Journal of General Internal Medicine* 19, pp. 1167-1174.

Another AHRQ-supported study on the costs of care for adult diabetes patients found that coronary heart disease, hypertension, and depression disorders among these patients more strongly predict future care costs than blood sugar levels. For more details, see Gilmer, T.P., O’Connor, P.J., Rush, W.A., and others. (2005, January). “Predictors of health care costs in adults with diabetes.” (AHRQ grant HS09946). *Diabetes Care* 28(1), pp. 59-64. ■

Practice-based research networks can use e-mail to speed diagnosis of anthrax and other rare infectious diseases

Rapid detection of illnesses due to bioterrorism such as inhalational anthrax and emerging infections such as severe acute respiratory syndrome (SARS) can be aided by use of e-mail surveillance within practice-based research networks (PBRNs), according to a recent study supported in part by the Agency for Healthcare Research and Quality (HS13494). An e-mail to physicians in a PBRN substantially reduced the time to diagnosis of hypothetical cases of infectious disease.

A speedy response is critical in disease outbreaks that demand quick diagnosis and action, note University of Wisconsin researchers, Jonathan L. Temte, M.D., Ph.D., and Anna Lisa Anderson, B.S. They compared responses to a mailed survey from a nationwide random sample of family physicians with responses to an e-mail to 55 physician members of the Wisconsin Research Network (WreN), a regional PBRN. The survey consisted of three case vignettes randomly drawn from a set describing 11 patients with inhalational anthrax, 2 with influenza A, and 1 with *Legionella pneumoniae*. Physicians responded to four yes-or-no case management questions for each case.

Response rates were similar for the two groups, but PBRN e-mail substantially reduced the median

response time (from 28 days for mailed surveys to 2 days for the e-mail group). There were no differences in case diagnoses or case management between the two groups of physicians, and the initial management of the hypothetical inhalational anthrax cases was quite good. The authors conclude that electronic means of diagnosing rare infectious diseases of national significance is feasible within PBRNs.

See “Rapid assessment of agents of biological terrorism: Defining the differential diagnosis of inhalational anthrax using electronic communication in a practice-based research network,” by Dr. Temte and Ms. Anderson, in the September 2004 *Annals of Family Medicine* 2(5), pp. 434-437.

Editor’s note: Another AHRQ-supported study on a related topic provides an overview of existing infectious disease surveillance systems and how they interact to detect disease outbreaks. For more details, see Dato, V., Wagner, M.M., and Fapohunda, A. (2004, September). “How outbreaks of infectious disease are detected: A review of surveillance systems and outbreaks.” (AHRQ contract 290-00-0009). *Public Health Reports* 119, pp. 464-471. ■

Use of computerized simulation models can help communities plan an effective response to bioterrorism

Use of computerized simulation models can help communities plan an effective response in the event of a bioterrorist attack, according to George Miller, Ph.D., of the Altarum Institute in Ann Arbor, MI. A recent study conducted by Dr. Miller and his colleagues demonstrated the applicability of discrete event simulation to planning the response of a rural health care delivery system to a bioterrorist attack. The researchers used two discrete event simulation models, one representing the spread of disease following an attack with a contagious agent (pneumonic plague) and the other representing the care that victims would receive from the health care delivery system

and the resultant stress the attack would put on the system.

In the simulated scenario, early detection of the attack and subsequent aggressive response by the public health system were projected to reduce the total number of victims in this rural setting from 82 to 27 and reduce the number of deaths from 43 to 7 when compared with a less timely and less effective response. Early detection also created more favorable lead times for acquiring necessary equipment that would be in short supply. For example, in all cases simulated, additional ventilators were needed 5 days after the attack. Early detection allowed 2 days for acquiring ventilators, but there was no acquisition time with later detection.

In all cases, the immediate need for intensive care unit (ICU) beds greatly exceeded the available supply. However, this shortfall could be alleviated if some medical/surgical (M/S) beds could be temporarily staffed and equipped for near-ICU use, as the demand for M/S beds peaked later in the crisis, suggest the researchers. Their study was supported by the Agency for Healthcare Research and Quality (HS13683).

More details are in "Simulating the response of a rural acute health-care delivery system to a bioterrorist attack," by Dr. Miller, Stephen Randolph, M.B.A., and Dan Gower, Ph.D., in the *International Journal of Disaster Medicine* 2, pp. 24-32, 2004. ■

Women's Health

Researchers assess breast cancer risk and the effects of tamoxifen prophylaxis among women in primary care practices

Expert groups suggest that clinicians discuss use of tamoxifen to prevent breast cancer with women most likely to benefit from the drug. Only a few women visiting primary care doctors are potentially eligible for tamoxifen treatment, that is, they are at high risk of breast cancer but have a low risk of problems from tamoxifen, according to a recent study. Tamoxifen is a selective estrogen receptor modulator that has been shown to reduce the incidence of breast cancer. However, it has also been shown to increase the risk of endometrial cancer, blood clots, and stroke, particularly in women older than age 50.

Researchers at the RTI-University of North Carolina Evidence-based Practice Center, which is supported by the Agency for Healthcare Research and Quality (contract 290-97-0011), examined responses of 605 women (40 to 69 years of age) to questionnaires they completed in the waiting rooms of 10 general internal medicine practices in North Carolina in 2001. The researchers used a model of breast cancer risk to determine the proportion of

women who were potentially eligible for tamoxifen chemoprevention and the proportion of breast cancers that could be prevented.

Estimated breast cancer risks were higher for white women in all age groups compared with black women in the same age group. Among white women, 9 percent of women in their 40s, 24 percent of women in their 50s, and 53 percent of women in their 60s had a 5-year estimated breast cancer risk of 1.66 percent or greater (considered high risk). Among black women, 3 percent in their 40s, 7 percent in their 50s, and 13 percent in their 60s had a similar risk. When adverse events from tamoxifen were considered in white women, 10 percent or fewer were potentially eligible to take the drug. If all of these women adhered to tamoxifen use for 5 years, a maximum of 6.0-8.3 percent of invasive cancers would be prevented over the next 5 years.

See "Breast cancer risk in primary care: Implications for chemoprevention," by Carmen I.

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Lewis, M.D., M.P.H., Linda S. Kinsinger, M.D., M.P.H., Russell P. Harris, M.D., M.P.H., and Robert J. Schwartz, M.A., in the September 27, 2004 *Archives of Internal Medicine* 164, pp. 1897-1903.

Editor's note: Another AHRQ-supported study on a related topic found that women who received the breast cancer treatment they preferred had a better body image 2 years after treatment than women who

did not, underscoring the importance of involving women in breast cancer treatment decisions. For more details, see Figueiredo, M.I., Cullen, J., Hwang, Y.T., and others. (2004, October). "Breast cancer treatment in older women: Does getting what you want improve your long-term body image and mental health?" (AHRQ grant HS08395). *Journal of Clinical Oncology* 22(19), pp. 4002-4009. ■

Use of hormone replacement therapy plummeted after publication of findings from the Women's Health Initiative trial

In the mid-1990s, an estimated 38 percent of postmenopausal women in the United States used estrogen plus progestin hormone therapy (EPT) or estrogen therapy alone (ET). On May 31, 2002, the Women's Health Initiative (WHI) study of hormone therapy (HT) in women with an intact uterus was stopped after an average of 5 years because the risks associated with the use of HT (breast cancer, coronary heart disease, and stroke) were found to outweigh the benefits.

By December 31, 2002, 5 months after the trial results were published (July 9, 2002), 46 percent fewer women were taking EPT compared with the average proportion of women using EPT 2 years before the results were published (a decline from 14.6 percent to 7.9 percent). ET use declined by 28 percent during the same period (from 12.6 percent to 9.1 percent).

These findings are from a study by the HMO Research Network Center for Education and Research on Therapeutics (CERT) and the HMO Cancer Research Network. The study was supported in part by

the Agency for Healthcare Research and Quality through funding from its patient safety program to the CERTs initiative (HS11843). A multicenter research team used automated pharmacy data to identify all oral and transdermal estrogen and progestin dispensed to 169,586 women aged 40 to 80 years who were enrolled in five U.S. health maintenance organizations. The researchers examined EPT and ET use between September 1, 1999 and June 31, 2002 (baseline) and December 31, 2002 (followup).

Along with the decline in EPT use following published trial results, there was an immediate decrease in the proportion of women beginning EPT and ET, from 0.4 percent and 0.3 percent at baseline, respectively, to 0.2 percent for both groups at followup. A striking finding was the high discontinuation rates among ET users despite the fact that the ET portion of the WHI trial (for women who had undergone hysterectomies) was ongoing during the study period. The ET portion of the trial was stopped on March 4, 2004, due to increased

stroke risk. It is unclear whether the discontinuation of ET reflected women's and providers' misunderstanding of the HT trial results or a generalization of the HT findings to ET, note the researchers.

See "Hormone therapy prescribing patterns in the United States," by Diana S.M. Buist, Ph.D., Katherine M. Newton, Ph.D., Diana L. Miglioretti, Ph.D., and others, in the November 2004 *Obstetrics & Gynecology* 104, pp. 1042-1050.

Editor's note: Another AHRQ-supported study on a related topic found that the prevalence of hormone replacement therapy among Medicaid-insured women aged 50 and older in all racial groups also decreased significantly following release of the WHI study findings. For more details, see Hillman, J.J., Zuckerman, I.H., and Lee, E. (2004). "The impact of the Women's Health Initiative on hormone replacement therapy in a Medicaid program." (AHRQ grant HS11673). *Journal of Women's Health* 13(9), pp. 986- 992. ■

Acupuncture appears promising for the treatment of depression during pregnancy

An estimated 3 to 11 percent of pregnant women suffer from major depression at some time during their pregnancy. More recent studies show that this problem may be even more common during the last 2 months of pregnancy. Yet antidepressant therapy is not recommended for pregnant women because antidepressants may harm the fetus. Acupuncture may provide pregnant women with a safe alternative, suggests a new pilot study.

Pregnant women with depression who received acupuncture tailored for depressive symptoms got more relief than women who received nonspecific acupuncture or massage. Furthermore, women who responded to any treatment reported significantly less depression at 10 weeks postpartum, according to the study which was supported by the Agency for

Healthcare Research and Quality (HS09988).

Rachel Manber, Ph.D., of Stanford University, and her colleagues randomly assigned 61 pregnant women with nonpsychotic major depressive disorder to one of three treatments: active acupuncture that specifically addressed depression symptoms (SPEC), a valid control acupuncture that did not specifically address depression symptoms (NSPEC), and massage. Acute phase treatments lasted 8 weeks and included 16 20-25-minute sessions. Responders (50 percent or greater reduction in depression symptoms from baseline) continued treatment biweekly until delivery and weekly for 8 weeks after delivery. Neither acupuncturists nor patients knew which treatment was being tested.

Overall, 69 percent of the women responded to the

acupuncture specific for depression, a rate comparable to the 50 to 70 percent response rates in clinical trials of standard depression treatments. Response rates were significantly lower for massage (32 percent) and control acupuncture (47 percent).

Also, the reduction in depression symptom scores following 8 weeks of specific acupuncture (from 21.5 to 9.6) was similar to that observed following 8 weeks of treatment with antidepressants (from 20.3 to 14.8) or cognitive therapy (from 20.6 to 15.7) in another study of a mixed (male-female) sample of depressed patients.

See “Acupuncture: A promising treatment for depression during pregnancy,” by Dr. Manber, Rosa N. Schnyer, L.Ac., John J.B. Allen, Ph.D., and others, in the *Journal of Affective Disorders* 83, pp. 89-95, 2004. ■

Minority Health

Blacks and Latinos with hypertension have trouble adhering to recommended diets

Just over half (53 percent) of all U.S. patients treated for high blood pressure (hypertension) have their blood pressure under control. The rates of blood pressure control are significantly lower among non-Hispanic black and Latino patients being treated for hypertension—less than 45 percent of these patients have their blood pressure controlled. They generally understand and agree that certain foods and food additives play an important role in causing hypertension, but they also find clinician-recommended diets expensive, an unwelcome departure from traditional and preferred diets, and socially isolating.

These attitudes were revealed during discussions that took place in focus groups involving 88 black and

Latino patients with hypertension. Findings from this study suggest the importance of culturally sensitive approaches to dietary improvements, according to Carol R. Horowitz, M.D., M.P.H., of Mount Sinai School of Medicine. Dr. Horowitz and her colleagues conducted nine focus groups involving blacks (four groups) and Latinos (five groups) treated at hospitals serving East and Central Harlem. These are poor neighborhoods that have high rates of obesity and mortality.

Focus group participants acknowledged that salt, pork, preservatives, additives, and overeating contributed to hypertension. They also agreed that dietary changes such as avoiding fat, pork, Chinese

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Hypertension and diet

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food, alcohol, and large quantities of foods, as well as eating more garlic, fruits, and vegetables and drinking more water can reduce blood pressure. However, they were discouraged that dietary changes might not eliminate the need for medications, and they often felt the perceived sacrifice in quality of life was not worth it.

Participants also noted that it was expensive to cook differently for themselves than they did for other family members, and it was difficult to forego

traditional and preferred foods. The researchers recommend that clinicians who ask hypertensive patients to change their diet should also ask about patient-centered barriers to healthy diets and be sensitive to the cultural, economic, and social realities of their patients. This study was supported in part by the Agency for Healthcare Research and Quality (HS10859).

