Research Activities

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Agency for Healthcare Research and Quality

Highlights

Departments

Regular Features

Study uncovers major differences in the use and cost of health care for privately insured men and women with HIV

Women with HIV disease are much less likely than men with HIV to receive potentially life-prolonging drugs even though they have private health insurance that would help pay for the drugs, according to a recent study from the Agency for Healthcare Research and Quality. Fred J. Hellinger, Ph.D., and William E. Encinosa, Ph.D., of AHRQ's Center for Delivery, Organization, and Markets, found that only 39 percent of women with HIV disease enrolled in the health insurance plans of 24 large employers across the country were provided antiretroviral drugs for HIV disease in 2000, compared with 71 percent of men with HIV enrolled in the same plans. Access to these drug therapies is linked to increased survival and a higher quality of life for individuals with HIV disease.

The researchers further found that among adults treated with antiretroviral therapy, women (31 percent) were only half as likely as men (63 percent) to be prescribed the newer, more effective, and more costly protease inhibitor and/or non-nucleoside reverse transcriptase inhibitor drugs. Therapy involving these two types of drugs, which were approved for use after 1995, is known as highly active antiretroviral therapy or HAART.

This disparity in prescribing for men and women was reflected in prescription drug expenditures. The average annual drug expenditure for men, $9,037, was more than twice the $3,893 spent for women's medications. Women, on average, had total health care expenditures of $10,397 in 2000, while total health care expenditures for men averaged $16,405 that year. Almost all of this difference resulted from lower payments for drugs for women with HIV disease.

The findings from this study are surprising, since the study participants were privately insured and should have had equal access to drug therapies, note Drs. Hellinger and Encinosa. They point out that the reasons behind the disparity

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Use and cost of care for HIV patients

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in access to costly new drug therapies are not clear and warrant further study, particularly since the incidence of HIV disease is now increasing more rapidly among women than men. In addition, we need to know more about the extent of such disparities among uninsured and publicly insured men and women with HIV disease.

For details, see "Antiretroviral therapy and health care utilization: A study of privately insured men and women with HIV disease," by Drs. Hellinger and Encinosa, in the August 2004 *Health Services Research* 39(4), pp. 949-967. Reprints (AHRQ Publication No. 04-R054) are available from AHRQ.* ■

HIV/AIDS Research

Hospital costs and length of stay for HIV patients depend in part on geographic area

The impact of new drug therapies on the longevity and progression of HIV disease has been dramatic. As a result, today HIV disease may be thought of as a moderately expensive chronic disease rather than as a catastrophically expensive fatal illness. A recent study carried out by Fred J. Hellinger, Ph.D., of the Agency for Healthcare Research and Quality, showed a substantial decline in HIV-related hospitalizations in eight States from 1996 to 2000. In these States, where more than 52 percent of AIDS patients were living at the time, HIV-related hospitalizations declined from 114,885 in 1996 to 77,694 in 2000.

The State in which an HIV patient was hospitalized was a more important determinant of the length and cost of hospital stay than hospital characteristics or the patient's age, race, sex, insurance status, or number of diagnoses, according to Dr. Hellinger. For example, among people hospitalized with HIV, those in New York had the longest average hospital stay (12.4 days in 1996 and 10 days in 2000). The shortest length of stay in both 1996 and 2000 was in Colorado (6 days in 1996 and 6.3 days in 2000). The mean cost of a hospital stay was $15,037 in the six States for which cost data were available. The cost of a hospital visit for an HIV patient in California was $2,979 less than for a similar patient in New York, and the cost was $2,942 less for those in New Jersey than for similar HIV patients in New York.

Also, Florida had 11 percent fewer and South Carolina had 13 percent fewer HIV-related hospitalizations between 1996 and 2000. Both of these States had highly restrictive AIDS Drug Assistance Programs (ADAPs). During the same period, HIV-related hospitalizations were reduced by 42 percent in New York, 39 percent in Pennsylvania, and 35 percent in New Jersey, all States with liberal ADAPs.

For the study, Dr. Hellinger used hospital data obtained from the Healthcare Cost and Utilization Project (HCUP) State Inpatient Database (SID), which is maintained by AHRQ. The HCUP contains hospital discharge data and represents a Federal/State/industry partnership to build a multi-State health care data system.

See "HIV patients in the HCUP database: A study of hospital utilization and costs," by Dr. Hellinger, in

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the Spring 2004 *Inquiry* 41, pp. 95-105. Reprints (AHRQ Publication No. 04-R060) are available from AHRQ.*

Editor's note: An AHRQ-supported study on a related topic found that a multicenter quality improvement collaborative did not significantly affect the quality of care for nearly 10,000 patients with HIV disease. For more details, see Landon, B.E., Wilson, I.B., McInnes, K., and others. (2004, June). "Effects of a quality improvement collaborative on the outcome of care of patients with HIV infection: the EQHIV study." (AHRQ grant HS10227). *Annals of Internal Medicine* 140, pp. 887-896. ■

Women's and Children's Health

Studies show that obesity affects mammography accuracy and screening rates

Obese women are at greater risk of dying from breast cancer than women who are not obese. Early detection of breast cancer through mammography screening can reduce breast cancer deaths by 20 to 39 percent. Yet, a recent study found that white women who are obese are less likely than non-obese white women to obtain a mammogram. The study was supported by the Agency for Healthcare Research and Quality (HS11683). In addition, obesity reduces the accuracy of mammograms. According to a second AHRQ-supported study (HS10591), obese women had more than a 20 percent increased risk of having false-positive mammography results (indication of abnormalities that further testing showed not to be cancer) compared with underweight and normal weight women. Both studies are summarized here.

Wee, C., McCarthy, E.P., Davis, R.B., and Phillips, R.S. (2004). "Obesity and breast cancer screening: The influence of race, illness burden, and other factors." ***Journal of General Internal Medicine*** **19, pp. 324-331.**

This study found that obese white women were less likely to undergo breast cancer screening than normal weight women, a relationship not seen in black women. The investigators analyzed data from the 1998 National Health Interview Survey to examine the relationship between mammography use and weight category and the influence of race, illness burden, and other factors on this relationship. They examined the relationship between body mass index (BMI; weight in kg/height in m2) and receipt of breast cancer screening in the preceding 2 years among women aged 50 to 75.

Among the 5,277 eligible women, 72 percent reported mammography use. The rate was 74 percent among white women and 70 percent among black women. Higher BMI was associated with lower screening among white women, with

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mammogram use lowest in women with a BMI greater than 35 kg/m2 (64 to 67 percent). Moderately obese white women (BMI 35 to 40) were 17 percent less likely to have had a mammogram than normal weight white women. Despite the higher prevalence of known barriers to health care among obese women—such as lower socioeconomic status and higher illness burden—adjusting for these and other factors did not influence the findings.

On the other hand, overweight and obese black women were as likely as or more likely than both black and white normal weight women to report mammography use, a difference not readily explained by differences in sociodemographic factors, health care access, health habits, and other factors. Compared with normal weight black women, mammography use was similar or higher in overweight (BMI 25 to 30), mildly obese (BMI 30 to 35), and moderately obese black women.

The white women in this study with obesity were more likely to have feelings of worthlessness in the preceding 30 days, but black women did not report these feelings. Although adjusting for this alone did not explain differences in screening by BMI, this difference in body image perception may interact with health behaviors, such that white women who are obese may be less willing to undergo mammography. Provider bias may also play a role.

Elmore, J.G., Carney, P.A., Abraham, L.A., and others. (2004). "The association between obesity and screening mammography accuracy." ***Archives of Internal Medicine*** **164, pp. 1140-1147.**

Overweight women have a 14 percent increased risk and obese women have more than a 20 percent increased risk of having a false-positive mammogram compared with underweight and normal weight women, according to this study. Although this difference could be considered small, it is significant at a population level. When screening 10 million obese women, a false-positive rate increase of 2 percent (for example, from 10 to 12 percent) would lead to about 200,000 additional women with false-positive mammography results. An additional $120 million would be required for further tests to evaluate the false-positive results, at an estimated cost of $600 per false-positive result. The increased costs are over and above the anxiety involved for the women.

Achieving a normal weight may improve the accuracy of a woman's mammogram, suggest the researchers. They analyzed 100,622 screening mammography examinations performed on members of a nonprofit health plan. They assessed the relationship between BMI and measures of screening accuracy. Compared with underweight or normal weight women, overweight and obese women were more likely to be recalled for additional tests, after adjusting for factors such as age and breast density.

Overweight women were 17 percent more likely, mildly obese women (BMI 30-34 kg/m2) were 27 percent more likely, and moderately or severely obese women (BMI 35 or more) were 31 percent more likely to be recalled. As BMI increased, women were more likely to have lower mammogram specificity, that is, a lower proportion of women without breast cancer were identified as free of cancer. No significant differences were noted in mammogram sensitivity (proportion of women with breast cancer identified as such by the mammogram) related to women's BMI.

Editor's note: Another AHRQ-funded study on a related topic found that rates of recent screening mammography and Pap smears are high among elderly women in California. For more details, see Walter, L.C., Lindquist, K., and Covinsky, K.E. (2004, May). "Relationship between health status and use of screening mammography and Papanicolaou smears among women older than 70 years of age." (AHRQ grant K02 HS00006). *Annals of Internal Medicine* 140, pp. 681-688. ■

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Gastrointestinal disorders are a leading cause of hospitalization in children

Gastrointestinal (GI) disorders are a leading cause of hospitalization in children, with certain GI conditions accounting for most of the hospitalizations. Excluding normal newborn infants and conditions related to pregnancy, GI disorders were the third leading cause of hospitalization of children in 1997, according to a study supported in part by the Agency for Healthcare Research and Quality (HS11826).

Researchers from the University of Utah School of Medicine and the Primary Children's Medical Center in Salt Lake City found that in 1997 there were 329,825 pediatric discharges associated with a principal GI diagnosis in the United States. These discharges accounted for more than $2.6 billion in hospital charges and more than $1.1 million in hospital days. Appendicitis, intestinal infection, noninfectious gastroenteritis, abdominal pain, esophageal disorders, and digestive congenital anomalies combined accounted for 75 percent of GI discharge diagnoses, 64 percent of GI hospital charges, and 68 percent of GI hospital days for children aged 18 and younger.

The mean and median ages for a discharged child with a principal GI diagnosis were 7 and 5 years, respectively. About one-fourth of children were younger than 1 year of age. The mean and median length of stay for all GI diagnoses was 3.4 and 2 days, respectively. The mean and median hospital charges per hospitalization of children with a GI discharge diagnosis were $8,155 and $4,441, respectively.

The mean length of stay varied by GI diagnostic category from 2.1 to 12 days. Similarly, mean hospital charges varied by GI diagnostic categories. These findings are based on an analysis of data from the Kids' Inpatient Database (KID), a subset of the Healthcare Cost and Utilization Project, which was developed by AHRQ. The KID includes data on 1.9 million pediatric hospital discharges in 1997 from 22 participating States and 2,521 hospitals.

