Research Activities

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Highlights

Departments

2 Disparities/Minority Health
4 Child/Adolescent Health
7 Patient Safety and Quality
8 Women's Health
10 Acute Care/ Hospitalization
13 Elderly/Long-Term Care
15 Outcomes/Effectiveness Research
16 Primary Care Research
21 HIV/AIDS Research
22 Pharmaceutical Research
24 Access to Care

Regular Features

24 Agency News and Notes
25 Announcements
26 Research Briefs

One in four hospital patients is admitted with a mental health or substance abuse disorder

Almost one-fourth of all stays in U.S. community hospitals for patients age 18 and older – 7.6 million of nearly 32 million stays – involved depressive, bipolar, schizophrenia, and other mental health disorders or substance use related disorders in 2004, according to a new report by the Agency for Healthcare Research and Quality (AHRQ).

This study presents the first documentation of the full impact of mental health and substance abuse disorders on U.S. community hospitals. According to the report, about 1.9 million of the 7.6 million stays were for patients who were hospitalized primarily because of a mental health or substance abuse problem. In the other 5.7 million stays, patients were admitted for another condition but they also were diagnosed as having a mental health or substance abuse disorder.

Nearly two-thirds of costs were billed to the government: Medicare covered nearly half of the stays, and 18 percent were billed to Medicaid. Roughly 8 percent of the patients were uninsured. Private insurers were billed for the balance. The study also found that one of every three stays of uninsured patients was related to a mental health or substance abuse disorder.

AHRQ found that most patients with mental health and substance abuse disorders were older. For example, although people age 80 and older comprised only 5 percent of the U.S. population in 2004, they accounted for nearly 21 percent of all hospital stays for these conditions – principally for dementia. The most frequent admitting diagnosis for women was mood disorders, while that for men was substance abuse.

The report also indicates that patients who have been diagnosed with both a mental health condition and a substance abuse disorder – those with "dual diagnoses" – accounted for 1 million of the nearly 8 million stays. Nearly half of these cases with dual diagnoses involved drug abuse, a third involved

continued on page 2

Hospital patients

continued from page 1

alcohol abuse, and one in five involved both drug and alcohol abuse. In addition, 240,000 women hospitalized for childbirth or pregnancy also had mental health or substance abuse problems. Four of every 10 of these patients were between 18 and 24 years of age.

Suicide attempts accounted for nearly 179,000 hospital stays. Of these, 93 percent involved a mental health condition – most commonly mood disorders – and/or substance abuse. Nearly three-quarters of these patients were between ages 18 and 44 and more than half were women. Poisoning, by overdosing prescription medicines or ingesting a toxic substance was the most common way patients attempted suicide.

The report is based on 2004 data – the latest currently available – from AHRQ's Healthcare Cost and Utilization Project Nationwide Inpatient Sample, a database of hospital inpatient stays that is nationally representative of all short-term, non-Federal hospitals. The data are drawn from hospitals that comprise 90 percent of all discharges in the United States and include all patients, regardless of insurance type, as well as the uninsured. For details, see *Care of Adults with Mental Health and Substance Abuse Disorders in U.S. Community Hospitals, 2004* at www.ahrq.gov/ data/hcup/factbk10/. Print copies of the report (AHRQ Publication No. 07-0008) are also available from AHRQ.* ■

Disparities/Minority Health

Education, income, and net worth explain more U.S. racial/ethnic health disparities than health behaviors and insurance

Public health initiatives to reduce racial/ethnic disparities in health promote changes in individual health behaviors such as smoking and overeating and increasing rates of insurance coverage among blacks and Hispanics. But this approach will result in only modest decreases in health disparities. Education, income, and net worth explain more of these disparities than either health behaviors or insurance coverage, according to a new study. It is important to address the effects of lower socioeconomic status on racial/ethnic health disparities, note Joseph J. Sudano, Ph.D., of Case Western Reserve University, and David W. Baker, M.D., of Northwestern University.

Drs. Sudano and Baker found that crude mortality rates over a 6-year period for late middle-aged whites, blacks, English-speaking (ES) Hispanics and Spanish-speaking (SS) Hispanics were 5.8 percent, 10.6 percent, 5.8 percent, and 4.4 percent, respectively. Rates of major decline in self-reported overall health (SROH) were 14.6 percent, 23.2 percent, 22.1 percent, and 39.4 percent, respectively. Higher mortality rates for black versus white people were mostly explained by worse baseline health. Results were similar for Hispanics, but less pronounced.

However, accounting for education, income, and net worth reduced disparities in declining SROH for blacks and ES Hispanics (but not SS Hispanics) to nonsignificance. In contrast, health insurance and health behaviors (for example, smoking, alcohol use, and body mass index) explained little of the

continued on page 3

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Health disparities

continued from page 2

racial/ethnic differences in health outcomes. The findings suggest that risk factors for death and health decline differ, as do the differences in the prevalence of these risk factors across racial/ethnic groups. As a result, the explanations for disparities may vary depending upon the health outcomes examined and upon the racial/ethnic groups compared, note the researchers. Their findings were based on analysis of data from Wave 1 (1992) and Wave 4 (1998) of the Health and Retirement Survey, a nationally representative survey of U.S. adults aged 51 to 61 years old in 1992. Their study was supported by the Agency for Healthcare Research and Quality (HS10283 and HS11462).

More details are in "Explaining US racial/ethnic disparities in health decline and mortality in late middle age: The roles of socioeconomic status, health behaviors, and health insurance, by Drs. Sudano, and Baker, in the February 2006 *Social Science & Medicine* 62, pp. 909-922. ■

Racial/ethnic disparities in knee replacement rates may be partly due to differences in preferences for surgery

At least part of the disparity in total knee replacement (TKR) rates among various racial and ethnic groups may be due to differences in treatment preference, suggests a recent survey. The survey used hypothetical scenarios to ask 193 adults from the general public and 198 patients with knee osteoarthritis about preferences for medical or surgical treatment of knee osteoarthritis. Of all those surveyed, blacks were 37 percent less likely to choose surgery than whites. Women and older individuals were also less likely to choose surgery.

For all racial groups, larger reductions in negative surgery symptoms significantly increased the likelihood of choosing surgery. Also, the cost of surgery highly influenced the decision regardless of income. However, the attributes of TKR that were most influential in the decision about surgery were somewhat different among black and whites, with blacks putting substantially more weight on improvements in walking ability.

More whites than blacks knew someone who had undergone TKR (72 vs. 54 percent). Thus, blacks may be less willing to choose surgery because they are they less familiar with the surgery than whites and have not seen the large improvements in function that are possible following TKR.

These findings could provide clinicians with helpful information they can use when they initiate discussions with patients considering TKR. The study was supported in part by the Agency for Healthcare Research and Quality (HS10876).

See "Racial/ethnic differences in preferences for total knee replacement surgery," by Margaret M. Byrne, Ph.D., Julianne Souchek, Ph.D., Marsha Richardson, M.S.W., and Maria Suarez-Almazor, M.D., Ph.D., in the *Journal of Clinical Epidemiology* 59, pp. 1078-1086, 2006. ■

Also in this issue:

Quality of care in community health centers, see page 7

Intensive care working conditions and nurses, see page 10

Rural nursing home residents and end-of-life care, see page 13

Factors involved in patient counseling for obesity, see page 16

Colorectal cancer screening rates, see page 19

Patient adherence to beta-blocker therapy, see page 22

Health insurance and older working adults, see page 24

Use of asthma care guidelines reduces emergency visits and improves asthma care in children

When primary care practices implement asthma management guidelines, asthma care improves and asthma-related emergency department (ED) and other care visits decline among children with asthma, according to a new study. A team led by Michelle M. Cloutier, M.D., of the University of Connecticut Health Center, examined asthma care and care use among children enrolled in an asthma disease management program, Easy Breathing II. The program was based on national asthma management guidelines and involved 20 private pediatric practices from 2001 through 2003. Overall, 490 of the children studied had asthma.

After being enrolled in Easy Breathing II, children with persistent asthma had a 47 percent increase in use of inhaled corticosteroids (controller medications that can prevent or minimize asthma episodes), a 56 percent reduction in asthma-related outpatient visits, and a 91 percent decrease in ED visits for treatment of asthma. Asthma care also improved. The pediatric practices studied followed national asthma guidelines for prescribing inhaled corticosteroids 95 percent of the time. In addition, 5 years after program implementation, 17 of the 20 practices are still using Easy Breathing II.

Easy Breathing II was designed to aid clinicians in recognizing asthma, classifying asthma severity by using a scripted series of questions, and creating a written asthma treatment plan based on asthma severity. Before implementing Easy Breathing II, practices gave parents a written set of asthma instructions less than 5 percent of the time. These instructions tell parents when to intensify medicine or add additional medicine based on asthma symptoms and readings from a handheld peak flow meter into which the child breathes. The study was supported by the Agency for Healthcare Research and Quality (HS11147).

See "Asthma guideline use by pediatricians in private practices and asthma morbidity," by Dr. Cloutier, Dorothy B. Wakefield, M.S., Pamela Sangeloty-Higgins, M.S., M.P.H., and others, in the November 2006 *Pediatrics* 118(5), pp. 1880-1887.

Editor's note: Another AHRQ-supported article (HS13110) on a related topic concludes that household-reported asthma information does not appear to overlook as many children with active asthma as previously reported. For more details, see Joesch, J.M., Kim, H., Kieckhefer, G.M., and others. (2006, November). "Does your child have asthma? Filled prescriptions and household report of child asthma." *Journal of Pediatric Health Care* 20(6), pp. 374-383. ■

Pulse oximetry and hospital observation can detect failure of amoxicillin treatment earlier in children with severe pneumonia

Unlike the situation in industrialized nations, childhood pneumonia in developing countries is usually caused by bacteria instead of viruses. A recent, hospital-based study found that oral amoxicillin was equal to injectable penicillin for treating children with severe pneumonia in developing countries. This finding supports the home administration of oral amoxicillin. However, a new study indicates that a 12- to 24-hour period of observation in the hospital, ideally with pulse oximetry to measure oxygen saturation, is needed to identify children whose oral amoxicillin treatment has failed and who will need additional treatment. For example, one-fifth of the children in the study needed supplemental oxygen at least once during the first 24 hours of observation, and two-fifths needed bronchodilator therapy.

However, the researchers note that the feasibility of providing observational stays and pulse oximetry for children at first-referral health facilities in developing nations has yet to be determined. They used data from a previously reported, multinational trial of orally administered amoxicillin versus injectable penicillin for the treatment of severe pneumonia in children 3 to 59 months of age. They developed models to assess the ability to predict amoxicillin treatment failure among the 857 children randomly assigned to the

continued on page 5

Pneumonia

continued from page 4

amoxicillin group. The models were based on signs, symptoms, and laboratory data at baseline, 12 hours, and 24 hours later.

Oral amoxicillin treatment failed in 18 percent of children. Based on the models, identification of children at high risk of amoxicillin treatment failure can be achieved with 12 hours of patient observation, if the capacity to measure blood oxygen saturation is available. If it is not, then information gathered after 24 hours of observation without pulse oximetry may be equally beneficial in predicting treatment failure. Oximetry data improved the predictive ability at the child's initial presentation to the hospital, 12 hours, and 24 hours. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00060).

See "Brief hospitalization and pulse oximetry for predicting amoxicillin treatment failure in children with severe pneumonia," by Linda Y. Fu, M.D., M.Sc., Robin Ruthazer, M.P.H., Ira Wilson, M.D., M.Sc., and others, in the December 2006 *Pediatrics* 118(6), pp. e1822-e1830. ■

Tympanometric findings can indicate the probability of middle ear disease in children under age 3

Tympanometry can help clinicians diagnose middle ear effusion (MEE, fluid buildup) in young children, according to a new study. MEE is a component of middle ear infection and also often precedes, follows, or develops independently of middle ear infection. Traditionally, clinicians have diagnosed MEE using an otoscope, a magnifying lighted instrument that is inserted into the ear canal to visualize the ear drum. In infants and young children, however, visualizing the eardrum and interpreting the findings are often problematic.

In tympanometry, a multifunction probe is inserted into the ear canal. The instrument emits a sound signal, varies the air pressure in the canal, and records the level of sound reflected from the eardrum. As pressure is changed artificially from normal atmospheric pressure to either greater or lower pressure, the eardrum is stiffened, causing an increase in the amount of reflected sound. The tympanogram is the graphic tracing of changes in the level of reflected sound as the pressure is alternately raised and lowered. When the middle ear is normally filled with air, the changes in sound reflection are shown by corresponding changes in the graph. When the middle ear is filled with fluid, the eardrum is stiffened so that, irrespective of the changing pressure in the ear canal, the level of reflected sound remains more or less constant, and the tympanogram shows little change and appears "flat."