See “How do urban African Americans and Latinos view the influence of diet on hypertension?” by Dr. Horowitz, Leah Tuzzio, M.P.H., Mary Rojas, Ph.D., and others in the *Journal of Health Care for the Poor and Underserved* 15, pp. 631-644, 2004. ■

Medicaid policies and other local factors may affect disparities in use of diabetes-related health care services

Racial and ethnic differences in the use of health care services by Medicaid-insured patients with diabetes varies from one State to another, according to a study supported in part by the Agency for Healthcare Research and Quality (HS10152). In addition, differences in the use of outpatient visits were generally inversely related to hospitalization rates.

Local factors, including variations in State Medicaid policies, may affect racial and ethnic differences in use of health care services, according to researchers from the UCLA School of Medicine, RAND, and Beth Israel Deaconess Medical Center in Boston. Researchers analyzed 1994 and 1995 State Medicaid data from California, Georgia, and New Jersey on use of outpatient office visits to physicians, emergency department (ED) visits, and hospitalizations among diabetes patients.

In New Jersey, blacks had 9 percent fewer outpatient visits and

15 percent more hospitalizations than whites. In Georgia, blacks had 47 percent more outpatient visits and 19 percent fewer hospitalizations than whites. In California, there was no significant difference between blacks and whites in outpatient visits, but blacks had 18 percent more hospitalizations. There was little difference in emergency department (ED) use between blacks and whites across all three States.

In New Jersey, Hispanics had 14 percent more outpatient visits than whites, but there was no significant difference in hospitalizations. Yet, Hispanics in California had 12 percent fewer outpatient visits and 9 percent more hospitalizations than whites. Hispanic patients had 21 percent and 32 percent fewer ED visits than whites in New Jersey and California, respectively.

Patient risk factors did not explain these racial/ethnic differences in health care use. Also, since all Medicaid recipients

are poor, racial/ethnic differences in financial resources are unlikely to explain these findings.

See “Racial and ethnic differences in utilization of health services in patients with diabetes enrolled in Medicaid,” by Roberto B. Vargas, M.D., M.P.H., Roger B. Davis, Sc.D., Ellen P. McCarthy, Ph.D., M.P.H., and others, in the *Journal of Health Care for the Poor and Underserved* 15, pp. 562-575.

Editor’s note: Another AHRQ-supported study of care disparities shows that a county’s racial and/or ethnic composition influences the relationship between individual race or ethnicity and use of preventive care. For more details, see Benjamins, M.R., Kirby, J.B., and Huie, S.A. (2004). “County characteristics and racial and ethnic disparities in the use of preventive services.” *Preventive Medicine* 39, pp. 704-712. Reprints (AHRQ Publication No. 05-R036) are available from AHRQ.* ■

Death rates for cardiovascular disease are higher among American Indians and Alaska Natives than other U.S. groups

National vital event data published by the Indian Health Service (IHS) prior to the early 1990s suggest that cardiovascular disease (CVD) mortality rates (for example, for heart attack and stroke) are lower for American Indians and Alaska Natives (AIAN). This finding is somewhat puzzling, given that American Indians have for years had some of the Nation's highest rates of major CVD risk factors, such as smoking, diabetes, and obesity.

In a recent study, Dorothy A. Rhoades, M.D., M.P.H., of the University of Colorado Health Sciences Center, adjusted for racial misclassification in the IHS data (something that was not done by the IHS until the early 1990s) and concluded quite the opposite. She found that AIAN have higher CVD mortality rates than the rest of the U.S. population, and these rates may have been higher for more than a decade.

Furthermore, CVD mortality is increasing among AIAN but decreasing in the general population widening a previously unrecognized disparity, notes Dr. Rhoades. She used IHS vital event data to compare

trends in CVD mortality from 1989-1991 to 1996-1998 among three U.S. population groups: AIAN, all races, and whites.

After adjusting for age and racial misclassification, by 1996-1998, the number of CVD deaths per 100,000 among AIAN was 195.9 compared with 166.1 and 159.1 for all races and whites, respectively. The annual percent change in CVD mortality for AIAN was 0.5, a slight increase, compared with -1.8, a decline, in the other groups. The most striking and widening disparities were found for middle-aged AIAN, but CVD mortality among elderly AIAN was lower than in the other groups. Efforts to reduce CVD mortality in AIAN must begin before the onset of middle age, concludes Dr. Rhoades. Her work was supported in part by the Agency for Healthcare Research and Quality (HS10854).

See "Racial misclassification and disparities in cardiovascular disease among American Indians and Alaska Natives," by Dr. Rhoades, in the March 15, 2005 *Circulation* 111, pp. 1250-1256. ■

Home routines in minority families may impede the healthy development and future school success of their children

Disadvantage may start at home in some black and Hispanic families, concludes a study supported in part by the Agency for Healthcare Research and Quality (HS11305). The study found that black and Hispanic children under 3 years of age experience multiple disparities in home routines, safety measures, and educational practices/resources that could impede their healthy development and future school success. For example, black children were nearly twice as likely as other children to not have regular mealtimes. Black and Hispanic children were more likely than white children to never eat lunch or dinner with their families.

Minority parents were less likely than white parents to install stair gates or cabinet safety locks or to

lower the temperature setting on hot water heaters to reduce the risk of children getting burned by scalding water. Minority children were also less likely to go to bed at the same time each day, and Hispanic children were less likely to have a consistent daily nap time. Minority parents also were much less likely than white parents to read daily to their children, and they had fewer children's books at home—less than 30 books in black homes and less than 20 books in Hispanic homes, compared with an average of 83 children's books per white household. Black children also averaged 1 more hour of daily television watching than other children.

Pediatric providers may be able to reduce some of these disparities by educating black and Hispanic

parents of young children about more effective home routines, suggests Glenn Flores, M.D., of the Medical College of Wisconsin. Dr. Flores and his colleagues based their findings on an analysis of data from the 2000 National Survey of Early Childhood Health of a nationwide sample of parents of 2,608 children aged 4 months to 35 months.

See "Does disadvantage start at home? Racial and ethnic disparities in health-related early childhood home routines and safety practices," by Dr. Flores, Sandra C. Tomany-Korman, M.S., and Lynn Olson, Ph.D., in the February 2005 *Archives of Pediatric and Adolescent Medicine* 159, pp. 158-165. ■

Rates of coronary angiography are inappropriately low in older cardiac patients who have chronic kidney disease

A new study shows that Medicare patients with chronic kidney disease (CKD) who had a heart attack underwent coronary angiography at one-half the rate of similar individuals with normal or near-normal kidney function. Coronary angiography is an invasive imaging test used to diagnose the extent of heart damage. By conventional criteria, the procedure was just as appropriate for these CKD patients as it was for non-CKD patients. However, physicians are often reluctant to offer the procedure to patients aged 65 and older who have CKD because they perceive these patients to be at higher risk of nephrotoxicity (kidney toxicity that can lead to end-stage kidney disease) due to radiocontrast media that is introduced by catheter into patients during angiographic imaging.

According to the researchers, receipt of coronary angiography by CKD patients who were considered appropriate candidates for the procedure would reduce their odds of death by 42 percent. Thus, concern about the risks of kidney damage should not dissuade doctors from offering appropriate heart attack patients coronary angiography, notes lead investigator Glenn M. Chertow, M.D., M.P.H., of the University of

California, San Francisco. The study was supported in part by the Agency for Healthcare Research and Quality (HS06503).

The researchers classified individuals aged 65 and older with heart attack from the Cooperative Cardiovascular Project by the presence or absence of CKD. They compared use of coronary angiography among CKD and non-CKD patients and the effects of the procedure on death.

Mortality was significantly higher for patients with CKD (53 vs. 26 percent). Fewer patients with CKD underwent coronary angiography (25 vs. 47 percent). Yet, the risk of death was reduced by 42 percent for those who underwent the procedure compared with those who did not. The results of this study suggest that the relative use of angiography in individuals with CKD is inappropriately low and probably not justified.

See “Renalism’: Inappropriately low rates of coronary angiography in elderly individuals with renal insufficiency,” by Dr. Chertow, Sharon-Lise T. Normand, Ph.D., and Barbara J. McNeil, M.D., Ph.D., in the *Journal of the American Society of Nephrology* 15, pp. 2462-2468, 2004. ■

Even seemingly mild complications after surgery may radically alter an elderly person’s risk of dying

From 10 to 40 percent of elderly patients undergoing surgery will develop a postoperative complication. Even seemingly mild initial complications may profoundly alter postoperative prognosis, regardless of how severely ill patients are when admitted to the hospital. These complications often begin a cascade of other complications that end in death, according to a recent study. The researchers found that elderly patients who suffered a postoperative complication were three times as likely to die within 60 days of hospital admission as those who had no complications. Some complications were associated with

even greater increases in risk of postoperative death.

Caregivers should consider the first complication as a timely signal of a changed clinical situation demanding a reevaluation of the patient’s care, suggests Jeffrey H. Silber, M.D., Ph.D., of the Children’s Hospital of Philadelphia and the University of Pennsylvania School of Medicine. In the study, which was supported in part by the Agency for Healthcare Research and Quality (HS09460), Dr. Silber and his colleagues analyzed Pennsylvania Medicare claims data from 1995 to 1996 on 1,362 patients. They compared postoperative death rates of those who did and did not suffer initial postoperative complications.

The odds of dying within 60 days increased 3.4-fold in patients with complications compared with those who did not have complications. A first complication of respiratory compromise was associated with a 7.2-fold increase in the odds of dying. Initial complications of pneumonia or congestive heart failure were associated with a 5-fold increase in the odds of dying compared with no complication.

See “Changes in prognosis after the first postoperative complication,” by Dr. Silber, Paul R. Rosenbaum, Ph.D., Martha E. Trudeau, M.P.A., R.N., and others, in the February 2005 *Medical Care* 43(2), pp. 122-131. ■

Use of potentially inappropriate medications in patients aged 65 and older continues to be widespread

Despite more than a decade of concern and consensus-based recommendations against the use of potentially inappropriate medications in the elderly, 29 percent of HMO enrollees aged 65 and older received at least 1 of 33 potentially inappropriate medications in 2000-2001. These medications have the potential to cause serious health problems in older patients. Five percent of these older HMO members received at least one of the 11 drugs that should always be avoided in people aged 65 and older, 13 percent received one of

the eight medications classified as “rarely appropriate,” and 17 percent received at least one of the 14 medications that have some indications for use but are often misused.

These findings are from a recent study that was supported by the Agency for Healthcare Research and Quality through the Centers for Education and Research on Therapeutics (CERTs) cooperative agreement (HS11843). Investigators from the HMO Research Network CERT analyzed pharmacy data for 157,517 elderly members from 10 geographically

diverse HMOs. The researchers calculated the use of 33 potentially inappropriate medications from January, 2000 through June, 2001.

See “Potentially inappropriate medication use by elderly persons in U.S. health maintenance organizations, 2000-2001,” by Steven R. Simon, M.D., M.P.H., K. Arnold Chan, M.D., Sc.D., Stephen B. Soumerai, Sc.D., and others, in the February 2005 *Journal of the American Geriatrics Society* 53, pp. 227-232. ■

Study cites several barriers to adoption of guideline-recommended osteoporosis care for frail nursing home residents

Each year, 4 to 5 of every 100 nursing home residents suffer a hip fracture, usually due to osteoporosis which is characterized by a decrease in bone mass and density that makes bones fragile. Nursing home adherence to osteoporosis care guidelines has the potential to reduce fractures in this frail population. However, there are several barriers to adoption of guideline-recommended care, according to a recent study. The study was supported in part by the Agency for Healthcare Research and Quality through the Centers for Education and Research on Therapeutics (CERTs) initiative (HS10389) and led by Kenneth Saag, M.D., M.Sc., of the University of Alabama at Birmingham CERT.

Current guidelines recommend bone density measurement and treatment of patients at high risk of osteoporotic fractures. Treatment includes calcium and vitamin D supplementation, antiresorptive therapy (for example, bisphosphonates) for selected individuals, as well as use of fall reduction strategies and external hip protectors.

As the first step in a multi-state quality improvement initiative, Dr. Saag and his colleagues analyzed survey responses from a random national

sample comprising 1,084 medical directors and directors of nursing at skilled nursing facilities about their perceptions of barriers to guideline-recommended osteoporosis care. Survey respondents strongly agreed that fractures are a problem in their facilities and that osteoporosis guidelines are useful and cost-beneficial.

At least 40 percent of survey respondents identified multiple patient health problems, reimbursement issues, length of stay, and regulatory oversight as barriers to providing osteoporosis care. Many also felt that patient reluctance to wear hip protectors was a potential barrier. Respondents did not believe that patient and family acceptance of testing and therapy, testing availability, staff time, staff self-efficacy, or concerns about bisphosphonate safety were barriers to osteoporosis care.