See "National estimates of hospital utilization by children with gastrointestinal disorders: Analysis of the 1997 Kids' inpatient database," by Stephen L. Guthery, M.D., M.Sc., Caroline Hutchings, M.Stat., J. Michael Dean, M.D., M.B.A., and Charles Hoff, Ph.D., in the May 2004 *Journal of Pediatrics* 144, pp. 589-594. ■

Initial surfactant treatment to prevent respiratory distress in very premature infants is often delayed in routine practice

A recent study of 341 North American neonatal intensive care units (NICUs) found that prophylactic surfactant therapy was not widely used in 2000 to prevent respiratory distress syndrome (RDS) in infants 23 to 29 weeks' gestational age who are at high risk for RDS due to their underdeveloped lungs. Fewer than 30 percent of infants in the NICUs received the first dose of surfactant within 15 minutes of birth. At many NICUs, no infants were treated within this time frame, and no infants received treatment in the delivery room. Furthermore, at over 25 percent of NICUs in the study, more than 30 percent of infants who were treated with surfactant didn't receive the first dose until more than 2 hours after birth.

The study, which was supported by the Agency for Healthcare Research and Quality (HS10528) also found wide variation among hospitals in use of surfactant for these at-risk infants. For example, at 25 percent of the NICUs, no infants born at the hospital at 24 or 25 weeks' gestation received surfactant in the delivery room in 2000. Yet, at 25 percent of NICUs with the highest delivery room treatment rates, more than three-fourths of similar age infants received surfactant in the delivery room.

There is clearly a gap between evidence from randomized controlled trials that supports prophylactic (in the delivery room or within 15 minutes of birth) or early (within 2 hours of birth) surfactant administration and what is actually done in routine practice at many NICUs, concludes Jeffrey D. Horbar, M.D., of the University of Vermont College of Medicine. Dr. Horbar and his colleagues analyzed data on 47,608 infants cared for at hospitals that participated in the Vermont Oxford Network Database from 1998 to 2000. During this period, the proportion of infants who were treated with surfactant increased slightly (2 percent), and there was a trend toward earlier administration of surfactant. However, there is considerable room for improvement.

See "Timing of initial surfactant treatment for infants 23 to 29 weeks' gestation: Is routine practice evidence based?" by Dr. Horbar, Joseph H. Carpenter, M.S., Jeffrey Buzas, Ph.D., and others, in the June 2004 *Pediatrics* 113(6), pp. 1593-1602. ■

Otitis media may not substantially increase risk of delayed speech development in typically developing children

Half of children who suffer an episode of otitis media with effusion (OME, fluid in the middle ear without evidence of ear infection) suffer a mild hearing loss, while about 5 to 10 percent suffer moderate hearing loss. However, for typically developing children, OME may not be a substantial risk factor for delayed speech and language development or poorer academic achievement.

One of the major reasons for medical management of OME, including use of antibiotics and tympanostomy tubes, is to prevent potential developmental consequences associated with hearing loss. However, recently published studies suggest that parenting is a much more powerful force than antibiotics and surgery in promoting language development among children with histories of OME. These are the major conclusions of a recent review of research on the topic. The review, led by Joanne Roberts, Ph.D., of the University of North Carolina, Chapel Hill, was supported in part by the Agency for Healthcare Research and Quality (HS12072).

The researchers found that, although median hearing loss in children with OME is relatively mild, there is a wide range of hearing loss associated with OME. Data are insufficient to conclude or refute a potential linkage between OME and central auditory processing. Antibiotic therapy increases short-term OME resolution by 15 percent, but it has minimal utility because of frequent relapse. Antihistamines, decongestants, and corticosteroids are ineffective. In contrast, tympanostomy tubes reduce OME prevalence by 115 days per child-year, which represents a 67 percent relative risk reduction. Adenoidectomy reduces OME prevalence by 38 percent in children with prior tube placement, and it reduces the need for tube reinsertion by about 50 percent when performed concurrent with initial tube placement. Tympanostomy tubes significantly improve hearing on a short-term basis, but in the long term, hearing levels are equal in untreated and treated ears.

See "Otitis media, hearing loss, and language learning: Controversies and current research," by Dr. Roberts, Lisa Hunter, Ph.D., Judith Gravel, Ph.D., and others, in the April 2004 *Developmental and Behavioral Pediatrics* 25(2), pp. 110-122. ■

A disproportionate increase in B-type natriuretic peptide after heart transplant in children may signal organ rejection

B-type natriuretic peptide (BNP) is a circulating hormone secreted predominantly from the heart's ventricles in response to stretch. Plasma BNP concentration becomes elevated in children following orthotopic heart transplant (OHT) and decreases exponentially in time to 100 pg/ml by 14 weeks after OHT. A disproportionate increase in BNP concentrations after an initial decrease may be a warning sign of rejection of the transplanted heart or other allograft pathology, according to Ruey-Kang Chang, M.D., M.P.H., of the University of California at Los Angeles School of Medicine.

In a study that was supported in part by the Agency for Healthcare Research and Quality (HS13217), Dr. Chang and colleagues obtained plasma BNP concentrations in 44 pediatric patients at 1 month to 14 years after OHT. All patients underwent endomyocardial biopsies and echocardiography. They analyzed the association between BNP and post-transplant time and its association with left ventricular end-diastolic dimension (LVEDD) after transplantation.

The mean BNP concentration decreased exponentially to 100 pg/ml by 14 weeks after OHT. Although BNP concentration relative to time after OHT varied among individuals, all patients with multiple measurements showed predictable rates of decrease, even though this decrease was not associated with changes in LVEDD.

See "B-type natriuretic peptide in children after cardiac transplantation," by Yueh-Tze Lan, M.D., Dr. Chang, Juan C. Alejos, M.D., and others, in the May 2004 *Journal of Heart and Lung Transplantation* 23, pp. 558-563. ■

Note: Only items marked with a single (*) or double (**) asterisk are available from AHRQ. Items marked with a single asterisk (*) are available from AHRQ's clearinghouse. Items with a double asterisk (**) are also available through AHRQ InstantFAX. Three asterisks (***) indicate NTIS availability. 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.

Pediatricians can help promote literacy by encouraging parents to read daily to their young children

The American Academy of Pediatrics advises pediatric providers to encourage parents to read to their children from 6 months of age onward. Yet only 52 percent of children age 3 years and younger are reportedly read to every day by a parent, with about 27 percent of children read to 3 to 6 times a week, according to a study supported by the Agency for Healthcare Research and Quality and the Health Resources and Services Administration (contract 240-97-0043).

Researchers from the University of California, Los Angeles, analyzed responses to the 2000 National Survey of Early Childhood Health, which was administered by telephone to 2,068 parents of children aged 4 months to 35 months. They found that children were about twice as likely to be read to each day if they were older (19 to 35 months of age compared with 4 to 9 months) or their mother had more than a high school education, and they were 1.66 times more likely to be read to if a pediatric provider discussed with parents the importance of reading to their children. The odds of being read to were reduced by 32 percent when mothers were working full-time, by 39 percent for black race/ethnicity, by 44 percent for Hispanic race/ethnicity, and by 63 percent for Spanish language-dominant parents. The presence of more children in the household also reduced the odds of parents reading to their children.

Whether the child was in child care and the number of hours of television watched daily were not associated with reading frequency, but the presence of more children's books in the home was related to reading frequency. About 37 percent of parents of young children stated that their child's pediatric provider had not discussed the importance of early reading to them, yet nearly half (47 percent) of them said they would have found such a discussion helpful.

See "Parent report of reading to young children," by Alice A. Kuo, M.D., M.Ed., Todd M. Franke, Ph.D., Michael Regalado, M.D., and Neal Halfon, M.D., M.P.H., in the June 2004 *Pediatrics* 113(6), pp. 1944-1951. ■

Pharmaceutical Research

One-third of heart failure patients stop taking their prescribed medication within a year of hospital discharge

Routine lifelong use of angiotensin converting enzyme (ACE) inhibitors is recommended for heart failure patients with depressed ejection fraction (the heart's left ventricle pumps only 40 percent or less of blood from the ventricle into the aorta; normal ejection fraction is 55-60 percent), unless such use is contraindicated. Yet a new study shows that nearly half of heart failure patients and one-third of those with depressed ejection fraction were not prescribed ACE inhibitors on hospital discharge. Almost one-third of patients who were discharged with ACE inhibitors had stopped taking them within a year. Considering that almost 50 percent of heart failure patients are readmitted to the hospital within 6 months of discharge, underuse of ACE inhibitors is a significant problem.

Discharge planning for these patients should be improved, suggests Wayne Ray, Ph.D., director of the Vanderbilt Center for Education and Research on Therapeutics (CERT). In a study that was funded in part by AHRQ through the CERTs program (HS10384), researchers assessed the factors associated with filling a prescription for an ACE inhibitor in the 30 days following hospital discharge and the proportion of patients filling such prescriptions up to 1 year after discharge. The study involved 960 heart failure patients, including 219 patients with depressed ejection fraction.

Overall, 81 percent of patients with depressed ejection fraction and 77 percent of general heart failure patients discharged with ACE inhibitors had filled a prescription for an ACE inhibitor within 30 days of discharge. However, only about two-thirds of both groups (66 and 63 percent, respectively) were still using ACE inhibitors 1 year after discharge. Patients with a discharge order for ACE inhibitors were nearly 11

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Heart failure patients

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times more likely to fill a prescription within 30 days of discharge than those without a discharge order.

See "Outpatient utilization of angiotensin-converting enzyme inhibitors among heart failure patients after hospital discharge," by Javed Butler, M.D, M.P.H., F.A.C.C., Patrick G. Arbogast, Ph.D., James Daugherty, M.S., and others, in the June 2, 2004 *Journal of the American College of Cardiology* 43(11), pp. 2036-2043. ■

Out-of-pocket costs and inconvenient monthly pharmacy visits may be barriers to women's consistent use of oral contraceptives

Uninterrupted use of oral contraceptive pills (OCPs) is necessary for optimal effectiveness. However, out-of-pocket costs for OCPs and the inconvenience of making monthly pharmacy visits may be barriers to women's consistent use of OCPs, suggests a study supported in part by the Agency for Healthcare Research and Quality (HS10771 and HS10856). The researchers found that privately insured women paid, on average, 60 percent of the total expenditures for OCPs, which cost about $14 per monthly pack, and 73 percent obtained only one pack per purchase.

Women who had no prescription drug coverage, were uninsured, or were privately insured but not in managed care plans had higher out-of-pocket expenditures for oral contraceptives. Also, women who were in managed care plans or did not have prescription drug coverage were more likely to obtain only one pack of OCPs per purchase, despite clinical recommendations that women obtain three packs per visit. Insurer restrictions often limit purchases at community pharmacies to a 30-day supply. Yet, these dispensing limits may have important consequences for consistent use of any chronic medication, cautions lead investigator Kathryn A. Phillips, Ph.D., of the University of California, San Francisco.

