



# Research Activities

No. 261, May 2002

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## Patients who take beta blockers before heart bypass surgery have improved outcomes

Patients who take beta blockers (drugs to slow the heart rate and reduce contractions of the heart muscle) prior to bypass surgery appear to have improved survival and fewer complications during and after the procedure, according to a study supported by the Agency for Healthcare Research and Quality (HS10403). Researchers indicate that up to 1,000 lives potentially could be saved each year by giving patients beta blockers.

This is the first study to examine the outcomes of beta blocker use before bypass surgery. It was conducted by researchers at the Society of Thoracic Surgeons and the Duke Clinical Research Institute. Using an observational study approach, they accessed the Society of Thoracic Surgeons' National Adult Cardiac Surgery Database to evaluate the use of beta blockers and health outcomes among 629,877 patients undergoing heart bypass surgery between 1996 and 1999 at 497 U.S. and Canadian hospitals.

Patients who received beta blocker therapy before bypass surgery had lower rates of death

in and out of the hospital within 30 days of surgery than those who did not have the therapy, 2.8 percent versus 3.4 percent, respectively. This modest survival benefit remained after adjusting for multiple preoperative risk factors such as diabetes and age. Also, use of beta blockers improved outcomes in patients for whom this therapy is considered risky. These include patients with heart failure, older age, underlying lung disease, and diabetes. In addition, use of beta blockers lessened the incidence of major complications, including stroke, renal failure, and extended duration of ventilation. These findings are consistent with those previously identified for beta blockers when used before noncardiac surgery or percutaneous coronary intervention (to restore normal blood flow to plaque-narrowed cardiac arteries).

Although bypass surgery is one of the most commonly performed procedures in North America, only about 60 percent of patients were taking a beta blocker at the time of their surgery, according to the researchers. They believe that these

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## Beta blockers before heart bypass surgery

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study results should increase the awareness of cardiovascular care providers to the potential benefits of beta blockers in patients with both medical and surgical cardiovascular disease. In addition

to greater use of these drugs, researchers suggest that this preoperative drug therapy has the potential for being a new and useful indicator for quality improvement assessment in bypass surgery.

Details are in "Preoperative B-blocker use and mortality and

morbidity following CABG surgery in North America," by T. Bruce Ferguson, Jr., M.D., Laura P. Coombs, Ph.D., and Eric D. Peterson, M.D., M.P.H., in the May 1, 2002 *Journal of the American Medical Association* 287(17), pp. 2221-2227. ■

## Heart Disease

### Non-aspirin, nonsteroidal antiinflammatory drugs do not protect individuals from the risk of heart attack

**A**mong older adults at risk for coronary heart disease, non-aspirin, nonsteroidal antiinflammatory drugs (NANSAIDs) such as naproxen and ibuprofen neither increase nor reduce the risk of heart attack, finds a new study. The absence of a cardioprotective effect from NANSAIDs suggests that none of these drugs should be used for cardioprotection, concludes Wayne A. Ray, Ph.D., of Vanderbilt University School of Medicine. Dr. Ray and his colleagues studied whether patients at risk for coronary heart disease who took NANSAIDs were

hospitalized for heart attack less often than similarly at-risk patients who did not take NANSAIDs.

They analyzed data from the Tennessee Medicaid program from 1987 through 1998 to identify a group of nearly 200,000 new NANSAID users and an equal number of non-users, matched for age (50-84 years) and sex. Both groups were at high risk for serious coronary heart disease either due to hypertension, prior stroke, angina, or other problems. During the study period, 12 cases of heart attack occurred per 1,000 person-years. The likelihood of NANSAIDs reducing heart attack risk for current and former users of NANSAIDs was 1.05 and 1.02 (1 is equal odds). In other words, their risk was equal to that of nonusers.

Odds ratios for naproxen, ibuprofen, and other NANSAIDs were 0.95, 1.15, and 1.03, respectively. There was no protection among long-term NANSAID users with uninterrupted use or among current users with more than 60 days of continuous use (OR 1.05). A previous study had shown a substantially reduced risk of heart attack among patients who took naproxen compared with the NANSAID rofecoxib, which has been interpreted to mean that naproxen had a cardioprotective effect. This study did not find support for naproxen's protective effect.

More details are in "Non-steroidal anti-inflammatory drugs and risk of serious coronary heart disease: An observational cohort study," by Dr. Ray, Michael Stein, M.S., Kathi Hall, and others, in the January 12, 2002 *Lancet* 359, pp. 118-123. ■

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## Doctors could do more to help adult patients with diabetes reduce their risk of cardiovascular disease

**C**ardiovascular disease (CVD) is the leading cause of death in adults with diabetes, whose risk of death from CVD is two- to four-fold higher than for similar-aged adults in the general population. Primary care physicians (PCPs) should counsel adults with diabetes to change their lifestyle to reduce CVD risk factors, but findings from a recent study suggest that primary care physicians are doing a less than optimal job in this area. The study was supported in part by the Agency for Healthcare Research and Quality (HS11418 and HS10871).

Strategies to improve counseling techniques among PCPs and incorporate counseling skills into medical residency and continuing medical education programs may be warranted, suggest Leonard E. Egede, M.D., M.S., and Deyi Zheng, M.B., Ph.D., of the Medical University of South Carolina. They analyzed data on nearly 10,000 adults with diabetes and about 150,000 adults without diabetes from the 1999 Behavioral Risk Factor Surveillance System (a telephone survey) to estimate CVD risk factors and physician counseling during routine visits to PCPs.

Diabetes was more prevalent in those aged 55 and older and among

blacks, Hispanics, and other ethnic groups. Modifiable risk factors for CVD were more prevalent among adults with diabetes than those without diabetes: hypertension (56 vs. 22 percent), high cholesterol (41 vs. 20 percent), obesity (78 vs. 57 percent), and insufficient physical activity (66 vs. 56 percent), and the risk factors differed by ethnicity, sex, and age.

Although rates of counseling were higher for patients with diabetes than those without, rates for both groups were less than ideal. Rates for those with and without diabetes were 50 vs. 21 percent, respectively, for weight loss; 78 vs. 67 percent for smoking cessation; 78 vs. 71 percent for eating less fat; and 67 vs. 36 percent for increasing physical activity. Group differences did not change after adjusting for the patient's age, sex, ethnicity, education, and income.

There were clearly missed opportunities for PCPs to counsel patients with diabetes at risk for CVD about lifestyle modification, especially since physician counseling has been found to positively affect patient changes in smoking habits, diet, and exercise. PCPs say that they often do not take advantage of these counseling opportunities because they either do not have adequate time to

provide counseling, do not know enough about counseling techniques, or are doubtful about the effectiveness of their counseling efforts.

See "Modifiable cardiovascular risk factors in adults with diabetes," by Drs. Egede and Zheng, in the February 25, 2002 *Archives of Internal Medicine* 162, pp. 427-433. ■

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## Communication/cultural barriers may affect receipt of cardiovascular procedures among Hispanics

**H**ispanic patients hospitalized with acute cerebrovascular disease are more likely than non-Hispanic whites hospitalized with the same

problem to receive noninvasive diagnostic tests and are less likely to receive invasive diagnostic and therapeutic procedures. However, when hospital experience with

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## Cardiovascular procedures among Hispanics

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Hispanic patients is taken into account, ethnic disparities in procedure use are reduced or eliminated. These are the findings of a recent study by researchers at the Agency for Healthcare Research and Quality.

Hospitals that have more experience with Hispanic patients (greater proportion of Hispanic patients) may be more likely to employ bilingual and/or bicultural staff or interpreters to better understand and communicate with Hispanic patients. Physicians who are unable to communicate effectively with Hispanic patients because of either language or cultural barriers may rely on noninvasive diagnostic tests to compensate for lack of a patient history, according to AHRQ

researchers Anne Elixhauser, Ph.D., Robin M. Weirick, Ph.D., and Roxanne M. Andrews, Ph.D.

Along with their colleague, Joseph R. Betancourt, M.D., M.P.H., of Massachusetts General Hospital, the researchers used 1996 hospital administrative data from New York and California—two States that account for more than 44 percent of the U.S. Hispanic population—to compare use of six diagnostic and therapeutic procedures for cerebrovascular disease for white and Hispanic patients. Hispanic patients in both California and New York were about twice as likely as white patients to undergo noninvasive diagnostic procedures (head CT scan, head/neck diagnostic ultrasound, echocardiogram, and head MRI). However, Hispanics in New York and California were 34 percent and 38 percent less likely, respectively, to receive a cerebral arteriogram and 61 and 64 percent

less likely, respectively, to undergo carotid endarterectomy (surgical removal of plaque from the carotid artery in the neck) than similar white patients.

Adjusting for patient and hospital characteristics did not change these findings. However, when hospital experience with Hispanic patients was taken into account, the differences between Hispanics and non-Hispanic whites in use of noninvasive diagnostic tests were eliminated or greatly reduced.

See “Differences between Hispanics and non-Hispanic whites in use of hospital procedures for cerebrovascular disease,” by Drs. Elixhauser, Weirick, Betancourt, and Andrews, in the winter 2002 *Ethnicity & Disease* 12, pp. 29-37. Reprints (AHRQ Publication No. 02-R058) are available from AHRQ.\*\* ■

## Normalizing clinical practice for coronary bypass surgery could save money without worsening patient outcomes

More than 500,000 coronary artery bypass graft (CABG) surgeries are performed annually in the United States, at a cost of over \$10 billion. New York hospitals vary considerably in their cost for CABG surgery, and these cost differences are due more to hospital factors than to patient differences, according to a study supported by the Agency for Healthcare Research and Quality (HS06503).

Normalizing the way hospitals manage CABG surgery cases (i.e., streamlining care delivery and shortening postoperative stays) could reduce CABG costs without worsening patient outcomes, according to Elizabeth R. DeLong, Ph.D., of the Duke Clinical Research Institute. Dr. DeLong and her colleagues

analyzed 1992 clinical and medical claims data on CABG surgeries performed on patients in 21 New York hospitals to examine the relationship between in-hospital mortality and cost. Most of the patients in this study were white (86 percent) and male (73 percent), with an average age of 65 years.