For more details, see “Barriers to providing osteoporosis care in skilled nursing facilities: Perceptions of medical directors and directors of nursing,” by Cathleen S. Colon-Emeric, M.D., M.H.Sc., Linda Casebeer, Ph.D., Dr. Saag, and others, in the November 2004 *Journal of the American Medical Directors Association* 5, pp. 361-366. ■

Informal care of elderly parents by adult children limits use of nursing home and other formal care and shortens hospital stays

Informal care of the elderly by their adult children reduces use of formal home health care and nursing home care and shortens hospital stays, according to a study supported in part by the Agency for Healthcare Research and Quality (T32 HS00032). For example, elderly parents who received no informal care were predicted to stay in the hospital for an average of 7 nights, while parents who received 20 hours per month (the median level) of informal care were predicted to stay for only 2.4 nights. Also, those receiving no informal care had more physician visits than those receiving median levels of informal care (2.5 vs. 1), except for those undergoing outpatient surgery.

A 2-hour increase in median informal care hours per month meant a decrease of 7.43 percent in the likelihood of home health care use. A 10 percent increase in monthly informal care hours reduced by 2 days the 25-night mean nursing home stay over a 2-year period. Thus, whether or not adult children care for their parents in the future will have large implications for the long-term care services that will be needed in the United States over the next 50 years, according to Courtney H. Van Houtven, Ph.D., of Duke University Medical Center, and Edward C. Norton, Ph.D., of the University of North Carolina at Chapel Hill.

Focusing on plausible estimates of publicly funded home health care and nursing home care only, the researchers showed in policy simulations that increasing the caregiving margins of an adult child who was not previously working would save Medicare and Medicaid from \$350 to \$1000. Their findings are based on an analysis of the 1998 Health and Retirement Survey and the 1995 Asset and Health Dynamics among the Oldest-Old Panel Survey.

Details are in “Informal care and health care use of older adults,” by Drs. Van Houtven and Norton, in the *Journal of Health Economics* 23, pp. 1159-1180, 2004. ■

Children's Health

Use of an asthma kiosk in the emergency department can educate parents and improve clinician/patient communication

Parents who arrive at the emergency department (ED) seeking care for a child with asthma who is gasping for breath clearly need help controlling their child's asthma. An asthma kiosk in the ED may be useful, according to a study supported in part by the Agency for Healthcare Research and Quality (K08 HS11660).

The kiosk developed and tested in this study includes an interactive computer program that queries parents about the child's asthma symptoms and current medications and links parents to recommended guidelines for controlling asthma. Parents can complete the kiosk task in 11 minutes while waiting in the ED, and they can use its printed child-specific care recommendations to discuss their child's asthma with the ED health care provider.

The kiosk output module presents a health message to the parent organized in four sections: about your child, what your child needs, how the doctors and nurses can help, and how you can help your child. A printed copy of the patient-specific action plan is both

a targeted summary and a “to do” list. For example, the written asthma plan includes use of a peak flow meter to monitor asthma and the child's response to medication. The action plan also serves as a template for ED providers to review important and clinically relevant data with the parent, according to lead investigator Stephen C. Porter, M.D., M.P.H., of Children's Hospital, Boston.

Dr. Porter and his colleagues tested three prototypes of the asthma kiosk over 8 months. They recruited 66 parents of children with asthma who brought their child to the pediatric ED of an urban hospital. The parents used the asthma kiosk while in the ED and completed a questionnaire about their demographics and feelings about kiosk use. Overall, 95 percent of parents agreed that entering data at the kiosk was a good use of their time. Also, 88 percent agreed that a parent could enter information using the kiosk “as well as a doctor or nurse could,” with most finding it as easy to use as a bank ATM.

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Asthma kiosks

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See “The asthma kiosk: A patient-centered technology for collaborative decision support in the emergency department,” by Dr. Porter, Zhaohui Cai, M.D., Ph.D., William Gribbons, Ph.D., and others, in the November 2004 *Journal of the American Medical*

Informatics Association 11, pp. 458-467.

Editor’s note: Another study, coauthored by AHRQ researcher David Lanier, M.D., found that parents and children with asthma associate missed school days and work days with more severe asthma, which are different measures of asthma severity than those used by physicians and

researchers. The researchers conclude that more widely understood asthma measures may be needed. See Yawn, B.P., Fryer, G.E., and Lanier, D. (2004). “Asthma severity: The patient’s perspective.” *Journal of Asthma* 41(6), pp. 623-630. Reprints (AHRQ Publication No. 05-R047) are available from AHRQ.* ■

Children with special health care needs generally use more health services and have higher costs than other children

An estimated 11 million U.S. children younger than 18 years had a special health care need in 2000. Children with special health care needs (CSHCN) are those who have chronic physical, developmental, behavioral, or emotional problems and require more or more complex care than other children. Not surprisingly, the family financial burden of caring for CSHCN is substantial.

A new study shows that in 2000, CSHCN had three times the health care expenditures of other children (\$2,099 vs. \$628). Although CSHCN account for less than 16 percent of U.S. children, they accounted for 52.5 percent of children’s hospital days in 2000. In addition, CSHCN accounted for 42 percent of total medical care costs (excluding dental costs) and 34 percent of total health care costs (including dental costs) attributed to children in 2000.

CSHCN used five times as many prescription medications per year and used substantially more home health provider days than other children. Insurance plays an important protective role for families of CSHCN, but it provides incomplete protection, with impoverished families of CSHCN bearing the greatest financial burden. On average, out-of-pocket expenses for CSHCN were about twice those of other children. Families of CSHCN experiencing high out-of-pocket expenses (exceeding 5 percent of family income) were much more likely to be from impoverished households than from nonpoor households.

Given that out-of-pocket expenses for CSHCN are much higher than other children, wrap-around insurance policies that improve financial protection for services like ambulatory care, prescription medications, and dental care would be of great value to families of CSHCN, suggests Paul W. Newacheck, Dr.P.H., of the University of California, San Francisco. Dr. Newacheck and his colleague Sue E. Kim, Ph.D., based their findings on analysis of data from AHRQ’s Medical Expenditure Panel Survey (2000). Their work was supported by a cooperative agreement between the Agency for Healthcare Research and Quality and the Health Resources and Services Administration’s Maternal and Child Health Bureau.

See “A national profile of health care utilization and expenditures for children with special health care needs,” by Drs. Newacheck and Kim, in the January 2005 *Archives of Pediatric and Adolescent Medicine* 159, pp. 10-17.

Editor’s note: Another AHRQ-supported study on a related topic shows that urban community stressors—such as unemployment, violence, and poverty—may contribute to behavioral and emotional problems among CSHCN. For more details, see Jaffee, K.D., Liu, G.C., Canty-Mitchell, J. and others. (2005, January). “Race, urban community stressors, and behavioral and emotional problems of children with special health care needs.” (AHRQ grant HS10453). *Psychiatric Services* 56(1), pp. 63-69. ■

Children of working poor parents continue to be at a disadvantage for health care access and use

State Medicaid programs such as California's Medi-Cal provide health insurance to impoverished children. State Children's Health Insurance Programs (SCHIPs), such as California's Healthy Families, expand eligibility to include children of the working poor. Yet, despite these programs, California children from poor working families were still far less likely to be insured than other poor children and nonpoor children in 2001, according to a study supported by the Agency for Healthcare Research and Quality (HS13411).

Sylvia Guendelman, Ph.D., of the University of California, Berkeley, and her colleagues used data from the 2001 California Health Interview Survey (CHIS) to compare the health insurance coverage, access to care, and use of health care services for three groups of children: the working poor, nonworking poor, and nonpoor.

Working poor families (4,440 children) were those earning less than 200 percent of the Federal poverty level (FPL, \$35,300 for a family of four). Nonworking poor families (1,554 children) had an income less than 200 percent of the FPL; parents were not working and/or they relied on Temporary Assistance for Needy Families (TANF) as their main source of income. Most TANF recipients are not employed. Nonpoor families (10,534 children) earned at least 200 percent of the FPL and did not receive TANF benefits.

Compared with the non-working poor/TANF group, children of the working poor were more likely to be Latino and less likely to be black or Asian, more likely to be undocumented (and thus unable to qualify for Medi-Cal or Healthy Families), and to live in two-parent or larger households. Even after adjusting for other factors, children from working poor families were

nearly three times as likely to be uninsured as children from nonworking poor/TANF families, and they were nearly four times as likely to be uninsured as nonpoor children. Children from working poor families were also more than twice as likely as nonpoor children to have their insurance coverage disrupted.

Disparities in access to and use of care among children of the working poor narrowed considerably (except for dental care) after controlling for insurance coverage. These findings attest to the importance of continuing efforts to expand health insurance coverage of the working poor.

See "Access to health care for children and adolescents in working poor families: Recent findings from California," by Dr. Guendelman, Veronica Angulo, M.P.H., and Doug Oman, Ph.D., in the January 2005 *Medical Care* 43(1), pp. 68-78. ■

Homeless youths have numerous health and access to care problems that vary between street and shelter-based youths

An estimated 1.6 million homeless young people roam U.S. streets each year. The realities of street life—including substance use, survival sex, lack of safe shelter, and need for basic hygiene—place homeless youths at high risk for health problems ranging from sexually transmitted diseases and unintended pregnancies to depression, injuries, and malnutrition. A recent study by University of Washington researchers, Josephine Ensign, Dr.P.H., and Michelle Bell, Ph.D., detailed the illness experiences of homeless youths in Seattle, WA. Their study was supported by the Agency for Healthcare Research and Quality (HS11414).

Drs. Ensign and Bell interviewed 45 homeless youths aged 15 to 23 years visiting a free clinic for homeless youths (clinic-based youths) or mobile

medical vans in two street settings (street-based youths). Compared with clinic-based youths, street-based youths reported longer and more entrenched homelessness, more illnesses related to drug use, increased reliance on the emergency department (ED) for health care, and less use of emergency shelters. Street-based youths also tended to come from childhoods of more poverty and disruption and to have traveled farther from their hometowns.

Interviews with street youths revealed that if the medical van were not available, most of them would ignore their health concerns until illness forced them to go to a local ED. Many did not appear ready to access other primary health care due to their substance use and chaotic lifestyles. However, some others did

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Homeless youths

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want to access health services not offered by the mobile clinic. Better integration and coordination between the medical van and the free clinic for

homeless youths has begun in Seattle, in part as a result of the feedback from young people.

More details are in “Illness experiences of homeless youth,” by Drs. Ensign and Bell, in the November 2004 *Qualitative Health Research* 14(9), pp. 1239-1254. ■

HIV/AIDS Research

Many HIV-infected parents worry needlessly about transmitting HIV to their children

More than one-third (36 percent) of HIV-infected parents fear transmitting HIV to their children, and 42 percent fear catching an infection from their children, according to a recent study. These fears, which seemed to be based on the faulty notion that saliva could transmit HIV, limited some parent-child interactions, particularly among Spanish-speaking Hispanic parents. For example, parents rarely withheld interactions that did not involve the potential exchange of saliva, such as hugging and kissing on the cheeks. However, more than one-quarter of parents restricted interactions involving potential saliva exchange such as kissing on the lips and sharing eating utensils.

Clearly more work needs to be done to reassure parents about the limited transmissibility of HIV, note the researchers. For their study, which was supported in part by the Agency for Healthcare Research and Quality (HS08578), they conducted in-person interviews with 344 parents who participated in the HIV Cost and Services Utilization Study, a nationally representative sample of adults receiving health care for HIV in the United States.

Overall, 25 percent of parents avoided interactions with their child “a lot” due to fear of passing HIV to their child; 18.8 percent avoided kissing their child on the lips, 14.5 percent avoided sharing utensils, 1.3 percent avoided hugging their child, and 1.1 percent avoided kissing their child on the cheek. Avoidance

was especially prevalent among parents interviewed in Spanish (78 percent) vs. English (23 percent). Also, 19 percent of parents avoided interactions with their children “a lot” for fear of catching an infection, including kissing on the lips (16 percent) sharing utensils (13 percent), hugging (0.9 percent), and kissing on the cheek (0.8 percent). Overall, 58 percent of parents reported some contact avoidance (either a little or a lot) due to these fears.

See “Hugs and kisses,” by Mark A. Schuster, M.D., Ph.D., Megan K. Beckett, Ph.D., Rosalie Corona, Ph.D., and Annie J. Zhou, M.S., in the February 2005 *Archives of Pediatric and Adolescent Medicine* 159, pp. 173-179. ■

Researchers examine effects of antiretroviral therapy on increases in serum liver enzymes in HIV-infected patients

From 6 to 30 percent of HIV-infected patients treated with antiretroviral therapy (ART) develop significantly increased blood levels of liver enzymes, an indicator of liver toxicity. In some studies, high-dose ritonavir (RTV) has been associated with an increased risk of liver toxicity compared with other antiretroviral regimens. However, RTV is no longer recommended as first-line treatment and is increasingly being co-administered at lower doses with other protease inhibitors (PIs).

Used this way, RTV-boosted ART (lopinavir, indinavir, and saquinavir) is not associated with significantly increased risk of liver toxicity over unboosted PI-based ART (indinavir, nelfinavir) among HIV-infected patients coinfecting or uninfected with hepatitis C virus. Thus, other medication-related factors, for example, medication efficacy and non-liver toxicity, should guide individual treatment decisions,

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Antiretroviral therapy

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according to researchers at the Schools of Medicine and Public Health at Johns Hopkins University.

In a study that was supported in part by the Agency for Healthcare Research and Quality (HS07809), the researchers compared the incidence of liver enzyme elevations before and during ART among 1,161 HIV-infected adults (with and without hepatitis B and/or C coinfection). The subjects—who had never previously been treated with PIs—received RTV-boosted and unboosted PI-based ART.