Dr. Phillips and her colleagues suggest several interventions that would help ensure full access to contraceptives. These include increased insurance coverage of contraceptives; increased access to generic or lower cost OCPs, particularly for uninsured women; and increased use of mail order prescription services that allow purchase of a 90-day supply of medication. Study findings are based on an analysis of data from AHRQ's 1996 Medical Expenditure Panel Survey of health status, health care use and expenditures, and other related characteristics of the noninstitutionalized U.S. civilian population.

See "Out-of-pocket expenditures for oral contraceptives and number of packs per purchase," by Dr. Phillips, Naomi E. Stotland, M.D., Su-Ying Liang, Ph.D., and others, in the *Journal of the American Medical Women's Association* 59, pp. 36-42, 2004. ■

Postmarketing drug surveillance could be improved

There is no systematic coherent approach for evaluating the long-term safety of drugs once they have been approved for marketing by the U.S. Food and Drug Administration (FDA), according to Marie R. Griffin, M.D., M.P.H., and her colleagues at the Vanderbilt University Center for Research and Education on Therapeutics (CERT), which is supported by the Agency for Healthcare Research and Quality (HS10384).

Before drug companies can market a new drug, it must undergo extensive testing and rigorous evaluation by the FDA. However, these studies are necessarily limited as to numbers of patients and duration of followup. Therefore, a very important part of the experiment begins after the product is approved and a much larger number of patients begin to use it. During this postmarketing period, a system of voluntary reporting is relied on to detect potential problems.

In addition to voluntary reporting, the FDA may ask a manufacturer to conduct a "phase 4" or postmarketing study before or after licensure if additional information is needed to improve prescribing. Yet, companies often don't conduct these studies. As of February 2002, only 37 percent of the 2,400 postmarketing commitments for new drugs had

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been completed, and many had never been started.

On the other hand, manufacturers may not be the best group to evaluate postmarketing safety, according to a recent commentary by Dr. Griffin and her colleagues. Many experts agree that the major problem with the current system is the lack of an independent organization responsible for the systematic review of drugs for safety after marketing. In the last 5 years, seven CERTs and a CERTs coordinating center have been established, in part to galvanize more interest in and support for postmarketing drug studies. The CERTs program, which is administered by AHRQ, involves collaboration across all sectors—public and private, industry and government, academia and business—to improve the use of medicines and medical devices.

See "Postmarketing surveillance for drug safety: Surely we can do better," by Dr. Griffin, C. Michael Stein, M.D., and Wayne A. Ray, Ph.D., in the June 2004 *Clinical Pharmacology & Therapeutics* 75(6), pp. 491-494. ■

Patient Safety/Quality of Care

Medication errors are frequent in the emergency department and often arise from the fast pace and heavy patient load

Medication errors occur often in hospital emergency departments (EDs). The results can range from inconsequential to patient death, as is illustrated in 15 adult and pediatric cases described in a recent article by Pat Croskerry, M.D., Ph.D., of Dartmouth General Hospital, Marc Shapiro, M.D., of Brown University School of Medicine, and their colleagues. Their work was supported in part by the Agency for Healthcare Research and Quality (HS11592). In several cases, the fast pace and heavy patient load prompted ED doctors and nurses to administer medications that other ED clinicians were unaware of or assume a certain medication dose was given rather than confirm it.

ED drug errors arise from many situations. These range from incomplete knowledge of the drug or patient, the multiplicity of drugs used, use of verbal orders, and poor penmanship, to team communication problems, improper identification of the patient, and distractions due to other emergency procedures. The authors suggest strategies to prevent these errors. They recommend having a pharmacist available in the ED, adherence to defined roles to reduce team communication errors, and computerized decision support systems. They also advise taking special precautions for determining the accurate weight of pediatric patients and paying particular attention to coexisting illnesses and drug-to-drug interactions in elderly patients.

The authors also recommend that ED staff avoid verbal orders except for emergencies, use electronic order transcription, attend carefully to drugs of like-sounding name, avoid acronyms or abbreviations, indicate decimal points clearly, and use no trailing zeros. Doctors and nurses should always check for allergies to a drug class, clarify ambiguity or doubt concerning a medication order, not dispense drugs themselves, and consult reference materials and a hospital pharmacist when possible. Other strategies include systematic safety checks, adequate monitoring technology and personnel, and clear ED protocols.

See "Profiles in patient safety: Medication errors in the emergency department," by Drs. Croskerry and Shapiro, Sam Campbell, M.B., Ch.B., and others, in the March 2004 *Academic Emergency Medicine* 11(3), pp. 289-299.

Editor's note: Another article on a related topic discusses how sleep deprivation jeopardizes patients, for example, through medication errors. The authors encourage nurses to take steps to improve work environments to support their need for sleep. For more details, see Hughes, R.G., and Rogers, A.E. (2004, March). "Are you tired? Sleep deprivation compromises nurses' health and jeopardizes patients." *American Journal of Nursing* 104(3), pp. 36-38. ■

Teaching anesthesia during surgery may be a distraction that reduces the vigilance of anesthesia care

Anesthesiologists may be less vigilant about anesthesia care when teaching others about anesthesiology while they are assisting with a surgery, suggests a study that was supported in part by the Agency for Healthcare Research and Quality (HS11521 and HS11375). Matthew B. Weinger, M.D., of the University of California-San Diego, and his colleagues studied faculty anesthesiologists, nurse anesthetists, and resident anesthesiologists during 24 elective general anesthesia cases at two medical centers. In 12 cases, the anesthesiologists were teaching either a first-month anesthesia resident or a fourth-year medical student doing an anesthesiology clerkship. No teaching was conducted in the other 12 cases.

The researchers monitored anesthesiologists' heart rates (physiological workload) and calculated workload density at 1- and 5-minute intervals by multiplying the duration of each task performed in that interval by a task-specific workload factor score (for example, a laryngoscopy had a higher score than mere observing). Anesthesiologists who were teaching took a significantly longer time to respond to an alarm light during anesthesia induction and emergence than anesthesiologists who were not teaching, suggesting decreased vigilance to anesthesia care while teaching.

Clinicians' heart rates, observer- and self-reported workload scores, and non-teaching workload density were consistently increased during anesthesia induction and emergence compared with anesthesia maintenance. Workload density during teaching cases was significantly greater than during non-teaching cases.

See "Multiple measures of anesthesia workload during teaching and nonteaching cases," by Dr. Weinger, Swapna B. Reddy, B.S., and Jason M. Slagle, M.S., in the *Anesthesia and Analgesia* 98, pp. 1419-1425, 2004.

Editor's note: In another AHRQ-supported study on a related topic, researchers used anesthesiology as a test environment to point out the value of videotape to analyze clinical care as a means to enhance patient safety. For more details, see Weinger, M.B., Gonzales, D.C., Slagle, J., and Syeed, M. (2004). "Video capture of clinical care to enhance patient safety." (AHRQ grants HS11375 and HS11521). *Quality and Safety in Health Care* 13, pp. 136-144. ■

Education and team leadership can improve care for ICU patients on mechanical ventilation

Intensive care unit (ICU) patients on mechanical ventilation are at increased risk for death and complications such as gastrointestinal bleeding and ventilator-associated pneumonia (VAP). Evidence confirms that four interventions can reduce complications and deaths in the ventilated patient: semirecumbent positioning of the patient (head of the bed is elevated 30 or more degrees to prevent VAP), daily interruption of sedative-drug infusions, peptic ulcer disease prophylaxis, and deep venous thrombosis prophylaxis.

A quality improvement (QI) team led by ICU intensivists can improve the care of ICU patients on mechanical ventilation, according to a recent study that was supported in part by the Agency for Healthcare Research and Quality (HS11902). Within 2 months, the QI program increased the percentage of ventilator days on which patients received all four care processes from 30 to 96 percent. Within a year, patients received all four care processes on 100 percent of the ventilator days.

The researchers estimate that this improved compliance may have prevented 27 deaths and 754 excess hospital and ICU days and yielded $825,000 in savings per year in the ICU. They calculated the percentage of ventilator days per week when patients at a hospital surgical ICU received all four recommended care processes both before and after QI program implementation. The program included administering a questionnaire to identify barriers to compliance with the four care processes; implementing an educational program to increase awareness of the evidence supporting the use of these processes; and implementing a checklist to be completed daily during ICU rounds to ask providers whether patients were receiving these therapies.

See "Improving care for the ventilated patient," by Sean M. Berenholtz, M.D., M.H.S., Shelley Milanovich, R.N., A.C.N.P., Amanda Faircloth, R.N., B.S.N., and others, in the April 2004 *Joint Commission Journal on Quality and Safety* 30(4), pp. 195-200. ■

Residents are more likely to transfer out of nursing homes with low quality of care

The health of nursing home residents changes over time, sometimes making another nursing home—for example, one that specializes in rehabilitative therapies or that has Alzheimer's units—more appropriate. However, residents are also more likely to transfer out of nursing homes with low quality of care, finds a study by University of Michigan Researchers.

Consumer responsiveness to nursing home quality is encouraging. However, the 3 percent transfer rate shown in the study suggests that significant barriers to transfer exist, comments Richard A. Hirth, Ph.D. In the study supported by the Agency for Healthcare Research and Quality (HS10118), Dr. Hirth and his colleagues modeled the likelihood of transfer between nursing homes as a function of attributes of residents (clinical status and changes in functioning), nursing homes, and local nursing home markets among nursing home residents in Maine, Mississippi, New York, and Ohio.

Among 498,025 nursing home stays, the overall rate of transfers per year was 3.3 percent. Residents were more likely to leave lower quality homes, as indicated by both resident and facility level measures. For example, the relative risk (RR) of transferring increased for residents with a urinary tract infection (14.9 percent higher RR) and for residents for whom physical or chemical restraints were used (4.1 percent and 11.8 percent higher RR, respectively).

Worsening pressure ulcers were significantly associated with transfers in the non-Medicare population (5 percent higher RR per one-point increase in ulcer severity), an association not significant in the overall model. In the overall model, there was a 2.9 percent higher RR of transfer out of facilities with twice as many deficiencies as the State average (5.2 percent when restricted to non-Medicare residents). Staffing was not significant in the overall model but was significant among the non-Medicare subpopulation. Fewer of these residents transferred out of facilities with higher staffing levels. Changing care needs were generally associated with a greater likelihood of transfer, but the magnitude of the effect was fairly small.

See "Does quality influence consumer choice of nursing homes? Evidence from nursing home to nursing home transfers," by Dr. Hirth, Jane C. Banaszak-Holl, Ph.D., Brant E. Fries, Ph.D., and Marc N. Turenne, Ph.D., in the winter 2003/2004 *Inquiry* 40, pp. 343-361. ■

Blacks are more likely than others to be admitted to poor quality nursing homes

State surveyors use Federal nursing home certification regulations to evaluate the quality of nursing homes and identify deficiencies ranging from inadequate staffing to overuse of restraints. Blacks are disproportionately admitted to low quality nursing homes with a high number of deficiencies, according to a recent study conducted by David C. Grabowski, Ph.D., at the Agency for Healthcare Research and Quality Center for Cost and Financing Studies Data Center. He found that, after controlling for resident and home characteristics, blacks were admitted to nursing homes with 44 percent more deficiencies than whites. Hispanics were admitted to homes with 43 percent more deficiencies than whites, and individuals of other races were admitted to homes with 35 percent more deficiencies. Also, 41 percent of black nursing home admissions had Medicaid as the primary payer compared with 23 percent of white admissions.