The mean cost for CABG surgery—exclusive of professional fees (e.g., surgeon’s fee) and noncomparable costs (e.g., salaried physician compensation, indirect teaching costs, and malpractice insurance) and adjusted for variation in input costs—was \$15,713, with a mean length of stay (LOS) of 14 days. One-fifth of the variation in medical resource

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## Coronary bypass surgery

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use was explained by baseline patient risk factors. However, after adjustment for differences in patient risk, the hospital explained an additional 40 percent of variation in cost and 8 percent of variation in LOS. In fact, the hospital effect explained almost twice as much variation in cost as did patient characteristics. Yet, hospital costs were not associated with mortality rates (adjusted for patient risk factors).

Cost differences associated with the bypass care process itself, such as the anesthesia protocol and early discharge protocols, may affect postoperative LOS and

attendant costs. Variation in staffing patterns and efficiency of scheduling surgeries also may play a role in cost differences. The research suggests that hospitals with less resource-intensive practice styles can maintain their quality of care. The researchers caution, however, that they were unable to determine the extent to which resource-saving practices might be offset by increased use of home health care or readmissions for postdischarge complications.

See "Variability in cost of coronary bypass surgery in New York State: Potential for cost savings," by Patricia A. Cowper, Ph.D., Dr. DeLong, Eric D. Peterson, M.D., M.P.H., and others, in the *American Heart Journal* 143(1), pp. 130-139, 2002. ■

## HIV/AIDS Research

### Black and Hispanic HIV patients are less likely than white patients to get experimental medications

**A**nationwide study sponsored by the Agency for Healthcare Research and Quality shows that black and Hispanic HIV patients are only about half as likely as non-Hispanic whites to participate in clinical trials of new medications designed to slow the progression of the disease. Together, blacks and Hispanics account for roughly 48 percent of the HIV patient population—33 percent and 15 percent, respectively. The study also found that women, regardless of race or ethnicity, are no less likely than men to participate in HIV drug studies.

By periodically interviewing a nationally representative sample of HIV patients between 1996 and 1998, a team of researchers led by Allen L. Gifford, M.D., of the VA Healthcare System and the University of California, San Diego, found that overall, 14 percent of the patients participated in an HIV medication trial. In addition, 24 percent of the patients overall received experimental treatment at some time through a trial or approved investigational drug

mechanisms that allow doctors and patients to obtain promising experimental HIV drugs. Several potent new antiretroviral medications were being tested during the study period.

About 10 percent of black patients and 11 percent of Hispanic patients participated in a clinical trial, compared with 18 percent of non-Hispanic white patients. Participation of black patients in trials did not increase during the study period, and these patients were more likely to drop out of the research.

According to Dr. Gifford, black and Hispanic patients' limited attempts to obtain experimental HIV medications may reflect lack of awareness of clinical trials in minority communities, as well as suspicion and distrust of trials and researchers. Black patients were less than half as likely as white non-Hispanic patients to try to obtain an experimental HIV medication.

These findings suggest that to boost minority participation in trials, it will be necessary to look critically at structural barriers such as

research-entry criteria, enrollment and tracking procedures, and study center operations, as well as clinical researchers' attitudes and practices, concludes Dr. Gifford. Other factors contributing to a reduced likelihood of participation in a clinical trial were having less than a high school education, being in a commercial HMO, and receiving primary care 8 miles or more from where the clinical trial was held.

The analysis was conducted as part of the RAND-led HIV Cost and Services Utilization Study (HCSUS) consortium under the direction of co-principal investigators Martin F. Shapiro, M.D., Ph.D., and Samuel A. Bozzette, M.D., Ph.D. HCSUS is sponsored by AHRQ and other components of HHS.

For more information, see "Participation in research and access to experimental treatments for HIV-infected patients," by Dr. Gifford, William E. Cunningham, M.D., M.P.H., Kevin C. Heslin, and others, in the May 2, 2002 *New England Journal of Medicine* 346(18), pp. 1373-1382. ■

## Study links nonadherence to HIV treatment regimens and women's risky sexual behavior

Individuals infected with the human immunodeficiency virus (HIV) that causes AIDS can slow disease progression and minimize HIV transmission to sexual partners if they adhere to complex HIV medication regimens. Lapses in medication adherence can quickly lead to disease progression which, in turn, can lead to transmission of drug-resistant strains of HIV to sexual partners.

Two-thirds (66 percent) of a national sample of HIV-infected women adhered very well to HIV treatment regimens (took all medications as prescribed 95 percent or more of the time). Unfortunately, those whose adherence was less than ideal (all medications taken less than 95 percent of the time) were more than twice as likely to engage in unprotected sexual activity compared with women whose adherence to treatment regimens was high, according to researchers participating in the national Women's Interagency HIV Study (WIHS).

Women who were less adherent were more likely than those who adhered to treatment to have a detectable virus load, more impaired immune systems (CD4 count less than 200 cells/mm<sup>3</sup>), and bothersome symptoms; use condoms inconsistently (47 vs. 29

percent); and report drug use (16 vs. 8 percent). It may be that a woman who is willing to take risks with regard to sexual activity also may be more likely to take the risk of virologic failure by not adhering to a treatment regimen. On the other hand, these women may not have lifestyles that support healthy behaviors in general, suggest the researchers. They recommend that doctors discuss with HIV-positive women the increased risks associated with treatment nonadherence and unprotected sexual activity and the link between the two.

In the WIHS, which is jointly supported by the Agency for Healthcare Research and Quality, the National Institutes of Health, and the Centers for Disease Control and Prevention, data were collected on 766 HIV-positive women in the United States from October 1998 to March 1999 on adherence to therapy, risk behavior, and disease markers.

See "Adherence to antiretroviral therapy and its association with sexual behavior in a national sample of women with human immunodeficiency virus," by Tracey E. Wilson, Ph.D., Yolanda Barron, Ph.D., Mardge Cohen, M.D., and others, in the February 15, 2002 *Clinical Infectious Diseases* 34, pp. 529-534. ■

## Drug treatment and intensive case management programs are needed to reduce HIV risk among homeless women

Homeless women who abuse drugs and alcohol are more vulnerable to contracting the human immunodeficiency virus (HIV) that causes AIDS due to risky behaviors such as trading sex for drugs or using injection drugs, according to a recent study. The researchers also found that homeless women with case managers were less likely to inject drugs than those who did not have access to case management services. Also, homeless women who could not obtain drug treatment were more likely to trade sex for drugs than women who were able to obtain drug treatment.

Drug treatment programs and intensive case management programs should be implemented

to reduce HIV risk among homeless women. On-site intensive case management programs at homeless shelters or other relevant facilities can promote and sustain access to medical and drug treatment services, suggest Lillian Gelberg, M.D., M.S.P.H., of the University of California, Los Angeles, and her colleagues. Their study was supported in part by the Agency for Healthcare Research and Quality (HS08323).

The researchers analyzed data from interviews with 974 homeless women aged 15 to 44 in Los Angeles County. They determined whether psychiatric symptoms (depression, substance use, psychosis) were associated with HIV risk behaviors (that is,

injection drug use, unprotected sex, and trading sex) and whether homeless women who had contacts with health or substance abuse treatment services were less likely to engage in HIV risk behaviors than those without such contacts.

Even though the majority of women had a case manager or regular source of care, there was a high rate of HIV risk behavior. Within the previous year, 8 percent of women had used injection drugs, 64 percent had engaged in unprotected sex, and 22 percent had traded sex for either drugs, food, or housing. Homeless women who were drug abusers were nearly 10 times as likely to trade sex as other homeless women, and

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## HIV risk among homeless women

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those with alcohol dependency were 5 times as likely to inject drugs. Homeless women with case managers were less likely to inject

drugs. Neither depression nor psychosis symptoms were associated with HIV risk behaviors, perhaps because substance abuse masked their impact.

See “Psychiatric symptoms, health services, and HIV risk factors among homeless women,”

by Amy M. Kilbourne, Ph.D., Brooke Herndon, M.D., Ronald M. Andersen, Ph.D., and others, in the *Journal of Health Care for the Poor and Underserved* 13(1), pp. 49-65. ■

## Outcomes/Effectiveness Research

### Mechanical ventilation of low birthweight newborns substantially increases the risk of disabling cerebral palsy

Advances in neonatal intensive care, such as ventilation support, have dramatically reduced neonatal deaths. However, they have not substantially reduced the risk of cerebral palsy and other neurodevelopmental disorders among low birthweight (LBW) infants.

Mechanical ventilation of newborns can result in hypocapnia (low levels of carbon dioxide in the blood) and hyperoxia (high levels of oxygen in the blood), both of which can result in reduced cerebral blood flow. Ventilated newborns with hypocapnia, hyperoxia, or unusually prolonged duration of ventilation support have a two- to three-fold increased risk of being diagnosed with disabling cerebral palsy (DCP) by age 2, according to a study supported by the Agency for Healthcare Research and Quality (HS08385).

The researchers examined a population-based cohort of 1,105 infants with birthweights of 500-2000 grams (roughly 1-4 pounds), substantially the largest such cohort study examining ventilatory practices as risks for cerebral palsy. The investigators constructed an index of exposure to hypocapnia based on both the degree and duration of low levels of arterial carbon dioxide concentrations.

Among 902 survivors to age 2 years, 657 had both neurodevelopmental assessments at age 2 and records of blood gas measurements in the first week of life. DCP was subsequently diagnosed in 2.3 percent of the 257 unventilated newborns, 9.4 percent of the 320 ventilated newborns without exposure to unusual

levels of hypocapnia, and 27.5 percent of the 80 ventilated infants with exposure to significant hypocapnia. The strong associations with ventilation and with hypocapnia persisted after adjustment for gestational age and other possible correlates of risk for cerebral palsy.

Prolonged duration of ventilation and hyperoxia also were risk factors for DCP among ventilated infants, with all three factors independently contributing a two- to three-fold increased risk of DCP. When any two of these risk factors were present, the risk of DCP was increased about eight-fold. The increase was 20-fold when all three risk factors were present, when compared with ventilated infants without any of the risk factors.

Although duration of mechanical ventilation in LBW newborns probably reflects severity of illness, both hypocapnia and hyperoxia can be largely controlled by ventilatory practice. The researchers recommend that neonatologists avoid arterial PCO<sub>2</sub> levels less than 35 mm Hg and arterial PO<sub>2</sub> levels greater than 60 mm Hg whenever possible in ventilated LBW infants.