Previous clinical studies of tympanometry have mainly focused on pass/fail cutoffs for screening purposes. In this study, researchers compared tympanometric findings and otoscopic diagnoses by skilled otoscopists regarding the presence or absence of MEE in a diverse sample of 3,686 otherwise healthy children during their first 3 years of life.

For tympanograms generally, the lower their height and the flatter their appearance, the greater the probability of associated MEE; the probability was somewhat greater when peak pressure was negative rather than positive. For example, among children 6 months of age and older, effusion was diagnosed in only 2.7 percent of ears with tympanometric height of 0.6 mL or higher, but in 80.2 percent of ears with flat tympanograms. The findings for younger infants were similar, but less consistent. From their data, the researchers devised an algorithm for predicting the probability of MEE, depending on specific measured characteristics of the tympanogram. In children in both age groups, the tympanographic configurations most commonly encountered were associated with either a relatively low probability (less than 30 percent) or a relatively high probability (more than 70 percent) of the presence of MEE.

This algorithm performed equally well when applied to a separate group of children. This suggests that the researchers' approach to estimating the probability of MEE is generalizable to other unselected populations of young children. The study was supported in part by the Agency for Healthcare Research and Quality (HS07786).

More details are in "Tympanometric findings and the probability of middle-ear effusion in 3,686 infants and young children," by Clyde G. Smith, Jack L. Paradise, Diane L. Sabo, and others, in the July 2006 *Pediatrics* 118(1), pp. 1-13. ■

Pneumonia-vaccinated children with ear infections may acquire more strains of bacteria that could affect antibiotic treatment

A pneumonia vaccine reduces the incidence of acute otitis media (AOM, acute ear infection) caused by the bacterium *Streptococcus pneumoniae* by 34 percent and reduces the overall incidence of AOM by 6 to 8 percent. However, a new study found that children with AOM who were immunized with the heptavalent pneumococcal conjugate vaccine (PCV7) were as likely as nonimmunized children to have nasopharyngeal colonization with *S. pneumoniae* and were more likely to have other types of bacteria in their nasopharynx. The nasopharynx is located at the back of the throat and has two passages leading to the inner ear, through which bacteria can travel.

The study, supported in part by the Agency for Healthcare Research and Quality (HS10613), raises concern that colonization of the nasopharynx of children with AOM with multiple types of bacteria could increase the likelihood of multiple AOM pathogens. This, in turn, could possibly lead to more children failing to respond to a single-antibiotic treatment for an ear infection. It could also lead to increased risk for developing recurrent AOM after antibiotic treatment. Researchers advise continued vigilance in observing the effect of PCV7 on acute ear infections.

They specifically investigated the impact of PCV7 on nasopharyngeal colonization with *S. pneumoniae*, *Haemophilus influenzae,* and *Moraxella catarrhalis* during AOM in the pre-PCV7 and post-PCV7 vaccination eras. They enrolled 417 children (6 months to 4 years of age) in AOM studies between September 1995 and December 2004. Of these, 200 were enrolled before the vaccine's use (historical controls), and 217 were enrolled after initiation of PCV7 vaccination (101 were underimmunized, that is missed 1 or 2 doses due to early shortage of vaccines, and 116 were immunized). The colonization rate for *S. Pneumoniae* was not different between the three groups. However, a significantly higher proportion of PCV7-immunized children with AOM were colonized with *M. Catarrhalis* (74 percent) compared with historical controls (56 percent) and the underimmunized group (62 percent). Overall, the mean number of pathogenic bacteria types isolated from immunized children (1.7) was significantly higher than in controls (1.4).

See "Effect of pneumococcal conjugate vaccine on nasopharyngeal bacterial colonization during acute otitis media," by Krystal Revai, M.D., M.P.H., David P. McCormick, M.D., Janak Patel, M.D., and others in the May 2006 *Pediatrics* 117(5), pp. 1823-1829. ■

Visits to pediatric practice-based research network offices are representative of national pediatric outpatient visits

Practice-based research networks (PBRNs), in which multiple primary care practices study similar clinical problems, have become an important feature of primary care research. The generalizability of PBRN patient samples has been called into question. However, a new study found no significant differences among the top five practitioner visit diagnoses between the Pediatric Research in Office Settings (PROS) and National Ambulatory Medical Care Survey (NAMCS) data. Thus, the PROS patient population is reasonably representative of patients who are seen in U.S. ambulatory office-based pediatric primary care practices, concludes Eric J. Slora, Ph.D., of the American Academy of Pediatrics.

continued on page 7

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Pediatric outpatient visits

continued from page 6

Dr. Slora and colleagues collected the PROS data of 1,706 pediatric patient visits from the offices of 57 randomly selected network practitioners in 2002. They compared this data to data from the same period of 948 randomly selected pediatric patient visits in the offices of the 33 primary care pediatric practitioners who had participated in the NAMCS. Patient gender, ethnicity, and socioeconomic status, as well as visit characteristics, were similar for both the PROS and NAMCS patients. However, PROS children were about 1 year older and were comprised ofincluded a significantly lower proportion of black patients than their NAMCS counterparts.

The top six reasons for visits mentioned by parents of both groups were remarkably similar in rank order and proportions. However, there were overall differences, mostly attributable to a larger number of the "other" category in the PROS cases. Despite the benefit of PROS "real world" settings and large data samples, the PROS network will need to remain vigilant for biases that might limit the applicability of study conclusions, caution the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS13512).

See "Patient visits to a national practice-based research network: Comparing pediatric research in office settings with the National Ambulatory Medical Care Survey," by Dr. Slora, Kathleen A. Thoma, M.A., Richard C. Wasserman, M.D., M.P.H., and others, in the August 2006 *Pediatrics* 118(2), pp. e228-e234. ■

Patient Safety and Quality

Community health centers provide poorer quality of care to the uninsured with chronic disease

Federally funded community health centers (CHCs) provide a safety net of care for more than 15 million disadvantaged and minority patients in the United States, nearly one-fourth of whom are uninsured. While CHCs don't provide optimal quality chronic disease care, it is similar to that delivered at other sites that provide care for underserved populations, such as hospital-affiliated clinics. However, CHCs provide markedly lower quality of care to the uninsured, according to a new study. The number of uninsured patients served by CHCs is likely to grow in the future, due to anticipated changes in Medicaid eligibility rules, decreases in State-funded insurance programs, and the rising cost of private insurance.

Researchers examined the medical records of patients from a nationally representative sample of Federally funded CHCs in 1999 and 2000. Over one-third of CHC patients were uninsured. The researchers compared CHC care with various care guidelines for asthma, diabetes, and hypertension. Fewer than half of eligible patients received appropriate care for 15 of 22 quality of care indicators examined. Actual performance ranged from 14 percent for a documented asthma management plan to 74 percent for hypertensive patients who had at least one creatinine check to screen for renal dysfunction.

The overall mean care quality scores were 36.8 percent for diabetes, 58.6 percent for hypertension, and 36.8 percent for asthma, with higher scores indicating better quality of care. After adjusting for other factors affecting care, including CHC organizational characteristics, uninsured patients received recommended care less often than patients who were insured. Disparities by race and ethnicity in quality of care for all three chronic conditions were eliminated after adjustment for insurance status. The findings suggest the need to provide additional resources to meet the needs of uninsured patients at CHCs. The study was supported in part by the Agency for Healthcare Research and Quality (HS13653).

See "The quality of chronic disease care in U.S. community health centers," by LeRoi S. Hicks, M.D., M.P.H., A. James O'Malley, Ph.D., Tracey A. Lieu, M.D., M.P.H., and others, in the November 2006 *Health Affairs* 25(6), pp. 1712-1723. ■

Note: Only items marked with a single (*) asterisk are available from the AHRQ Clearinghouse. Items with a double asterisk (**) are available from the National Technical Information Service. See the back cover of *Research Activities* for ordering information. Consult a reference librarian for information on obtaining copies of articles not marked with an asterisk.

Medicare/Medicaid patients with unstable angina receive poorer quality of care than other Medicare patients

A new study found that patients with unstable angina who are insured through both Medicare and Medicaid appear to receive poorer quality of care than patients who have Medicare only or Medicare plus private supplemental insurance. Even after adjustment for demographics and hospital characteristics, Medicare/Medicaid patients (who had more severe heart disease) were 43 percent less likely to see a cardiologist, 34 percent less likely to receive antiplatelet therapy such as aspirin within 24 hours of admission, and 29 percent less likely to receive the blood thinner heparin than other Medicare patients.

Medicare/Medicaid patients were also 32 percent less likely to undergo coronary angiography. However, after adjusting for hospital characteristics, including cardiac catheterization capability (which is needed for coronary angiography), this difference was no longer observed. All Medicare patients received an electrocardiogram within 20 minutes of admission. Beta-blockers were used least in the Medicare-only patients, with only 38 percent of elderly patients receiving them.

These findings were based on retrospective comparison of several measures of quality of care using data from the medical charts of 3,122 black or white Medicare patients over 65 years of age who were hospitalized for unstable angina in 22 Alabama hospitals from 1993 to 1999. Medicare/Medicaid patients were more often black, female, over 85 years old, had multiple medical conditions, or were admitted to hospitals without cardiac catheterization facilities. The study was supported by the Agency for Healthcare Research and Quality (HS08843).

See "Disparities by insurance status in quality of care for elderly patients with unstable angina," by Salpy V. Pamboukian, M.D., M.S.P.H., Ellen Funkhouser, Dr.P.H., Ian G. Child, M.H.S.A., and others, in the Autumn 2006 *Ethnicity & Disease 16*, pp. 799-807. ■

Women's Health

Gastrointestinal complaints in young women of low to normal weight may indicate possible eating disorders

Individuals with eating disorders (EDs), such as anorexia nervosa or bulimia nervosa, typically have numerous gastrointestinal (GI) complaints. Their irregular eating behaviors, such as binging, vomiting, and laxative/diuretic abuse, wreak havoc on the entire digestive tract. A new study found that young men and women (average age of 26 to 27) hospitalized for EDs were 3 times more likely to seek health care for GI problems during their illness than age-matched individuals without an ED (controls). Patients with bulimia nervosa were 2.5 times more likely than controls to seek healthcare for their GI complaints before seeking treatment for eating disorder.

Over 90 percent of the individuals studied were women. Thus, gastroenterologists and primary care physicians should screen young women of low to normal weight with GI complaints for possible EDs. They can use a simple questionnaire that addresses issues such as body image, weight loss, and vomiting. Screening may allow earlier diagnosis and treatment of EDs, which usually leads to better outcomes.

Researchers interviewed 63 patients hospitalized for ED treatment over a 1-year period as well as 47 age-matched medical students without EDs to determine when in the disease course ED patients visited primary care doctors or gastroenterologists for GI complaints. Receipt of diagnostic procedures was similar among study and control patients who sought GI care. However, patients with EDs were significantly more likely to be prescribed medication for the GI tract (primarily acid-suppressing agents) than were controls. ED patients suffered gastroesophageal reflux symptoms at significantly higher rates than did controls (4.6 vs. 0.3 reflux symptoms per week). Rates of irritable bowel syndrome were similar, but the number of patients seeking GI care in both groups was small. The study was supported in part by the Agency for Healthcare Research and Quality (HS13852).

See "Gastrointestinal complaints in patients with eating disorders," by Nathaniel S. Winstead, M.D., M.S., and Susan G. Willard, L.C.S.W., in the September 2006 *Journal of Clinical Gastroenterology* 40, pp. 678-682. ■

Oncologists appear to communicate differently with breast cancer patients depending on women's age, race, education, and income

Oncologists tend to communicate differently with women newly diagnosed with breast cancer, depending on the women's age, race, education, and income, concludes a new study. Researchers audiotaped initial consultations between 58 oncologists at 14 practices with 405 women newly diagnosed with breast cancer. They also conducted interviews with patients and physicians immediately before and after consultations. Despite the inherently emotional nature of the medical visit, there was surprisingly little overt discussion about how the women felt about the diagnosis of breast cancer and how they were coping.

Both patients and physicians spent time trying to establish an interpersonal relationship with each other; however, oncologists spent more time engaged in building relationships with white patients than they did with those of other racial/ethnic groups, and with more educated and affluent patients than with less advantaged patients. The women who asked more questions were younger, white, had more than a high school education, and higher income. These women were also more likely to volunteer information to the physician unasked. Physicians also tended to ask them more questions than other women.

Racial differences occurred in almost every one of the communication categories examined. This may mean a less adequate decisionmaking process for women who are members of racial or ethnic minorities, or who are less affluent, older, or less educated. These communication differences may also lead to disparities in breast cancer outcomes, note the researchers. They suggest that clinicians should be trained during communication skills training to recognize their biases. The study was supported by the Agency for Healthcare Research and Quality (HS08516).