Policies that address broader geographic disparities in resources, such as improvements in Medicaid funding (shown to improve quality), could help address racial disparities in quality of care, suggests Dr. Grabowski. He analyzed data from the 1996 Medical Expenditure Panel Survey (MEPS) Nursing Home Component (NHC), a survey of nursing homes and people residing in or admitted to nursing homes during 1996. This study examined the quality of care for 2,690 new admissions to 815 nursing homes during that year.

Whites were, on average, admitted to nursing homes with 5.13 deficiencies, blacks to homes with 7.39 deficiencies, Hispanics to homes with 7.33 deficiencies, and individuals of other races to homes with 6.94 deficiencies. The underlying source of this difference is unclear, but it could relate to broader

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Nursing home quality

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disparities in resources across communities, discriminatory practices on the part of the facilities, and/or lack of choices and quality-related information available to minority elders.

See "The admission of blacks to high-deficiency nursing homes," by Dr. Grabowski, in the May 2004 *Medical Care* 42(5), pp. 456-464.

Editor's note: Another AHRQ-supported study on a related topic suggests that broadcast media, an important information source for minorities and the less educated, be used to inform these vulnerable groups about health issues, since they are less likely to have access to online health education via the Internet. For more details, see Cashen, M.S., Dykes, P., and Gerber, B. (2004). "eHealth technology and Internet resources: Barriers for vulnerable populations." (AHRQ grant HS11092). *Journal of Cardiovascular Nursing* 19(3), pp. 209-214. ■

Researchers examine factors affecting the quality of end-of-life care

Despite the ideal of dying at home surrounded by loved ones, most people in the United States die in hospitals. Hospitalized patients and their families want alleviation of symptoms such as pain and shortness of breath, the opportunity to talk with doctors and others about death and dying, and knowledge that they will be attended to and comforted by their doctors as they approach death. Two recent studies that were supported in part by the Agency for Healthcare Research and Quality focus on end-of-life care and are summarized here.

Auerbach, A.D., and Pantilat, S.Z. (2004, May). "End-of-life care in a voluntary hospitalist model: Effects on communication, processes of care, and patient symptoms." (AHRQ grant K08 HS11416). *American Journal of Medicine* 116, pp. 669-675.

In many hospitals, hospitalists (hospital-based internists) now assume responsibility for the care of hospitalized patients, while primary care physicians resume care after discharge. This study found that hospitalists at a community-based teaching hospital documented substantial efforts to communicate with dying patients and their families. This approach may have resulted in improved end-of-life care, conclude the researchers. They examined the charts of 148 patients who had died at a community-based urban teaching hospital to compare the end-of-life care provided by community physicians and hospitalists to similar patients.

After patients were admitted to the hospital, hospitalists discussed care with them or their families more often than community physicians (91 vs. 73 percent), and the hospitalists were more likely to document these discussions themselves. Among patients who were "full code" at admission (that is, there were no do-not-resuscitate or other advanced directives to withhold care), there was a trend toward patients of hospitalists receiving comfort care more often at the time of death (50 vs. 37 percent) than patients of community physicians. Although there were no differences in the use of medication such as long-acting opioids, patients of hospitalists were more likely to have no symptoms in the 48 hours prior to death than patients of community-based physicians (47 vs. 31 percent).

These results suggest that there are advantages to the availability of hospitalists to discuss end-of-life care with patients. In addition, the greater inpatient experience of hospitalists with acute illness may have enabled them to better recognize when patients were nearing death, prompting more frequent discussions about their care.

Bryce, C.L., Loewenstein, G., Arnold, R.M., and others. (2004, May). "Quality of death: Assessing the importance placed on end-of-life treatment in the intensive-care unit." (HS11620). *Medical Care* 42(5), pp. 423-431.

Hospital intensive care unit (ICU) patients value the end-of-life care they receive in the ICU, according to a recent survey. Three-fourths of 104 community respondents surveyed were prepared to shorten a healthy life for better end-of-life ICU care. Survey scenarios described the experiences of six hypothetical patients. Each patient lived for 80 years in good health before becoming ill and being admitted to the ICU, and each patient died after 30 days in the ICU.

While in the ICU, patients received different end-of-life care. Mr. A's care was poor in all four domains: he experienced moderate pain, he could not alter his surroundings or environment while in the ICU, he was not consulted about his medical care preferences,

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End-of-life care

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and his family was not provided with counseling or support services. In contrast, the other patients had better ICU experiences.

Those surveyed were willing to trade a median time of 8.3 months of good health for improvement in all domains of end-of-life care. Respondents who were older, minority, or had children traded significantly less time, whereas those who did not perceive the ICU to be a caring environment traded more time. There was considerable variation among respondents in the time they were willing to trade, highlighting the importance of soliciting individual preferences about end-of-life care. That most respondents were willing to trade a substantial duration of healthy life for better end-of-life ICU care supports the contention that end-of-life care matters. It also suggests that traditional methods to calculate quality-adjusted life years may underestimate the true value of this care to society. ■

Quality assurance programs are more likely to be adopted if they are compatible with the culture of the medical group practice

Developing quality assurance programs that are compatible with the culture of a medical group practice is important for gaining program buy-in by clinicians, according to Amer Kaissi, Ph.D., of Trinity University and John Kralewski, Ph.D., of the University of Minnesota. In a study supported by the Agency for Healthcare Research and Quality (T32 HS13828 and HS10055), Drs. Kaissi and Kralewski and their colleagues surveyed primary care physicians in 88 Midwest medical group practices using a cultural instrument developed by Dr. Kralewski and the Medical Group Management Association. Their findings suggest that the culture of medical group practices influences the types of programs the practices implement to ensure quality of care.

For example, practices with cultures that emphasize information tended to favor electronic data systems and formal programs that provide comparative or evidence-based data to enhance clinical practice. Those with a quality/patient-centered culture appeared to prefer patient satisfaction surveys to assess the quality of their care. Practices that were more business-oriented relied on bureaucratic strategies such as benchmarking and physician profiling.

On the other hand, cultures that emphasized the autonomy of physician practice were negatively associated with all of the programs studied, suggesting that most quality improvement programs were seen as an attempt to interfere with physicians' practices. Similarly, practices with a highly collegial culture were less likely to use any of these programs, apparently relying on informal peer review mechanisms to ensure quality of care.

See "How does the culture of medical group practices influence the types of programs used to assure quality of care?" by Drs. Kaissi and Kralewski, Ann Curoe, M.D., M.P.H., and others, in the April 2004 *Health Care Management Review* 29(2), pp. 129-138. ■

Elderly Health

Obese older adults tend to have lower quality of life than those who are normal weight or overweight

Obese elderly people have a lower quality of life than their normal weight and overweight counterparts. The reduction in quality of life due to obesity is similar to that suffered by people with arthritis, stroke, ulcers, asthma, and anxiety, according to a study supported in part by the Agency for Healthcare Research and Quality (HS09170). Nearly 3 million quality years are lost in this country each year from obesity and associated conditions, according to Robert M. Kaplan, Ph.D., of the University of California, San Diego, and his colleagues.

The researchers evaluated the relationship between body mass index (BMI; weight in kg/height in m2) and health-related quality of life (HRQOL) scores among 1,326 adults with a mean age of 72 years to estimate quality-adjusted life years (QALYs) lost to overweight, obesity, and associated conditions. They divided individuals into four groups based on BMI: less than 20

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Obese elderly adults

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(underweight); 20 to 24.9 (normal); 25 to 29.9 (overweight, for example, a 5'5" woman who weighs 150 pounds or more or a 5'11" man who weighs 180 pounds or more); and greater than 30 (obese, for example, a 5'5" woman who weighs 180 pounds or more or a 5'5" man who weighs 215 pounds or more). They then correlated BMI with scores on the Quality of Well-Being (QWB) Scale, which has scores ranging from 0 for death to 1.0 for asymptomatic optimal functioning.

After controlling for age, sex, smoking history, and exercise, the normal BMI group had the highest QWB score (0.709), followed by the underweight (0.698), overweight (0.695), and obese (0.663) groups. The QWB score for the obese group was 0.046 lower than the normal weight group, suggesting a substantially lower quality of life. The quality of life of overweight people did not differ significantly from that of people in the normal BMI group.

See "Body mass index and quality of well-being in a community of older adults," by Erik J. Groessl, Ph.D., Dr. Kaplan, Elizabeth Barrett-Connor, M.D., and Theodore G. Ganiats, M.D., in the *American Journal of Preventive Medicine* 26(2), pp. 126-129, 2004. ■

Incontinence alone does not increase risk of death or nursing home admission but is probably a marker of frailty

Urinary incontinence (UI) among community-dwelling elderly people does not, by itself, lead to functional dependency, nursing home admission, or death. Rather, it appears to be a marker of frailty. Although previous studies have found that people with UI have a higher risk of death, greater illness severity in people with UI explains this association, according to researchers at the San Francisco VA Medical Center and the University of California, San Francisco. In a study that was supported in part by the Agency for Healthcare Research and Quality (K02 HS00006), they examined the relationship between UI and other factors, such as coexisting medical conditions, on death, nursing home admission, and decline in functioning among 6,506 people aged 70 years and older.

The overall prevalence of UI at baseline was 15 percent. At 2-year followup, patients incontinent at baseline were 29 percent more likely than continent patients to have died (10.9 percent vs. 8.7 percent), 77 percent more likely to have been admitted to a nursing home (4.4 vs. 2.6 percent), 78 percent more likely to have declined in the ability to perform activities of daily living such as bathing and dressing (13.6 vs. 8.1 percent), and 69 percent more likely to have declined in the ability to perform other daily activities such as shopping or paying bills (21.2 vs. 13.8 percent). However, after adjusting for confounding factors— such as coexisting medical problems, baseline function, cognition, body mass index, smoking, alcohol, demographics, and socioeconomic status—UI was not an independent predictor of any of these outcomes.

See "Urinary incontinence and its association with death, nursing home admission, and functional decline," by Jayna M. Holroyd-Leduc, M.D., Kala M. Mehta, D.Sc., and Kenneth E. Covinsky, M.D., M.P.H., in the May 2004 *Journal of the American Geriatrics Society* 52, pp. 712-718. ■

Outcomes usually are poor among patients receiving home enteral nutrition from informal caregivers

Medicare only reimburses professional home nutrition services for patients with diabetes or predialysis kidney disease, and these services are typically limited to three visits after hospital discharge. As a result, more than 75 percent of older adults who are malnourished due to other conditions rely on informal caregivers (unpaid family/relatives, friends, or neighbors) to manage their home enteral nutrition (HEN) or tube feeding. These caregivers often are unprepared for caregiving, lack competence and confidence, and feel sad, overwhelmed, and frustrated, says Heidi J. Silver, Ph.D., R.N., C.N.S.D., of Vanderbilt University.