See “Hypocapnia and other ventilation-related risk factors for cerebral palsy in low birth weight infants,” by Michael P. Collins, M.D., John M. Lorenz, M.D., James R. Jetton, B.A., and Nigel Paneth, M.D., in *Pediatric Research* 50(6), pp. 712-719, 2001. ■

## Adolescents who were born prematurely at a very low birthweight have self-esteem similar to other adolescents

Preterm infants who weigh less than 2 pounds are at a much higher risk for neurodevelopmental, cognitive, behavioral, and emotional difficulties than children born at term. Despite these problems, once these extremely low birthweight (ELBW) babies reach adolescence, their self-esteem is similar to that of other adolescents, according to a study supported in part by the Agency for Healthcare Research and Quality (HS08385). The only difference is that ELBW adolescents rate themselves significantly lower in athletic competence than other adolescents. This is consistent with objective measurements of poorer motor performance among ELBW children, which persist even when children with neurosensory impairments are excluded, notes the study's lead author, Saroj Saigal, M.D., F.R.C.P., of McMaster University.

The researchers compared the self-esteem of a regional group of ELBW adolescents and matched control adolescents born between 1977 and 1982. They administered the adolescents the Harter Adolescents Self-Perception Profile with nine

dimensions, as well as achievement tests and sociodemographic questionnaires. Overall, birthweight group, sex, and neurosensory impairments did not contribute significantly to most self-esteem domain scores.

However, boys tended to rate themselves higher in athletic competence and physical appearance than girls, and older teens rated themselves better for job competence. Also, heavier youngsters rated themselves higher on close friendships, girls had higher ratings for close friendships, and controls rated themselves higher on athletic competence than ELBW adolescents. Finally, children with higher math scores rated themselves better on scholastic competence. The authors conclude that self-esteem should nevertheless be monitored closely in ELBW children, since they are considered to be at high risk for problems with adjustment.

See "Self-esteem of adolescents who were born prematurely," by Dr. Saigal, Michael Lambert, Ph.D., Chad Russ, and Lorraine Hoult, in the March 2002 *Pediatrics* 109(3), pp. 429-433. ■

## Pharmaceutical Research

### Researchers examine the impact of drug pricing and copayments on medication use among elderly Canadians

Copayments for higher priced, equally effective prescription medications, so-called reference-based pricing, has been suggested as one way to help finance drug coverage for elderly patients. With reference-based pricing, only the cost of a specific, less expensive drug within a therapeutic class is covered fully by drug benefit plans, with a copayment required for expensive medications above a fixed limit. This approach to drug pricing apparently reduces drug expenditures without reducing use of antihypertensive therapy or increasing related health care use and costs among elderly residents

of British Columbia Canada. That's the conclusion of three studies supported by the Agency for Healthcare Research and Quality (HS09855 and HS10881) and led by Sebastian Schneeweiss, M.D., Sc.D., of the Harvard Medical School. The studies are described here.

**Schneeweiss, S., Soumerai, S.B., Glynn, R.J., and others. (2002, March). "Impact of reference-based pricing for angiotensin-converting enzyme inhibitors on drug utilization." *Canadian Medical Association Journal* 166(6), pp. 737-745.**

In this study, the researchers analyzed 3 years of claims data from British Columbia for 2 years before and 1 year after implementation of reference-based pricing in a large group of elderly Canadian Pharmacare beneficiaries, who took angiotensin-converting enzyme (ACE) inhibitors to treat hypertension during the study period. They found that reference-based drug pricing achieved a sustained reduction in drug expenditures and no changes in overall use of antihypertensive therapy. Use of the higher priced, cost-shared ACE inhibitors sharply

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## Drug pricing

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declined by 29 percent immediately after implementation of a reference-based pricing policy. After a transition period, the postimplementation use rate for all ACE inhibitors was 11 percent lower than projected from preimplementation data. Nevertheless, overall use of antihypertensives was unchanged.

The policy saved \$6.7 million in pharmaceutical expenditures during the first 12 months. Patients with heart failure or diabetes mellitus who were taking a cost-shared ACE inhibitor were more likely to remain on the same medication after implementation of reference-based pricing. Low-income patients were more likely than those with high incomes to stop all antihypertensive therapy, which reflected a general trend toward discontinuation of therapy among these patients even before implementation of reference-based pricing.

**Schneeweiss, S., Walker, A.M., Glynn, R.J., and others. (2002, March). "Outcomes of reference pricing for angiotensin-converting enzyme inhibitors." *New England Journal of Medicine* 346, pp. 822-829.**

These researchers analyzed data from the Ministry of Health on nearly 40,000 elderly residents of British Columbia, who were

enrolled in the provincial health insurance program and who received ACE inhibitors priced higher than the reference price of \$27 a month in 1996 before the reference pricing policy began (January 1997). They compared 5,353 residents who switched to an ACE inhibitor not subject to cost sharing during the first 6 months with 27,938 residents who continued to receive only ACE inhibitors subject to cost sharing. Reference pricing for ACE inhibitors was not associated with changes in the rates of visits to physicians, hospitalizations, admissions to long-term care facilities, or mortality.

The probability of stopping all antihypertensive therapy decreased 24 percent after policy implementation compared with the probability before the change in policy. However, 18 percent of patients who had been prescribed ACE inhibitors subject to cost sharing switched to lower-priced alternatives. Compared with patients who did not switch, those who did had a moderate transitory increase in the rates of physician visits and hospital admissions through the emergency room during the 2 months after switching but not subsequently, which is most likely due to increased monitoring following the medication change.

**Schneeweiss, S., Maclure, M., and Soumerai, S.B. (2002, March).**

**"Prescription duration after drug copay changes in older people: Methodological aspects." *Journal of the American Geriatrics Society* 50, pp. 521-525.**

This study examined 3 years of individual claims data for ACE inhibitor use for elderly people enrolled in Pharmacare, the drug benefits program covering all elderly patients in the province of British Columbia, Canada, who used ACE inhibitors between 1995 and 1997. There was a transitional sharp decline in the overall use of all ACE inhibitors after reference pricing was implemented. After 5 months, use rates had increased but remained under the predicted prepolicy trend. Coinciding with the sharp decrease was a reduction in prescription duration by 31 percent in patients switching to drugs not requiring a copayment.

The spurious temporary reduction in the use of cost-sharing ACE inhibitors and the transitional phase of shorter prescription duration were most likely attributable to increased monitoring of patients who switched medications, suggest the researchers. They conclude that analysis of prescription duration adds important insight to the time trend analysis of overall use data in the evaluation of drug policy changes. ■

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## U.S. drug expenditures are expected to increase by 15 to 19 percent this year

A new study forecasts a 15.5 percent increase in drug expenditures in 2002 for hospitals and clinics and an 18.5 percent increase for outpatient care settings. This rise will be driven by price inflation and inflationary factors unrelated to price, including increases in therapeutic intensity and the expected approval of new drugs by the U.S. Food and Drug Administration. One medication likely to have the highest impact on hospitals in the next year is drotrecogin alfa for the treatment of sepsis (blood infection). The cost for this medication is expected to range from \$3,000 to \$10,000 per patient per course of therapy.

Other factors likely to influence medication costs include a growing number of generic medications to replace expiring patents on brand-name medications, legislative

initiatives to make medications more available to the elderly, and the recent acts of terrorism committed against the United States, according to the researchers who conducted the study. They are from the University of Wisconsin, the U.S. Pharmacopeia, and IMS Health in Plymouth Meeting, PA.

The generic market is expected to grow substantially by 2005, with an estimated \$35 billion in patent expirations. However, newer brand-name drugs and changing treatment patterns may limit the potential cost reductions associated with these brand-to-generic shifts. Also, the effective patent life of brand-name drugs is expected to be extended as long as 15.4 years, leading to decreased market share for generic drugs.

Congress continues to struggle with the design of an outpatient

drug benefit for seniors, with many proposals pointing to cost shifting from publicly funded programs to the private sector. This might result in hospitals and other health care groups experiencing drug cost increases. Finally, the recent anthrax scare and other terrorism attacks may lead to increased costs for antibacterial agents and vaccines. This research was supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00083).

More details are in "Projecting future drug expenditures - 2002," by Nilay D. Shah, M.S., Lee C. Vermfulen, M.S., John P. Santell, M.S., and others, in the January 15, 2002 *American Journal of Health-Systems Pharmacy* 59, pp. 131-142. ■

## Both patients and pharmacists view counseling as an important role for pharmacists

Pharmacists are being encouraged to offer pharmaceutical care to improve patients' health, rather than simply dispense medications. This care ranges from monitoring patients' symptoms and counseling them about their medications to helping resolve drug-related problems and facilitating communication with physicians. Both patients and pharmacists view counseling as an important role for pharmacists and believe that pharmacists should work with patients' physicians, according to a study supported in part by the Agency for Healthcare Research and Quality (HS09083).

For the study, researchers analyzed discussions of two focus groups of 13 patients with reactive airways disease and 11 pharmacists from chain drug stores. Although pharmacists viewed counseling as integral to their job, they reported several obstacles, including lack of time, inadequate privacy, and the lack of direct access to patients' physicians. Pharmacists provided the greatest amount of counseling for new prescriptions, drugs with complicated instructions, and

medications for children. All patients wanted to receive drug information sheets to supplement pharmacists' face-to-face counseling, and most read these sheets when they got them. Both pharmacists and patients believed pharmacists should have access to patient-specific clinical data.

A number of patients mentioned that rapport with the pharmacist affected their choice of drugstore. Men were willing to wait longer than women for improved counseling. However, patients appeared unwilling to pay for increased pharmacist counseling. The researchers used the information gained from these focus groups to design a pharmaceutical care program for chain pharmacies, which are the largest provider of prescription medications in the United States.

See "Pharmaceutical care in chain pharmacies: Beliefs and attitudes of pharmacists and patients," by Mark R. Amsler, Pharm.D., Michael D. Murray, Pharm.D., William M. Tierney, M.D., and others, in the November 2001 *Journal of the American Pharmaceutical Association* 41(6), pp. 850-855. ■

### Family physicians value personal knowledge of specialists over all other factors when making referrals

Despite the formal constraints put on referrals to medical specialists over the past decade, 5 percent of visits to family physicians still lead to referral to a specialist. About one-third of these referrals are made during encounters other than office visits to physicians, such as by telephone or office staff. The type of medical problem involved is a powerful determinant of whether a patient is referred, and obtaining advice is by far the most common reason for referral, according to a study supported by the Agency for Healthcare Research and Quality (HS09377).