See "Cancer communication patterns and the influence of patient characteristics: Disparities in information-giving and affective behaviors," by Laura A. Siminoff, Ph.D., Gregory C. Graham, and Nahida H. Gordon, Ph.D., in the September 2006 *Patient Education and Counseling* 62, pp. 355-360.

Editor's note: Another AHRQ-supported article on a related topic found that physicians vary in their perspectives on end-of-life care, depending on their race and specialty. For more details, see Carter, C.L., Zapka, J.G., O'Neill, S., and others. (2006). "Physician perspectives on end-of-life care: Factors of race, specialty, and geography." (AHRQ grant HS10871). *Palliative and Supportive Care* 4, pp. 257-271. ■

Model shows contribution of mammography screening and adjuvant therapy to reducing breast cancer deaths from 1975 to 2000

The Wisconsin Breast Cancer Epidemiology Simulation Model estimates that mammography screening and adjuvant therapy helped reduce breast cancer deaths by an average of 35.5 percent from 1975 to 2000. Mammography screening alone reduced deaths an average of 17.9 percent, while the average reduction for adjuvant therapy alone was 20.3 percent. The different modes of adjuvant therapy, depending on cancer stage and year, included chemotherapy alone, tamoxifen alone for 2 years, tamoxifen alone for 5 years, chemotherapy and a 2-year course of tamoxifen, or chemotherapy and a 5-year course of tamoxifen.

The model was designed to replicate breast cancer incidence and mortality rates in a population with the size and age structure of the Wisconsin female population generalized to breast cancer epidemiology in the U.S. population from 1975 to 2000. The model simulated women individually from 1950 (or the year in which they were 20 years of age) until they died a simulated death, achieved age 100, or the simulated year 2000 was reached. The model simulated the natural history of breast cancer from occult onset to breast cancer death; detection of breast cancer by screening mammography or other diagnostic pathways; effectiveness of treatment of breast cancer and diffusion of adjuvant therapies over time; and death from non-breast cancer causes. The model assumed that in 1950 all women were free of breast cancer.

The model calculated age-specific incidence rates by stage and age-specific mortality rates. It may be helpful for addressing questions about the effectiveness of screening and treatment protocols, as well as estimating the benefits to women of specific

continued on page 10

Mammography screening

continued from page 9

ages and screening histories. The model was developed as part of the National Cancer Institute's Cancer Intervention and Surveillance Modeling Network. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00083).

See "The Wisconsin breast cancer epidemiology simulation model," by Dennis G. Fryback, Ph.D., Natasha K. Stout, Ph.D., Majorie A. Rosenberg, Ph.D., F.S.A., and others, in the *Journal of the National Cancer Institute Monographs* 36, pp. 37-47, 2006. ■

Clinic-based and community-based strategies can promote the use of key preventive services by Latina women

Latina women and their young children use fewer preventive health services and have a higher incidence of preventable diseases than whites. Clinic-based and community-based strategies such as use of promotoras, lay health advisors recruited from the Latino community, can increase the use of key preventive health services by Latina women, conclude Melanie Wasserman, Ph.D., of Brown University, and coinvestigators. Their review of interventions that enroll Latina women into preventive reproductive health services (prenatal care, cervical cancer screening, and child immunizations) reached three conclusions. First, every medical encounter is an opportunity to increase use of preventive services by Latina women. Second, promotoras can impact the use of preventive health services, and, third, their effectiveness can be improved.

Several studies demonstrated interventions to reduce missed opportunities. One showed that Pap screening among Latinas could be increased by use of professional interpreters. Another showed that Latino children's immunizations could be improved by having nurses tag the charts of children eligible for specific vaccines. Of particular importance, given the mobility of the Latino population, is asking patients for updated contact information at each clinic visit to facilitate reminder/recall interventions. These reminders, whether in person, by phone, or by letter, increased use of prenatal care, Pap screening, and immunizations. Positive results were also obtained with in-clinic education through videos shown in waiting rooms or during prenatal care visits.

Promotora interventions tended to be well received by Latina women in their reproductive years. Studies also showed that promotoras can positively increase preventive health services use and appear well suited for smaller community applications. Finally, promotoras appear to be only as good as the health systems that they represent. Thus, approaches that combine community-based (promotora, media) outreach with improvements in health care delivery may be more effective. The study was supported in part by the Agency for Healthcare Research and Quality (HS13864).

See "Use of preventive maternal and child health services by Latina women: A review of published intervention studies," by Dr. Wasserman, Deborah Bender, Ph.D., M.P.H., and Shoou-Yih Daniel Lee, Ph.D., in the February 2007 *Medical Care Research and Review* 64(1), pp. 4-45. ■

Acute Care/Hospitalization

Working conditions influence intensive care unit nurses' decision to leave their current position

In a national survey, nearly one-fifth (17 percent) of intensive care unit (ICU) nurses indicated that they intended to leave their current position in the coming year, with 52 percent citing working conditions as the reason. The survey included 2,323 registered nurses (RNs) from 66 hospitals and 110 critical care units. The average RN was nearly 40 years old, had over 15 years of experience in health care, and had worked in their current position for 8 years.

Nurses who intended to leave their current position rated organizational climate factors lower than those who intended to stay. Those who intended to leave rated professional collaboration, nurse competence,

continued on page 11

Working conditions

continued from page 10

and staffing/resources lower than did nurses who were staying. While nurses viewed lack of nurse competence a problem, their perception of a nursing shortage did not seem linked to their intention to leave. However, nurses with less tenure in their current positions were more likely to indicate a desire to leave due to working conditions.

Past estimates of the cost to replace one medical or surgical RN range from $30,000 to $50,000 and closer to $65,000 for critical care nurses. Improving nurses' perceptions of professional practice in the work environment and the clinical competence of nurses, as well as finding ways to support new hires may reduce turnover. It may also help ensure a stable and qualified workforce. This is particularly important given the projected increasing shortage of qualified nurses, note the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS13114).

See "Organizational climate and intensive care unit nurses' intention to leave," by Patricia W. Stone, Ph.D., Elaine L. Larson, Ph.D., Cathy Mooney-Kane, M.P.H., and others, in the July 2006 *Critical Care Medicine* 34(7), pp. 1907-1912. ■

Automated piggyback infusion of intravenous drugs is neither simple nor safe

Many consider piggyback infusion of second intravenous drugs with "smart pumps" a simple task. However, a new study suggests that this practice is neither simple nor safe. Nurses typically use piggyback infusions to give patients a single-dose second intravenous drug when they are already receiving a maintenance infusion drug through an established intravenous access. This is usually done by hanging a second bag of medication and tubing above the first, with the second bag called a piggyback infusion. The nurse rigs the tubing for piggyback administration and programs the infusion device by entering data such as rate and volume of medication to be infused. Once the volume of the piggyback drug infuses, a process that can take several minutes to a few hours, the primary infusion resumes. Piggybacks allow for unattended drug infusion, which allows the nurse to leave the patient to tend to other duties.

To characterize piggyback medication infusion practice, University of Chicago researchers analyzed a U.S. Food and Drug Administration (FDA) database of device-related errors to find problems with automated piggybacks. They also observed 19 senior nursing staff performing piggybacks on different infusion pumps, and analyzed pump operation log files collected from 55 infusion pumps used in a major hospital.

The FDA database revealed 30 incidents of problems with piggyback infusions. Of these, 19 showed overinfusion of medication and 9 reported underinfusion, probably due to incorrect tubing setup. Log files showed that the alarm that alerts the nurse when the piggyback infusion is complete was not used. During programming tasks, experienced nurses struggled to complete the tubing, complex programming, and other requirements needed to complete the piggyback task in 20 (53 percent) of 38 scenarios. The researchers note that additional training cannot compensate for poor piggyback design. They suggest that clinicians be granted the autonomy to use alternative infusion strategies and be informed of the risk of allowing piggybacks to run unattended. The study was supported by the Agency for Healthcare Research and Quality (HS11816).

See "Time to get off this pig's back? The human factors aspects of the mismatch between device and real-world knowledge in the health care environment," by Mark E. Nunnally, M.D., and Yuval Bitan, Ph.D., in the September 2006 *Journal of Patient Safety* 2(3), pp. 124-131. ■

Moderate to severe depressive symptoms are poorly recognized in hospitalized patients with acute coronary syndrome

Many patients with acute coronary syndrome (ACS, unstable angina or heart attack) suffer from major depression. Depression is associated with worse quality of life, recurrent cardiac events, poor treatment adherence, and higher rates of death among patients with ACS. Yet moderate to severe depressive symptoms are poorly recognized in patients hospitalized with ACS, according to a study supported in part by the Agency for Healthcare Research and Quality (HS11282). Researchers found that 18 percent of patients hospitalized with ACS suffered from moderate or severe depressive symptoms; however, depression was recognized in documentation from hospital records in only one of every four of these patients.

Minority patients were nearly 7 times more likely to have their depressive symptoms unrecognized than white patients, and those with no college education were nearly 3 times more likely to have their depressive symptoms unrecognized than those with some college. Finally, patients with an ejection fraction (EF) of less than 40 percent were over 3 times more likely to have unrecognized depressive symptoms than those with an EF of 40 percent or more. EF is the proportion of blood pumped out of the left ventricle with each heart beat. An EF of less than 40 percent is one indicator of a weak heart.

Poor recognition of depression among patients with an EF of less than 40 percent may have been due to physicians ascribing symptoms of fatigue, poor concentration, and poor appetite to their low EF as opposed to depression. Researchers used a Patient Health Questionnaire to assess the presence of 9 depressive symptoms and their frequency among 1,181 patients with confirmed ACS at 2 Kansas City hospitals. They also reviewed patients' hospital records for documentation of depressive symptoms (diagnosis or antidepressant prescription).

See "The prevalence of unrecognized depression in patients with acute coronary syndrome," by Alpesh A. Amin, M.D., Angela M.H. Jones, M.S., Karen Nugent, R.R.T., and others, in the November 2006 *American Heart Journal* 152, pp. 928-934.

Editor's note: Another AHRQ-supported study on a related topic found that ACS patients involved in goal-setting programs after hospitalization tend to select goals most appropriate to improving their health. For example, smokers chose quitting smoking as a goal, while overweight patients chose dietary modification. For more details, see Holtrop, J.S., Corser, W., Jones, G., and others. (2006, July). "Health behavior goals of cardiac patients after hospitalization."(AHRQ grant HS11282). *American Journal of Health Behavior* 30(4), pp. 387-399. ■

Many transplant surgeons are inadequately vaccinated against the hepatitis B virus, exposing themselves and patients to infection

Despite the mandate to offer vaccination against hepatitis B virus (HBV) to all U.S. health care workers, many transplant surgeons remain inadequately vaccinated, according to a survey of active U.S. transplant surgeons. Over one-fifth (23 percent) of the 311 transplant surgeons eligible for HBV vaccination received fewer than the recommended 3 injections. One reason is that transplant surgeons underestimated both the risk of percutaneous exposure (via cuts or needle sticks) to HBV while operating, and the risk of becoming infected with HBV if exposed. For example, inadequately vaccinated transplant surgeons perceived only a 1 percent risk of being infected with HBV during surgery on an HBV-infected patient. However, for inadequately vaccinated surgeons, the true risk is between 10 and 30 percent, note the study authors.

In order to protect surgeons, patients, and operating room staff, they suggest requiring documentation of HBV vaccination or immunity for surgeons to maintain operating room privileges. Of the 94 surgeons (27 percent) reporting at least one needle stick exposure while operating on an HBV-infected patient within the past 2 years, 14 (15 percent) were inadequately vaccinated. Of these 14, only 5 (36 percent) sought appropriate blood testing and counseling for HBV vaccination or immune globulin. Of the 53 surgeons who failed to seek postexposure evaluation, 9 were inadequately vaccinated and thus at maximal risk of HBV infection.

Transplant surgeons who had not been tested for HBV in the past 3 years were twice as likely to be inadequately vaccinated as those who had been tested. Also, surgeons who spent more years in practice and were more fearful of becoming infected with HBV were more likely to be inadequately vaccinated. Education regarding

continued on page 13

Transplant surgeons

continued from page 12

true HBV transmission risks during surgery may encourage more surgeons to volunteer for HBV vaccination, suggest the authors. Their study was supported by the Agency for Healthcare Research and Quality (HS10399).