The incidence of severe liver toxicity (elevations of three to more than five times the pretreatment liver

enzyme levels) was: nelfinavir, 11 percent; lopinavir/RTV (200 mg/day), 9 percent; indinavir, 13 percent; indinavir/RTV (200-400 mg/day), 12.8 percent; and saquinavir/RTV (800 mg/day), 17.2 percent. The risk of liver toxicity was significantly greater among individuals who had chronic viral hepatitis. However, the majority of HCV-infected patients taking PI-based ART did not develop significant liver toxicity.

See “Hepatotoxicity associated with protease inhibitor-based antiretroviral regimens with or without concurrent ritonavir,” by Mark S. Sulkowski, M.D., Shruti H. Mehta, M.P.H., Richard E. Chaisson, M.D., and others, in *AIDS* 18, pp. 2277-2284, 2004. ■

Quality/Patient Safety

High-risk patients often undergo bypass surgery at low-volume hospitals where their risk of dying is higher

Several studies have shown that patients who undergo coronary artery bypass graft surgery (CABG) at hospitals that perform a high volume of CABGs have better outcomes. Yet, high-risk CABG patients are more likely to undergo bypass surgery at low-volume hospitals where their risk of dying is higher, according to a recent study supported in part by the Agency for Healthcare Research and Quality (HS11540). Thus, patients who are most likely to benefit from having CABG at high-volume hospitals appear to be least likely to have surgery at such centers.

A possible explanation for this is that current systems for referring high-risk patients to high-volume regional centers are only partially effective, suggest researchers from the University of Michigan Health

System and the VA Medical Center in Ann Arbor. In their study, 38 percent of patients at the 80th percentile for risk underwent CABG at a low-volume hospital compared with 28 percent at the 20th percentile for risk.

The researchers used clinical data on 27,355 adults who underwent CABG at 68 hospitals in California between 1997 and 1998. They divided hospitals into low-, medium-, and high-volume categories on the basis of tertiles of annual CABG volume. After adjusting for expected surgical risk and other factors, differences in inpatient mortality rates between low- and high-volume centers rose as the expected patient risk of in-hospital death increased: 0.8 percent vs. 0.4 percent at the 20th risk percentile and 3.8 percent vs. 2.5 percent at the 80th risk

percentile. The likelihood of patients having surgery at a low-volume center also rose significantly with expected surgical risk. Patients at the 80th risk percentile had 29 percent greater relative risk of undergoing CABG at a low-volume center than patients at the 20th risk percentile.

More details are in “Impact of patient risk on the hospital volume-outcome relationship in coronary artery bypass grafting,” by Brahmajee K. Nallamothu, M.D., M.P.H., Sanjay Saint, M.D., M.P.H., Timothy P. Hofer, M.D., M.Sc., and others, in the February 14, 2005 *Archives of Internal Medicine* 165, pp. 333-337. ■

Recently hospitalized individuals are more likely to have bloodstream infections that are drug-resistant

Individuals admitted to the hospital with bloodstream infections who have been hospitalized in the preceding 90 days are more likely to have drug-resistant infections than those who acquired the infections in the community. This is most likely because hospital-acquired infections are often drug-resistant, notes Jay R. McDonald, M.D., of Duke University Medical Center.

Dr. McDonald and his colleagues examined microbiology laboratory records from October 16, 2000 through February 28, 2001 to identify patients with bloodstream infection at three North Carolina hospitals. The goal was to analyze the impact of health care-associated status on the effectiveness of therapy for bloodstream infections. They defined an infection as health care-associated if it occurred within the first 48 hours after hospitalization and if patients had one of the following characteristics: had received home health services, outpatient intravenous therapy, or outpatient renal dialysis in the 30 days prior to hospital admission; had been hospitalized within 90 days prior to admission; or lived in a long-term care facility.

For a total 466 bloodstream infections, 28 percent were community-acquired, 38 percent were health

care-associated, and 33 percent were hospital-acquired (nosocomial). After accounting for multiple factors, health care-associated infections tripled the likelihood and nosocomial infections quadrupled the likelihood that initial antibiotic therapy would be ineffective.

Patients with nosocomial and health care-associated bloodstream infection received ineffective initial therapy (had drug-resistant infections) in 32 percent and 25 percent of episodes, respectively, compared with 8 percent of episodes for those with community-acquired bloodstream infection. Hospitalization in the 90 days prior to the current hospital admission was the component of health care-associated status that was most strongly associated with ineffective initial therapy. This research was supported in part by the Agency for Healthcare Research and Quality (T32 HS00079).

See “Risk factors for ineffective therapy in patients with bloodstream infection,” by Dr. McDonald, N. Deborah Friedman, M.B.B.S., Jason E. Stout, M.D., M.H.S., and others, in the February 14, 2005 *Archives of Internal Medicine* 165, pp. 308-313. ■

HMO penetration in a hospital's market affects the relationship between RN staffing and quality of care

Increasing registered nurse (RN) staffing seems to improve quality of care at hospitals that are at lower levels of RN staffing when the hospitals are located in markets with high HMO penetration (greater than 27.9 percent), according to a recent study supported by the Agency for Healthcare Research and Quality (HS10153). Increases in RN staffing at these hospitals were associated with fewer actual than expected in-hospital deaths (lower mortality ratio) and shorter actual than expected length of stay (lower LOS ratio). However, this was not the case for hospitals in low HMO penetration markets (less than 7.5 percent).

These findings suggest that nurse staffing decisions should be

responsive to local conditions, notes Barbara A. Mark, R.N., Ph.D., F.A.A.N., of the University of North Carolina School of Nursing. Dr. Mark and her colleagues analyzed 1990-1995 data on 422 acute care hospitals in 11 states from the Healthcare Cost and Utilization Project Nationwide Inpatient Sample and other data sources on nurse staffing. They examined whether managed care penetration in a hospital's market had an effect on the relationship between nurse staffing and quality at these hospitals.

After controlling for hospital-fixed effects, increasing nurse staffing significantly reduced the mortality ratio at hospitals with lower levels of RN staffing (the 25th percentile of nurse staffing) in

high HMO penetration markets. However, the benefit diminished for hospitals with more nurses, with a non-significant but still negative effect at the 50th percentile and no effect at the 75th percentile of nurse staffing. Increases in RN staffing significantly reduced the LOS ratio at both the 25th and 50th percentiles of nurse staffing, with the effect at the 75th percentile still negative but not significant. In contrast, none of the estimation methods showed a significant effect of nurse staffing on mortality or LOS ratios for hospitals in low HMO penetration markets.

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HMO penetration

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An earlier AHRQ-supported study by Dr. Mark and colleagues (See the May 2004 issue of *Research Activities*, page 30) suggested that hospitals in high HMO penetration markets may have adopted cost control

mechanisms such as case management and discharge planning. These changes may have reduced slack resources, making the effects of increased nurse staffing on reducing LOS and mortality ratios more readily discernible among these hospitals.

More details on the current study are in “The impact of HMO penetration on the relationship between nurse staffing and quality,” by Dr. Mark, David W. Harless, Ph.D., and Michael McCue, D.B.A., in *Health Economics*, published online in March 2005 at www.interscience.wiley.com. ■

Survey reveals that hospital leaders are concerned about the impact of mandatory error-reporting systems

A recent survey of hospital leaders found that nearly 70 percent believed that a non-confidential, mandatory error-reporting system would discourage staff from reporting patient safety incidents to their hospital’s own internal reporting system. Almost 80 percent of those surveyed thought such a system would encourage lawsuits.

The survey involved chief executive and chief operating officers from randomly selected hospitals in two States with mandatory reporting and public disclosure, two States with mandatory reporting without public disclosure, and two States without mandatory systems in 2002-2003. Responses were received from 203 of 320 hospitals contacted. The study was supported by the Agency for Healthcare Research and Quality (HS11928) and conducted by Joel S. Weissman, Ph.D., of Massachusetts General Hospital and his colleagues.

More than 80 percent of the hospital leaders felt the names of both the hospital and involved staff members should be kept confidential. However, respondents

from States with mandatory, non-confidential systems already in place were more willing to have hospital names released. Over 90 percent of survey respondents said their hospital would report serious injuries to their State hospital licensing agencies but far fewer would report moderate or minor injuries. However, the hospital leaders surveyed generally did favor disclosing patient safety incidents to involved patients.

According to the authors, the findings will help determine how better to work with hospitals to encourage reporting of adverse events as recommended by the 1999 Institute of Medicine report, *To Err is Human*, and to foster honest, open discussion between hospital representatives and patients when an unanticipated outcome occurs during hospital care.

See “Error reporting and disclosure systems: Views from hospital leaders,” by Dr. Weissman, Catherine L. Annas, J.D., Arnold M. Epstein, M.D., M.A., and others, in the March 16, 2005 *Journal of the American Medical Association* 293(11), pp. 1359-1366. ■

Agency News and Notes

AHRQ-sponsored “Summit” brings together health care leaders to consider next steps in improving health care quality

The Agency for Healthcare Research and Quality convened its first national “summit” meeting on U.S. health care quality April 4 in Washington, DC. The summit brought together some 250 health leaders to look toward new ways for achieving

better quality of care for America’s patients.

The summit followed the release earlier this year of AHRQ’s second annual *National Healthcare Quality Report* and the companion *National Healthcare Disparities Report*. The two reports, which examine 179 different quality-related measures,

are the most extensive assessment of quality of care ever undertaken.

The reports reveal substantial gaps in health care quality throughout the country. For specific measures, patients in leading States receive care at a quality level that is

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AHRQ-sponsored summit

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as much as 10 times higher than the care provided in the lowest-performing States. Although quality improved overall compared with last year's report, the rate of improvement was only 2.8 percent. Very large disparities in care also persisted, based on race, ethnicity, and income.

Participants at the summit concluded that an important start had been made as a result of regular quality measurements like the AHRQ reports. However, they also agreed that quality improvement is moving too slowly.

In her address to the summit, AHRQ Director Carolyn M. Clancy, M.D., described the state of health care quality in America as stubbornly short of where we want it to be, agonizingly short of where we know it could be, and still slow and sporadic in making improvements. Dr. Clancy issued a "quality challenge," calling for a new health care culture based on

measuring quality of care in every health care setting and making quality comparisons public. She also reminded participants that health care providers need to learn from one another's successes, a primary purpose of the summit. Other featured speakers included Donald M. Berwick, M.D., president and CEO of the Institute for Healthcare Improvement, and Arkansas Governor Mike Huckabee.

At the summit, Dr. Clancy also released State-level health care quality data compilations based on the National Healthcare Quality Report to help State health officials more easily identify areas where they are doing well and those where more quality improvement activity may be needed. These data include:

- State ranking tables that show how well each State is performing on 14 selected measures of health care quality that are featured in the 2004 Quality Report and for which there are data from all 50

States and the District of Columbia.

- State summary tables that provide a complete listing of the entire set of about 100 quality measures for all States and Washington, DC.
- State snapshots that give more detail on specific measures, including two specific examples in which the health care system of a particular State is doing well and two in which it might be able to improve.

For more information on the summit, go to the Agency's Web site at www.ahrq.gov and select "Quality" and then "Quality Information and Improvement." Go to www.qualitytools.ahrq.gov for online access to the State-level data compilations and the two national reports on health care quality and disparities. ■

Despite promising efforts over the past 5 years to improve patient safety, the American public does not feel safer

The landmark 1999 Institute of Medicine report, *To Err is Human: Building a Safer Health System*, startled the American public with its revelation that 44,000 to 98,000 people die in hospitals each year due to preventable medical errors. Although many promising government and private programs have been launched to improve patient safety in the past 5 years, the task is far from complete, according to Carolyn Clancy, M.D., Director of the Agency for Healthcare Research and Quality, and her colleagues Drew E. Altman, Ph.D., of the Kaiser Family Foundation, and Robert J. Blendon, Sc.D., of the Harvard School of Public Health.

For instance, the 2004 National Survey on Consumers' Experiences with Patient Safety and Quality Information, which was sponsored by Kaiser, AHRQ, and Harvard, revealed that despite 5 years of focused attention on health care safety, the American

public does not feel safer. More than half (55 percent) surveyed said that they are currently dissatisfied with the quality of health care in this country compared with 44 percent 4 years ago. Indeed, 40 percent of respondents said that they believe the quality of care has "gotten worse."

Policymakers, health care professionals, and the public disagree about which medical errors should be publicly reported and what systemwide steps are needed to prevent avoidable harm, note the authors. For instance, physicians see just two approaches as very effective in reducing errors: requiring hospitals to develop systems to avoid medical errors (55 percent) and increasing the number of hospital nurses (51 percent). Fewer physicians agree that it would be effective to limit certain high-risk procedures to high-

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Patient safety

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volume centers (40 percent), use only physicians trained in intensive care medicine in hospital intensive care units (34 percent), increase the use of computerized ordering systems (23 percent), or convert to electronic medical records (19 percent). The survey also revealed that about 71 percent of the public is in favor of public reporting of information on medical errors, but physicians strongly oppose it, perhaps due to worries about malpractice lawsuits.

Findings from the 2004 survey, which involved more than 2,000 adults across the Nation, also underscore the importance of research on health information technology (health IT). About one-third of those surveyed said that they or a family member had created their own set of medical records to ensure that their health care providers had all of their medical information. Also, more than half of those surveyed felt that having computerized medical records and using computerized systems for ordering drugs and medical tests would be very effective in reducing errors.