Researchers from Johns Hopkins University, the University of Colorado, and the Center for Research Strategies in Denver examined 35,519 visits to family physicians and 2,534 new referrals made in the offices of 141 family

physicians in 87 practices located in 31 States. Although 68 percent of referrals were made by physicians during office visits, 18 percent were made by doctors during telephone conversations with patients, 11 percent were made by office staff with input from the physician, and 3 percent were made by staff without physician input. Doctors sought specialists' advice on either diagnosis or treatment for 52 percent of referrals and asked the specialist to direct medical management for 26 percent and surgical management for 38 percent of referred patients. Patient request to see a specialist prompted 14 percent of referrals.

Fifty medical conditions accounted for 76 percent of referrals. Surgical specialists were sent the largest share of referrals (45 percent), followed by medical

specialists (31 percent), nonphysician clinicians (12 percent), obstetrician-gynecologists (5 percent), mental health professionals (4 percent), other practitioners (2 percent), and generalists (0.8 percent). Family physicians recommended a specific specialist to the patients for 86 percent of referrals, primarily because of their personal knowledge of the specialist.

See "Family physicians' referral decisions: Results from the ASPN referral study," by Christopher B. Forrest, M.D., Ph.D., Paul A. Nutting, M.D., M.S.P.H., Barbara Starfield, M.D., M.P.H., and Sarah von Schrader, M.A., in the March 2002 *Journal of Family Practice* 51(3), pp. 215-222. ■

### Decision aids minimize conflict for patients regarding colorectal cancer screening decisions

Individuals who use a decision aid to help them choose among currently recommended colorectal cancer screening programs have less conflict about their screening decisions than those who don't use a decision aid. That's the conclusion of a pilot study supported by the Agency for Healthcare Research and Quality (HS10728) and conducted by James G. Dolan, M.D., F.A.C.P., and Susan Frisina, R.N., of the University of Rochester.

The researchers randomized 96 patients at average risk for colorectal cancer seen in an internal medicine practice in Rochester, NY, to a control or experimental group. The control group had a standardized interview and educational briefing on five recommended screening programs for patients at average risk for colorectal cancer: annual fecal occult blood test;

flexible sigmoidoscopy (examining the last one-third of the colon looking through a short flexible tube) every 5 years; combination of yearly fecal occult blood test and flexible sigmoidoscopy once every 5 years; double contrast barium enema every 5 years; and colonoscopy every 10 years. The experimental group additionally received a detailed analysis of the options that integrated quantitative data with patient values and preferences.

The decision aid asked patients to define the relative importance of factors that can influence decisions about colorectal cancer screening, including avoiding colorectal cancer, avoiding major side effects from screening tests, avoiding false-positive screening test results, the nature of the test procedure,

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## Cancer screening decisions

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preparations required, and the frequency of screening. Patients were then asked to judge how well the alternatives satisfied each of these considerations. The two sets of information were then combined to rank the screening options

according to how well they matched each patient's preferences.

Patients who used this decision aid had fewer conflicts about their colorectal cancer screening decisions on the decisional conflict scale than patients who didn't use the aid. This was due to increased knowledge, better clarity of values, and higher ratings of the quality of the decisions they made, conclude

the researchers. About half of both groups completed planned screening tests.

Details are in "Randomized controlled trial of a patient decision aid for colorectal cancer screening," by Dr. Dolan and Ms. Frisina, in the March 2002 *Medical Decision Making* 22, pp. 122-136. ■

## Distinct communication modes used by deaf adults may be associated with health care use and health status

The age when a person develops severe bilateral hearing loss can have a significant effect on communication and socialization. People deafened after early adulthood and completion of their basic education are more likely to communicate well in English. People deafened prelingually (usually considered to be before age 3), before the development of language, are more likely to communicate using sign language. These distinct communication modes may affect health care use and health status, suggests a study supported by the Agency for Healthcare Research and Quality (HS09539).

Steven Barnett, M.D., and Peter Franks, M.D., both of the University of Rochester, found that prelingually deafened adults' use of health care was similar to that of other language minority groups. Compared with the general population, prelingually deafened adults had fewer physician visits and were less likely to have visited a doctor in the preceding 2 years. Postlingually deafened adults' use of health care services appeared

similar to people with chronic illness. Compared with the general population, these deaf adults had more physician visits and were more likely to have visited a doctor in the preceding 2 years. However, postlingually deafened women 50 years and older were less likely to have had a mammogram within the prior 2 years.

Frequency of physician visits may have been high and mammography compliance low because the medical needs of postlingually deafened adults were inadequately addressed. If physicians and deaf patients need to spend more time trying to communicate, there will be less time to discuss recommended preventive services. Their findings were based on analysis of data from the 1990 and 1991 National Health Interview Surveys, the most recent years the Hearing Supplement was administered.

More details are in "Health care utilization and adults who are deaf: Relationship with age at onset of deafness," by Drs. Barnett and Franks, in the February 2002 *Health Services Research* 37(1), pp. 105-120. ■

## More than one in three seriously ill people who prefer comfort care over aggressive treatment don't get it

According to a recent study, more than one in three seriously ill people who preferred comfort care received aggressive treatment instead. This discord was associated with higher 1-year health care costs, but it increased survival.

Physician-patient communication apparently needs to be improved to ensure that patients

receive the care they want. Adapting medical care to patients' treatment goals might substantially lower costs, although at some reduction in survival, concludes Joan M. Teno, M.D., M.S., of Brown University. The study was supported in part by the Agency for Healthcare Research and Quality (HS08158).

Dr. Teno and her colleagues interviewed 1,185 seriously ill Medicare patients (or their surrogates) at five U.S. teaching hospitals about whether the care they received was consistent with their preferences. Of patients who wanted aggressive life-extending treatment, 86 percent said they obtained it, but only 41 percent of

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## Comfort care over aggressive treatment

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those preferring comfort care obtained it. In fact, more than one-third (35 percent) of those who preferred comfort care said that the medical care they received was inconsistent with their goals. This group had higher estimated mean 1-year health care costs than those who received care consistent with their wishes (\$92,442 vs. \$52,098).

Even after adjustment for differences in disease severity, age, sex, race, functional status, income, and years of education, adjusted costs were 1.4 times higher for patients who wanted comfort care but received aggressive care instead. However, 1-year survival was lower in patients who wanted comfort care and received it than those who wanted it and received aggressive care instead. Regardless of patients' preferences, those who received life-extending care had

more than a 50 percent 1-year survival rate compared with a 38 percent survival rate for those who received comfort care.

See "Medical care inconsistent with patients' treatment goals: Association with 1-year Medicare resource use and survival," by Dr. Teno, Elliott S. Fisher, M.P.H., Mary Beth Hamel, M.D., and others, in the March 2002 *Journal of the American Geriatrics Society* 50, pp. 496-500. ■

## Elderly people's decisions about end-of-life medical treatment may change over time

Elderly patients' views of health states they consider worse than death are only moderately stable over time. A state they might rate as "worse than death" at one point in time may become "better than death" just 6 months later, according to a study supported in part by the Agency for Healthcare Research and Quality (HS08180). Updating advance directives when patients are admitted to the hospital may help accommodate for these changed views, suggest the researchers who conducted the study.

They administered two questionnaires from 5 to 16 months apart to 50 elderly men and women. The subjects were asked to judge quality of life (QOL) possible in a number of hypothetical states of impaired health and indicate their desire to live or die (LOD) in each state. The states were coma, chronic severe pain that cannot be controlled, inability to communicate through any means, inability to reason or remember, confinement to bed, legal blindness, and functional deafness.

Both QOL and LOD judgments demonstrated only moderate stability regardless of the method of analysis

used. LOD judgments revealed that for five of the seven health states, about 30 percent of elderly people changed their perception of the state from first to second measurement. Also, in four of the five most severe health states (coma, inability to reason or remember, inability to communicate, and chronic uncontrolled pain), from one-fourth to one-third of all participants who rated the states as worse than death at the initial interview changed their ratings to better than death at followup.

Judgment instability increased with longer elapsed time between interviews. If this initial view is documented in an advance directive ("living will") that is then used to guide later end-of-life treatment decisions made by surrogates, this moderation effect could lead to less or more aggressive treatment than the patient would actually desire.

More details are in "The stability of older adults' judgments of fates better and worse than death," by Lisa K. Lockhart, Ph.D., Peter H. Ditto, Ph.D., Joseph H. Danks, Ph.D., and others, in *Death Studies* 25, pp. 299-317, 2001. ■

## Prediction models may help surrogates make end-of-life treatment decisions for incompetent elderly patients

When elderly patients are incapable of making decisions about life-sustaining treatment, surrogates—often a spouse or adult child—may be given the difficult task of trying to decide what patients would have

decided for themselves if they had been competent to do so. Advanced directives (ADs) allow elderly people to record their treatment preferences in advance. However, studies show that surrogates predict patients' choices with equal

accuracy with and without an AD. Furthermore, patient preferences for life-sustaining care often change over time, so surrogates are trying to "hit a moving target."

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## End-of-life treatment decisions

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According to a recent study that was supported in part by the Agency for Healthcare Research and Quality (HS08180), decision models based on the choices of a community of patients with a similar condition may supplement or perhaps provide an alternative to ADs. The 2-year study involved healthy elderly outpatients at six family practice centers and their surrogates. The participants were asked to record their preferences

for four treatments in nine hypothetical illness scenarios at three different times during the study. The scenarios included current health, emphysema, Alzheimer's disease, terminal cancer with and without pain, and coma and stroke with slight or no chance of recovery. Life-sustaining treatments included artificial hydration and nutrition if unable to eat or drink and cardiopulmonary resuscitation.

Both the original and updated models were more accurate in predicting patients' preferences than were surrogates making

concurrent predictions. The models reflected a trend toward refusing life-sustaining treatment for more scenarios as time progressed.

See "Predicting elderly outpatients' life-sustaining treatment preferences over time: The majority rules," by Renate M. Houts, Ph.D., William D. Smucker, M.D., Jill A. Jacobson, Ph.D., and others, in the January 2002 *Medical Decision Making* 22, pp. 39-52. ■

## Making pneumonia and influenza vaccinations more convenient may increase immunizations among elderly and at-risk people

Most of the 50,000 to 80,000 pneumonia and influenza deaths in the United States each year are among elderly men and women. Younger people with chronic heart or lung disease or diabetes also are at higher risk of dying from these diseases. Unfortunately, only 58 percent of elderly people and 38 percent of at-risk younger adults are vaccinated against influenza each year. Making vaccinations more convenient might help increase immunization rates among these groups, concludes a study that was supported in part by the Agency for Healthcare Research and Quality (HS10021).