See "Inadequate hepatitis B vaccination and post-exposure evaluation among transplant surgeons," by Scott D. Halpern, M.D., Ph.D., M.Bioethics, David A. Asch, M.D., M.B.A., Abraham Shaked, M.D., Ph.D., and others, in the August 2006 *Annals of Surgery* 244(2), pp. 305-309. ■

Patients who undergo lumbar spine surgery are likely to have another operation later

Patients considering lumbar spine surgery should be informed that the likelihood of having another spine operation later is substantial. In a new study, Darryl T. Gray, M.D., Sc.D., of the Agency for Healthcare Research and Quality, and colleagues from the University of Washington in Seattle found that about one in five patients who had lumbar spine surgery for degenerative spine disorders underwent another back surgery procedure within the next 11 years. This is higher than commonly reported rates for hip or knee replacement, where 10 percent of patients have a second procedure within 10 years.

Not all reoperations are actually repeat procedures performed at the same operative site. However, those that are imply persistent symptoms, progression of degenerative changes, or treatment complications, explains Dr. Gray. To address this issue, the researchers examined data from Washington State's hospital discharge data, which are contributed to AHRQ's State Inpatient Databases. They identified 24,882 adults who underwent inpatient lumbar surgery for degenerative spine disorders from 1990 to 1993. They had either lumbar decompression surgery or lumbar fusion surgery. A total of 19 percent of patients had another lumbar spine surgery during the subsequent 11 years. Patients with spondylolisthesis had a lower cumulative incidence of reoperation after fusion surgery than after decompression alone (17.1 vs. 28 percent). However, for patients with other diagnoses, the cumulative incidence of reoperation was higher following fusion than following decompression alone (21.5 vs. 18.8 percent).

After fusion surgery, 62.5 percent of reoperations were associated with device complications or unsuccessful fusion rather than with new levels of disease or disease progression. Spinal fusion is sometimes viewed as a definitive procedure that may reduce the need for subsequent surgery. However, this study suggests that, except when performed for spondylolisthesis, fusion procedures for degenerative spine disorders were associated with a higher rate of reoperation beyond 1 year than were decompression procedures alone. Patients and their physicians should consider this when weighing options for treating degenerative diseases of the lumbar spine.

See "Reoperation rates following lumbar spine surgery and the influence of spinal fusion procedures," by Brook I. Martin, M.P.H., Sohail K. Mirza, M.D., M.P.H, Bryan A. Comstock, M.S., and others in the February 2007 *Spine* 32(3), pp. 382-387. Reprints (AHRQ Publication No. 07-R034) are available from AHRQ.* ■

Elderly/Long-Term Care

Rural nursing home residents with dementia are less likely than their urban counterparts to undergo intensive end-of-life care

Extraordinary lifesaving measures instead of comfort care at the end of life are not always in the best interests of frail elderly patients and their families. Yet a new study found that 40 percent of elderly nursing home residents with severe dementia were hospitalized in the last 90 days of life and 9 percent were admitted to an intensive care unit (ICU). Rural residents were less likely than their urban counterparts to undergo the most intensive medical services at the end of life, according to the study supported by the Agency for Healthcare Research and Quality (HS13022).

For example, urban residents were nearly twice as likely as rural residents to have tube feeding, over twice as likely to be admitted to an ICU, and 41 percent more likely to be hospitalized for more than 10 days. Yet urban residents were 22 percent less likely than rural

continued on page 14

Nursing home residents

continued from page 13

residents to be hospitalized during the last 90 days of life. This may have been due in part to fewer staff at rural nursing homes to care for failing residents who, as a result, had to be hospitalized, suggests Charles E. Gessert, M.D., M.P.H., of the SMDC Health System in Duluth, Minnesota.

Dr. Gessert and colleagues examined the use of intensive medical services by analyzing Medicare and Medicaid data from 1998 through 2002 for 3,710 Minnesota and Texas elderly nursing home residents with severe cognitive impairment who died during 2000 and 2001. Race other than white and having a stroke were associated with higher use of all intensive medical services. Medicaid was associated with lower likelihood of any hospitalization and hospitalization for more than 10 days, but was not associated with feeding tube or ICU use by rural or urban residents. Finally, both rural and urban residents who had completed advance directives were less likely than others to undergo most of the intensive medical services at the end of life.

See "Rural-urban differences in medical care for nursing home residents with severe dementia at the end of life," by Dr. Gessert, Irina V. Haller, Ph.D., M.S., Robert L. Kane, M.D., and Howard Degenholtz, Ph.D., in the August 2006 *Journal of the American Geriatric Society* 54, pp. 1199-1205. ■

Elderly people find international medical school graduates to lack in cultural competency and communication skills

Each year in the United States, there are at least 5,000 more openings for first-year residency trainees than there are graduates of U.S. medical schools. As a result, many of these training slots are filled by international medical school graduates (IMGs). Their requirement to return to their home country for at least 2 years upon completion of their medical education can be waived, if they agree to practice in designated rural or inner city physician shortage areas. IMGs provide necessary and needed access to medical care for underserved black and rural elderly populations. However, according to a new study, their lack of communication skills and cultural competency may undermine their contribution to the care of these poor and underserved populations.

Daniel L. Howard, Ph.D., of Shaw University, and colleagues analyzed survey data from 1986 to 1998 from urban and rural elderly persons in five North Carolina counties to determine the impact of medical school graduate status on the care of elderly people in these counties. The group studied included 341 physicians and 3,250 people age 65 and older in 1986, and 211 physicians and 1,222 elderly people by 1998. Nine percent of the elderly people surveyed were treated by IMGs in 1986, and 11 percent were treated by IMGs in 1998. The majority of IMGs were trained in medical schools in developing countries.

Over time, IMGs treated more black elderly people and those who had less education, lower incomes, less insurance, were in poorer health, and who lived in rural areas than graduates of U.S. medical schools (USMGs). However, white elderly people with IMG physicians were more likely to delay getting needed care and were less satisfied with care than those with USMGs. Both black and white elderly people seemed to perceive IMGs as difficult to communicate with, lacking in cultural competency, and reluctant to use expensive treatments, such as surgery. They mentioned that the IMGs did not explain things well, leading them to worry, or made "patients my age" feel foolish. For blacks, perception of IMGs was directly related to issues of cultural competency, communication, and ageism. The study indicated no difference in access to care or consistency of care among elders with USMG versus IMG physicians. The study was supported in part by the Agency for Healthcare Research and Quality (HS13353).

See "Comparing United States verus international medical school graduate physicians who serve African-American and white elderly," by Dr. Howard, Carol D. Bunch, Ph.D., Wilberforce O. Mundia, Th.D., and others in the December 2006 *HSR: Health Services Research* 41(6), pp. 2155-2181. ■

Diabetes increases the risk of dying for patients with suspected acute coronary syndrome

A new study warns that diabetes should be added to the list of high-risk factors that warrant more aggressive treatment of patients with acute coronary syndrome (ACS, heart attack or unstable angina), such as early angiography and use of intravenous glycoprotein inhibitors. About half of ACS patients suffer from diabetes. Current guidelines do not recognize diabetes as a high-risk indicator for ACS patients. Yet the study found that ACS patients with diabetes were at higher risk of dying than ACS patients without diabetes, even after adjustment for elevated troponin-I levels and other high-risk features recognized by the American College of Cardiology (ACC) and American Heart Association (AHA).

The University of Missouri-—Mid America Heart Institute researchers analyzed a registry of 864 ACS patients with and without diabetes. More ACS patients with diabetes than those without died within 30 days (1.7 vs. 0.2 percent). The ACC/AHA high-risk features of ACS that doubled or nearly doubled the risk of death at 2 years included rales (abnormal lung sounds), troponin greater than the upper limit of normal, previous heart attack, and each 10-year increase in age. Each 1 percent decrease in ejection fraction (pumping power of the heart) also raised the risk slightly.

Diabetes also nearly doubled the risk of dying within 2 years, a level or risk similar to elevated troponin levels. Yet, in-hospital angiography was performed less often in ACS patients with diabetes than those without (74 vs. 79 percent). Among patients with diabetes, 82 percent with elevated troponin-I levels underwent in-hospital angiography compared with 66 percent with normal troponin-I levels. A significantly greater number of patients with diabetes with normal troponin-I levels were managed medically (63 vs. 42 percent). Administration of glycoprotein inhibitors was about 3 times more common in patients with diabetes with troponin-I elevation compared with patients without diabetes with normal levels (49 vs. 16 percent). The study was supported by the Agency for Healthcare Research and Quality (HS11282).

See "Suspected acute coronary syndrome patients with diabetes and normal troponin-I levels are at risk for early and late death," by Steven P. Marso, M.D., David M. Safley, M.D., John A. House, M.S., and others, in the August 2006 *Diabetes Care* 29(8), pp. 1931-1932. ■

Individuals who reside in areas with higher median household income have better rates of melanoma survival

A new study confirms findings of other studies that link living in a lower socioeconomic status (SES) area to poorer survival from melanoma, a very aggressive skin cancer. Researchers found that older Medicare-insured patients who lived in areas with an average median household income of $30,000 or less per year were more likely to die within 5 years of melanoma diagnosis than those residing in more affluent areas, even after adjusting for other factors.

University of Texas researchers analyzed data from a population-based cancer registry covering 14 percent of the U.S. population to identify 23,068 elderly patients diagnosed with melanoma between 1988 and 1999. Patients who lived in the lower-income areas had lower 5-year survival rates than those living in more affluent areas (88.5 vs. 91.1 percent). Similarly, higher income was associated with a 12 percent lower risk of dying from melanoma, after adjusting for sociodemographics, cancer stage at diagnosis, cancer thickness, and other factors.

Ethnicity also seemed to play a role in melanoma survival. For whites and all other ethnic groups, 5-year survival rates increased as income increased. However, the effect was greater for other racial groups (77.6 to 90.1 percent) than for whites (89 to 91.9 percent). Older age, male sex, and being unmarried were also associated with greater risk of dying from melanoma. Nodular melanoma was more frequent in persons residing in low SES areas and was associated with a higher risk of dying. In addition, advanced stage at diagnosis and thicker lesions were associated with residing in lower SES areas and with a higher risk of dying. The researchers call for more studies to determine whether low SES leads to later diagnosis, worse tumor characteristics (for example, ulceration), or poorer early detection and surgery of melanoma. Their study was supported in part by the Agency for Healthcare Research and quality (HS11618).

See "Socioeconomic status and survival in older patients with melanoma," by Carlos A. Reyes-Ortiz, M.D., Ph.D., James S. Goodwin, M.D., Jean L. Freeman, Ph.D., and Yong-Fang Kuo, Ph.D., in the November 2006 *Journal of the American Geriatric Society* 54, pp. 1758-1764. ■

Urologists' varied use of androgen deprivation therapy for prostate cancer raises concerns about its appropriate use

The urologist a man sees may be more important than tumor or patient characteristics in determining whether he will receive androgen deprivation therapy for prostate cancer. Androgen deprivation therapy is used in nearly half of men with prostate cancer to reduce levels of the hormone testosterone, which typically fuels the cancer. This potentially toxic and costly therapy is indicated for palliation of cancer metastasis and in locally advanced cancer when combined with radiation. Yet, its use for prostate cancer in circumstances where its benefit is unlikely or unproven increased dramatically during the 1990s.

Researchers found that the individual urologist accounted for 2 times the variance in use of androgen deprivation therapy than tumor characteristics such as stage (23 vs. 10 percent), and nearly 6 times the variance than patient characteristics such as age (23 vs. 4 percent). The substantial variations in use of androgen deprivation therapy among urologists raise concerns about whether the therapy is being used appropriately, note the University of Texas researchers. They suggest that interventions at the level of the urologist (for example, education or change in reimbursement) may be an effective way to modify the use of this therapy for prostate cancer.

The researchers retrospectively studied the role of the urologist in receipt of androgen deprivation therapy among 61,717 men with prostate cancer diagnosed from 1992 through 1999. They identified the men using the Surveillance, Epidemiology and End-Results-Medicare linked database. They also identified 1,802 urologists who cared for the men within 1 year of cancer diagnosis. They estimated the variation in use of the therapy within 6 months of diagnosis based on patient or tumor characteristics and the urologist. The study was supported in part by the Agency for Healthcare Research and Quality (HS11618).

See "Determinants of androgen deprivation therapy use for prostate cancer: Role of the urologist," by Vahakn B. Shahinian, M.D., M.S., Yong-Fang Kuo, Ph.D., Jean L. Freeman, Ph.D., and James S. Goodwin, M.D., in the June 21, 2006 *Journal of the National Cancer Institute* 98(12), pp. 839-845. ■

Primary Care Research

Primary care doctors consider several factors when deciding whether to counsel a patient about obesity

Primary care doctors know that their obese patients are placing themselves at risk for developing diabetes, high blood pressure, and a host of other medical problems, yet they often don't address their patient's weight problem. A complex set of factors influence doctors' decisions to provide preventive counseling for obesity, according to a new study. Several factors "set the stage" for the discussion. For example, most clinicians identified their belief that people who are not obese have a better quality of life as the most important factor in their decision to counsel. They are more inclined to address the topic of weight and exercise if they feel that the patient is motivated to change, has the personal resources to do so (for example, a safe neighborhood to walk in), and has fewer social and economic barriers to change.