In a recent study that was supported in part by the Agency for Healthcare Research and Quality (HS11276), Dr. Silver and her colleagues found that

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Home enteral nutrition

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patients didn't fare well when untrained informal caregivers managed their HEN. HEN did not reverse their malnutrition or improve their health, functioning, or quality of life. Dr. Silver and colleagues conducted in-home interviews with a multiethnic sample of 30 older adults (mean age of 68 years) during their first 3 months of HEN to assess relationships among patient characteristics, HEN regimen prescription and adherence, formal provider involvement, and health care outcomes.

Despite compliance with enteral prescriptions, these patients had multiple negative outcomes. Gastrointestinal complications, occurring in up to 63 percent of patients, interrupted daily infusions. One-third reported tube clogging or leaking, and one-third had tube displacement. Water intake was half of calculated need. In addition, average weight change was a loss of 4.35 pounds, and 17 patients were underweight, suggesting that their protein-energy undernutrition was continuing. Tube displacement, tube clogging, infection, and dehydration often led to hospital readmission.

The provision of HEN in older adults requires more frequent monitoring, reassessment, and intervention from a highly skilled multidisciplinary team that includes dietitians, conclude the researchers. They also note the need for more intensive training of informal caregivers.

See "Older adults receiving home enteral nutrition: Enteral regimen, provider involvement, and health care outcomes," by Dr. Silver, Nancy S. Wellman, Ph.D., R.D., David J. Arnold, M.D., F.A.C.S., and others, in the March 2004 *Journal of Parenteral and Enteral Nutrition* 28, pp. 92-98. ■

Clinical Decisionmaking

Trade-offs and individual preferences should be emphasized when advising patients about dialysis choices

About 90,000 patients a year develop end-stage renal disease and, due to the limited availability of kidney transplants, must begin renal replacement therapy via hemodialysis (HD) or peritoneal dialysis (PD). HD is usually performed at a dialysis center, and PD, which is chosen as initial therapy by fewer than 10 percent of patients, is usually performed at home.

Contrary to anecdotal reports, PD does not seem to produce a better quality of life than HD, according to a recent study that was supported in part by the Agency for Healthcare Research and Quality (HS08365). In the study, some dialysis-specific aspects of quality of life were better among HD patients, and others were better among PD patients.

Researchers from Johns Hopkins University, Tufts-New England Medical Center, and Yale conducted a large-scale prospective study of changes in quality of life scores and overall health status over a 1-year period from the start of dialysis in 698 HD and 230 PD patients. Patients were enrolled at 81 outpatient dialysis units in 19 States from 1995 to 1998. At the 1-year followup, both PD and HD patients reported improvements in nearly all aspects of general functioning and psychologic well-being. The surprising finding was that patients on HD improved more on aspects of general health-related quality of life than patients on PD, with greater improvements in physical functioning and general health perceptions.

Changes in dialysis-specific aspects of quality of life were more mixed, and there were more differences between the two groups. HD patients improved more in some aspects, such as sleep (which for PD patients actually became worse over time), body image, and sexual functioning than those on PD. PD patients improved more on other dialysis-specific aspects of quality of life, such as financial well-being, and they continued to have higher scores for ability to travel, diet, and dialysis access.

See "Changes in quality of life during hemodialysis and peritoneal dialysis treatment: Generic and disease specific measures," by Albert W. Wu, M.D., M.P.H., Nancy E. Fink, M.P.H., Jane V.R. Marsh-Manzi, and others, in the *Journal of the American Society of Nephrology* 15, pp. 743-753, 2004. ■

Researchers examine decision aids for prostate cancer screening and patients' attitudes toward screening and treatment

Since the benefits of detecting prostate cancer early in asymptomatic men remain uncertain, professional organizations recommend educating patients about potential harms and benefits of screening. Prostate cancer tends to be very slow growing, and false-positive screens (indicating cancer when there is none) can lead to harmful invasive testing. Two recent studies supported by the Agency for Healthcare Research and Quality focused on decisions and attitudes about prostate cancer screening. The studies are summarized here.

Volk, R.J., Spann, S.J., Cass, A.R., and Hawley, S.T. (2003, May). "Patient education for informed decision making about prostate cancer screening: A randomized controlled trial with 1-year follow-up." (AHRQ grant K02 HS00007). ***Annals of Family Medicine*** **1(1), pp. 22-28.**

A simple 20-minute educational videotape can influence men's decisions about prostate cancer screening, and appears to promote informed screening decisions, according to this study. The researchers randomized a group of 160 men 45 to 70 years of age with no history of prostate cancer to view or not view (control group) a 20-minute educational videotape about prostate cancer screening before a routine office visit at a family medicine clinic. The men were asked about their screening knowledge 2 weeks after the visit, and 1 year later, they were asked about receipt of prostate cancer screening (either digital rectal exam [DRE] or prostate-specific antigen [PSA] testing), satisfaction with their decision, and screening knowledge.

The rate of DRE did not differ between the two groups. About one-third (34 percent) of men who viewed the videotape and 55 percent of the control group had PSA testing. The videotape appeared largely responsible for the differences observed in screening rates. Men who watched the videotape and said they intended to be screened at 2 weeks after the visit were as likely as men in the control group to report having had PSA testing at 1-year followup (53 vs. 58 percent). However, 12 of the men in the videotape group reported at the 2-week followup that they did not intend to be screened in the following year compared with none of the men in the control group; only 1 of the 12 men had undergone PSA screening at the 1-year followup.

It appears that the informed men were less likely to pursue PSA testing. However, this result may be influenced by ethnicity or risk perceptions. Black men, who have a higher risk of prostate cancer, were more likely to have had PSA testing than white men (56 vs. 28 percent). Satisfaction with the screening decision did not differ between the study groups. Men in the videotape group were more knowledgeable about screening than men in the control group at the 2-week assessment, but the differences declined within a year. A remaining challenge is how to integrate the use of decision aids into routine clinical practice.

Volk, R.J., Cantor, S.B., Cass, A.R., and others. (2004). "Preferences of husbands and wives for outcomes of prostate cancer screening and treatment." (AHRQ grant HS08992). ***Journal of General Internal Medicine*** **19, pp. 339-348.**

Screening men for prostate cancer can lead to a cascade of events, from biopsy to treatment-related complications. Common complications resulting from surgical and radiation treatment of prostate cancer include impotence, urinary incontinence, and bowel problems. These complications can markedly affect a man's quality of life, ability to function, and intimate relationship with his wife. Yet wives feel quite differently about these complications than men do, found this study. Thus, the researchers recommend that both the patient and his partner be involved in making decisions about prostate cancer screening.

The study involved 168 couples in which the husband was a primary care patient and a candidate for prostate cancer screening. Participants were asked about how they viewed certain screening and treatment outcomes and quality of life with advanced prostate cancer. They used a time-tradeoff method to evaluate preference for a particular health state (utility assessment), ranging from 0 for death to 1.0 for perfect health. The couples completed interviews and utility assessments individually and then as a couple. Men evaluated the outcomes of prostate cancer treatment (ranging from incontinence and impotence to rectal and urethral injury) and life with advanced prostate cancer as being far worse than their wives did. Couples' preferences fell between the separate assessments of husbands and wives.

For example, wives rated partial and complete impotence and mild to moderate incontinence as 1.0, indicating that most wives were not willing to trade away any time (of their husbands' life expectancy) to

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Prostate cancer screening

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avoid these treatment complications. Most husbands indicated that they would be willing to trade some longevity to avoid these complications. The largest differences in median utilities between husbands and wives were observed for severe incontinence, prostate cancer unresponsive to hormone therapy (for which pain is a concern), rectal injury, hormonally responsive prostate cancer, and complete impotence.

Editor's note: Another AHRQ-supported study on a related topic (cancer screening) found a low prevalence of colorectal cancer screening in a large medical organization. For more details, see Hawley, S.T., Vernon, S.W., Levin, B., and Vallejo, B. (2004, February). "Prevalence of colorectal cancer screening in a large medical organization." (AHRQ grant K02 HS00007). *Cancer Epidemiology, Biomarkers & Prevention* 13, pp. 314-319. ■

Health Care Delivery

Patients of general internists and hospitalists tend to have shorter hospital stays

Hospitalists—physicians who usually care for patients only while they are hospitalized—have grown to number almost 6,000 nationwide and are projected to increase to more than 10,000 in the next 10 years. Hospitalists tend to be more efficient than other physicians in providing inpatient care to general medical patients, and general internists appear to be more efficient than endocrinologists and rheumatologists, according to a recent study that was supported in part by the Agency for Healthcare Research and Quality (HS11540). Such efficiency translates to shorter hospital stays and lower costs, concludes Sanjay Saint, M.D., M.P.H., of the University of Michigan Health System.

Dr. Saint and his colleagues analyzed 2,617 admissions to the general medicine service of the University of Michigan Hospitals from July 2001 to June 2002. They examined the impact of internal medicine specialty and physician experience on hospital length of stay (LOS), total hospital costs, and patient outcomes (hospital death and readmission rates).

Adjusted mean LOS was 0.56 days greater for rheumatologists and 0.38 days greater for endocrinologists compared with general internists. Total costs for patients cared for by general internists were $1,100 lower than for patients treated by endocrinologists and $431 lower than for patients cared for by rheumatologists. Hospitalists and physicians in the top two deciles of recent inpatient general medical experience showed significantly reduced LOS compared with other physicians (0.31 and 0.35 days lower, respectively). There were no significant differences in readmission rates or in-hospital deaths among the various physician groups, suggesting similar patient outcomes regardless of resource use.

See "What effect does inpatient physician specialty and experience have on clinical outcomes and resource utilization on a general medical service?" by Vikas Parekh, M.D., Dr. Saint, Scott Furney, M.D., and others, in the May 2004 *Journal of General Internal Medicine* 19, pp. 395-401. ■

Ethnicity, income, and public financing all influence medical safety net providers in large urban communities

Community health centers, public hospitals, and local health departments make up the medical "safety net" for many uninsured and impoverished Americans. Although a new study dispels the notion that the safety net eroded during the 1990s, as many had feared, it also confirms the importance of local economic conditions and local financing in maintaining the safety net. Thus, the economic downturn and pressure on State budgets could mean that safety-net providers may not be able to continue to care for at-risk patients, according to Jose J. Escarce, M.D., Ph.D., of the University of California, Los Angeles.

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Medical safety net providers

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In the study, which was supported in part by the Agency for Healthcare Research and Quality (HS10770), Dr. Escarce and his colleagues used data from a variety of sources to construct a database that described the health care system in large urban communities from 1993 to 1998. They used the database to examine the impact of community demographic and market characteristics on safety net measures such as uncompensated hospital care, admissions to safety net hospitals, visits to community health centers, and local government spending on health.