As Dr. Clancy points out, health IT has great potential to improve patient safety and reduce medical errors. AHRQ is supporting a substantial research effort to further our understanding of health IT and its

integration into everyday health care. In September 2004, AHRQ awarded \$139 million in contracts and grants to promote the use of health IT through the development of networks for sharing clinical data, as well as projects for planning, implementing, and demonstrating the value of health IT. Go to www.ahrq.gov/research/hitfact.htm to find out more about AHRQ's health IT initiative.

For details of the article by Drs. Altman, Clancy, and Blendon, see "Improving patient safety - five years after the IOM report," in the November 11, 2004 *New England Journal of Medicine* 351(20), pp. 2041-2043. Reprints (AHRQ Publication No. 05-R037) are available from AHRQ.*

Editor's note: Another AHRQ-supported study on improving patient safety found that physicians are skeptical of the most commonly touted interventions to reduce medical errors, even those that evidence shows to be effective, such as limiting certain high-risk procedures to high-volume hospitals and increasing the use of computers to order drugs and medical tests. For more details, see Rosen, A.B., Blendon, R.J., DesRoches, C.M., and others. (2005, February). "Physicians' views of interventions to reduce medical errors: Does evidence of effectiveness matter?" (AHRQ grant T32 HS00020). *Academic Medicine* 80(2), pp. 189-192. ■

Announcements

AHRQ and DOD release compendium of patient safety studies showing accomplishments and challenges that lie ahead

The Agency for Healthcare Research and Quality and the U.S. Department of Defense have released the Federal Government's first compendium of studies on the successes and challenges of efforts to improve patient safety and reduce medical errors. *Advances in Patient Safety: From Research to Implementation* is a four-volume set of 140 peer-reviewed articles that represents an overview of patient safety studies by AHRQ-funded researchers and other Government-sponsored research.

The four volumes contain information on virtually every

dimension of the patient safety field, including new research findings on medication safety, technology, investigative approaches to better treatment, process analyses, human factors, and practical tools for preventing medical errors and harm. The compendium features emerging lessons from clinical studies, presents cutting-edge technologies such as simulation tools for surgery training, and discusses the effects of change on dynamic systems of care and national and regulatory issues.

Each of the volumes begins with a commentary from a patient safety

expert who addresses questions and topics that range from whether patients are safer today than when the Institute of Medicine highlighted the problem of medical errors in 1999, the merits and challenges of a systems approach to health care safety, the challenges associated with implementing safe practices, and the scope of the programs, tools, and products needed to improve safety in a variety of settings, along with their potential barriers to success.

Volume 1, which focuses on research findings, explores strategies central to the delivery of

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Patient safety studies

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safe and effective care. It includes articles on state-of-the-art detection and tracking systems, interventions that address adverse drug events, building a culture of safety within institutions, the importance of teamwork, safety in different locales, the role of technology, and the role of national and State policy.

Volume 2 covers concepts and methodology and examines complex systems of care used to treat patients. Such considerations are enabling many in health care to move beyond the old “name, blame, and shame” approach to improving safety to a more effective focus on human factors engineering and the

systems within which health care professionals work. This volume presents research examining adverse event classification techniques, caregiver-device interaction issues, system and process analyses, and practice and procedural redesign.

Volume 3 covers implementation issues, identifying both barriers to diffusion of patient safety improvements in health care and approaches for producing cultural change. This volume examines health information technology’s promises and limitations, interventions for improving patient outcomes, hospital staff consensus building, and reporting reluctance and liability concerns.

Volume 4 showcases programs and products, screening tools and

process simulators, communication education initiatives, safety climate and attitude surveys, and improved training models for new providers. The articles reflect the array of health care settings in which safety efforts are underway, from hospitals to nursing homes to outpatient surgery to other community settings.

Advances in Patient Safety: From Research to Implementation is available as a searchable CD-ROM (AHRQ Publication No. 05-0021-CD).^{*} A limited number of four-volume printed sets (AHRQ Publication No. 05-0021)^{*} are also available. See the back cover of *Research Activities* for ordering information. Individual articles from the four volumes are available online at www.ahrq.gov/qual/advances. ■

AHRQ announces a major step in improving quality of care

In a major step toward improving the quality of the U.S. health care system, a broad-based coalition of health care agencies and organizations—the Ambulatory Care Quality Alliance (AQA)—has selected a “starter set” of 26 clinical performance measures for the ambulatory care setting. The starter set of measures is intended to provide clinicians, consumers, and purchasers with a set of quality indicators that may be used for quality improvement, public reporting, and pay-for-performance programs.

The AQA, initially convened by the American Academy of Family Physicians, the American College of Physicians, America’s Health Insurance Plans, and the Agency for Healthcare Research and Quality, consists of a large body of stakeholders that represent clinicians, consumers, purchasers, health plans and others. The mission of the AQA is “to improve health care quality and patient safety through a collaborative process in which key stakeholders agree on a strategy for measuring, reporting, and improving performance at the physician level.” A secondary aim of the AQA is to promote uniformity in order to provide consumers and purchasers with consistent information and to reduce the burden on providers.

The uniform starter set comprises prevention measures for cancer screening and vaccinations; measures for chronic conditions including coronary artery disease, heart failure, diabetes, asthma,

depression, and prenatal care; and, two efficiency measures that address overuse and misuse. Except for the two efficiency metrics, the AQA limited its review to those measures that are currently under review by the National Quality Forum. The starter set represents an initial set of measures that physicians may use to collect the data and report their performance.

The measures in the starter set will lead to a uniform set of measures for ambulatory care that can focus quality efforts and give consumers the data they need to make more informed health care decisions. The starter set of measures may be incorporated into performance-based payments as early as next year. This approach is similar to the Hospital Quality Alliance that has involved a broad array of stakeholders with the goal of producing a standardized set of measures for inpatient care.

The AQA intends to invite additional provider, purchaser and consumer groups to join steering its committee. The AQA calls on employers and health plans to endorse this effort and to use the starter set to improve quality of care in the ambulatory setting.

The starter set of measures and background information are available online. Go to www.ahrq.gov/qual/aqaback/htm for background information and www.ahrq.gov/qual/measurix.htm to access the measures. ■

New expert panel report examines standards of care during mass casualty events

Guidelines for officials on how to plan for delivering health and medical care in a mass casualty event are outlined in a new report from an expert panel convened by the Agency for Healthcare Research and Quality and the HHS Office of Public Health Emergency Preparedness. The report presents the recommendations of a 39-member panel of experts in bioethics, emergency medicine, emergency management, health administration, health law and policy, and public health that was convened in August 2004 to examine this challenge.

The report, *Altered Standards of Care in Mass Casualty Events: Bioterrorism and Other Public Health Emergencies*, offers a framework for how to provide optimal care during a potential bioterrorism or other public health emergency involving thousands, or even tens of thousands, of victims. For example, planners at the Federal, State, regional, community, and

health systems levels should develop or revise triage guidelines for specific types of events and allocation guidelines for the use of scarce resources such as ventilators, burn beds, or surgical suites, according to the report.

In addition to examining the reallocation of health and medical resources among hospitals and other health facilities, the report considers a number of important nonmedical issues, including:

- What circumstances would trigger a call for altered standards of care, and who is authorized to make that call?
- What existing laws and mechanisms allow for legal, regulatory, or accreditation adjustments in provider liability, licensing, facility standards, and patient privacy?
- What sources of relief are available to address concerns about financial resources and

reimbursement of medical care costs?

- What public communication strategies are needed before, during, and after a mass casualty event?
- What supports are available for populations with special needs, such as children, individuals who have physical or cognitive disabilities, and non-English speakers?

The report suggests that public- and private-sector entities take a collaborative approach when developing next steps in responding to public health emergencies.

Go to www.ahrq.gov/research/altstand/ to access *Altered Standards of Care in Mass Casualty Events: Bioterrorism and Other Public Health Emergencies* online. Print copies (AHRQ Publication No. 05-0043) are available from AHRQ.* See the back cover of *Research Activities* for ordering information. ■

New HHS guide helps nurses encourage patients to quit smoking

In recognition of National Nurses Week, May 6-12, AHRQ and the U.S. Department of Health and Human Services recently released a new tool that will give nurses evidence-based information that they can use to help their patients quit smoking. The pocket guide, *Helping Smokers Quit: A Guide for Nurses*, was developed by AHRQ in collaboration with Tobacco Free Nurses, a national initiative funded by The Robert Wood Johnson Foundation to increase nurses' participation in tobacco control.

The free pocket guide gives nurses easy access to information based on the "5 As" approach to cessation intervention: Ask, Advise, Assess, Assist, and Arrange. It also includes a current listing of smoking cessation medications approved by the Food and Drug Administration and a referral to HHS' National Quitline, 1-800-QUIT NOW.

Smoking causes more than 440,000 deaths each year. About 70 percent of adult smokers report that they would like to quit, but only half of all smokers who see a health care professional have ever been urged to quit.

Studies have shown that the Nation's 3 million nurses—the largest group of clinicians in the country—are very effective in helping people stop smoking. Because of their sheer numbers and the public trust, nurses are in a unique position to assist patients with smoking cessation, according to experts.

Partners in the Tobacco Free Nurses Initiative include the American Nurses Association/American Nurses Foundation, the American Association of Colleges of Nursing, the National Coalition of Ethnic Minority Nurse Associations, and the Smoking Cessation Leadership Center at UCLA.

Go to www.ahrq.gov/about/nursing/hlpsmksqt.htm to access the guide online. Free print copies of *Helping Smokers Quit: A Guide for Nurses* (AHRQ Publication No. 05-0035) are available from AHRQ.* See the back cover of *Research Activities* for ordering information. For additional Web-based resources for nurses, visit Tobacco Free Nurses at www.tobaccofreenurses.org. ■

AHRQ releases evidence reports on depression during pregnancy, routine use of episiotomy, and other topics

The Agency for Healthcare Research and Quality recently released evidence reports and summaries on the incidence of depression during and soon after pregnancy, the routine use of episiotomy in uncomplicated births, and four other topics, as well as a technical review on quality improvement for hypertension care.

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, as well as several technical reviews, that have been published to date are available online and through the AHRQ 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.

Perinatal Depression: Prevalence, Screening, Accuracy, and Screening Outcomes. Evidence Report/Technology Assessment No. 119 (AHRQ Publication Nos. 05-E006-1, summary and 05-E006-2, full report)*.

According to this new evidence report, depression is as common in women while they are pregnant as it is after they give birth. Health care providers and patients may fail to recognize depression during pregnancy because signs of

depression like tiredness, problems with sleeping, emotional changes, and weight gain may also occur with pregnancy.

The report was prepared by AHRQ's RTI International-University of North Carolina EPC in Chapel Hill (contract 290-02-0016). The researchers conducted an extensive evidence review and found that roughly 5 percent (or 1 in 20) of American women who are pregnant or have given birth in the past 12 months are suffering from major depression. When episodes of major and minor depression are combined, as many as 13 percent of women experience depression. Perinatal depression is defined in the report as occurring during pregnancy and up to 12 months after childbirth.

Major depression lasts 2 weeks or longer and is accompanied by five or more symptoms that substantially impair a person's ability to fully carry out normal, everyday activities. Minor depression is impairing but less severe than major depression and is accompanied by fewer symptoms.

Factors contributing to depression during or after pregnancy include personal or family history of depression or substance abuse, anxiety about the unborn child, problems with previous pregnancy or birth, and marital or financial problems. Additional factors contributing to depression after childbirth may include a sharp change in hormone levels, feeling tired and not getting enough sleep, doubts about being a good parent, and changes in work and home routines.

According to the report, psychotherapy and/or antidepressants can be effective treatments for women with perinatal

depression, but there are only a few high-quality studies to support this treatment claim. The report suggests that women who are pregnant or breastfeeding talk with their doctors about the advantages and risks of taking antidepressants.

The evidence review also looked at the accuracy of screening instruments. Despite limited research on the topic, the available evidence suggests that screening instruments can identify perinatal depression but are more accurate at identifying major depression.

Whether used for major or minor depression, tests are relatively accurate in identifying women who do not have depression but are less precise in identifying those who do.

Due to the small number of available studies, the researchers were unable to determine whether screening ultimately improves patient outcomes. However, the available research suggests that providing psychosocial support to pregnant and postpartum women with depression may decrease symptoms.

Use of Episiotomy in Obstetrical Care: A Systematic Review. Evidence Report/Technology Assessment No. 112 (AHRQ Publication Nos. 05-E009-1, summary and 05-E009-2, full report)*.

According to this evidence report, routine use of episiotomy for uncomplicated vaginal births does not provide immediate or longer term benefits for the mother. Episiotomy is a common procedure used in an estimated one-third of vaginal deliveries to hasten birth or prevent tearing of the skin during delivery.

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Researchers from the EPC at RTI-International-University of North Carolina at Chapel Hill and Raleigh (contract 290-02-0016) found that routine episiotomy, common in many practice settings, does not achieve any of the goals it is commonly believed to achieve. When providers restricted their use of episiotomy, women were more likely to give birth without perineal damage, less likely to need suturing, and more likely to resume intercourse earlier.