Other factors emerge "as the door opens" into the examination room. For instance, clinicians judge a patient's body language and comments as indicative of receptivity to weight counseling, as well as their general knowledge of the patient. Doctors also look for a teachable moment. For example, when discussing the patient's diabetes or arthritis, they can mention that these conditions are worsened by obesity. The patient also may have other pressing matters that need to be addressed during the visit that compete with obesity counseling for time. Finally, the number of patients waiting to be seen, office staff present, and time of day also influence the delivery of weight counseling.

Thus, a wide range of competing demands affect both clinicians and patients, which may get in the way of obesity counseling, explains Robert L. Williams, M.D., M.P.H., of the University of New Mexico. Dr. Williams and colleagues, supported in part by the Agency for Healthcare Research and Quality (HS13496), surveyed 195 members

continued on page 17

Obesity counseling

continued from page 16

of a Southwestern practice-based research network. They also examined the responses of 30 primary care network clinicians, who either were interviewed or participated in focus groups on the topic of preventive counseling for obesity.

More details are in "The art and complexity of primary care clinicians' preventive counseling decisions: Obesity as a case study," by Andrew L. Sussman, Ph.D., M.C.R.P., Dr. Williams, Robert Leverence, M.D., and others, in the July 2006 *Annals of Family Medicine* 4(4), pp. 327-333. ■

Poor communication between patients taking warfarin and their doctors may place them at risk for stroke and bleeding

Anticoagulant medication, such as warfarin, is the cornerstone of care for patients with atrial fibrillation (abnormal heart rhythm) and other conditions that increase the risk of blood clots. Patients who take warfarin must have their blood coagulation status—international normalized ratios (INRs)—monitored regularly. When INRs fall outside the therapeutic range, underanticoagulation can result in stroke and overanticoagulation can result in internal bleeding. These problems can occur even when patients never miss a dose of warfarin because they may not be taking the warfarin regimen that their doctor thinks they are taking.

Researchers, supported in part by the Agency for Healthcare Research and Quality (HS10856), found that half of patients receiving weekly warfarin at an anticoagulant clinic took regimens that did not agree with their clinicians' report. This medication discordance, a possible result of miscommunication, could place patients at risk for stroke or internal bleeding. They measured missed warfarin doses and concordance between patients' and providers' reports of weekly warfarin doses among 220 patients at an anticoagulation clinic. They defined unsafe INR values as less than 2.0 (at risk for blood clots) and more than 4.0 (at risk for hemorrhage).

While nearly one-third of the patients reported missing at least 1 day of warfarin during the previous 30 days, half of all patients reported a warfarin regimen that deviated from that recommended by their doctor. Poor adherence (one or more missed doses) was associated with 2.3 times greater risk of underanticoagulation, but was not associated with overanticoagulation. Among the 71 percent adherent patients, discordance was associated with nearly 2 times greater risk of underanticoagulation, and 3.4 times greater risk of overanticoagulation.

In a companion study, researchers found that limited literacy and limited English proficiency were associated with higher rates of warfarin regimen discordance in this sample. Of note, having subjects identify their regimen using a visual aid led to lower rates of discordance overall and eliminated literacy and language-related disparities. These studies suggest that routinely assessing for regimen discordance through the use of a visual aid can promote patient safety in anticoagulation care, especially for patients with communication barriers.

See "The importance of establishing regimen concordance in preventing medication errors in anticoagulant care," by Dean Schillinger, M.D., Frances Wang, Ph.D., Maytrella Rodriguez, and others, in the September 2006 *Journal of Health Communication* 11, pp. 555-567; and "Language, literacy, and communication regarding medication in an anticoagulation clinic: A comparison of verbal vs. visual assessment," by Dean Schillinger, M.D., Frances Wang, Ph.D., Jorge Palacios, and others, in the October-November 2006 *Journal of Health Communication* 11, pp. 651-664.

Editor's note: Another AHRQ-supported article on medication discrepancies describes how a consultant pharmacist uncovered discrepancies in the drug regimen of an elderly woman transferred to an assisted living facility, which may have contributed to some of her current health problems. For more details, see Greene, H.A., and Slattum, P.W. (2006, August). "Resolving medication discrepancies." (AHRQ grant HS11928). *The Consultant Pharmacist* 21, pp. 643-647. ■

Primary care clinicians often fail to follow practice guidelines when treating patients with sore throats

When doctors see patients with sore throats (pharyngitis), a chief concern is to diagnose or rule out strep throat (caused by the bacterium group A B-hemolytic streptococci). Yet in two-thirds of sore throat visits, primary care clinicians do not follow any available clinical guideline. During these visits, doctors frequently give a strep test to or prescribe antibiotics for patients who are at low risk of strep throat, or for whom tests and antibiotics are not recommended, note researchers at Brigham and Women's Hospital in Boston.

To measure the rate of physician adherence to 3 guidelines, the researchers retrospectively analyzed visits to Boston area primary care clinics by 2,097 adults diagnosed with pharyngitis. The three guidelines included the American College of Physicians (ACP) empirical strategy, the ACP test strategy, and the Infectious Diseases Society of America (IDSA) strategy. Primary care clinicians followed the ACP empirical strategy in 12 percent of visits, the ACP test strategy in 30 percent of visits, and the IDSA strategy in 30 percent of visits. Physicians followed none of these strategies in 66 percent of visits.

The ACP recommends evaluation of adults with pharyngitis using the four-point Centor criteria: fever, absence of cough, tender and swollen anterior lymph nodes, and exudate (pus) on the tonsils. The ACP recommends two potential treatment strategies: empirical antibiotic treatment of patients who meet three of the four Centor criteria (ACP empirical strategy), or testing patients with two or three criteria using a rapid strep test and prescribing antibiotics to patients with a positive test or with four criteria (ACP test strategy). The IDSA guideline agrees with the ACP guideline that adults with zero or one Centor criteria, who are at low risk for strep throat, should neither be tested nor treated with antibiotics. However, the IDSA recommends microbiologic confirmation for all adults with pharyngitis prior to antibiotic prescribing. The study was supported in part by the Agency for Healthcare Research and Quality (HS14420 and HS14563).

More details are in "Evaluation and treatment of pharyngitis in primary care practice," Jeffrey A. Linder, M.D., M.P.H., Joseph C. Chan, B.S., and David W. Bates, M.D., M.Sc., in the July 10, 2006 *Archives of Internal Medicine* 166, pp. 1374-1379. ■

Factors leading to gout and its management are different in women and men

About 5 million Americans suffer from gout, a painful inflammation of joints caused by defects in uric acid metabolism. While gout has long been thought of as a condition primarily affecting men over the age of 60, women may come down with gout as often as men. Factors leading to gout, as well as its management, are different in women and men, according to a new study. Women with gout were older (mean age of 70 vs. 58), had a greater number of coexisting medical conditions, and received diuretics more often (77 vs. 40 percent). Diuretics are often used to control hypertension, which is more common in women than in men over the age of 50. Both diuretics and hypertension predispose a person to gout. Thus, current recommendations of diuretics for hypertension may affect the rate of gout, particularly among older women, note the researchers.

The researchers examined data from 1.4 million members of 7 U.S. managed care plans from 1999 through 2003. They identified 6,133 adult members with gout (4,975 men and 1,158 women). They also identified new users of urate-lowering drugs (ULDs). About 56 percent of men and women received the ULD allopurinol, yet, after controlling for age, coexisting conditions, and use of diuretics, women were less likely to receive this medication. Women received glucocorticoids and narcotics more often than men, possibly suggesting they had more severe or chronic gout, or were less tolerant of other gout treatments. Further study is needed to determine whether the elevated use of glucocorticoids and narcotics by women in this study was in fact related to gout or was related to the presence of other conditions where these medications can be used.

Only 37 percent of new users of ULDs had appropriate surveillance of serum urate levels within 6 months after beginning treatment with ULDs. However, after controlling for age, coexisting conditions, gout treatments, number of ULD dispensings, and health plan, women were 36 percent more likely to receive the recommended serum urate

continued on page 19

Gout

continued from page 18

level monitoring. The study was conducted by researchers at the Centers for Education and Research at the HMO Research Network and the University of Alabama, which are supported by the Agency for Healthcare Research and Quality (HS10391 and HS10389).

See "Sex differences in gout epidemiology: Evaluation and treatment," by Leslie R. Harrold, M.D., M.P.H., Robert A. Yood, M.D., Ted R. Mikuls, M.D., and others, in the October 2006 *Annals of the Rheumatic Diseases* 65, pp. 1368-1372. ■

Blood-sugar levels rise with age, even among people without diabetes

It is well-known that aging increases the likelihood of developing diabetes and associated cardiovascular disease (CVD). However, a new study reveals that blood-sugar levels rise with age even among people without diabetes who have normal glucose tolerance (NGT). Age-related impairment of glucose handling might increase the risk of CVD, even when patients do not meet standard criteria for the diagnosis of diabetes or prediabetes, suggest researchers at Emory University. They found that among older adults with NGT, older age was associated with an increase in glucose concentrations 1 hour (1-h OGTT) after an oral glucose challenge, the standard test for diagnosing diabetes by fasting and 2-h OGTT glucose concentrations. This was after controlling for body mass index and physical activity, which can also affect glucose levels.

Each 10-year increase in age conferred an additional 0.20 mmol/l increase in the 1-h OGTT glucose. Moreover, the researchers uncovered an interaction between age and gender, with 1-h OGTT glucose concentrations rising more rapidly with increasing age in men than in women. Smoking, having a family history of diabetes, and having more features of the metabolic syndrome were also associated with higher 1-h OGTT concentrations.

These findings suggest that higher 1-h OGTT glucose concentrations may play a role in the age-related risk in CVD incidence and mortality, as well as the higher incidence of CVD among men than women. The results were based on analysis of the relationship between age and documented 1-h OGTT glucose concentrations among 2,591 adults with NGT who participated in the 1976-1980 National Health and Nutrition Examination Survey. The study was supported in part by the Agency for Healthcare Research and Quality (AHRQ HS09722).

See "Postchallenge glucose rises with increasing age even when glucose tolerance is normal," by Mary K. Rhee, M.D., David C. Ziemer, M.D., Paul Kolm, Ph.D., and Lawrence Phillips, M.D., in the November 2006 *Diabetic Medicine* 23, pp. 1174-1179.

Editor's note: Another AHRQ-supported study on diabetes found that administrative staff were more likely to rate their clinics higher on each structural dimension in the Assessment of Chronic Illness Care (ACIC) survey than caregivers or an external observer. For more details, see Kaissi, A.A., and Parchman, M. (2006, June). "Assessing chronic illness care for diabetes in primary care clinics." (AHRQ grant HS13008). *Journal on Quality and Patient Safety* 32(6), pp. 318-323. ■

Rates of colorectal cancer screening increased modestly from 2000 to 2003, but still remain low

Colorectal cancer (CRC) is a common cancer among both men and women in the United States. Despite recommendations for people to begin CRC screening at age 50, only about half of this age group has been screened for CRC, according to a new study. A growing number of States now mandate that private insurers cover CRC screenings, and Medicare began coverage for CRC screening in 2000. Despite these shifts in policy, rates of CRC screening increased only modestly from 2000 to 2003 and still remain low. Based on data from the 2000 and 2003 National Health Interview Surveys of U.S. households, 55 percent of adults 50 years and older had been screened for CRC in 2003 compared with 53 percent in 2000.

However, most people who were screened at all were up-to-date with screening. Among adults who ever underwent CRC screening, 76 percent were up-to-date with screening in 2003 compared with 68 percent

continued on page 20

Colorectal cancer screening

continued from page 19

in 2000. In both time periods, individuals more likely to be up-to-date with screening were those with higher income, more education, insurance coverage, a usual source of care, and a dental visit in the last year.

From 2000 to 2003, there was increased use of colonoscopies, but decreased use of fecal occult blood tests and sigmoidoscopies. A fecal occult blood test is recommended each year, a sigmoidoscopy every 5 years, and a colonoscopy every 10 years. The researchers call for more studies to uncover barriers to CRC screening and to develop strategies to overcome them. Their study was supported in part by the Agency for Healthcare Research and Quality (HS10771 and HS10856).

See "Rates and predictors of colorectal cancer screening," by Su-Ying Liang, Ph.D., Kathryn A. Phillips, Ph.D., Mika Nagamine, Ph.D., and others, in the October 2006 *Preventing Chronic Disease*, which is available at www.cdc.gov/pcd/issues/2006/oct/06_0010.htm.