The researchers found no significant decreases in any of the safety net measures they examined during the 1993 to 1998 period. For instance, uncompensated hospital care per low-income person was $248 in 1993 and $232 in 1998. They also found little support that HMO penetration and hospital competition eroded the safety net. However, they did find substantial variation in the safety net across communities. The safety net index (sum of safety net measures) was higher in communities with a high concentration of blacks or Hispanics and in communities with higher incomes, perhaps due to greater tax capacity to support the safety net. In fact, communities with higher incomes provided more uncompensated hospital care and had more admissions and ambulatory visits to safety net hospitals by low-income people than less advantaged communities. Visits to community health centers were higher in communities with more public insurance such as Medicaid, suggesting that public financing expands the safety net.

See "Recent trends and geographic variation in the safety net," by M. Susan Marquis, Ph.D., Jeannette A. Rogowski, Ph.D., and Dr. Escarce, in the May 2004 *Medical Care* 42(5), pp. 408-415. ■

Researchers examine disparities in receipt of preventive care

The incidence of diabetes is increasing among adults 30 to 59 years of age in the United States. Compared with older people who have diabetes, these younger diabetes patients are substantially less likely to receive important preventive care services such as eye and foot exams, according to a recent study that was supported in part by the Agency for Healthcare Research and Quality. A second AHRQ-supported study found that morbidly obese women, who are more likely than others to develop colorectal cancer and die from it, are less likely to be screened for it. Both studies are summarized here.

Persell, S.D., Zaslavsky, A.M., Weissman, J.S., and Ayanian, A.M. (2004, May). "Age-related differences in preventive care among adults with diabetes." (T32 HS00020). ***American Journal of Medicine*** **116, pp. 630-634.**

This survey of individuals with diabetes, including those with longstanding diabetes, revealed that adults aged 18 to 44 received significantly less diabetes-related preventive care than those aged 65 and older. Young adults have a greater lifetime risk of developing complications of diabetes such as eye and kidney disease and circulatory problems that can lead to amputation. In addition, many of the age-related disparities in diabetes-related preventive services may be large enough to affect clinical outcomes, according to the investigators. They analyzed data on preventive care received by 6,565 adults with diabetes who responded to a 1999 Behavioral Risk Factor Surveillance System survey.

Overall, 85 percent of young adults had seen a health care provider for diabetes in the past year. Yet, except for professional foot examinations (to detect nonhealing wounds that can lead to infection, gangrene, and amputation) and testing of blood sugar levels, young (aged 18 to 44 years) and middle-aged (45-64 years) patients received fewer preventive services than older patients. For example, 84 percent of those aged 65 and older—versus 82 percent of middle-aged and 69 percent of young patients—had their cholesterol checked in the past 2 years; corresponding figures for dilated eye exam were 75 percent, 66 percent, and 55 percent; pneumococcal vaccination ever, 54 percent, 28 percent, and 17 percent; and influenza vaccination in the past year, 73 percent, 46 percent, and 34 percent.

Rosen, A.B., and Schneider, E.C. (2004, April). "Colorectal cancer screening disparities related to obesity and gender." (AHRQ grant T32 HS00020) ***Journal of General Internal Medicine*** **19, pp. 332-338.**

Colorectal cancer is the second leading cause of cancer death in the United States. Colorectal cancer screening is the key to early diagnosis and treatment, yet

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Disparities in receipt of preventive care

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screening rates among age-eligible people in the United States are disturbingly low. Furthermore, morbidly obese women are less likely than others to be screened for colorectal cancer, according to this study. The investigators examined self-reported colorectal cancer screening with fecal occult blood testing (FOBT) within the past year or endoscopic screening (sigmoidoscopy or colonoscopy) within the past 5 years among 52,886 people aged 51 to 80 who responded to the Behavioral Risk Factor Surveillance System survey of noninstitutionalized adults. The survey was conducted by the Centers for Disease Control and Prevention and State health departments in 1999.

The overall colorectal cancer screening rate was 43.8 percent. The rate of screening by FOBT within the previous year or endoscopic screening within the past 5 years was 39.5 percent for the morbidly obese group, 45 percent for the obese group, 44.3 percent for the overweight group, and 43.5 percent for the normal weight group. After adjustment for other potential confounding factors, morbidly obese women were nearly 6 percent less likely to be screened than normal weight women.

Screening rates among normal weight, overweight, and obese women, and among men in different weight groups did not differ significantly. Efforts should be made to increase colorectal cancer screening for all age-eligible groups. These efforts should include targeted screening of morbidly obese women, since they could reap substantial clinical benefits from screening. The observed sex and weight interaction is consistent with prior research suggesting that bias and stigmatization related to obesity may be more severe for women than men. ■

Primary Care Research

Hypertension control is greater in U.S. primary care practices than usually reported

More than one-fourth of adults in the United States suffer from hypertension (high blood pressure). A survey of 20 primary care practices in 14 States found that half of all patients with hypertension had controlled blood pressure at their last measurement (below 140/90 mm Hg). This is far better control than usually reported. The good control was not due to specific antihypertensive drug choice, but instead it may have been due to regular monitoring of blood pressure (via frequent visits to the doctor) and motivation of the practice to improve patient care, explains Steven Ornstein, M.D., of the Medical University of South Carolina.

In a study supported by the Agency for Healthcare Research and Quality (HS11132), Dr. Ornstein and his colleagues analyzed blood pressure control rates and the association between control and demographic variables, frequency of visits to the practice site, and medication treatment patterns among 13,047 patients with hypertension in the practices. The most recent blood pressure reading was below 140/90 in half the patients. Control was associated with age 60 years or younger, female sex, more than one coexisting medical condition, type of practice, and more than one visit to the practice during the year. These visits probably provided a greater opportunity for doctors to affect drug dosage titration, focus attention on lifestyle modification issues, and adapt treatment regimens to patient-specific issues.

Practices varied widely in their use of multiagent anihypertensive therapy and in antihypertensive therapy by drug class. Among patients without coexisting disease who were treated with one drug, systolic blood pressure did not differ significantly by drug class. However, diastolic blood pressure was slightly lower in patients prescribed thiazide diuretics than in those prescribed angiotensin receptor blockers.

See "Hypertension management and control in primary care: A study of 20 practices in 14 states," by Dr. Ornstein, Paul J. Nietert, Ph.D., and Lori M. Dickerson, Pharm.D., F.C.C.P., in *Pharmacotherapy* 24(4), pp. 500-507, 2004. ■

Psychosocial stress in the work environment may play a role in development of alcohol dependence among men

Studies of alcohol dependence in adults has largely focused on genetic and personality factors or on general socioeconomic conditions. However, a new large-scale study of British civil servants suggests a role for a stressful psychosocial work environment, in particular high work effort with little reward, in the development of alcohol dependence among men. These associations between work characteristics and alcohol dependence did not appear to be mediated through physical illness, poor mental health, or adverse changes in social supports or network size.

Neither job demands nor job control was associated with alcohol dependence in men or women. Most other studies of psychosocial work characteristics and alcohol, which have used measures of alcohol consumption rather than alcohol problems or alcohol dependence, have found no or little association between work characteristics and the amount of alcohol consumed. This is the first documented evidence of effort-reward imbalance at work as a risk factor for alcohol dependence in men, notes lead author, Jenny Head, of the University College of London.

The findings were based on analysis of alcohol dependence, measured with a standard alcohol questionnaire in 1991-1993, among British civil servants who participated in the Whitehall II study of London-based civil servants from 1985 to 1988. The researchers measured psychosocial work environment by self-report answers to questions regarding job demand, support, and control, as well as job effort and reward balance. Effort-reward imbalance at work was associated with alcohol dependence in men, after adjustment for employment grade and other baseline factors related to alcohol dependence (for example, limited social support). Men with high job demands or with low work social supports had a slightly reduced risk of alcohol dependence. The study was supported in part by the Agency for Healthcare Research and Quality (HS06516).

See "The psychosocial work environment and alcohol dependence: A prospective study," by Jenny Head, Stephen A. Stansfeld, and Johannes Siegrist, in *Occupational and Environmental Medicine* 61, pp. 219-224, 2004. ■

Bioterrorism Research

Researchers find insufficient evidence to evaluate how well surveillance systems can detect bioterrorism

The anthrax attacks of 2001 and recent outbreaks of severe acute respiratory syndrome (SARS) highlight the importance of surveillance systems in rapidly detecting and monitoring the course of an outbreak and minimizing illness and death. However, few surveillance systems have been specifically designed for collecting and analyzing data for the early detection of a bioterrorist event. Also, current evaluations of surveillance systems for detecting bioterrorism and emerging infections are insufficient to characterize their timeliness or sensitivity and specificity. As a result, clinical and public health decisions based on these systems may be compromised, concludes Dena M. Bravata, M.D., M.S., of the University of California, San Francisco-Stanford Evidence-based Practice Center (EPC). The EPC is supported by the Agency for Healthcare Research and Quality (contract 290-97-0013).

Dr. Bravata and her colleagues systematically and comprehensively reviewed 17,510 research article citations and 8,088 government and nongovernment Web sites on disease surveillance systems. They reviewed the available evidence on 115 systems that collect various surveillance reports, including 9 syndromic surveillance systems, 20 systems collecting bioterrorism detector data, 13 systems collecting influenza-related data, and 23 systems collecting laboratory and anti-microbial resistance data.

The researchers identified published descriptions of 29 systems designed specifically for bioterrorism surveillance—that is, the systems either monitor the incidence of bioterrorism-related syndromes or monitor environmental samples for bioterrorism agents. Only two syndromic surveillance systems and no environmental monitoring systems had been

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Bioterrorism detection

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evaluated in peer-reviewed studies. Dr. Bravata and her colleagues conclude that existing evaluations of surveillance systems for detecting bioterrorism are insufficient to characterize the performance of these systems.

See "Systematic review: Surveillance systems for early detection of bioterrorism-related diseases," by Dr. Bravata, Kathryn M. McDonald, M.M., Wendy M. Smith, B.A., and others, in the June 2004 *Annals of Internal Medicine* 140, pp. 910-922. ■

Health Care Costs and Financing

Immunization rates in New Mexico have fallen significantly since the introduction of Medicaid managed care

The 1996 introduction of Medicaid managed care (MMC) in New Mexico, a State with a predominantly rural, poor, and multiethnic population, did not improve immunization coverage in that State. In fact, after 1996, New Mexico's immunization rates fell to among the lowest in the United States, according to a study supported by the Agency for Healthcare Research and Quality (HS09703).

Reduced funding for State-run public health clinics (PHCs) and increased informal referrals of patients to clinics for immunization by private physicians and managed care organizations may have contributed to this decline, explains Howard Waitzkin, M.D., Ph.D., of the University of New Mexico. Dr. Waitzkin and his colleagues recommend that future policies consider the effects of Medicaid reform on safety net institutions like community health centers (CHCs), which are responsible for immunizations and other necessary preventive services.

The researchers studied trends in immunization based on data from the National Immunization Survey. To help explain changes in New Mexico's immunization rates in relation to MMC, they analyzed data gathered through ethnographic observations at safety net institutions, including welfare offices, CHCs, hospital emergency departments, private physicians' offices, mental health institutions, managed care organizations, and State agencies.