Women who experienced spontaneous tears without episiotomy had less pain than women with episiotomies. Complications related to the healing of the perineum were the same with or without episiotomy. In addition, the evidence showed that episiotomy did not protect women against urinary or fecal incontinence, pelvic organ prolapse or difficulties with sexual function in the first 3 months to 5 years

after delivery. No research described the long-term impact of episiotomy later in adult life when incontinence is most likely to occur.

The researchers conclude that any possible benefits of the procedure do not outweigh the fact that many women would have had less injury without the surgical incision. The scope of the review did not include neonatal outcomes, and therefore the report does not discuss possible benefits of episiotomy for the infants. The researchers also studied the evidence for suture materials and techniques of repairing the perineum following episiotomy or tear. More information on these topics can be found in the report.

- *Effects of Omega-3 Fatty Acids on Cancer.* Evidence Report/Technology Assessment No. 113 (AHRQ Publication Nos. 05-E010-1 summary and 05-E010-2, full report).*
- *Effects of Omega-3 Fatty Acids on Cognitive Function with*

Aging, Dementia, and Neurological Diseases. Evidence Report/Technology Assessment No. 114 (AHRQ Publication Nos. 05-E011-1, summary and 05-E011-2, full report).*

- *Effects of Omega-3 Fatty Acids on Organ Transplantation.* Evidence Report/Technology Assessment No. 115 (AHRQ Publication Nos. 05-E012-1, summary and 05-E012-2, full report)*
- *Management of Menopause-Related Symptoms.* Evidence Report/Technology Assessment No. 120 (AHRQ Publication No. 05-E016-1, summary and 05-E016-2, full report).*
- *Closing the Quality Gap: A Critical Analysis of Quality Improvement Strategies.* Volume 3. Hypertension Care. Technical Review No. 9 (AHRQ Publication No. 04-0051-3). ■

AHRQ supports health services research training, including career development grants

The Agency for Healthcare Research and Quality provides support for a variety of research training programs, including intramural and extramural predoctoral and postdoctoral education, research infrastructure, and career development grants. In addition, AHRQ supports the development of health services research infrastructure in emerging centers of excellence and works with Federal and academic partners to develop innovative curricula and educational models.

AHRQ provides 3 to 5 years of support for Independent Scientist Awards and Mentored Clinical Scientist Development Awards. Applications for these programs are accepted February 1, June 1, and October 1, annually. Examples of career development projects currently in progress are presented here. For more information on AHRQ-supported research

training programs, including information on eligibility requirements and how to apply, visit the AHRQ Web site at www.ahrq.gov and click on "Funding Opportunities."

Independent Scientist Awards (K02)

Independent Scientist Awards (K02 projects) are intended to foster the development of promising new investigators in the field. Individual awards support newly independent scientists who can demonstrate a need for a period of intensive research focus.

William G. Adams, M.D., Boston Medical Center
Project title: Using an EMR to Improve Urban Child Health
AHRQ grant K02 HS13655, project period 4-1-04-3/31/07

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Health services research training

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Nancy Birkmeyer, Ph.D., University of Michigan Medical School

Project title: Assess and Improve the Quality of Care for Low Back Pain

AHRQ grant K02 HS11288, project period 9/1/00-8/31/05

Evelyn Chan, M.D., University of Texas Health Science Center at Houston

Project title: Health Communication Over the Internet

AHRQ grant K02 HS11421, project period 9/1/01-8/31/06

Mentored Clinical Scientist Development Award (K08)

AHRQ provides support for the development of outstanding clinician research scientists who are committed to a career in health services research, with a focus on their development as independent scientists. The candidate must have a clinical doctoral degree, identify a mentor with extensive research experience, and be willing to spend a minimum of 75 percent of full-time professional effort conducting research and developing a research career during the award period.

Mary Catherine Beach, M.D., M.P.H., Johns Hopkins University School of Medicine

Project title: Patient Centeredness in Care of Vulnerable Populations

AHRQ grant K08 HS13903, project period 9/1/03-8/31/08 ■

Grant final reports now available from NTIS

The following grant final reports are now available from the National Technical Information Service (NTIS). Each listing identifies the project's principal investigator, his or her affiliation, grant number, and project period and provides a brief description of the project. See the back cover of *Research Activities* for ordering information.***

Records of all 750,000 documents archived at NTIS—including many AHRQ documents and final reports from all completed AHRQ-supported grants—can now be searched on the new NTIS Web site. For information about findings from the projects described here, please access the relevant final reports at the NTIS Web site. Also, all items in the database from 1997 to the present can be downloaded from the Web site. Go to www.ntis.gov for more information.

Editor's note: In addition to these final reports, you can access information about these projects from several other sources. Most of these researchers have published interim findings in the professional literature, and many have been

summarized in *Research Activities* during the course of the project.

To find information presented in back issues of *Research Activities*, go to the AHRQ Web site at www.ahrq.gov and click on "Research Activities Online Newsletter" and then "Search Research Activities." To search for information, enter either the grant or contract number or the principal investigator's last name in the query line. A reference librarian can help you find related journal articles through the National Library of Medicine's PubMed.®

Comparative Analysis of State Capitation Rate Setting Methods.
Ginny Hsieh, M.P.H., Johns Hopkins University, Baltimore, MD. AHRQ grant HS09338, project period 9/1/96-8/31/98.

The goal of this research was to determine how much would be gained from using more refined risk adjustment methods in setting Medicaid capitation rates. The researcher evaluated current Medicaid capitation rate setting algorithms from various States, including California, Maryland, and Michigan to assess whether

these methods, which include only demographic factors, are accurately predicting costs. Another goal was to determine the feasibility of alternative risk adjustment models that include clinical and disability factors. The findings indicate that clinical risk adjustment models do have higher predictive accuracy than the actuarial-based capitation methods for certain patient populations. However, differences in predictive performance also depend in large part on modeling options. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102865; 226 pp., \$59.00 paper, \$20.00 microfiche)**

Determinants of Cesarean Section: Explaining Recent Changes. A. Dale Tussing, Ph.D., Syracuse University, Syracuse, NY. AHRQ grant HS10065, project period 6/1/99-5/31/01.

The researchers developed a data set using vital statistics data and hospital discharge data for New York State for 1996-1998. They compared changes in obstetric methods over that time

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period and found that there was a dramatic fall in the rate of repeat c-sections and a large increase in the proportion of births paid for by HMOs. Neither of the factors played a role in shifting the overall c-section rate, but dystocia (abnormal or difficult labor) did have a substantial effect. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102834; 86 pp., \$34.00 paper, \$14.00 microfiche)**

***Emergency Department Data Conference, 2002.* Luis M. Paita, Ph.D., National Association of Health Data Organizations. AHRQ grant HS12065, project period 2/15/02-10/14/02.**

This project provided support for a conference designed to increase the capacity of State health data agencies to collect emergency department (ED) data. Goals were to highlight best practices and priorities in key domains of data systems development, build partnerships, discuss how to manage and disseminate data, and describe ways to identify late-breaking national issues and resources that have implications for ED data systems. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102836; 116 pp., \$38.00 paper, \$20.00 microfiche)**

***Making Care Decisions for Cognitively Impaired Parents.* Katharine C. Cook, M.S., University of Virginia, Charlottesville. AHRQ grant HS10762, project period 7/1/00-8/31/02.**

This study involved 22 adults aged 35-64 (14 daughters, 6 sons, and 2 daughters-in-law) who were primary decisionmakers for cognitively impaired parents aged 73-91. The researchers identified a

decisionmaking process that included five themes: finding a voice, professing fidelity, speaking for the speechless, correcting the course, and expressing gratitude. They identified various points along the way when caregivers could benefit from support services and resources such as the Internet and accessible, reliable, and affordable day and respite care. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102837; 128 pp., \$41.50 paper, \$20.00 microfiche)**

***Optimizing Outcome Research for Nursing Practice.* Karen Sousa, Ph.D., Arizona State University, Tempe. AHRQ grant HS12061, project period 9/30/01-9/29/02.**

This project provided support for a conference held in 2002 at Arizona State University to discuss findings from research on the effects of nurse staffing and skill mix on quality of care. The goal was to disseminate these new findings to those in leadership positions who have the potential to incorporate findings into practice. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102827; 20 pp., \$26.50 paper, \$14.00 microfiche)**

***Otitis Media and Language Learning Sequelae: Controversies and Current Research.* Joanne E. Roberts, Ph.D., University of North Carolina, Chapel Hill. AHRQ grant HS12072, project period 1/15/02-1/14/03.**

This project provided support for a conference held in May 2002, to review current research on the effects of otitis media with effusion (OME) on children's hearing and development, identify gaps and future directions for research, and discuss implications for clinical practice. Current evidence indicates that the linkage of a history of OME in early childhood to later

development—after accounting for important confounding variables—is negligible to mild in degree. However, the findings should be interpreted cautiously, given that almost all of the studies used OME rather than hearing loss as the independent variable, and many of the studies did not control for important variables that could have affected the findings. Continued study of the OME language linkage should consider measurement, study design, analysis, and population sampling issues. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102826; 18 pp., \$26.50 paper, \$14.00 microfiche)**

***Outcomes of a Managed Care Cost-Containment Strategy.* Mary E. Murray, Ph.D., University of Wisconsin, Madison. AHRQ grant HS10667, project period 9/15/00-8/31/02.**

The objective of this project was to determine the impact of a managed care cost-containment strategy—concurrent utilization review (UR)—on the plan of care of hospitalized patients and hospital fiscal outcomes. The UR process requires that hospital staff communicate clinical information about hospitalized patients to payers who determine whether the planned care is appropriate, medically necessary, and allowable under the terms of the contract with the provider. The researchers used a production process model and cost analysis to study the impact of denials of UR by managed care payers. They conducted a time study to identify the costs of the process, analyzed routinely collected management data, and performed a qualitative analysis of recorded interviews with hospital staff who conducted the UR process. (Abstract, executive

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summary, and final report, NTIS accession no. PB2005-102213; 32 pp., \$29.50 paper, \$14.00 microfiche)**

Outcomes of Increasing Diabetes Self-Monitoring in an HMO.

Stephen B. Soumerai, Sc.D., Brigham and Women's Hospital, Boston, MA. AHRQ grant HS10063, project period 9/30/98-9/29/02.

The researchers evaluated whether a policy change to cover the cost of blood glucose monitors increased self-monitoring of blood glucose among diabetes patients in a managed care setting. They collected 48 months of data from a computerized medical record system for 3,219 continuously enrolled adult diabetes patients. They found that coverage of the cost of monitors significantly increased blood glucose monitoring among managed care patients. The improved monitoring was associated with increased adherence to medications and a reduction in blood glucose levels. (Abstract, executive summary, and final report, NTIS accession no. PB2005-101292; 42 pp., \$29.50 paper, \$14.00 microfiche)**

Patient-Centeredness in the Frontline Emergency Department.

Charles R. Denham, M.D., Texas Medical Institute of Technology, Austin. AHRQ grant HS12092, project period 7/8/02-7/7/03.

Patient-centered care reflects patient values and preferences, and patients are engaged as active participants in medical decisionmaking. Health care policymakers and patient safety experts are becoming familiar with patient-centered care, but the extent of understanding by frontline caregivers and health care consumers is less clear. This project

provided support for a conference to identify strategies, methodological issues, and measures that were then used as the basis of a research agenda for enhancing patient-centered care as applied in community emergency departments. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102330; 38 pp., \$29.50 paper, \$14.00 microfiche)**

Patient-Defined Culturally Sensitive Health Care, Part II.

Carolyn M. Tucker, Ph.D., University of Florida, Gainesville. AHRQ grant HS10726, project period 9/30/00-9/29/02.

Health care inventories were developed to evaluate levels of patient-defined cultural sensitivity in health care received at community-based primary care clinics by black, Hispanic, and white Americans. In addition, an inventory was developed for use by primary care clinicians to self-evaluate their own levels of patient defined cultural sensitivity in the care they deliver. Pilot versions of these inventories were tested, and research is underway to determine the reliability and validity of the inventories. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102828; 18 pp., \$26.50 paper, \$14.00 microfiche)**

Penetrating the Black Box: Mechanisms for Enhancing Health Efficiency and Clinical Effectiveness.

Douglas A. Conrad, M.D., Ph.D., University of Washington, Seattle. AHRQ grant HS12076, project period 5/1/02-2/29/04.

This project provided support for a meeting of senior health care executives, health services researchers, and representatives of relevant research funding organizations to review current theory, methods, and research

evidence on the use of financial incentives to improve the quality and efficiency of health services and to develop a research agenda and dissemination plan. The conference highlighted several questions for management and policy concerning the application of financial incentives to clinical providers. (Abstract and final report, NTIS accession no. PB2005-102215; 22 pp., \$26.50 paper, \$14.00 microfiche)**

Preventive Medicine, 2003.

Jordan Richland, M.P.H., American College of Preventive Medicine, Washington, DC. AHRQ grant HS13885, project period 9/30/01-9/29/03.

The goals of this conference were to convey information on the latest advances and current recommendations in prevention practices, policies, and programs; identify research gaps in clinical preventive medicine research; describe the evidence base underlying current recommendations on the effectiveness and delivery of clinical preventive services; and cover other important and timely topics affecting the delivery of clinical preventive services. (Abstract and executive summary, NTIS accession no. PB2005-102329; 16 pp., \$26.50 paper, \$14.00 microfiche)**

Public's Health: A Matter of Trust. A Symposium.