John D. Grabenstein, Ph.D., of the U.S. Army Medical Command, and his colleagues surveyed over 2,000 people, who were either elderly or at risk for complications from pneumonia or influenza (based on medication prescriptions) and who received medications from any of 24 pharmacies in Washington and Oregon.

Convenience and provider experience influenced choice of site for vaccination. However, convenience was the stronger factor for those not vaccinated in the previous year, for nonelderly people taking medications for chronic problems, and for the

increasing numbers of people seeking vaccinations at pharmacies. For example, between 1997 and 1998, the proportion of people vaccinated at traditional sites held steady at 55 percent, while the proportion vaccinated at nontraditional sites like pharmacies rose from 14 to 17 percent.

People vaccinated at traditional sites in 1998 were more likely to identify physicians' offices and public health clinics as vaccine providers compared with those vaccinated at nontraditional sites (95 vs. 64 percent). Conversely, people vaccinated at nontraditional sites in 1998 were more likely to name pharmacies as vaccine providers (55 vs. 37 percent). More experience and trust in vaccine providers were major factors for people vaccinated at traditional sites, while those vaccinated at nontraditional sites were more likely to highlight issues of convenience.

See "Attitudinal factors among adult prescription recipients associated with choice of where to be vaccinated," by Dr. Grabenstein, Harry A. Guess, M.D., Ph.D., Abraham G. Hartzema, Pharm.D., Ph.D., and others, in the *Journal of Clinical Epidemiology* 55, pp. 279-284, 2002. ■

## Race and sex may play a role in a person's ability to give up smoking

Women make up half of current smokers, and several racial/ethnic groups not only have high rates of smoking (27 percent of blacks and 34 percent of American Indians/Alaska Natives), but they also have higher mortality rates than whites from smoking-related illness, such as cancer and cardiovascular disease. A recent commentary by researchers who developed the Public Health Service's Clinical Practice Guideline, *Treating Tobacco Use and Dependence*, suggests that differences in motivational and physical dependence factors related to a smoker's sex and race/ethnicity may influence the effectiveness of treatments for tobacco dependence. The guideline does not, however, identify different treatment approaches for these groups.

When Michael C. Fiore, M.D., M.P.H., of the Center for Tobacco Research and Intervention, University of Wisconsin Medical School, and his colleagues developed the guideline, they found no studies on the effectiveness of treatment based on sex or race/ethnicity. However, they believe that differences in tobacco motivation and dependence might require different treatments for different groups. For example, women have much higher rates of anxiety and depression than men, which have been linked to increased rates of smoking and difficulty in quitting. Also, women are more influenced by the social consequences and ritual of smoking than its pharmacological properties. Women have lower quit rates than men for some treatments but not others.

Quit rates are higher for whites than for blacks and Hispanics. Black smokers appear to be more

dependent on tobacco than whites, that is, they are more likely to light up within the first 10 minutes after waking in the morning. Although black smokers smoke significantly fewer cigarettes, start smoking later than whites, and report more desire to quit, they have more difficulty quitting. Finally, it has been suggested that Hispanics, like American Indians, may use tobacco to cope with the stress of acculturation into white society. In conclusion, the authors note that it is difficult to draw firm conclusions about ethnic differences in tobacco dependence because so little research has been done on this topic. They recommend changes and directions for future clinical research to address the effects of sex and race on tobacco dependence and response to treatment.

See "Gender and racial/ethnic differences in tobacco-dependence treatment: A commentary and research recommendations," by Megan E. Piper, M.A., Brian J. Fox, J.D., Samuel K. Welsch, M.S., and others, in *Nicotine & Tobacco Research* 3, pp. 291-297, 2001.

**Editor's note:** The evidence-based Public Health Service guideline on smoking cessation was developed with support from the Robert Wood Johnson Foundation, the Agency for Healthcare Research and Quality (contract 290-98-0015), the Centers for Disease Control and Prevention, the National Institutes of Health, and the University of Wisconsin Medical School. Copies of the PHS smoking cessation materials are available from the AHRQ Publications Clearinghouse. Contact the Clearinghouse (see the back cover of *Research Activities*) for more information. ■

## Women's Health

### Mammography increases early detection of breast cancer and the likelihood of breast-conserving surgery among older women

Breast cancer incidence and death rates increase with age, with more than 50 percent of all breast cancers diagnosed in women 65 years of age and older. Unfortunately, elderly women are less inclined to get mammograms than younger women. Mammograms increase

early detection of breast cancer, and they are associated with an increased likelihood that women will receive breast-conserving surgery (BCS) and radiation instead of mastectomy.

In a recent study supported in part by the Agency for Healthcare Research and Quality (HS08395),

Jeanne S. Mandelblatt, M.D., of Georgetown University, and her colleagues analyzed data on 718 elderly breast cancer patients newly diagnosed with Stage I and II disease (cancer is still localized) at 29 hospitals in 5 U.S. regions to

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## Mammography

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examine the impact of mammography screening on treatment.

Mammography resulted in detection of earlier stage breast cancer. For example, 96 percent of women with cancer diagnosed via mammogram had Stage I lesions compared with 81 percent of women diagnosed by other means. Women who had lesions detected through mammography were more likely to have ductal cancer (cancer

involving the milk ducts) and to be referred to radiation oncologists than women diagnosed by other means. Even after controlling for cancer stage and histology, screening remained associated with a higher likelihood of receiving BCS with radiation than other local therapies.

Possible explanations for the relationship between mammography and breast cancer treatment include differences in patient behavior and/or variability in physician response to management of different tumor

types, note the researchers. They conclude that further research is needed to fully understand the mechanisms by which mammography screening affects breast cancer treatment options above and beyond finding cancer at an earlier stage of development.

See "Screening mammography and breast cancer treatment patterns in older women," by Jon F. Kerner, Ph.D., Dr. Mandelblatt, Rebecca A. Silliman, M.D., M.P.H., Ph.D., and others, in *Breast Cancer Research and Treatment* 69(1), pp. 81-91, 2001. ■

## Telecolposcopy may help reduce barriers to diagnosis of cervical cancer among rural women

Poor, minority, and rural women are more likely than other women to develop cervical cancer. Unfortunately, some women are reluctant to follow up abnormal Pap smears with further evaluation by traditional colposcopy (examination of vaginal and cervical tissue by means of a magnifying instrument) to detect cervical cancer, especially if they have to travel long distances for the procedure, which is often the case for rural women. Telecolposcopy, which allows local doctors to confer with distant experts by transmitting the image of the on-site colposcopy, may help solve the travel problem for rural women, according to a study that was supported in part by the Agency for Healthcare Research and Quality (HS08814).

Medical College of Georgia researchers, led by Daron G. Ferris, M.D., examined the efficacy of telecolposcopy for women with abnormal Pap smears or other indications for colposcopy who were examined by local colposcopists at one of two rural clinics.

The researchers transmitted images of the colposcopic examination to a tertiary care center for interpretation by an expert colposcopist (who televiewed the procedure but did not talk to the local doctor unless asked for consultation). Another

colposcopist (site expert) in attendance at the rural site also examined the same patients but did not share findings with other colposcopists.

Local colposcopists sought consultation with distant experts (telecolposcopy) for 36 percent of examinations, which otherwise might have resulted in referrals to experts who typically are scarce in rural areas. Diagnostic accuracy (agreement with cervical tissue findings) was maintained with telecolposcopy. Agreement ranged from 60 percent for local colposcopists and 53 percent for site experts, to 56 percent for distant experts and 50 percent for distant experts who viewed the exam via later videotape (which may have degraded the image). However, the distant experts reported a significantly lower percentage of adequate examinations (60 percent) compared with local colposcopists (76 percent) and site experts (74 percent).

See "The efficacy of telecolposcopy compared with traditional colposcopy," by Dr. Ferris, Michael S. Macfee, M.D., Jill A. Miller, M.D., and others, in the February 2002 *Obstetrics & Gynecology* 99(2), pp. 248-254. ■



## Findings from hysterectomy study discount the link between estrogen deficiency and cognitive decline in older women

Postmenopausal women not taking estrogen replacement therapy who underwent hysterectomy, either with or without removal of both ovaries (bilateral oophorectomy), had scores on cognitive function tests that were similar to women who had not had a hysterectomy. Also, use of estrogen replacement therapy did not improve the cognitive performance of women who had undergone hysterectomy, according to a study supported in part by the Agency for Healthcare Research and Quality (HS06726). This finding discounts the link between estrogen deficiency and age-related decline in cognitive function in older women, conclude Donna Kritz-Silverstein, Ph.D., and Elizabeth Barrett-Connor, M.D., of the University of California, San Diego.

The researchers analyzed data on a community-based sample of 885 postmenopausal women aged 60 to 89; subjects were white, middle to upper-middle class, and relatively well educated. The women, who had undergone a hysterectomy with or without ovary removal, completed 12 standardized tests of cognitive function. Overall, including those not currently using estrogen, there were no significant differences on mean cognitive function scores by hysterectomy and oophorectomy status, after adjustment for age, education, age at menopause, and past estrogen use. Among those currently using estrogen,

women with a hysterectomy and bilateral oophorectomy performed less well on two tests of cognitive function. These differences, although statistically significant, were very small and unlikely to be of clinical significance.

The postmenopausal ovary continues to secrete testosterone, a hormone that has been associated with better cognitive performance. Although women with intact ovaries have reduced testosterone levels around the time of menopause, testosterone returns to premenopausal levels over time. After bilateral oophorectomy, older women have bioavailable testosterone levels that are 40 percent lower than those of intact women. However, testosterone levels may be further reduced in oophorectomized women receiving estrogen because estrogen increases sex hormone binding globulin, which binds preferentially to testosterone (making it less available). This may explain the insignificantly poorer performance of this group of women on two cognitive tests.

For more information, see “Hysterectomy, oophorectomy, and cognitive function in older women,” by Drs. Kritz-Silverstein and Barrett-Connor, in the January 2002 *Journal of the American Geriatrics Society* 50, pp. 55-61. ■

## Timing of prenatal coverage affects initiation of prenatal care among low-income pregnant women

By 1994-1995, about 5 years after California's Medicaid Program, Medi-Cal, expanded maternity care coverage for low-income pregnant women, only 2 percent of such women were uninsured throughout their pregnancy. However, one-fifth actually lacked coverage during the critical first trimester, and this decreased their likelihood of obtaining timely prenatal care in the first trimester, according to a study supported in part by the Agency for Healthcare Research and Quality (HS07910).