Immunization coverage decreased significantly after implementation of MMC, from 80 percent in 1996 to 73 percent in 2001 for the 4:3:1 vaccination series (four doses of diphtheria, tetanus, and pertussis vaccine; three doses of polio vaccine; and one dose of measles vaccine). New Mexico dropped in rank among States from 30th for this vaccination series in 1996 to 50th in 2001. Ethnographic observations revealed conditions that might have contributed to decreased immunization rates. These include reduced funding for immunizations at public health clinics and difficulties in gaining access to MMC providers, informal referral from managed care organizations and contracting physicians to CHCs and State-run health clinics, and increased workloads and delays at CHCs, linked partly to these informal referrals for immunization.

See "Immunization coverage and Medicaid managed care in New Mexico: A multimethod assessment," by Michael A. Schillaci, Ph.D., Dr. Waitzkin, E. Ann Carson, M.S., and others, in the January 2004 *Annals of Family Medicine* 2(1), pp. 13-21. ■

Supplemental private insurance affects use of care and outcomes of Medicare patients who have heart attacks

Medicare patients who have supplemental private insurance and are hospitalized for heart attack are more likely than patients with Medicare only or Medicare and public insurance to undergo revascularization (bypass surgery or coronary angioplasty). They also are less likely to die in the hospital, according to a study by researchers from Albert Einstein College of Medicine that was supported in part by the Agency for Healthcare Research and Quality (HS11612).

Jing Fang, M.D., and Michael H. Alderman, M.D., used New York City hospitalization records to identify Medicare patients hospitalized for heart attack from 1988 through 2001. They compared rates of coronary

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Supplemental insurance for Medicare patients

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artery bypass graft (CABG) surgery and percutaneous transluminal coronary angioplasty (PTCA) and in-hospital mortality among patients with supplemental private insurance, those with Medicare insurance only, and those with dual Medicare and Medicaid coverage.

After accounting for other factors such as age and previous heart attack, patients with Medicare plus supplemental private insurance coverage were 69 percent more likely than those with Medicare only insurance to undergo PTCA and 53 percent more likely to undergo CABG. They were also 23 percent less likely to die in the hospital. Those with Medicare and Medicaid were 5 percent more likely than those with Medicare only insurance to undergo the two coronary procedures, and 5 percent less likely to die in the hospital.

Blacks and Hispanics with supplemental private insurance were 74 percent and 88 percent more likely, respectively, to undergo PTCA, and twice as likely to undergo CABG than blacks and Hispanics with Medicare coverage only. There were no differences between those with Medicare coverage only and those with Medicare and Medicaid. Blacks and Hispanics with supplemental private insurance were also 22 percent and 28 percent less likely, respectively, to die in the hospital than those with Medicare only.

See "Does supplemental private insurance affect care of Medicare recipients hospitalized for myocardial infarction?" by Drs. Fang and Alderman, in the May 2004 *American Journal of Public Health* 94(5), pp. 778-782. ■

Agency News and Notes

AHRQ evidence report shows that some programs to increase exercise have lasting effects

Some behavior modification programs designed to increase exercise show continued effects for at least 3 months after they end, according to a new report released by the Agency for Healthcare Research and Quality and supported by the National Cancer Institute. However, the review of existing evidence also demonstrated that it is difficult to achieve sustainable gains in increased physical activity because few studies looked at the effects of these programs for more than 1 year.

Encouraging Americans to be more physically active is a key part of President Bush's HealthierUS initiative and HHS' Steps to a HealthierUS initiative. According to the latest statistics, 70 percent of adults in the United States do not get enough physical activity, and more than one-third of children do not participate regularly in vigorous exercise. A study released by HHS' Centers for Disease Control and Prevention in March 2004 found that 400,000 deaths in the United States are linked to poor diet and lack of physical activity, representing an increase of 33 percent since 1990.

AHRQ's evidence review found that no specific behavioral intervention or setting appeared to be more effective than another and that shorter, less-intensive programs were just as successful at achieving behavior change as ones that lasted longer and involved more contacts with participants. Interventions examined included face-to-face counseling, mailings, and check-ups by telephone. Settings for the interventions included clinics, community centers, schools, workplaces, child care centers, exercise centers, churches, and participants' homes.

In addition to reviewing evidence from physical activity interventions in healthy populations, the authors also examined the effects of exercise on cancer survivors, including people living with cancer and those who have a personal history of the disease. The authors of the report concluded that exercise programs can improve cancer patients' functional capacity and cardiopulmonary fitness, reduce symptoms of fatigue, and improve quality of life during and after cancer treatment. In addition, exercise can reduce cancer patients' symptoms of anxiety and depression during treatment. The report suggests that physical activity may have other positive effects in cancer patients, but at this time there are too few studies to reach any conclusions.

The report was prepared by a team of researchers led by Jeremy Holtzman, M.D., at AHRQ's University of Minnesota Evidence-based Practice Center in Minneapolis. The report, *Effectiveness of Behavioral Interventions to Modify Physical Activity Behaviors in General Populations and Cancer Patients and Survivors* (AHRQ Publication No. 04-E027-1, summary; and 04-E027-2, full report) is available from AHRQ.* See the back cover of *Research Activities* for ordering information. The summary and report are also available online. Go to www.ahrq.gov and select Evidence-based Practice to locate this report and reports on other topics. ■

AHRQ limits budget on research and conference grant applications

Beginning October 1, 2004, the Agency for Healthcare Research and Quality is implementing a budget limit for large research and conference grant applications. The new budget limit for large research grant applications (R01, R18) is $300,000 per year total. For large conference grant applications (R13), the budget limit is $100,000 per year total. AHRQ is implementing this policy due to limitations on available grant funds. This new limit, which will be in effect until further notice, is being implemented for budgets on all competing large research and conference grant applications submitted to AHRQ, including new, amended, and competing continuation applications, unless otherwise indicated in a specific grant announcement. See the announcement in the *NIH Guide to Grants and Contracts* online at http://grants.nih.gov/grants/guide/notice-files/NOT-HS-04-007.html for more information. ■

Announcements

New tool helps State and local officials identify alternate health care sites for use during a bioterrorism emergency

The Agency for Healthcare Research and Quality recently released a tool to help State and local officials quickly locate alternate health care sites if hospitals are overwhelmed by patients due to a bioterrorist attack or other public health emergency. The alternate care site selection tool was shared with emergency response planners at the 2004 Summer Olympics in Athens, Greece.

In the aftermath of a bioterrorist event or other public health emergency, hospitals may be overwhelmed by a sudden influx of patients. The new alternate care site selection tool is designed to allow regional planners to locate and rank potential alternative sites—such as stadiums, schools, recreation centers, motels, and other venues—based on whether they have adequate ventilation, plumbing, food supply, and kitchen facilities, for example.

The new tool, which is available as an Excel spreadsheet, was produced by Denver Health, one of AHRQ's Integrated Delivery System Research Network (IDSRN) partners. AHRQ's IDSRN program links the Nation's top researchers with some of the largest health care systems to conduct fast-track research on cutting-edge issues in health care.

The alternate care site selection tool is included in a new report, *Rocky Mountain Regional Care Model for Bioterrorist Events.* Copies of this report are available online from the AHRQ Web site at www.ahrq.gov/research/altsites.htm. The new tool and report are two of over 50 studies, workshops, conferences, and other activities funded under the Agency's bioterrorism research portfolio. Go to www.ahrq.gov/browse/bioterbr.htm to find out more. ■

New publications now available from AHRQ

The Agency for Healthcare Research and Quality recently published the following three reports, which are now available from the AHRQ Publications Clearinghouse. See the back cover of *Research Activities* for ordering information.

Programs and Tools to Improve the Quality of Mental Health Services. **Research in Action No. 16. Kass-Bartelmes, B.L., and Rutherford, M.K. AHRQ Publication No. 04-0061.**

AHRQ has a broad portfolio of mental health research. This report describes AHRQ-funded research that has led to the development of programs, methods, and tools for evaluating and improving the quality of mental health services and improving the education of mental health professionals. Selected examples of these efforts include the Partners in Care quality improvement program, which increases treatment for depression and improves outcomes. Two toolkits were developed to improve treatment of schizophrenia. A short questionnaire was developed that emergency room personnel can use to screen adolescents at risk for

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New publications

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suicide. In addition, a systematic approach to evaluating expanded school mental health programs has been used to show that school mental health programs can be more cost effective than programs in the community or private sectors. The need for quality assessment led to the development of consumer ratings assessments to promote quality improvement programs at managed behavioral care organizations. In the area of professional education, researchers have identified solutions that can improve education and training for mental health care professionals.*

Health Care in Urban and Rural Areas, 1998-2000. **MEPS Chartbook No. 13. Larson, S.L., Machlin, S.R., Nixon, A., and others. AHRQ Publication No. 04-0050.**

This report presents Medical Expenditure Panel Survey (MEPS) data on health care in urban and rural areas for the period 1998-2000. U.S. counties were classified into four groups along the urban-rural continuum from metropolitan statistical areas to rural areas. The chartbook examines differences in health care access, use, and expenses. The percent of people under 65 who were uninsured was not significantly different in rural counties than in the others, but uninsured residents of rural counties were only about half as likely as their urban counterparts to lack a usual source of care. Among people with ambulatory expenses in both age groups (younger than 65 and 65 and older), residents of rural counties had the fewest ambulatory visits per year. The difference was especially large for the elderly, among whom rural residents had only half as many yearly visits as urban residents. Among elderly people with ambulatory expenses, residents of rural counties had the lowest average annual expenses. The likelihood of having dental expenses generally declines with increasing rurality.*

Restricted-Activity Days in the United States, 1997 and 2001. **MEPS Research Findings No. 22. Rhoades, J. AHRQ Publication No. 04-0060.**

This report provides estimates of restricted-activity days for the civilian noninstitutionalized population of the United States using data from the 1997 and 2001 MEPS. Estimates were examined by age, race/ethnicity, sex, marital status, health insurance coverage, education, income and health status, and area of residence. Estimates from 1997 and 2001 were compared to determine the relationship between restricted-activity days and selected population characteristics. From 1997 to 2001, there was a decline in the proportion of the population (ages 16-64) with workdays lost due to physical illness, injury, or a mental or emotional problem. Women were more likely to have workdays lost. In 2001, 46.5 percent of women and 34.6 percent of men had workdays lost due to physical illness, injury, or a mental or emotional problem. In both years, women and married people were more likely to miss workdays to care for a family member with a health problem. In 2001, 24.8 percent of married people but only 13.1 percent of unmarried people missed work to care for a family member. However, in both years, married and unmarried people lost about the same number of workdays to care for a family member, 4 to 5 days annually. Compared with blacks and Hispanics, whites and people in the "others" category were the most likely to have workdays and schooldays lost in 1997 and 2001. ■

Materials from 2004 AcademyHealth annual research meeting now available online

Over the past 21 years, AcademyHealth's annual research meeting has evolved from being a forum solely for researchers into a conference where investigators, policymakers, practitioners, business decisionmakers, and others share ideas about how to move research into action and improve the U.S. health care system. The 2004 meeting, which was supported in part by the Agency for Healthcare Research and Quality (HS14538), was held June 6-8 in San Diego. The meeting provided a forum for more than 120 sessions related to 14 themes, including child health, coverage and access, long-term care, and workforce issues. In addition, more than 700 individuals presented their research in poster sessions.