David A. Shore, Ph.D., Harvard School of Public Health, Boston, MA. AHRQ grant HS13810, project period 9/18/02-9/17/03.

The purpose of this conference was to present current research on declining public trust in health care and propose solutions to restore trust. Specific problems relating to medical errors, vaccines, food safety, genetics, and health care

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research were addressed in a large context—e.g., the role of the media and the Internet—and on a more personal level—e.g., problems with the physician-patient relationship. Solutions to improve trust were proposed, including improvements in medical education and public communications. (Abstract and final report, NTIS accession no. PB2005-102830; 16 pp., \$26.50 paper, \$14.00 microfiche)**

Seattle Lumbar Imaging Project. Jeffrey Jarvik, M.D., M.P.H., University of Washington, Seattle. AHRQ grant HS09499, project period 9/30/98-12/31/02.

The Seattle Lumbar Imaging Project (SLIP) was a multicenter randomized trial that evaluated the consequences of substituting a rapid MRI for radiographs as the initial imaging strategy for primary care patients with low back pain. After controlling for back-related disability at baseline and study site, there was no significant difference in 12-month outcomes between the radiography and MRI groups. Patients randomized to radiography had more conventional MRIs, physical therapy, acupuncture, massage, and osteopathic and chiropractic manipulation over the study period. Patients randomized to rapid MRI had more subsequent radiographs of the lumbar spine and more specialist consultations. The mean cost of care was higher in MRI patients (\$2,121) compared with radiography patients (\$1,651), but the difference was not significant. Six percent of MRI patients had lumbar spine surgery within 12 months, compared with 2 percent of radiography patients. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102832; 34 pp., \$29.50 paper, \$14.00 microfiche)**

Seventh Regenstrief Conference. Kurt K. Kroenke, M.D., Regenstrief Institute, Indianapolis, IN. AHRQ grant HS10082, project period 11/9/99-11/8/01.

This project provided support for the conference, “Investigating Symptoms: Frontiers in Primary Care Research,” which was held in November 1999, in Marshall, IN. During the conference, a research agenda was developed on characterizing symptoms, measurement issues, and the physician-patient relationship as it relates to primary care practice. (Abstract and executive summary, NTIS accession no. PB2005-102829; 20 pp., \$26.50 paper, \$14.00 microfiche)**

Superspecialization of Medical and Surgical Subspecialists. Jose Escarce, M.D., Ph.D., RAND, Santa Monica, CA. AHRQ grant HS08573, project period 7/15/97-5/31/99.

The goal of this project was to enhance understanding of the factors that influence physicians’ scope of practice—that is, the services they actually provide chosen from among all the services they are trained to perform. The researchers focused on six medical and surgical subspecialties: cardiology, gastroenterology, pulmonology, orthopedic surgery, ophthalmology, and urology. They used Medicare administrative data and other secondary data files containing information on market characteristics. They found no consistent pattern; neither physician attributes nor market characteristics had consistent effects on the breadth or narrowness of physicians’ scope of practice. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102217; 56 pp., \$31.50 paper, \$14.00 microfiche)**

Testing the Effectiveness of Advance Medical Directives. Peter Ditto, Ph.D., Kent State University Foundation, Kent, OH. AHRQ grant HS08180, project period 3/1/95-2/28/02.

This three-phase longitudinal study was conducted to examine three key psychological assumptions underlying the effective use of advance medical directives in end-of-life decisionmaking. Participants were 401 elderly adults and their surrogate decisionmakers. Phase one assessed the effectiveness of four advance directive interventions in improving the accuracy of surrogate substituted judgment. Phase two examined the stability of life-sustaining treatment preferences over time. Phase three compared life-sustaining treatment preferences stated soon after a hospitalization with those stated months before and after the hospital stay. The study found that advance directive interventions are ineffective in improving the accuracy of surrogate substituted judgment, life-sustaining treatment preferences are only moderately stable over time, and individuals are less interested in life-sustaining treatment immediately after a hospitalization than they are in the months before and after a hospital stay. (Abstract, final report, and appendixes, NTIS accession no. PB2005-102864; 52 pp., \$31.50 paper, \$14.00 microfiche)**

Training Evidence-Based Practitioners Program. Joseph Lau, M.D., New England Medical Center, Boston, MA. AHRQ grant HS09796, project period 7/1/98-6/30/01.

The goal of this project was to augment evidence-based practice capacity by training clinical specialists and primary care

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providers to become evidence-based practitioners in their respective areas and organizations. The specific aims were to: teach clinicians how to translate evidence into practice in the managed care setting; teach clinicians how to become effective partners in evidence-based projects; and assist clinicians in becoming independent evidence-based medicine researchers. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102216; 38 pp., \$29.50 paper, \$14.00 microfiche)**

***Treatment Choices and Outcomes in Early Prostate Cancer.* James A. Talcott, M.D., Massachusetts General Hospital, Boston. AHRQ grant HS08208, project period 4/1/94-3/31/00.**

This cohort study of treatment outcomes involved 600 patients who underwent aggressive local therapy for prostate cancer: external beam radiation therapy, radical prostatectomy, or brachytherapy. The researchers followed patients for 24 months posttreatment and assessed self-reported urinary incontinence, urinary obstruction/irritation, bowel problems, and sexual dysfunction.

They developed and validated scales that characterize symptom states and outcomes qualitatively as good, intermediate, or poor, and they examined factors that affect physicians' treatment recommendations and patients' treatment choices. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102833; 56 pp., \$31.50 paper, \$14.00 microfiche)**

University of Washington Research Training Program, 1989-1999.

Diane P. Martin, Ph.D., University of Washington, Seattle. AHRQ grant HS00034, project period 9/30/89-6/30/99.

For this health services research training program, the investigators recruited talented doctoral level scientists, physicians, and predoctoral students as trainees. The goal was to foster in the trainees a broad understanding of the health services system (public and private) and an awareness of issues amenable to empirical study. Other goals were to assist trainees in acquiring the capacity to design and conduct sound research, provide trainees with a meaningful health services research experience, and place graduates in academic, government, and private enterprises in which their special skills and

knowledge will be used and valued. (Abstract, executive summary, and final report, NTIS accession no. PB2005-101291; 44 pp., \$29.50 paper, \$14.00 microfiche)**

***Using an Endoscope Database to Study Outcomes of Reflux.* M. Brian Fennerty, M.D., Oregon Health Sciences University, Portland. AHRQ grant HS10650, project period 7/1/00-6/30/02.**

The goal of this project was to determine differences in clinical outcomes between patients undergoing endoscopy who have complicated forms of gastroesophageal reflux disease (GERD) and those with normal endoscopy findings. Another goal was to determine whether a computer format and database could be used to enroll and follow patients at sites peripheral to the central study site. Although some aspects of the study were successfully completed, most of the outcomes could not be determined due to technical problems and personnel issues. (Abstract, executive summary, and final report, NTIS accession no. PB2005-102863; 12 pp., \$26.50 paper, \$14.00 microfiche)** ■

Bagchi, A., Sambamoorthi, U., McSpirtt, E., and others. (2004). "Use of antipsychotic medications among HIV-infected individuals with schizophrenia." (HS11825). *Schizophrenia Research* 71, pp. 435-444.

People who have schizophrenia typically find it difficult to consistently follow care and medication recommendations, including the complex antiretroviral therapy (ART) regimens used to control HIV infection. According to this study, people who have both HIV infection and schizophrenia who use the newer atypical antipsychotics are more likely to continue using their medications than those using the older antipsychotics, which have more serious side effects. The researchers used New Jersey HIV/AIDS surveillance data and Medicaid claims data to examine the correlates of use of antipsychotic medications among 350 HIV-infected individuals with schizophrenia. They defined medication persistence as at least 2 months of medication use in a quarter. Overall, 81 percent of those studied had at least one claim for an antipsychotic medication at some point between 1992 and 1998. Of the 282 patients using antipsychotics, 34 percent had at least one claim for an atypical antipsychotic, but fewer Latinos (17 percent) and blacks (34 percent) than whites (50 percent) had a prescription for an atypical antipsychotic. Users of atypical antipsychotics were 4.25 times as likely to persist in taking their medication as those taking only older antipsychotics.

Black, C.C., and Cummings, P. (2004, November). "Observational studies in

radiology." (AHRQ grant HS11291). *American Journal of Radiology* 183, pp. 1203-1208.

This paper describes the commonly used observational study designs—that is, cohort and case-control studies—used in radiology research, including their strengths and limitations. The authors point out that these study designs are particularly useful in determining the influence of radiology intervention on patient outcomes, for example, the impact of mammography on breast cancer mortality. They also are useful for determining clinical risk factors for disease that aid selection of optimal imaging strategies. For instance, mechanism of injury (such as a high-speed motor vehicle crash that is a predictor of spinal fracture) can be used to select between computerized tomography and radiography to evaluate the cervical spine in trauma patients.

Calderon, J.L., Zadshir, A., and Norris, K., (2004, October). "Structure and content of chronic kidney disease information on the World Wide Web: Barriers to public understanding of a pandemic." (AHRQ grant HS10858). *Nephrology News & Issues*, pp. 76-84.

The World Wide Web (WWW) has little utility for informing populations at greatest risk for chronic kidney disease (CKD), according to this study. The authors assessed the technical (number of hyperlinks), content (number of six core CKD and risk factor information domains), and linguistic (readability and variation in readability) barriers for Web sites offered by 12 kidney disease associations. They concluded that having lower

socioeconomic status, less access to computers and the WWW, multiple Web site hyperlinks, incomplete information, readability problems, and significant variation in readability of CKD information on the WWW are social, structural, and content barriers to communicating CKD information. This may contribute to racial/ethnic disparities in CKD health status globally.

Choi, J., Bakken, S., Larson, E., and others. (2004, November). "Perceived nursing work environment of critical care nurses." (AHRQ grant HS13114). *Nursing Research* 53(6), pp. 370-378.

These investigators used the Perceived Nursing Work Index-(PNWE) instrument in a national survey of critical care nurses from 68 hospitals across the Nation to assess its validity in evaluating how these nurses perceive their work environment. The PNWE, with its 7 subscales and 42 items, exhibited sound psychometric properties. The subscales exhibited moderate to high reliability ranging from 0.70 to 0.91, except for one subscale. Nurses employed at magnet hospitals (those that have the ability to attract and retain nurses) had more positive perceived work environments than those employed at nonmagnet hospitals, and they showed higher mean scores in four of the seven subscales.

Chumney, E.C., Biddle, A.K., Simpson, K.N., and others. (2004). "The effect of cost construction based on either DRG or ICD-9 codes or risk group stratification on the resulting cost-effectiveness ratios." (AHRQ grant HS10871).

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Research briefs

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Pharmacoeconomics 22(18), pp. 1209-1216.

The researchers used data from the Healthcare Cost and Utilization Project Nationwide Inpatient Sample on hospital stays in select States to examine the implications of different disease coding mechanisms on costs and the magnitude of error that could be introduced in head-to-head comparisons of resulting cost-effectiveness ratios (CERs). The authors based their analyses on a previously published Markov model for HIV/AIDS therapies. Contrary to expectations, they found that the choice of coding/grouping assumptions that are disease-specific by either DRG codes, ICD-9 codes, or risk group resulted in very similar CER estimates for highly active antiretroviral therapy.

Dellefield, M.D. (2004, November). "Prevalence rate of pressure ulcers in California nursing homes." (AHRQ grant HS10022). *Journal of Gerontological Nursing* 30(11), pp. 13-21.

State surveyors under contract with the Centers for Medicare & Medicaid Services visit nursing homes about once a year to assess compliance with regulatory standards. Compliance data gathered during the visits is added to a database—the Online Survey, Certification, and Reporting (OSCAR) system—that includes factors on facility, resident, and staffing characteristics and quality of care deficiencies. Publicly reported OSCAR data are widely used by consumers and researchers to assess quality of nursing home care. This study illustrates how the OSCAR database was used to develop a risk-adjustment model for the prevalence rate of pressure ulcers, a key indicator of quality of

care, in 883 California nursing homes.

Ding, L., Landon, B.E., Wilson, I.B., and others. (2005, March). "Predictors and consequences of negative physician attitudes toward HIV-infected injection drug users." (AHRQ grant HS10227). *Archives of Internal Medicine* 165, pp. 618-623.

This study of HIV care found that negative physician attitudes toward HIV-infected injection drug users (IDUs) may lead to less than optimal care for IDUs and other marginalized populations. The researchers evaluated physicians' training, experience, and practice characteristics and examined associations between their attitudes toward HIV-infected individuals who also use injection drugs. Nationally 23.2 percent of HIV-infected patients had physicians with negative attitudes toward IDUs. Seeing more IDUs, having higher HIV treatment knowledge scores, and treating fewer patients per week were associated with more positive attitudes toward IDUs. Injection drug users who were cared for by physicians with negative attitudes were significantly less likely to receive highly active antiretroviral therapy. The researchers note that their findings that attitudes toward particular patients are associated with quality of care and that experience, knowledge, time pressures, and stress are related to attitudes may apply also to other groups of difficult to treat patients with a broad range of conditions.

Drew, B.L., Mion, L.C., Meldon, S.W., and others. (2004, December). "Effect of environment and research participant characteristics on data quality." (AHRQ grant HS09725). *Western Journal of Nursing Research* 26(8), pp. 909-921.