Rates of untimely prenatal care (begun after the first trimester) were highest (64 percent or more) among women who were uninsured throughout their pregnancy or whose coverage began after the first

trimester. Rates of untimely care were lowest (about 10 percent) among women who obtained coverage during the first trimester. Previously uninsured women who obtained either Med-Cal or private coverage after their first trimester were much more likely than women with continuous coverage to receive untimely care, even after accounting for a wide range of maternal characteristics.

These findings illustrate the importance of knowing the timing of prenatal care coverage when making inferences about lack of coverage as a barrier to prenatal care, suggest Susan Egerter, Ph.D., Paula Braveman, M.D., M.P.H., and colleagues at the University of California, San Francisco. They examined the relationship between

timing of insurance coverage and prenatal care among 5,455 low-income women who participated in a larger Statewide survey of postpartum women in California during 1994-1995.

Overall, 45 percent of women studied were uninsured just before pregnancy, and 21 percent remained uninsured throughout their first trimester. The percentages of low-income women without coverage decreased to 6 percent and 2 percent during the second and third trimesters, respectively.

See “Timing of insurance coverage and use of prenatal care among low-income women,” by Susan Egerter, Ph.D., Dr. Braveman, and Kristen Marchi, M.P.H., in the March 2002 *American Journal of Public Health* 92(3), pp. 423-427. ■

## In vitro fertilization doubles the risk of preeclampsia during pregnancy for women expecting more than one child

Techniques to assist conception have dramatically increased the number of multiple births. However, women who achieve pregnancy with more than one child by in vitro fertilization or gamete intrafallopian transfer have a two-fold higher risk of preeclampsia than women who conceive spontaneously, according to a study supported by the Agency for Healthcare Research and Quality (HS10700).

Preeclampsia usually occurs in late pregnancy and is characterized by high blood pressure and abnormal metabolism that in serious cases can lead to coma and death. Preeclampsia or eclampsia complications account for almost 20 percent of pregnancy-related maternal deaths.

Anne Lynch, M.D., M.S.P.H., of Kaiser Permanente in Denver, CO,

and her colleagues compared the risk of preeclampsia among women who conceived a multiple gestation as a result of assisted conception with women who conceived spontaneously by examining a total of 525 multiple gestations from a Colorado health maintenance organization from 1994 to 2000. Of the total, 69 multiple gestations followed assisted reproductive technologies (in vitro fertilization or gamete intrafallopian transfer). So-called fertility drugs—human menopausal gonadotropins and clomiphene citrate—were associated with 38 and 91 of the multiple gestations, respectively.

Overall, 18 percent of mothers developed preeclampsia. Women whose conceptions were assisted by reproductive technologies (75 percent of whom were over 35 years of age) had nearly three times the relative risk of mild

preeclampsia and nearly five times the risk of severe preeclampsia compared with women who had spontaneous conceptions.

After adjustment for maternal age and number of pregnancies, women who received assisted reproductive technologies were two times more likely to develop preeclampsia compared with those who conceived spontaneously. The incidence of preeclampsia was greater in mothers who received the fertility drugs, but this association was not significant.

See “Preeclampsia in multiple gestation: The role of assisted reproductive technologies,” by Dr. Lynch, Robert McDuffie, Jr., M.D., James Murphy, Ph.D., and others, in the March 2002 *Obstetrics & Gynecology* 99(3), pp. 445-451. ■

### Health Care Quality

## Peer review organizations may need to reconsider the use of physician and nurse reviews of quality of care

Peer review organizations (PROs) frequently use medical record reviews, sometimes performed by nurses and other times by physicians, to determine substandard care. However, nurse and physician reviewers who examine the same medical records often come to substantially different conclusions, according to a study supported by the Agency for Healthcare Research and Quality (HS09099). The study found that agreement between nurses and physicians about complications was only fair to moderate, and agreement about quality of care was poor, only a little better than chance.

When physician reviewers disagreed with nurse reviewers, they usually felt that quality problems were unavoidable, simply small lapses in otherwise satisfactory care, present on admission, or resulted in no adverse outcome. This suggests that physician

reviewers may not consider process problems that are common in hospitals to represent substandard quality. It also suggests that the PRO program should be wary of its standard operating procedures, cautions Lisa I. Iezzoni, M.D., M.Sc., of Harvard Medical School. She and colleagues retrospectively examined PRO physician and nurse reviews of complications and care quality in the medical charts of 1,025 elderly Medicare patients.

Nurse and physician agreement about complications was fair among surgical cases and moderate among medical cases. Physicians confirmed complications where nurses did not in up to 14 percent of cases (for example, medication-related errors). Nurses confirmed complications where

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## Peer review organizations

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physicians did not in up to 30 percent of cases (reopening of a surgical site). Agreement about care quality was poor among surgical and medical cases. Physicians confirmed quality problems where nurses did not in up to 31 percent of cases (postprocedural hemorrhage or hematoma). Nurses confirmed quality problems where physicians did not in up to 52 percent

of cases (in-hospital hip fracture and falls among surgical patients).

See “Discrepancies between explicit and implicit review: Physician and nurse assessments of complications and quality,” by Saul N. Weingart, M.D., Ph.D., Roger B. Davis, Sc.D., Heather Palmer, M.B., B.Ch., S.M., and others, in the April 2002 *Health Services Research* 37(2), pp. 483-498. ■

## Elderly blacks and whites enrolled in Medicare managed care plans do not receive the same quality of care

**B**lacks are less likely to receive medical procedures than whites, even though they bear a greater burden of chronic illness, such as hypertension and diabetes. It was thought that managed care programs that required enrollees to choose a primary care physician, had targeted outreach to special needs populations, provided case management programs for patients with chronic diseases, and used enhanced quality monitoring might lessen racial disparities in quality of care. It seems, however, that this is not the case for Medicare managed care patients, according to a recent study supported in part by the Agency for Healthcare Research and Quality (HS10803).

Alan M. Zaslavsky, Ph.D., of Harvard Medical School, and his colleagues examined data from the

1998 Medicare Health Plan Employer Data and Information Set on four measures of quality of care for 305,574 elderly patients enrolled in Medicare managed care health plans. Results revealed that blacks were less likely than whites to receive breast cancer screening (63 vs. 71 percent), eye examinations for patients with diabetes (44 vs. 50 percent), beta-blocker medication after heart attack (64 vs. 74 percent), and followup after hospitalization for mental illness (33 vs. 54 percent). Even after adjusting for other factors affecting quality of care, these racial disparities remained significant for all measures except breast cancer screening.

These differences in clinical services could be associated with poorer health outcomes observed among minority patients compared

with white patients, suggest the researchers. They found that more than half of the racial disparity in breast cancer screening was explained by socioeconomic factors such as income and education, but less than one-tenth of the racial disparity in followup after hospitalization for mental illness was explained by these factors. Finally, part (but not all) of the racial disparity in clinical quality was explained by disproportionate enrollment of blacks in health plans with poorer performance.

See “Racial disparities in the quality of care for enrollees in Medicare managed care,” by Eric C. Schneider, M.D., M.Sc., Dr. Zaslavsky, and Arnold M. Epstein, M.D., M.A., in the March 13, 2002 *Journal of the American Medical Association* 287(10), pp. 1288-1294. ■

## Characteristics of medical organizations have a substantial effect on physician satisfaction and well-being

**T**oday, more than 80 percent of doctors are in group practices, many of which belong to independent practice associations and physician-hospital organizations. The characteristics of the organization in which physicians practice have a substantial effect on their level of stress, job satisfaction, and physical and mental health.

Organizational settings that are both “physician friendly” and “family friendly” seem to result in greater physician well-being. Doctors fare better in

organizations where they are not compensated for individual productivity, are not under time stress, have more control over clinical issues, and are able to balance family life with their work, according to a recent study that was supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00032). Lead author, Eric S. Williams, Ph.D., of the University

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## Physician satisfaction

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of Alabama, and members of the Career Satisfaction Study Group analyzed survey data on practice and physician characteristics, physician job satisfaction, and perceived stress from a national sample of 171,000 clinically active primary care doctors. All the drivers of perceived stress came from practice characteristics and not from physician or patient characteristics. Job stress in turn influenced job satisfaction and physicians' physical and mental health.

Greater stress was associated with more perceived time pressure. Lower job satisfaction was associated with perceived time pressure, a greater emphasis on productivity (seeing more patients per hour), and more

control or involvement with administrative issues. Lower levels of stress and greater job satisfaction came from greater levels of control over workplace and clinical issues and more organizational support for balancing work and family life. Perceived stress exerted a stronger influence on physician physical and mental health than job satisfaction. How many hours doctors worked per week was unrelated to job satisfaction or stress.

See "Physician, practice, and patient characteristics related to primary care physician physical and mental health: Results from the Physician Worklife Study," by Dr. Williams, Thomas R. Konrad, Ph.D., Mark Linzer, M.D., and others, in the February 2002 *Health Services Research* 37(1), pp. 121-143. ■

## Web conference on children's health scheduled for July

Coming in July 2002, AHRQ announces a Child Health Speaker Series Web Conference on "Pediatric Patient Safety" presented by Rainu Kaushal, M.D., Ph.D., Harvard Medical School, and Marlene Miller, M.D., M.Sc., AHRQ.

If you are interested in participating in the Web Conference, send an e-mail to [childweb@ahrq.gov](mailto:childweb@ahrq.gov) and include your name and organization.

Please direct questions via e-mail to Nancy Comfort at [ncomfort@ahrq.gov](mailto:ncomfort@ahrq.gov)

## Health Insurance

### Employees use comparison data on health plans to avoid poorly rated plans and choose plans with lower out-of-pocket costs

When employees are provided with health plan report cards on the quality of plans they are offered, they are less likely to choose plans with high out-of-pocket costs, and they tend to avoid health plans with many below-average ratings, according to a recent study supported by the Agency for Healthcare Research and Quality (HS10050). Dennis Scanlon, Ph.D., of Penn State University, and his colleagues compared health plan choices of employees of a large corporation during open enrollment periods in 1996, when they received no health plan comparison (report card) data, and in 1997, when they did, while controlling for changes in out-of-pocket premiums to the employee.