Editor's note: Another AHRQ-supported article by the same group of researchers concluded that few studies of cancer screening preferences exist. The available studies examine only a few types of cancer and do not explore practice and policy implications in depth. For more details, see "A review of studies examining stated preferences for cancer screening," by Phillips, K.A., Van Bebber, S., Marshall, D., and others, in the July 2006 *Preventing Chronic Disease*, which is available at www.cdc.gov/pcd/issues/2006/jul/05_0208.htm. ■

Fewer than half of rural residents in Iowa are screened for colorectal cancer

With appropriate screening, colorectal cancer (CRC) can be largely prevented or caught and effectively treated in its early stages. Recommended guidelines suggest screening at certain intervals, depending on the specific test, beginning at age 50. Yet fewer than half (46 percent) of rural Iowa patients cared for by family physicians had up-to-date CRC screening, according to a new study. In addition, over half (62 percent) of these patients were tested because they had potential symptoms of CRC, such as anemia, blood in the stool, appetite change, abdominal pain, or weight loss.

Adequate discussion of CRC testing is complex, time consuming, and competes with other demands on the physician's time during office visits. Yet physician recommendations and how they present them to patients can greatly influence whether patients are tested, note the University of Iowa researchers. Among patients without symptoms of CRC who were screened, 90 percent recalled their physician recommending screening compared with 37 percent of those not up-to-date with CRC screening.

After excluding patients who had symptoms prior to screening, the chances of being tested in accordance with recommended guidelines doubled with government insurance compared with having other insurance, and more than doubled if patients had a health maintenance visit in the preceding 26 months. Having a family history of CRC, patient belief in the importance of CRC screening, patient satisfaction with doctor's discussions, and physicians trained in flexible sigmoidoscopy also significantly increased the likelihood that a patient would be screened for CRC. The findings were based on a study of 511 randomly selected rural patients aged 55 to 80 years who saw 16 board-certified Iowa family physicians in 2004. The researchers linked patient survey and medical record information to physician surveys to examine predictors of CRC testing. The study was supported in part by the Agency for Healthcare Research and Quality (HS14490 and HS13581).

More details are in "Colorectal cancer testing among patients cared for by Iowa family physicians," by Barcey T. Levy, Ph.D., M.D., Jeffrey Dawson, Sc.D., Arthur J. Hartz, M.D., Ph.D., and Paul A. James, M.D., in the September 2006 *American Journal of Preventive Medicine* 31(3), pp. 193-201. ■

High out-of-pocket costs for antiretroviral therapy are linked to more treatment failures among HIV-infected patients in Botswana

A new study indicates that among patients in Botswana, higher median out-of-pocket costs for the initial 30 days of highly active antiretroviral therapy (HAART) ($32) were associated with failure to achieve an undetectable viral load (plasma HIV-1 RNA of less than 400 copies/ml). As scale-up efforts in subSaharan Africa progress, HAART costs should be minimized, suggest the researchers at the University of Pennsylvania Center for Education and Research on Therapeutics.

They retrospectively studied the viral loads of HIV-infected patients at a private medical clinic in Botswana. HIV viral loads and CD4 cell counts (another indicator of HIV disease progression) were routinely measured at the clinic prior to and within 4 to 12 months after patients began HAART. An electronic pharmacy database contained drug prescription and cost information. Of 304 patients studied, 183 (60 percent) achieved an undetectable viral load within 12 months after starting HAART.

Initial out-of-pocket HAART cost was nearly 50 percent higher in those who did not achieve an undetectable viral load (median of $32) than those who did (median of $22). This analysis suggests that higher HAART costs lead to both treatment discontinuation and poorer treatment adherence. The study was supported by the Agency for Healthcare Research and Quality (HS10399).

See "Out-of-pocket costs of HAART limit HIV treatment responses in Botswana's private sector," by Gregory P. Bisson, M.D., Ian Frank, M.D., Robert Gross, M.D., M.S.C.E., and others, in *AIDS* 20(9), pp. 1333-1336, 2006. ■

Updated pharmacy data can track whether HIV patients are maintaining enough adherence for treatment success

Patients must adhere to antiretroviral therapy more than 95 percent of the time in order to have the best chance of maintaining HIV suppression. Lower medication adherence, which can be uncovered by data on patient drug refills, can clue clinicians that intervention may be needed to boost suppression of HIV, suggest researchers at the University of Pennsylvania Center for Education and Research on Therapeutics. They examined a population-based group of HIV-infected adults residing in British Columbia, Canada, who started receiving antiretroviral therapy between August 1, 1996 and September 30, 2003. These adults had at least two consecutive viral loads less than 500 copies/mL (undetectable) and had antiretroviral prescriptions filled at least 3 times during a followup period ending September 30, 2004.

The researchers defined treatment failure as the second of two consecutive viral loads more than 1000 copies/mL, the clinical cutoff for maintaining a treatment response to antiretroviral drugs. Among the 1,634 HIV-infected adults who began triple combination antiretroviral therapy during the study, 37 percent had a rebound in HIV load (treatment failure), with a median time to rebound of 22 months.

After accounting for other factors that might confound the relationship between drug adherence and viral failure (for example, CD4 cell count, injection drug use, age, and sex), adults with 95 percent or less adherence to antiretroviral medication were 1.66 times more likely to experience treatment failure than those with greater than 95 percent adherence. Overall, 34 percent of those with more than 95 percent adherence had virological failure compared to 41 percent of those with 70 to 95 percent adherence and 63 percent of those with less than 70 percent adherence. The study was supported in part by the Agency for Healthcare Research and Quality (HS10399).

See "A simple, dynamic measure of antiretroviral therapy adherence predicts failure to maintain HIV-1 suppression," by Robert Gross, M.D., M.S.C.E., Benita Yip, Vincent Lo Re III, M.D., and others, in the October 15, 2006 *Journal of Infectious Diseases* 194, pp. 1108-1114. ■

Prescription drug coverage does not assure long-term adherence to beta-blocker therapy following a heart attack

Taking beta-blockers for a sustained period of time after a heart attack improves survival and reduces the risk of another heart attack. Yet a new study found that less than half of heart attack patients regularly took beta-blockers during the first year after their heart attack. This predominantly young, working-age group had health insurance and prescription drug coverage. Thus, factors in addition to medication cost probably influenced their long-term adherence to beta-blocker therapy, according to researchers at the Duke Center for Education and Research on Therapeutics, which is supported by the Agency for Healthcare Research and Quality (HS10548).

Researchers examined claims records from members of 11 health plans, who had a heart attack in 2001, survived at least 1 year, and maintained insurance coverage. They defined patients as adherent to beta-blockers if they had prescription claims covering 75 percent or more days in the year after discharge from the hospital. They also examined the association of type of health plan, patient age group and sex, and other factors related to beta-blocker adherence.

During the year after hospital discharge, only 45 percent of patients were adherent to beta-blockers, with the biggest drop in adherence between 30 and 90 days. After accounting for multiple factors, significant predictors of lower adherence were participation in a Medicare+Choice (M+C) plan (compared with a commercial plan), residence in the Southeast, and younger age (35 to 64 years), driven by younger M+C participants (disabled or with end-stage renal disease) and by younger women within commercial plans.

The finding of lower adherence in M+C enrollees needs further study, suggest the researchers. Other cited research indicates that patients with M+C plans are more likely than patients in commercial plans to have caps on prescription coverage, tiered co-pays for generic versus patented medications, or generic-only coverage. Thus, the authors suggest that patients in M+C may have faced higher "out-of-pocket" costs than those in commercial plans. However, this study could not distinguish between patients who did not take their medications and those who purchased their drugs "out-of-pocket" without filing a prescription claim.

Although the study did not show an overall effect of sex, the subgroup of women aged 35-64 years with commercial insurance were less likely than men in their age group and less likely than older women to adhere to beta-blockers. Educational campaigns like the National Heart Lung and Blood Institute's "Heart Truth Campaign" and the American Heart Association's "Go Red for Women" are needed for younger women. To reap the potential benefits of beta-blockers to prevent problems after heart attack, programs must raise awareness among physicians, patients, and the public about the importance of maintaining beta-blocker therapy after heart attack. Interventions to improve beta-blocker adherence after heart attack must occur early (in the first month or 2 after discharge).

See "National evaluation of adherence to B-blocker therapy for 1 year after acute myocardial infarction in patients with commercial health insurance," by Judith M. Kramer, M.D., M.S., Bradley Hammill, M.A., Kevin J. Anstrom, Ph.D., and others, in the September 2006 *American Heart Journal* 152, pp. 454e1-454e8. ■

New webliography identifies reliable prescription medication Web sites for consumers

The overwhelming volume, technical complexity, and uncertain reliability of drug information on the Internet can be confusing to consumers. As a result, patients often ask health professionals for guidance in selecting reliable Web sites or evaluating Internet information. Researchers at the University of Arizona Center for Education and Research on Therapeutics have developed a webliography, an annotated list of reliable prescription medication Web sites, which can help consumers as well as health professionals who responding to patients' requests.

The researchers applied evaluation criteria developed by pharmacists and health communication specialists to produce the Internet-accessible prescription medication information webliography. The Web sites they evaluated offered medication information that varied greatly in content and quality. About one-third of the Web sites

continued on page 23

Webliography

continued from page 22

did not include features deemed necessary for a high quality consumer-oriented Web site. Based on criteria from the specialists, the researchers selected 10 Web sites with the highest scores to include in the webliography.

The three highest scoring Web sites as of May, 2006 were Anthem Blue Cross and Blue Shield, the U.S. National Library of Medicine, and Healthvision. The study was supported by the Agency for Healthcare Research and Quality (HS10385). The webliography is available online in printable formats at www.azcert.org/consumers/webliography/index.html.

See "Development of a prescription medication information webliography for consumers," by Yu Ko, M.S., Mary Brown, Ph.D., Rowan Frost, B.S, and Raymond L. Woosley, M.D., Ph.D., in the December 2006 *Journal of General Internal Medicine* 21, pp. 1313-1316. ■

Prior use of fluoroquinolone antibiotics boosts the risk of fluoroquinolone-resistant infections

Fluoroquinolines (FQs) are a class of antibiotics with few side effects that are effective against a broad spectrum of bacteria. Widespread use has resulted in an increasing number of FQ-resistant bacterial infections in both hospitals and long-term care medical facilities, according to two studies supported by the Agency for Healthcare Research and Quality (HS10399). Continued widespread FQ use may limit the utility of this broad-spectrum, oral antibiotic class, according to researchers at the University of Pennsylvania Center for Education and Research on Therapeutics.

In the first study, researchers found that long-term care patients who had used FQ antibiotics in the past were at greater risk of developing FQ-resistant *Escherichia coli* urinary tract infections (UTIs). While prior FQ exposure is a well-established risk factor for FQ-resistant infection in the acute care setting, this study is the first to extend these findings to the long-term care setting. A study of inpatients in the Philadelphia Veterans Administration Nursing Home Care Unit between 2000 and 2004 found that of 102 men with at least 1 urine culture positive for *E. coli* during the study period, 45 percent had FQ-resistant *E. coli.* Of these patients, 33 met clinical criteria for FQ-resistant *E. coli* infections and were designated as cases. They were compared with 132 controls. Prior FQ use and urinary catheterization (a well-known risk factor for UTIs) were found to be strong risk factors for the development of an FQ-resistant *E. coli* UTI. However, neither duration of use nor number of courses of FQ therapy were significant risk factors.

In the second study, the researchers studied all *Pseudomonas aeruginosa* isolates at one hospital laboratory between 1991 and 2000 to examine trends in the prevalence of FQ-resistant *P. aeruginosa* (FQRPA). Annual hospital prevalence of FQRPA increased from 15 percent in 1991 to 41 percent in 2000. In a separate case, a control study of isolates identified in 1999 and 2000, FQRPA was associated with prior FQ use. The researchers note that *P. aeruginosa* infections have been associated with considerable morbidity and mortality, and that FQs are the only oral therapy available for these infections.

For more details, see "Fluoroquinolone-resistant *Escherichia coli* in the long-term care setting," by Alana E. Cohen, M.D., Ebbing Lautenbach, M.D., M.P.H., M.S.C.E., Knashawn H. Morales, Sc.D., and Darren R. Linkin, M.D., M.S.C.E., in the November 2006 *American Journal of Medicine* 119(11), pp. 958-963; and "Fluoroquinolone-resistant *Pseudomonas aeruginosa:* Assessment of risk factors and clinical impact," by Leanne B. Gasink, M.D., Neil O. Fishman, M.D., Mark G. Weiner, M.D., and others, in the June 2006 *American Journal of Medicine* 119(6), pp. 526-532. ■

Extending health insurance coverage to older working adults may substantially improve their health

Most older working adults (45 to 64 years) obtain their health insurance coverage through employer-sponsored and other private insurance plans. Extending health insurance to this older group of workers may improve their health, perhaps substantially, concludes a new study. An additional benefit is better health by the time they qualify for Medicare at age 65, accruing potential savings to Medicare. Preliminary results from the study suggest that expanding coverage for this group benefited the health of all older workers, including those with chronic illnesses such as diabetes and hypertension.