Visit http://www.academyhealth.org/arm/index.htm to view a meeting summary, Web cast sessions, more than 430 research presentations, photos, and more from the 2004 meeting. ■

Corrections

The following two corrections pertain to the June 2004 issue of *Research Activities*. We apologize for any inconvenience these errors may have caused.

On page 2, for the article by Miller and Zhan on pediatric patient safety, the AHRQ publication number for ordering reprints was incorrect. When requesting a reprint of this article, please ask for AHRQ Publication No. 04-R047.

On page 23 in the editor's note, an incorrect citation was given for the article by Romano and Zhou. The correct citation is: Romano, P.S., and Zhou, H. (2004, April). "Do well-publicized risk-adjusted outcomes reports affect hospital volume?" *Medical Care* 42(44), pp. 367-377. ■

Research Briefs

Amin, M.G., Tighiouart, H., Weiner, D.E., and others. (2004, April). "Hematocrit and left ventricular mass: The Framingham Heart Study." (AHRQ training grant T32 HS00060). ***Journal of the American College of Cardiology*** **43(7), pp. 1276-1282.**

Anemia may be an independent risk factor for cardiovascular disease in the general population. One potential explanation for this finding could be an association between hematocrit and left ventricular mass index or left ventricular hypertrophy. To assess this association, the researchers analyzed data on participants in the 16th biennial examination of the original Framingham Heart Study, which began enrolling subjects in 1971, and the second biennial examination of the offspring cohort. The study involved data on 1,376 men, 760 postmenopausal women, and 1,000 premenopausal women. They found that a lower hematocrit (in the low-normal range of anemia) is associated with a small increase in left ventricular mass index in men and postmenopausal women without known hypertension or cardiovascular disease. The clinical importance of these findings remains unknown.

Fuhlbrigge, A., Carey, V.J., Adams, R.J., and others. (2004, May). "Evaluation of asthma prescription measures and health system performance based on emergency department utilization." (AHRQ grant HS08368). ***Medical Care*** **42(5), pp. 465-471.**

Measures based on the use of either antiinflammatory medications (such as steroid inhalers) and/or reliever medications (such as inhaled beta-agonists) have been used to evaluate clinical performance in asthma care. This study found that among children with persistent asthma, the dispensing of a controller medication was associated with a significantly lower risk of an emergency department (ED) visit compared with children not dispensed a controller. Also, the controller to reliever ratio was associated with the risk of a subsequent ED visit. However, the association between the ratio measure and risk for an ED visit was modified by the underlying level of reliever dispensing.

Hu, K.K., Lipsky, B.A., Veenstra, D.L., and Saint, S. (2004, May). "Using maximal sterile barriers to prevent central venous catheter-related infection: A systematic evidence-based review." (AHRQ grant HS11540). ***American Journal of Infection Control*** **32, pp. 142-146.**

Central venous catheters (CVCs) are often required to provide patients with total parenteral nutrition, long-term intravenous medications, or frequent blood sampling. A recent systematic review of research studies compared infectious outcomes using maximal sterile barriers (MSB) versus using less sterile barrier techniques during central venous catheter insertion. MSB requires 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. Less stringent measures usually require only sterile gloves and a small regional sterile drape. While the available evidence supports the use of MSB during routine insertion of CVCs, prospective studies and economic analyses would better clarify its value.

Jha, A.K., Shojania, K.G., and Saint, S. (2004, June). "Forgotten but not gone." (AHRQ grant HS11540 and T32 HS00020). ***New England Journal of Medicine*** **350(23), pp. 2399-2404.**

This article recounts the step-by-step diagnosis of a 74-year-old man

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who was brought to the emergency department confused after a fall and with a cough for 4 days. The doctor treated him for possible pneumonia and dehydration. The patient improved and then quickly declined. This lead to exploration of the possibility of pulmonary edema and possible acute respiratory distress due to worsening sepsis and treatment with a broad-spectrum antibiotic. Concern began to shift to resistant organisms. The autopsy revealed systemic tuberculosis infection, with extensive involvement of the adrenal glands. In retrospect, the diagnosis of tuberculosis warranted consideration in a marginally housed, elderly man with probable chronic liver disease. Also, lack of response to initial antibiotic therapy indicated the need to further consider atypical infections, including tuberculosis.

Kasal, J., Jovanovic, Z., Clermont, G., and others. (2004). "Comparison of Cox and Gray's survival models in severe sepsis." (AHRQ grant HS/HL11620). ***Critical Care Medicine*** **32(3), pp. 700-707.**

This study compared Gray's survival model with two different Cox models to predict survival in 1,090 adults at 136 medical centers who had signs and symptoms of severe sepsis or probable gram-negative infection. The investigators considered 27 potential baseline risk factors and modeled survival over the 28 days after the onset of sepsis. In single-variable analyses, 20 of the 27 potential factors were significantly associated with mortality, and 10 of 20 had nonproportional hazards. Of the three models, Gray's model best captured the changing hazard ratios over time. The researchers conclude that many important predictors of death in severe sepsis are nonproportional, and Gray's model seems best suited for modeling survival in this condition.

Lubomski, L.H., Pronovost, P.J., Thompson, D.A., and others. (2004, May). "Building a better incident reporting system: Perspectives from a multisite project." (AHRQ grant HS11902). ***Journal of Clinical Outcomes Management*** **11(5), pp. 275-280.**

Each intensive care unit (ICU) patient is estimated be at risk for exposure to 1.7 errors per day spent in the ICU. A Web-based incident reporting system was developed as part of the Intensive Care Unit Safety Reporting System project to understand system factors associated with the occurrence of ICU adverse events resulting in actual patient harm or "near misses." Implementation of the system at 23 ICUs in the United States suggests that four areas should be targeted to maximize the success of incident reporting systems. These include integration with existing reporting structures, promoting incident reporting by staff, coding and analysis of event reports, and use of incident reports to improve patient safety.

McNicol, E., Strassels, S., Goudas, L., and others. (2004, May). "Nonsteroidal anti-inflammatory drugs, alone or combined with opioids, for cancer pain: A systematic review." (AHRQ contract 290-97-0019). ***Journal of Clinical Oncology*** **22(10), pp. 1975-1992.**

The World Health Organization recommends the use of nonsteroidal antiinflammatory drugs (NSAIDs, for example, aspirin or ibuprofen) or acetaminophen for mild pain and the addition of a weak opioid for mild to moderate pain. The purpose of this study was to assess the safety and efficacy of NSAIDs alone or combined with opioids for the treatment of cancer pain. The researchers examined 42 published controlled trials with a total of 3,084 patients and 16 NSAIDs. Eight of the trials compared NSAID with placebo; 13 compared one NSAID with another; 23 compared NSAID with opioid or NSAID or opioid versus various combinations of NSAIDs, and 9 studies assessed the effect of increasing NSAID dose. They found that although NSAIDs appeared to be more effective than placebo for mild cancer pain, there was insufficient evidence to support superior safety or efficacy of one NSAID compared with another. Trials of combinations of an NSAID with an opioid (usually recommended for mild to moderate or moderate to severe pain) found either no significant difference, or at most a slight but significant advantage, compared with either single medication. NSAID side effects, although not consistently reported, tended to be minor and occur infrequently. However, many adverse effects, such as development of an ulcer or renal toxicity, might not be apparent with short-term dosing. More high-quality trials of the safety and efficacy of NSAIDs with or without opioids for cancer patients are needed.

Patel, U.D., Hollander, H., and Saint, S. (2004, May). "Index of suspicion." (AHRQ grant HS11540). ***New England Journal of Medicine*** **350(19), pp. 1990-1995.**

This article traces step-by-step the diagnosis of a 26-year-old woman with end-stage renal disease after she presented with a 2-week history of fever and 11 months after having received her second renal transplant. She also

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had generalized malaise, anorexia, and 3 pound weight loss since the onset of fever, as well as swelling of her left index finger. Due to the immunosuppressive drugs given for her transplant, many of the blood tests were negative, including the one for bartonella, a bacterial infection responsible for cat-scratch disease. Although cat scratch disease most often affects healthy people, it has also been found in people with HIV and in organ transplant recipients, and it was the ultimate diagnosis in this case. The woman worked for a veterinarian and had contact with cats and dogs. This case highlights the potential limitations of some diagnostic tests for opportunistic infections, particularly in immunosuppressed patients. The doctor finally ordered tests involving lymph nodes to detect the involvement with bartonella.

Romano, P.S., and Mutter, R. (2004, May). "The evolving science of quality measurement for hospitals: Implications for studies of competition and consolidation." (AHRQ contract 290-02-0007). ***International Journal of Healthcare Finance and Economics*** **4, pp. 131-157.**

The literature on the relationship between hospital competition and quality is young. Most empirical studies have focused on few conditions and outcomes. Measures of in-hospital mortality and complications are susceptible to bias from unmeasured patient illness severity and transfer/discharge practices. Only one research team has evaluated related process and outcome measures, and none has exploited chart-review or patient survey-based data. Prior studies have generated inconsistent findings, suggesting the need for additional research. In this paper, the authors describe the strengths and limitations of various approaches to quality measurement, summarize how quality has been operationalized in studies of hospital competition, outline three mechanisms by which competition may affect hospital quality, and propose measures appropriate for testing each mechanism.

Schneeweiss, S., Wang, P.S., Avorn, J., and others. (2004). "Consistency of performance ranking of comorbidity adjustment scores in Canadian and U.S. utilization data." (AHRQ grant HS10881). ***Journal of General Internal Medicine*** **19, pp. 444-450.**

The performance of standard comorbidity scores (that reflect a person's coexisting medical conditions) to control confounding is poorly defined in health care use data across elderly populations. These investigators evaluated and ranked the performance of six frequently used comorbidity scores across four U.S. and Canadian elderly populations represented in health care use databases. They calculated the six scores for all participants during the baseline year to examine mortality within a year. Performance ranking of the comorbidity scores in predicting 1-year mortality was consistent across the selected elderly populations, after including age and sex. Performance was improved by an average of 6 percent by adding the number of different prescription drugs received during the previous year.

Scholle, S.H., Weisman, C.S., Anderson, R.T., and Camacho, F. (2004). "The development and validation of the primary care satisfaction survey for women." (AHRQ grant HS10237). ***Women's Health Issues*** **14, pp. 35-50.**

This paper reports the development and psychometric properties of a new survey instrument to measure women's satisfaction with their primary care. The investigators conducted a multisite, cross-sectional validation survey of 1,202 women receiving primary care in three States. They used item response theory and factor analysis methods to identify three scales in the Primary Care Satisfaction Survey for Women (PCSSW): communication, administration and office procedures, and care coordination and comprehensiveness. The PCSSW showed internal consistency reliability, as well as convergent validity in relation to two generic measures, the Medical Outcomes Study Visit Satisfaction and the Consumer Assessment of Health Plans Study. ■

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