Health plans were rated on six areas: quality of preventive care, medical and surgical care, women's health, access to care, patient satisfaction, and operational performance (based on site visits by corporate consultants). Results indicated that out-of-pocket price was inversely related to enrollment, but the

researchers were unable to identify which of the six individual ratings influenced enrollment. However, employees consistently avoided plans with many below-average ratings relative to plans with many average ratings. For example, the estimated family coverage market share for a plan with four (of six) below average ratings was 28 percent, while the market share for a plan with no below average ratings was 39 percent.

The researchers note that their analysis was based only on employees who had opted to enroll in health maintenance organizations. Further analysis of the extent to which the ratings drew employees from fee-for-service and preferred provider organization plans is warranted, notes Dr. Scanlon.

See "The impact of health plan report cards on managed care enrollment," by Dr. Scanlon, Michael Chernew, Ph.D., Catherine McLaughlin, Ph.D., and Gary Solon, Ph.D., in the *Journal of Health Economics* 21, pp. 19-41, 2002. ■



## Researchers examine the impact of health plan report cards on employee plan knowledge and choice

The Consumer Assessment of Health Plans Study (CAHPS®) is a 5-year research effort funded by the Agency for Healthcare Research and Quality (HS09218) to gather comparative information on health plan performance to help consumers make health plan choices. Employees provided CAHPS reports on health plans offered by their employer were more aware of how the individual health plans performed in quality of care areas defined in CAHPS, according to a new CAHPS study. A second CAHPS study revealed several major barriers that must be overcome before the private sector follows Medicare's lead in providing health plan comparisons on plan disenrollment (rate of enrollees leaving the plan and their reasons for leaving). The studies are summarized here.

**Hibbard, J.H., Berkman, N., McCormack, L.A., and Jael, E. (2002, March). "The impact of a CAHPS report on employee knowledge, beliefs, and decisions." *Medical Care Research and Review* 59(1), pp. 104-116.**

The authors of this study interviewed employees of a large private employer with two separate campuses in Oregon. Employees at one campus received a CAHPS report on four available health plans offered in their open enrollment materials (intervention group), while those at the other campus did not (control group).

The CAHPS report evaluated health plans in seven areas: ability to get care that is needed, ability to get care without long waits, how well doctors communicate, people's rating of their care, courtesy and respect of office staff, people's rating of their health plan, and customer service from the health plan.

Of the employees, 958 (656 intervention and 302 control) completed interviews both before and after open enrollment (pre- and postintervention). Only 53 percent of those in the intervention group remembered seeing the CAHPS report. Those who saw the report had more information about the differences among the plans on the CAHPS reporting topics and were more likely to believe these topics to be important in health plan choice than those who did not see the report. The findings suggest that employees who take time to review the materials are influenced at some level.

**Carman, K.L., Daugherty, S., Harris-Kojetin, L.D., and Lubalin, J.S. (2002, March). "Private sector unlikely to follow Medicare lead in providing health plan disenrollment comparisons." *Joint Commission Journal on Quality Improvement* 28(3), pp. 115-126.**

CAHPS was developed to help consumers use information about the quality of health care plans to choose plans that best meet their needs. However, comparative information on private health plan

disenrollment has not been developed or reported to date. Several major barriers must be overcome before the private sector follows Medicare's lead in providing health plan comparisons on plan disenrollment, conclude these researchers. They reviewed the research literature on plan disenrollment and how key groups might use disenrollment information, often assumed to be a proxy for plan dissatisfaction.

The researchers developed a disenrollment survey that covered areas of common interest to consumers, purchasers, and plans, but they could not recruit sponsors to test the collection and reporting of these data. This was due to four factors: technical challenges in developing appropriate samples (difficulty in tracking and identifying those who have left plans); wide variation in resources and capabilities of purchasers and plans; the perception that the costs of the survey outweighed the benefits of comparative information on disenrollment to the different sponsors; and the absence of strong demand from purchasers, regulators, or consumers to motivate plans to collect or report comparative information on disenrollment. ■

## Subsidies of out-of-pocket health insurance premiums must be large to affect employee enrollment decisions

About four out of five workers offered health insurance by their employers take it. Workers apparently make these decisions based more on out-of-pocket premium cost, a price they observe directly, than total premiums, according to a new study. Thus, any additional government subsidies will have to be substantial relative to out-of-pocket price to induce large numbers of workers not currently taking employer-sponsored insurance (ESI) to do so. These subsidies should be most effective in inducing ESI take-up if targeted at low-income workers, concludes Jessica S. Banthin Ph.D., of the Center for Cost and Financing Studies, Agency for Healthcare Research and Quality.

Dr. Banthin and her colleagues used linked data from the 1996 Medical Expenditure Panel Survey Household and Insurance Components to analyze data on ESI takers and decliners. Takers were significantly more likely to be male, work full-time, belong to a union, and work in public administration or the public sector. Takers were less likely to have a spouse who received an ESI offer or to work in sales or the service sector.

On average, decliners faced much higher out-of-pocket premium costs—85 percent and 32 percent higher for singles and families, respectively—than workers who took ESI. Single workers were significantly more likely to take up an employer's offer of coverage if they had a health problem of some kind. Also, the likelihood of accepting ESI increased significantly with income.

Lower income workers were more sensitive to price than higher income workers. Family candidates were more sensitive to price than were singles, and this may help explain why employers pay higher percentages of premiums for single workers on average. Employers may strategically lower employer shares to induce two-earner family candidates to elect family coverage from other employers, thus lowering total employer premium contributions.

See "Worker decisions to purchase health insurance," by Linda J. Blumberg, Ph.D., Len M. Nichols, Ph.D., and Dr. Banthin, in the *International Journal of Health Care Finance and Economics* 1, pp. 305-325, 2002. Reprints (AHRQ Publication No. 02-R051) are available from AHRQ.\* ■

### Market Forces

## Merging hospitals in the early 1990s focused mainly on reducing nursing hours and less on converting to new service areas

Numerous hospitals merged during the 1980s and 1990s in an effort to strengthen their financial positions. A study of hospital mergers during 1983-1988 and 1989-1996 found that the three primary reasons for hospital mergers during both periods were to strengthen financial position, achieve operating efficiencies, and consolidate services.

Restructuring actions implemented during both merger periods included consolidating or merging two or more departments or programs; reducing full-time positions in medical and

nonmedical support areas; and reducing full-time positions in administration. However, hospitals that merged during the earlier period frequently used the event of the merger to make radical organizational changes, whereas hospitals merging in the later period placed more emphasis on incremental changes. Earlier mergers, for example, often eliminated excess inpatient capacity through closure of one facility or converting it to a new service line such as psychiatric, long-term care, or rehabilitation services. This continued to be true in the later

period for merging hospitals in rural areas but not for those in urban areas

Hospitals that merged with other hospitals that offered similar services during the later period reduced full-time nursing positions more frequently than comparable mergers in the earlier period (58 vs. 27 percent, respectively), and they did not fill this void with increased use of part-time staffing as occurred in hospitals that merged earlier (29 vs. 60 percent, respectively). Reductions in

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## Merging hospitals

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administrative staff were almost universal, involving about 90 percent of merging hospitals.

These findings are based on a previous survey of hospitals that merged between 1983 and 1988 and a new survey of hospitals that merged between 1989 and 1996. The study was led by Gloria J.

Bazzoli, Ph.D., formerly with the American Hospital Association's Health Research and Educational Trust and now with the Department of Health Administration, Virginia Commonwealth University. The study was supported by the Agency for Healthcare Research and Quality (HS09201).

More details are in "Hospital reorganization and restructuring

achieved through merger," by Dr. Bazzoli, Anthony LoSasso, Ph.D., Richard Arnould, Ph.D., and Madeleine Shalowitz, M.D., M.B.A., in the winter 2002 *Health Care Management Review* 27(1), pp. 7-20. ■

## Agency News and Notes

### AHRQ's research networks link researchers with practitioners to ensure findings are responsive to user needs

Over the past 2 years, the Agency for Healthcare Research and Quality created an Integrated Delivery System Research Network (IDSRN) and awarded new planning and infrastructure grants for primary care practice-based research networks (PBRNs). These initiatives share three features: strong links between researchers and clinicians and others who deliver care or manage health care organizations; collaboration across research projects; and creation of a sustained infrastructure for research.

The IDSRN and PBRNs represent one of AHRQ's best vehicles to see that research findings are used to improve practice and policy, notes Irene Fraser, Ph.D., Director of AHRQ's Center for Organization and Delivery Studies, in a recent commentary with fellow AHRQ researchers David Lanier, M.D., and Fred Hellinger, Ph.D., as well as the late John M. Eisenberg, M.D., AHRQ's former Director.

The IDSRN consists of nine consortia, which together provide care to over 50 million Americans and serve diverse delivery systems and populations, such as group or staff model HMOs, network plans, and fee-for-service providers across the country. Most consortium projects to date use health plan data, with

a large number focusing on quality of care, patient safety, and health care disparities. They typically are short turn-around projects of 12 to 18 months, which allows AHRQ to quickly generate answers to priority policy questions. For example, one project is examining the relationship of provider group characteristics to quality of care and medication errors in ambulatory care settings.

A PBRN is a collaborative network of office-based practices that is capable of rapidly identifying clinically relevant questions in primary care practices and producing rigorous research. For example, one PBRN recently focused on optimal methods of managing laboratory test results in practice, with most participating practices immediately adopting what soon became apparent as the superior method. About half of the existing PBRNs are regional or local in scope, two are national, and most others are Statewide or multi-State.

See "Putting practice into research," by Drs. Fraser, Lanier, Hellinger, and Eisenberg, in the February 2002 *Health Services Research* 37(1), pp. xiii-xxvi. Reprints (AHRQ Publication No. 02-R055) are available from AHRQ.\*\* ■

### Government agencies launch new health care quality information Web site

The Agency for Healthcare Research and Quality, the Centers for Medicare & Medicaid Services, and the U.S. Office of Personnel Management have launched a new government Web site designed to help benefit managers, consumer advocates, and State officials communicate with their audiences about health care quality. The site, [www.talkingquality.gov](http://www.talkingquality.gov), provides step-by-step instructions on how to implement a quality measurement and reporting project, such as a health plan report card.

Research shows that health care quality varies widely across health plans and providers. Research also shows that Americans want and value quality care, but they may lack access to information that would help them with the critical health care choices they face. The TalkingQuality Web site is designed for people and organizations trying to address that need. The Web site provides practical advice and examples on what to say about health care quality, how to say it, and how best to get that information, especially

information on plans and providers, into the hands of consumers.