Investigators analyzed 1992 and 1996 data on older workers from the Health and Retirement Study (HRS), a household survey of mostly working age adults. They examined health insurance status and a health index for 1992 (baseline) and 1996. The health index is a summary measure of self-reported overall health, two measures of physical limitations (mobility and agility), and a measure of pain, with higher values indicating better health. They also examined baseline socioeconomic variables, past health behaviors such as smoking, and number of chronic conditions.

Overall, lack of insurance had a significant 2 to 11 percent negative impact on workers' health over the 4-year period. This insurance effect increased up to six-fold after adjustment for State union membership (which affects likelihood of insurance coverage) and State unemployment rate. Results were consistent across various models, with no significant difference in the insurance effect for subgroups with and without major chronic conditions. Ultimately, policy choices for expanding coverage would depend on the tradeoff between programmatic costs for extending coverage and worker health benefits, conclude the researchers. Their work was supported in part by the Agency for Healthcare Research and Quality (HS10283).

More details are in "The effect of private insurance on the health of older, working age adults: Evidence from the health and retirement study," by Avid Dor, Ph.D., Joseph Sudano, Ph.D., and David W. Baker, Ph.D., in the June 2006 *HSR: Health Services Research* 41(3), pp. 759-787. ■

Agency News and Notes

New checklists help men and women know which medical tests are needed to stay healthy at any age

The Agency for Healthcare Research and Quality (AHRQ) has released two new evidence-based checklists designed to help men and women understand which medical tests they need to stay healthy at any age. The men's and women's versions of *Your Checklist for Health* show at a glance what the U.S. Preventive Services Task Force recommends regarding screening tests, preventive medicine, and other healthy lifestyle behaviors.

Your Checklist for Health, available in English and Spanish, is a pocket-size brochure designed to be taken with patients when they visit their health care providers to make it easier to talk about which screening tests they might need. Unlike diagnostic tests, which clinicians order when they suspect someone has a disease, screening tests help check for problems before they have symptoms. Both checklists provide tips about other things to do to stay healthy, such as eating a healthy diet and exercising. A chart to record a patient's screening test history and help plan followup medical appointments also is included.

The checklist for men includes recommendations about cholesterol checks, tests for high blood pressure, colorectal cancer screening, and recent Task Force recommendations on screening for abdominal aortic aneurysm, HIV, and obesity. The checklist for women includes recommendations about screening for high cholesterol; breast, cervical, and colorectal cancers; and osteoporosis. It also includes recent Task Force

continued on page 25

New checklists

continued from page 24

recommendations on obesity screening and screening for HIV for all pregnant women.

Men: Stay Healthy at Any Age, Your Checklist for Health (AHRQ Publication No. 07-IP006-A) and *Women: Stay Healthy at Any Age, Your Checklist for Health* (AHRQ Publication No. 07-IP005-A) are available on the AHRQ Web site at www.ahrq.gov/ppip/ healthymen.htm and www.ahrq.gov/ ppip/healthywom.htm. Printed copies are also available through AHRQ.*

Editor's note: The U.S. Preventive Services Task Force is an independent panel of experts in prevention and primary care. The Task Force conducts rigorous, impartial assessments of the scientific evidence for the effectiveness of a broad range of clinical preventive services, including screening, counseling, and preventive medications. Its recommendations are considered the gold standard for clinical preventive services. AHRQ provides technical and administrative support, but the recommendations of the panel are its own. ■

HCUP adds new interactive overview course on HCUP-US Web site

HCUP has developed a free interactive self-administered course about the Healthcare Cost and Utilization Project, which is online on the HCUP User Support Website. The course provides an overview of HCUP data, software tools, and products. The curriculum covers the features, capabilities, and potential uses of HCUP resources. Included is information on where and how to access the data, tools, and technical support. The online course is modular, making it possible to either move through the entire course, or access exactly those data resources, tools, or products most valuable for your research. Visit www.hcup-us.ahrq.gov/ and check under "What's New" to find the link to this new overview course. ■

Register now for HCUP hands-on workshop at the 2007 AcademyHealth Annual Research Meeting

HCUP staff will conduct a full-day interactive seminar on June 2 for researchers interested in learning how to utilize HCUP tools and databases through hands-on access and manipulation of HCUP data. The session—Powerful Data, Meaningful Answers: Hands-On Training with HCUP Data—is part of a series of AcademyHealth seminars on health services research methods. More information is available on the AcademyHealth Conference Website at www.academyhealth.org/arm/adjunct/ seminars.htm. Registration is required and space is limited, so please sign up soon. Other upcoming HCUP events are listed on the HCUP Web site at www.hcup-us.ahrq.gov under "News and Events." ■

Announcements

HHS Secretary appoints new members to AHRQ National Advisory Council

Health and Human Services Secretary Mike Leavitt appointed six new members and reappointed two members to serve on the National Advisory Council for the Agency for Healthcare Research and Quality. The council, which consists of 21 members from the private sector and 7 ex-officio members from other Federal health agencies, provides advice to Leavitt and AHRQ Director Carolyn M. Clancy, M.D.

Reappointed member J. James Rohack, M.D., Senior Staff Cardiologist and Medical Director, Scott and White Health Plan, Scott and White Clinic, Temple, TX, was

continued on page 26

AHRQ National Advisory Council

continued from page 25

apointed as new chair. Andrew J. Fishmann, M.D., Director, Intensive Care, Good Samaritan Hospital, Los Angeles, CA, has also been reappointed to the National Advisory Council.

The six new council members are:

Jane F. Barlow, M.D., M.B.A., Well-being Director, IBM Corporation, Somers, NY

Timothy J. Brei, M.D., Clinical Assistant Professor of Pediatrics, the James Whitcomb Riley Hospital for Children, Indianapolis, IN

M. Carolina Hinestrosa, M.A., M.P.H., Executive Vice-President of Programs and Planning, National Breast Cancer Coalition, Washington, DC

Thomas P. Miller, J.D., Resident Scholar, American Enterprise Institute, Washington, DC

Neil R. Powe, M.D., M.P.H., M.B.A., Professor of Medicine, Epidemiology and Health Policy & Management, Johns Hopkins University School of Medicine, Baltimore, MD

Anthony C. Wisniewski, J.D., Executive Director of Health Policy, U.S. Chamber of Commerce, Washington, DC ■

Research Briefs

Asplin, B.R., Flottemesch, T.J., and Gordon, B.D. (2006). "Developing models for patient flow and daily surge capacity research." (AHRQ grant HS13007). ***Academic Emergency Medicine*** **13, pp. 1109-1113.**

Between 1993 and 2003, visits to U.S. emergency departments (EDs) jumped 26 percent to a total of 114 million visits a year. At the same time, the number of U.S. EDs decreased by more than 400 and nearly 200,000 inpatient hospital beds were taken out of service. This clearly diminished the capacity of U.S. EDs to handle a daily surge of patients. Examining the daily surge capacity of U.S. EDs is a new area of research. The authors of this paper propose two models that have potential applications for both daily surge capacity and hospital-wide patient flow research. The first model quantitatively describes the dynamic nature of ED census to enable short-term forecasts of ED census, and illustrates the effect of unexpected surges in patient demand. The second model describes a theoretical approach for understanding the relationship between ED length of stay and the quality of patient care.

Burke, L.E., Kim, Y., Senuzun, F., and others. (2006). "Evaluation of the shortened cholesterol-lowering diet self-efficacy scale." (AHRQ grant HS08891). ***European Journal of Cardiovascular Nursing*** **5, pp. 264-274.**

Less than half of adults with elevated cholesterol levels follow the recommended dietary guidelines to reduce their serum cholesterol levels. Persons who expect personal achievement or mastery (self-efficacy) and successful outcomes are more likely to initiate a behavior such as improved diet. The authors of this study reexamined and shortened the original 57-item Cholesterol-Lowering Diet Self-Efficacy Scale (CLDSES). A sample of 238 patients being treated for high cholesterol completed the CLDSES, the Connor Diet Habit Survey, and a 3-day food record. Sensitivity (76 percent) and specificity (63 percent) for the CLDSES short form were good, with 88 percent positive predictive value for patient adherence to a cholesterol-lowering diet.

Chen, Y-H. and Zhou, X-H. (2006). "Interval estimates for the ratio and differences of two lognormal means." (AHRQ grant HS13105). ***Statistics in Medicine*** **25, pp. 4099-4113.**

Health research often gives rise to data that follow lognormal distributions. For example, researchers are likely to be interested in estimating the difference or ratio of the population means. Several methods have been proposed for providing confidence intervals for these parameters; however, it is not clear which techniques are most appropriate, or how their performance might vary. Methods for the difference of means have not been adequately explored, note the authors of this paper. They discuss five methods of analysis, including two methods based on the long-likelihood ratio statistic and a generalized pivotal

continued on page 27

approach. They also discuss the results of a series of computer simulations. Finally, they apply the techniques to a real example.

Chretien, J-P., Coresh, J., Berthier-Schaad, Y., and others. (2006). "Three single-nucleotide polymorphism in LPA account for most of the increase in lipoprotein(a) level elevation in African Americans compared with European Americans." (AHRQ grant HS08365). *Journal of Medical Genetics* 43, pp. 917-923.

These researchers used the heritable coronary heart disease risk factor lipoprotein (Lp(a)) level as a useful case study of between-population variation. They examined serum Lp(a) and isoform measurements in 534 European Americans and 249 African Americans who participated in an end-stage renal disease study. They also genotyped 12 Lp(a) sequence variants. Isoform-adjusted Lp(a) level was over two-fold higher among African Americans than European Americans. Three single-nucleotide polymorphisms were independently associated with Lp(a) level; however, all had a frequency of less than 20 percent in one or both populations. The authors conclude that multiple low-prevalence alleles in Lp(a) can account for the large between-population difference in serum Lp(a) levels between European Americans and African Americans.

Cooper, W.O., Arbogast, P.G., Ding, H., and others. (2006, March). "Trends in prescribing of antipsychotic medications for U.S. children." (AHRQ grant HS10384). *Ambulatory Pediatrics* 6, pp. 79-83.

Pediatric prescriptions for antipsychotics jumped five-fold from 1995 to 2002. Based on analysis of data from the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey, researchers found that antipsychotic prescribing increased from 8.6 per 1,000 U.S. children in 1995-1996 to 39.4 per 1,000 in 2001-2002. Rates were similar for children age 2 to 12 years and 13 to 18 years; however, overall prescribing rates were higher for children age 13 to 18 years. Two-thirds of prescriptions were for males. Attention deficit/hyperactivity disorder and conduct disorder accounted for 29 percent, and affective disorders (bipolar disorder/depression) accounted for an additional 23.6 percent of medical visits in which an antipsychotic was prescribed. These are conditions for which antipsychotics have not been carefully studied in children. Conditions for which antipsychotics have been studied in children (schizophrenia/psychosis, Tourette's syndrome, and autism/mental retardation) accounted for 26 percent of all antipsychotic prescriptions. Nearly one-third (32.4 percent) of antipsychotic prescriptions were associated with visits to clinicians who were not mental health specialists.

Johansson, P., Jacobsen, C., and Buchwald, D. (2006, Autumn). "Perceived discrimination in health care among American Indians/Alaska Natives." (AHRQ grant 10854). *Ethnicity & Disease* 16, pp. 766-771.

This study found that American Indian and Alaska Native (AI/AN) were the racial group most likely to report discrimination in health care. AI/AN who identified as both AI/AN and white were twice as likely to perceive discrimination as whites. A telephone survey of adults in the 2001 California Health Interview Survey found that overall 7.1 percent of the AI/AN group, 8.8 percent of the AI/AN plus white group, 5.6 percent of blacks, 4.3 percent of whites, and 2.6 percent of Asian Americans felt discriminated against at some point during the past year of care. After adjusting for demographic and insurance-related factors, which can also affect discrimination, the AI/AN plus white group was twice as likely and Asian Americans were half as likely to perceive discrimination as whites. More than 20 percent of AI/AN, black, and Asian American respondents reporting discrimination cited race as the sole reason compared with less than 10 percent of AI/AN plus white and white respondents. AI/AN plus white (27 percent) and white (32 percent) groups were more likely to cite insurance as the sole reason for discrimination than were AI/AN (15 percent), blacks (19 percent), and Asian Americans (20 percent).