Elderly people who are cognitively intact reliably report their health care use, even in a potentially challenging environment like a hospital emergency department (ED), according to this study. The researchers interviewed 612 elderly men and women visiting an ED. They then rated characteristics of the ED and compared elderly patients' self-reports of ED use and hospitalization during the previous 4 weeks with data from hospital records. Overall, 3.6 percent of the patients overreported and 2.2 percent underreported visits to the ED, and 2.6 percent overreported and 1.2 percent underreported hospitalizations. Discrepancies between self-report and hospital records were associated with male sex, cognitive deficits, and risk status, but they were not related to any of the ED environmental variables.

D'Souza-Vazirani, D., Minkovitz, C.S., and Strobino, D.M. (2005, February). "Validity of maternal report of acute health care use for children younger than 3 years." (AHRQ grant HS13053). *Archives of Pediatric and Adolescent Medicine* 159, pp. 167-172.

National household surveys often rely on parents' recall to assess children's use of health care services. This study found that mothers have good recall for acute health care events during the first 3 years of their children's lives. The investigators compared children's medical records with their mothers' recall of emergency department (ED) visits and hospitalizations of their children since birth and in the preceding 12 months using data on 2,937 families who participated in the Healthy Steps for Young Children national evaluation.

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Absolute agreement was high for hospitalizations (90 percent or higher) at both time points. It was high for ED use (greater than 90 percent) only at 2 to 4 months after a child's birth.

Dutton, G.R., Grother, K.B., Jones, G.N., and others. (2004). "Use of the Beck Depression Inventory-II with African American primary care patients." (AHRQ grant HS11834). *General Hospital Psychiatry* 26, pp. 437-442.

The Beck Depression Inventory-II (BDI-II) is one of the most common self-report instruments used for depression screening, but it has been used on predominantly white patient populations. This study found that, similar to findings with predominantly white patients, the BDI-II is an appropriate and accurate instrument to screen for depression among black primary care patients. The study included 220 black primary care patients who completed the BDI-II and were administered a diagnostic interview to establish depressive diagnoses.

Gordon, B.D., and Asplin, B.R. (2004). "Using online analytical processing to manage emergency department operations." (AHRQ grant HS13007). *Academic Emergency Medicine* 11, pp. 1206-1212.

Research on emergency department (ED) crowding indicates a critical need to improve the efficiency of ED patient flow and capacity management in U.S. hospitals. Online analytical processing (OLAP) may help EDs accomplish this, according to this study. An OLAP system has the ability to provide managers, providers, and researchers with the

necessary information to make decisions quickly and effectively by allowing them to examine patterns and trends in operations and patient flow. OLAP software quickly summarizes and processes data acquired from a variety of data sources, including computerized ED tracking systems. This article describes OLAP software tools and provides examples of potential OLAP applications for ED care improvement projects.

Graham, M.J., Kubose, T.K., Jordan, D., and others. (2004). "Heuristic evaluation of infusion pumps: Implications for patient safety in intensive care units." (AHRQ grant HS11544). *International Journal of Medical Informatics* 73, pp. 771-779.

Heuristic evaluation methodology provides a simple and cost-effective approach to identifying deficiencies in medical devices that may adversely affect patients, according to this study. Four raters used a heuristic evaluation methodology to uncover physical design and user interface deficiencies of infusion pumps currently in use in intensive care units. Each expert independently generated a list of heuristic violations based on a set of 14 heuristics developed in previous research. Overall, 231 violations of the usability heuristics were considered. The primary interface location (where loading the pump, changing doses, and confirming drug settings takes place) had the most heuristic violations.

Haukoos, J.S., Lewis, R.J., and Niemann, J.T. (2004). "Prediction rules for estimating neurologic outcome following out-of-hospital cardiac arrest." (AHRQ fellowship F32 HS11509). *Resuscitation* 63, pp. 145-155.

These researchers developed a prediction model for neurological outcome and potentially meaningful survival (minor brain injury or no injury) following out-of-hospital cardiac arrest using variables available during resuscitation. The investigators examined data on consecutive adult cardiac arrest patients between 1994 and 2001 to assess variables ranging from site of arrest to paramedic response time. The decision rule for survival with a Glasgow Coma Score (GCS) of 13 (13 and 14 correspond to mild brain injury) incorporated whether the arrest was witnessed and the patient's age. The decision rule for survival with a GCS of 14 incorporated the initial arrest rhythm, whether the arrest was witnessed, and the patient's age. The rule for survival with a GCS of 15 incorporated only the interval between collapse and the initiation of life support.

Hellinger, F.J., and Young, G.J. (2005, February). "Health plan liability and ERISA: The expanding scope of State legislation." *American Journal of Public Health* 95(2), pp. 217-223.

The U.S. health care delivery system is regulated through a maze of overlapping State and Federal laws and regulations. In recent years there has been a steady stream of State legislation affecting the way in which managed care plans conduct their business. In large part, these laws have been enacted in response to the rapid growth of managed care plans and concerns about the impact these plans have on quality of care. This article examines the intent, scope, and impact of recent laws passed in 10 States that attempt to expand the legal rights of health plan enrollees to sue their plans. Reprints (AHRQ

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Publication No. 05-R039) are available from AHRQ.*

Janssen, W.J., Dhaliwal, G., Collard, H.R., and Saint, S. (2004, December). “Why ‘why’ matters.” (AHRQ grant HS11540). *New England Journal of Medicine* 351(23), pp. 2429-2434.

These authors describe the puzzling case of a 38-year-old woman who arrived at the emergency department for evaluation of shortness of breath and jaundice. Her condition developed the day after she attended a wedding where she consumed Chinese dumplings containing salt-cured meat. No one else who attended the wedding became sick. A low hemoglobin level and elevated lactate dehydrogenase and bilirubin levels suggested ongoing hemolysis, which the treating physicians correctly identified. However, they did not initially identify the hemolytic process due to the patient’s G6PD deficiency. They concluded that the sodium nitrite in the dumplings’ salt-cured meat, which can cause brisk hemolysis in patients with G6PD, was the precipitating agent. They proceeded to shift treatment accordingly.

Jiang, H., and Zhou, X.H. (2004). “Bootstrap confidence intervals for medical costs with censored observations.” (AHRQ grant HS13105). *Statistics in Medicine* 23, pp. 3365-3376.

In a cost-effectiveness study of treatments, the focus is often on the average of total medical costs over a certain time period in a given population. However, in analyses of medical cost data, only the mean, not the median, can be used to recover the total medical cost, which reflects the entire expenditure on health care in a given patient

population. The authors of this paper propose a bootstrap confidence interval for the mean of medical costs with censored observations. In simulation studies, they show that the proposed bootstrap confidence interval had much better coverage accuracy than the normal approximation one when medical costs had a skewed distribution.

Lien, H.M., Ma, C.T., and McGuire, T.G. (2004). “Provider-client interactions and quantity of health care use.” (AHRQ grant HS10803). *Journal of Health Economics* 23, pp. 1261-1283.

These authors consider three types of provider-client interactions that influence quantity of health care use: rationing, effort, and persuasion. Rationing refers to a quantity limit set by a provider; effort, the productive inputs supplied by a provider to increase a client’s demand; and persuasion, the unproductive inputs used by a provider to induce a client’s demand. The authors tested for the presence of each mechanism using data on patients receiving outpatient treatment for alcohol abuse in the Maine Addiction Treatment System. They found evidence for rationing (that providers did ration services to prevent high use by some clients) and persuasion but not for effort.

Manson, S.M., Garrouette, E., Goins, R.T., and Henderson, P.N. (2004, November). “Access, relevance, and control in the research process: Lessons from Indian country.” (AHRQ grant HS10854). *Journal of Aging and Health* 16(5), pp. 58S-77S.

Most investigators are unprepared to address the demands of health research in American Indian (AI) communities, according to the authors of this study. Using case examples of health studies involving older AIs from three different

tribes, they illustrate strategies for research on aging and health in AI communities that emphasize access, local relevance, and decisionmaking processes. They point out that local review and decisionmaking reflect the unique legal and historical factors underpinning AI sovereignty. Although specific approval procedures vary, there are common expectations across these communities that can be anticipated in conceptualizing, designing, and implementing health research among native elders.

Morimoto, T., Gandhi, T.K., Fiskio, J.M., and others. (2004). “An evaluation of risk factors for adverse drug events associated with angiotensin-converting enzyme inhibitors.” (AHRQ grant HS11169). *Journal of Evaluation in Clinical Practice* 10(4), pp. 499-509.

This study identified several factors that can help doctors recognize patients at elevated risk for adverse drug events (ADEs) because of angiotensin-converting enzyme (ACE) inhibitors. The investigators retrospectively examined ADEs among 2,225 outpatients administered ACE inhibitors at clinics affiliated with one urban hospital. In 19 percent of the total group, ACE inhibitors were discontinued because of ADEs. The researchers identified the following independent risk factors for discontinuation because of ADEs: age, female sex, ethnicity other than black or Latino, no history of previous ACE inhibitor use, history of cough caused by another ACE inhibitor, hypertension, anxiety or depression, no hemodialysis, and elevated creatinine.

Ness, R.B., Haggerty, C.L., Harger, G., and Ferrell, R. (2004). “Differential distribution of allelic variants in cytokine genes among

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African Americans and white Americans.” (AHRQ grant HS10592). *American Journal of Epidemiology* 160(11), pp. 1033-1038.

Because many diseases causing premature mortality among blacks are mediated by the immune system, these investigators explored the race-specific distribution of allelic variants in cytokine genes known to stimulate inflammation. They studied women seeking prenatal care and delivering single infants in uncomplicated first births at one hospital in 1997-2001. They evaluated 179 black women and 396 white women for functionally relevant allelic variants in cytokine genes. Black women were significantly more likely to carry allelic variants known to up-regulate proinflammatory cytokines; odds ratios increased with allele dose.

Solberg, L.I., Hurley, J.S., Roberts, M.H., and others. (2004). “Measuring patient safety in ambulatory care: Potential for identifying medical group drug-drug interaction rates using claims data.” (AHRQ contract 290-00-0015). *American Journal of Managed Care* 10(11), pp. 753-759.

Potential drug-drug interaction (DDI) rates calculated from health plan data may be useful for measurement in studies of medication safety, concludes this study. The authors combined administrative and pharmacy claims data from two large health plans to calculate the rates at which users of selected medications for chronic conditions were potentially exposed to a second drug known to pose a risk of harmful interactions. They divided 44 medication combinations with risk of adverse interactions into those with DDIs of moderate/severe clinical significance and those with

DDIs of mild significance. The researchers then calculated yearly rates of potential DDIs in continuously enrolled members aged 19 and older from 1998 through 2001. One or more unique potential DDIs occurred in 6.2 to 6.7 percent of base-drug users and 2 to 2.3 percent of all adult health plan members per year.

Stafford, R.S., Li, D., Davis, R.B., and Iezzoni, L.I. (2004). “Modelling the ability of risk adjusters to reduce adverse selection in managed care.” (AHRQ grant HS10152). *Applied Health Economics and Health Policy* 3(2), pp. 107-114.

Risk adjusters are statistical measures of risk that can be applied to predict the likelihood of resource consumption or other outcomes associated with patients' various health conditions. Using insurance claims data from 184,340 health plan members, these investigators compared the performance of three risk-adjustment methods for measuring the impact of risk adjustment on the likelihood that individual members will be at risk for adverse selection. They then compared these results with resource allocation based on age and sex. The predictive ability of alternative allocation schemes increased from 1.2 percent for age-sex allocation to 11.4 percent based on risk adjustment using diagnostic cost groups. However, the impact of risk adjustment on the proportion of members at risk for adverse selection was small, suggesting a need for other strategies.

Town, R., Kane, R., Johnson, P., and Butler, M. (2005). “Economic incentives and physicians' delivery of preventive care: A systematic review.” (AHRQ contract 290-02-0009). *American Journal of Preventive Medicine* 28(2), pp. 234-240.

These authors systematically reviewed the literature examining the impact of financial incentives on provider preventive care delivery. Six studies met inclusion criteria, which generated eight different findings. Of the eight financial interventions reviewed (all small rewards), only one led to a significantly greater provision of preventive services. The results suggest that small rewards will not motivate doctors to change their preventive care routines. However, this does not necessarily imply that other financial incentives won't motivate them to do so.

Westfall, J.M., Fernald, D.H., Staton, E.W., and others. (2004, Fall). “Applied strategies for improving patient safety: A comprehensive process to improve care in rural and frontier communities.” (AHRQ grant HS11878). *Journal of Rural Health* 20(4), pp. 355-362.

A safe and secure reporting system that relies on voluntary reporting from clinicians and staff can be successfully implemented in rural primary care settings, according to this study. The researchers describe the efforts of one of two practice-based research networks, the High Plains Research Network (HPRN), which participated in the Applied Strategies for Improving Patient Safety (ASIPS) demonstration project. This project was designed to collect and analyze medical error reports that had been voluntarily submitted by clinicians and staff and use the reports to develop and implement interventions aimed at decreasing errors. Fourteen HPRN practices with a total of 150 clinicians and staff have participated in ASIPS, submitting 128 reports. Diagnostic tests were involved in 26 percent, medication errors in 20 percent, and communication errors in 72 percent of medical errors. ■

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