Lautenbach, E., Tolomeo, P., Mao, X., and others. (2006, November). "Duration of outpatient fecal colonization due to *Escherichia coli* isolated with decreased susceptibility to fluoroquinolones: Longitudinal study of patients recently discharged from the hospital." (AHRQ grant HS10399). *Antimicrobial Agents and Chemotherapy* 50(11), pp. 3939-3943.

A growing number of infections due to *Escherichia coli* have become resistant to fluroquinolone antibiotics in recent years. This study examined the duration of outpatient fecal colonization due to

continued on page 28

E. coli with decreased susceptibility to fluorquinolones among 10 patients. The median duration of colonization following hospital discharge was 80 days. Colonization was longer for isolates demonstrating organic-solvent tolerance than for isolates that were not organic-solvent tolerant (151 vs. 29 days). Colonization was not associated with other resistance mechanisms, demographics, or antibiotic use.

Leape, L.L., Rogers, G., Hanna, D., and others. (2006, August). "Developing and implementing safe practices: Voluntary adoption through statewide collaboratives." (ARHQ grant HS11928). ***Quality and Safety in Health Care*** **15, 289-295.**

Researchers found that if clinical teams of frontline caregivers receive support from hospital leadership, they can develop creative methods for improving teamwork and communication that are critical to patient safety. Hospitals participating in 2 voluntary State collaboratives improved safety by developing multiple subpractices for 2 of the 30 safe practices required by the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO). The State of Massachusetts selected two safe practices to be implemented in hospitals before they were mandated by JCAHO—reconciling medications and timely and reliable communication of critical test results. A multistakeholder advisory group selected the two practices, and developed the operational details and strategies for implementation, with the advice of content experts. A Statewide collaborative model of hospitals with hospital CEO "buy-in" was used to facilitate implementation of the practices. Each hospital team had access to experts, a toolkit containing recommendations, a change package, and implementation strategies. Fifty percent of reconciling medication teams and 65 percent of communicating critical test result teams achieved partial implementation of the practices. Twenty percent of teams from each achieved full implementation. The prior development of subpractices, recommendations, and implementation strategies was essential for the hospital teams.

Marcantonio, E.R., O'Malley, A.J., Murkofsky, R.L., and others. (2006, December). "Derivation and confirmation of scales measuring medical directors' attitudes about the hospitalization of nursing home residents." (AHRQ grant HS10645). ***Journal of Aging and Health*** **18(6), pp. 869-884.**

These researchers sought to derive and confirm scales measuring medical directors' attitudes about hospitalization of nursing home residents. They surveyed nursing facility medical directors about the necessity of hospitalizing residents for eight clinical conditions. They then compared the ratings to those obtained from an expert panel to derive a relative hospitalization score. The score demonstrated that medical directors were slightly less likely to recommend hospitalization than expert panel physicians. The medical directors identified multiple determinants of hospitalization for nursing facility residents across several domains. Their hospitalization decisions were complex and involved clinical and nonclinical factors.

Moore, K., Roubideaux, Y., Noonan, C., and others. (2006, Autumn). "Measuring the quality of diabetes care in urban and rural Indian health programs." (AHRQ grant 10854). ***Ethnicity & Disease*** **16, pp. 772-777.**

The authors of this study reviewed medical record data as part of the Indian Health Service Diabetes Care and Outcomes Audit in 2002. They compared Indian health facilities' adherence to diabetes care guidelines when treating all 710 American Indian and Alaska Native (AI/AN) patients at 17 urban Indian health clinics and a random sample of 1,420 AI/AN patients from 225 rural Indian health facilities. They specifically examined urban and rural differences in adherence to nine indicators of diabetes care quality: annual eye, foot, and dental exams; annual urinalysis; annual blood glucose and cholesterol tests; and influenza and pneumonia immunizations.

Urban patients were more likely than rural patients to have received formal diabetes education in the past 12 months (76 vs. 62 percent). However, there were no significant differences in completion of laboratory tests and immunizations between patients at rural and urban clinics. Patients seen at rural facilities were significantly more likely to receive a dental exam (41 vs. 19 percent). After adjusting for other factors affecting outcomes, blood glucose levels, blood pressure, and cholesterol levels were similar for urban and rural patients. Overall, rates of adherence to nationally recommended care guidelines for AI/AN health programs were comparable to or surpassed rates described for the general population.

continued on page 28

Research briefs

continued from page 28

Mulkern, R.V., Barnes, A.S., Haker, S.J., and others. (2006). "Biexponential characterization of prostate tissue water diffusion decay curves over an extended b-factor range." (AHRQ grant HS13234). *Magnetic Resonance Imaging* 24, pp. 563-568.

The authors of this study performed detailed measurements of water diffusion within the prostate over an extended b-factor range to assess whether the standard assumption of monoexponential signal delay was appropriate in the prostate. From nine men undergoing prostate magnetic resonance staging examinations, they scanned a 1.5 T, a single 10-mm-thick axial slice with a line scan diffusion imaging sequence in which 14 equally spaced b factors from 5 to 3,500 s/mm2 were sampled along 3 orthogonal diffusion sensitization directions in 6 minutes. They concluded that a monoexponential model for water diffusion decay in prostate tissue is inadequate when a large range of b factors is sampled, and that biexponential analyses are better suited for characterizing prostate diffusion decay curves.

Shechter, S.M., Schaefer, A.J., Braithwaite, R.S., and Roberts, M.S. (2006). "Increasing the efficiency of Monte Carlo cohort simulations with variance reduction techniques." (AHRQ grant HS09694). *Medical Decision Making* 26, pp. 550-553.

Monte Carlo (MC) cohort simulations are typically used in medical decisionmaking research, for example, to assess the mean costs and quality-adjusted life years for heart disease or HIV. The authors of this paper discuss techniques for MC cohort simulations that reduce the number of simulation replications required to achieve a given degree of precision for various output measures. Known as variance reduction techniques, they are often used in industrial engineering and operations research models, but they are seldom used in medical models. However, most MC cohort simulations are well suited to the implementation of these techniques, note the authors. They discuss the cost of implementing MC cohort simulations versus the benefit of reduced replications.

Reade, M.C., and Angus, D.C. (2006). "PAC-Man: Game over for the pulmonary artery catheter?" (AHRQ grant HS11620). *Critical Care* 10(1), pp. 303-305, 2006.

The pulmonary artery catheter (PAC) has been used to monitor the hemodynamics (cardiac output) of critically ill patients for the past 30 years. Recently, doubts have been raised about its benefits and safety, but a new study found no clear evidence of benefit or harm in managing critically ill patients with a PAC. Until a superior alternative is found, the decision to insert a PAC should be much more selective than in the past and perhaps also involve discussion with the patient or family, suggest the authors.

A study of 1,014 patients at 65 British Intensive Care Units (ICUs) whose physicians said should be managed using invasive hemodynamic monitoring showed no difference in hospital mortality between patients managed with or without a PAC (68 vs. 66 percent). Complications associated with insertion of a PAC were noted in 10 percent of individuals in whom the device was placed, but none were considered fatal. Complications were not recorded in the non-PAC group, so no conclusions could be reached regarding the relative safety of the PAC.

Of patients randomized to receive either a PAC or no monitor of cardiac output, mortality was 71 percent vs. 66 percent. Of patients randomized in ICUs, allowing the possibility of an alternative monitor of cardiac output, mortality was 68 percent for PAC patients vs. 66 percent for those using alternative monitors. Despite no clear evidence of benefit or harm, PAC use continues, with no standardized agreement about what represents appropriate use.

Tsao, J.C., Dobalian, A., Wiens, B.A., and others. (Winter 2006). "Posttraumatic stress disorder in rural primary care: Improving care for mental health following bioterrorism." (AHRQ grant HS14355). *The Journal of Rural Health* 22(1), pp. 78-82.

Bioterrorist attacks generate fear and uncertainty and contribute to postraumatic stress disorder (PTSD). The authors of this article emphasize the need to educate rural primary care providers on how to manage mental health needs in the event of bioterrorist attacks or other public health disasters. Prior experience with natural disasters suggests that first responders typically focus on immediate medical trauma or injury. After they leave the community, rural primary care providers continue to manage mental health care needs.

The researchers recommend that public health agencies work with rural primary care providers and mental health professionals to develop educational interventions focused on PTSD and other mental disorders, as well as algorithms for assessment, referral, and treatment

continued on page 30

of postevent psychological disorders or somatic complaints. This collaboration will help ensure the availability, continuity, and delivery of quality mental health care for rural residents following bioterrorism and other public health emergencies.

Westfall, J. M., Van Vorst,R.F., McGloin, J., and Selker, H.P. (2006, March). "Triage and diagnosis of chest pain in rural hospitals: Implementation of the ACI-TIPI in the High Plains Research Network." (AHRQ grant HS11003). *Annals of Family Medicine* 4(2), pp. 153-158.

This study found that rural emergency department (ED) physicians appropriately diagnose and triage chest pain patients with suspected heart attack even without the use of the Acute Cardiac Ischemia Time-Insensitive Predictive Instrument (ACI-TIPI). The ACI-TIPI prints the probability (0 to 100 percent) that the patient is truly suffering acute cardiac ischemia on the header of the standard electrocardiogram (ECG) interpretation report. The ACI-TIPI has been shown to improve the diagnostic accuracy and triage of chest pain patients in urban and suburban EDs.

The researchers taught ED staff at 10 rural hospitals in the High Plains Practice Research Network how to use new ECG machines over a 3-month period, and conducted the trial during the next 10 months. Each month the hospitals alternated between control (ACI-TIPI off, with just the standard ECG interpretation report produced) and intervention (ACI-TIPI on), when triaging ED patients with chest pain. The ACI-TIPI did not significantly change diagnostic accuracy (86.8 percent with it off and 89 percent with it on), hospitalization of patients with acute ischemia, or the transfer rate of heart attack patients to a tertiary care hospital. The researchers note that a larger rural study may provide a sample sufficient to detect significant changes in triage and diagnostic accuracy with the use of the ACI-TIPI. ■

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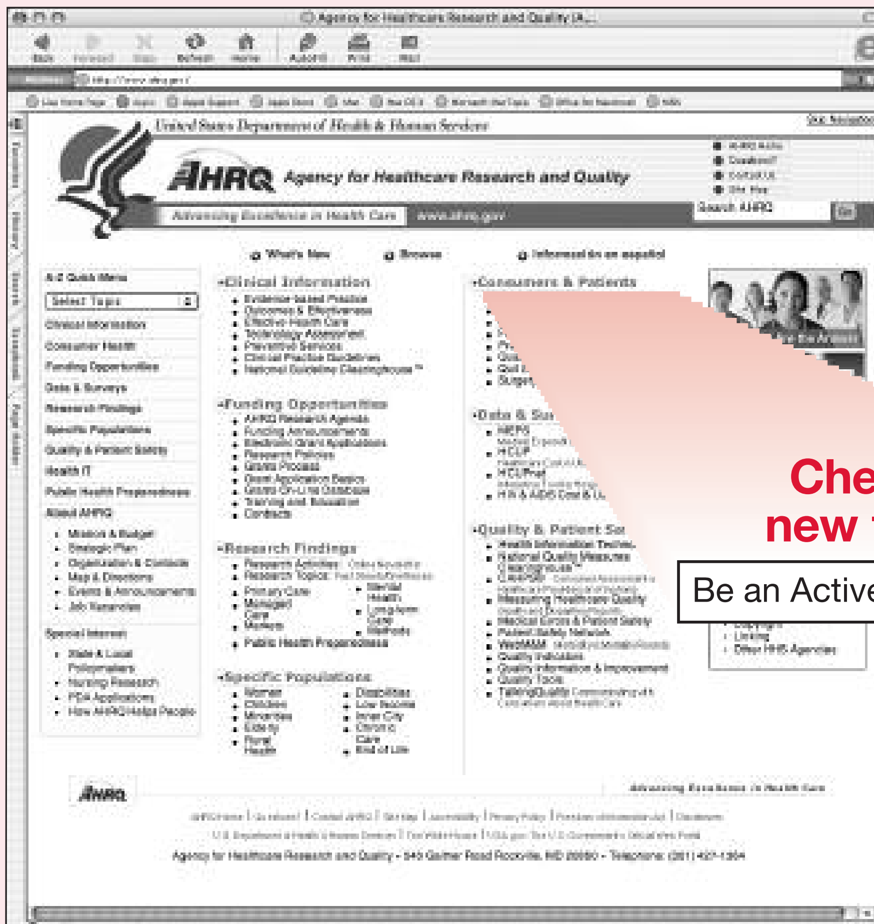

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