TalkingQuality.gov covers the entire process of quality reporting from initial planning to evaluation, with useful information for those both with and without experience in producing quality reports. Specifically, the site includes tips on getting started on a quality project, collecting and analyzing data, presenting and disseminating information, providing ongoing support for a quality reporting effort, and evaluating the project. A special feature is the Planning Workbook, a downloadable companion to the Web site. It is designed to help develop customized plans for presenting quality health care information. Throughout the site, there are Workbook icons that remind users when the Workbook may be helpful.

The site was developed through the Quality Interagency Coordination Task Force, established to ensure that all Federal agencies with health care responsibilities are working in a coordinated way to improve quality of care. ■

### Grant final reports now available from NTIS

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

**Dartmouth Symposium on Pediatric Sedation. Joseph P. Cravero, M.D., Dartmouth College, Hanover, NH. AHRQ grant HS10110, project period 8/22/00-8/21/01.**

The sedation of pediatric patients for procedures and tests represents an area of medical practice devoid of standardization. In fact, different

specialists use widely different medications, techniques, and monitoring equipment even though they are trying to achieve the same end point, a quiet, nonstressed, motionless child. The Dartmouth Summit on Pediatric Sedation consisted of four morning lectures which outlined the past problems and future challenges facing providers of pediatric sedation. The afternoon session involved a roundtable discussion of several "hot button" issues in this field, using videotaped case vignettes as a starting point. A complete transcript of the conference was used as a "data set" to examine major themes that were brought up during the meeting. These themes address issues involving the delivery of safe, efficient, and effective care in

a setting of limited resources. The result is an outline for improvement in practice for the field of pediatric sedation and medical care delivery in a wider sense. (Abstract and executive summary, NTIS accession no. PB2002-102263; 16 pp, \$23.00 paper, \$12.00 microfiche)\*\*\*

**Impact of Guidelines on Quality of Care: Unstable Angina. Catarina I. Kiefe, M.D., M.S., Ph.D., University of Alabama, Birmingham. AHRQ grant HS08843, project period 9/30/97-9/29/01.**

This quasiexperimental study involved an intervention to improve adherence to a clinical guideline for management of unstable angina. The study design included the

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## Grant final reports

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longitudinal analysis of data over a 7-year period beginning just prior to release of the guideline in 1994 and concluding in 1999. Twenty-two volunteer hospitals in one State were recruited and randomly assigned to one of three groups: hospital-specific data feedback of performance on quality indicators combined with a physician opinion leader-driven quality improvement (QI) project intervention, hospital-specific data-driven feedback with a usual model QI project intervention, and no intervention. The QI projects were locally guided and based on the model used by the Centers for Medicare & Medicaid Services' Health Care Quality Improvement Program. More than 4,800 medical records were abstracted and linked to Medicare claims data for this study. (Abstract, executive summary, and final report, NTIS accession no. PB2002-101690; 48 pp, \$25.50 paper, \$12.00 microfiche)\*\*\*

***Managed Care and Community Health Centers.* Shi Leiyu, Dr.P.H., M.B.A., M.P.H., Ph.D., Johns Hopkins University, Baltimore, MD. AHRQ grant HS09831, project period 9/30/98-9/29/01.**

This project had two objectives: to examine the relationship between community health centers' (CHCs) involvement in managed care and various center characteristics and to identify factors significantly associated with CHCs' involvement in managed care. Data for this study come from the Uniform Data System maintained by the Bureau of Primary Health Care. The researchers found that CHCs involved in managed care have more diversified sources of revenue and depend less on grant funding. Longitudinal analyses indicated that

centers involved in managed care serve a significantly smaller proportion of uninsured patients but a higher proportion of Medicaid users than those not involved in managed care. They also found that CHCs' involvement in managed care is largely in response to external market pressures—i.e., Medicaid managed care and the prospect of reduced Federal grant funding. Other significant factors include center size, urban location, and proportion of users who are covered by Medicaid. (Abstract, executive summary, and final report, NTIS accession no. PB2002-102315; 62 pp, \$27.00 paper, \$12.00 microfiche)\*\*\*

***Methods to Improve Data on PPO Performance.* Liza Greenberg, M.P.H., R.N., American Accreditation Healthcare Commission, Washington, DC. AHRQ grant HS10105, project period 7/1/00-6/30/01.**

This project provided partial support for a national conference, "PPO Performance Measurement: Agenda for the Future. The goal was to discuss approaches to assessing quality in PPOs and develop a research agenda for improving information on PPO performance. Five papers were commissioned for the conference from academic health services researchers, each of which examined an aspect of performance measurement in PPOs. Findings include: PPOs are increasingly important delivery systems, with over 100 million individuals enrolled; no common definition exists for PPOs; PPOs often do not have enrollment and claims data comparable to PPOs; PPOs have the capability to conduct performance assessment related to users and to process and structural measures. (Abstract, executive summary, and final report, NTIS accession no.

PB2002-102929; 14 pp, \$23.00 paper, \$12.00 microfiche)\*\*\*

***Paradoxical Trends in Influenza Immunization Rates and Rates of Hospitalization for Pneumonia and Influenza in the Elderly.* Paul Hebert, Ph.D., University of Minnesota, Minneapolis. AHRQ grant HS10154, project period 7/1/99-12/31/00.**

Over the past two decades, the percentage of elderly individuals who receive annual influenza immunization has increased from 20 percent in the late 1970s, to over 65 percent in 1996. In spite of this increase, the rate of hospitalization for pneumonia and influenza (P&I) among Medicare beneficiaries has not decreased; it increased from 15.0/1,000 beneficiaries in 1986 to 20.3/1,000 in 1996. The goal of this study was to find out why. The flu shot dividend failed to materialize for three basic reasons. First, influenza is responsible for only a small percentage of total P&I hospitalizations in the elderly. Although 65 percent of all P&I hospitalizations occur during influenza season, only 10-15 percent of those hospitalizations have influenza as an underlying cause. Consequently, even if 100 percent vaccination coverage were achieved, P&I hospitalization rates could only decrease by between 10 and 15 percent. Second, this study found that influenza immunization was not associated with a reduction in the likelihood of any influenza-related medical encounter. Third, there is some evidence that an aging fee-for-service Medicare population, expansion of Medicaid "buy-in" programs for Medicare beneficiaries, and biased selection of beneficiaries into Medicare HMOs has contributed to an increase in rates of P&I hospitalizations among fee-for-

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## Grant final reports

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service Medicare beneficiaries. (Abstract, executive summary, and dissertation, NTIS accession no. PB2002-102485; 36 pp, \$25.50 paper, \$12.00 microfiche)\*\*\*

***Staff Work in an Urban Medical Rehabilitation Hospital.* Diane R. Pawlowski, M.A., Ph.D., Wayne State University, Detroit, MI. AHRQ grant HS09603, project period 9/1/97-8/31/99.**

This ethnographic study examined the staff social universe in an urban medical rehabilitation

institute. Field work occurred from 1993 to 1995; 6 months of followup interviews were conducted at the 155-bed, 50-year-old hospital. Participant observation included staff meetings, social events, and routine work on traumatic brain and spinal cord injury units. Content analysis was applied to 54 staff interview transcripts. Cultural factors in the staff social universe affect patient care and later life. Key findings include how cultural value conflicts present in the facility's social organization and life may undermine efforts to maximize patient independence; staff

metaphor use to describe the social universe; source of value dilemmas and structural challenges; and source of social validation and personal fulfillment. A significant finding is the dilemma faced by staff with disabilities who must educate patients, as well as coworkers and colleagues, who may have little or no contact with or knowledge of life with disabilities prior to arrival at the hospital. (Abstract and executive summary of dissertation, NTIS accession no. PB2002-100380; 13 pp, \$23.00 paper, \$12.00 microfiche)\*\*\* ■

## Research Briefs

**Felix-Aaron, K.L., Bone, L.R., Levine, D.M., and Rubin, H.R. (2002). "Using participant information to develop a tool for the evaluation of community health worker outreach services." *Ethnicity & Disease* 12, pp. 87-96.**

Health care providers and managed care organizations use community health workers/advisors (CHWs) for outreach programs in underserved communities. CHWs work in clinics and have access to homes, community centers, and the streets, tackling health issues ranging from cancer screenings and childhood immunizations to management of HIV/AIDS. These researchers used interviews with clients of CHWs to develop and administer an in-person survey measuring the importance of 57 aspects of CHW services to 84 clients in 3 programs that were using CHWs to help control hypertension or diabetes. The aspects of CHW care that ranked highest were: CHW knows their job; keeps client alive; gives information on high blood pressure; shows respect to the

client; blood pressure is lowered; CHW pays attention; client gets better medical care; CHW speaks understandably; and client gets needed care. Such questionnaire-elicited information may be helpful to providers and managed care organizations who want to evaluate the CHWs they use. Reprints (AHRQ Publication No. 02-R057) are available from AHRQ.\*\*

**Fowler, F.J., Gallagher, P.M., Stringfellow, V.L., and others. (2002). "Using telephone interviews to reduce nonresponse bias to mail surveys of health plan members." (AHRQ grant HS09205). *Medical Care* 40(3), pp. 190-200.**

Surveying members of health insurance plans is an increasingly popular approach to measuring quality of care in the United States. However, responses to mail surveys are likely to be related to survey content and hence are potentially biased. Nonresponse to phone surveys is less directly related to survey content. In fact, telephone interviews with mail

nonrespondents not only increase survey response rates but also can produce less biased samples than mail-only protocols, according to this study. The investigators conducted a mail survey about health care experiences with 800 members in each of four health plans. They attempted to interview nonrespondents by telephone. Response rates for the mail surveys averaged 46 percent; the telephone effort raised the average to 66 percent. Based on administrative data, telephone interviews of mail nonrespondents also improved the demographic representativeness of the responding samples.

**Hermann, R.C., and Palmer, R.H. (2002, March). "Common ground: A framework for selecting core quality measures for mental health and substance abuse care." (AHRQ grant HS10303). *Psychiatric Services* 53(3), pp. 281-287.**

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## Research briefs

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Stakeholders in the mental health care system—from delivery systems and payers to managed care organizations, regulators, and accreditors—have implemented ways to assess quality of care delivered to patients. These diverse approaches to measuring quality of care have increased the burden on health care providers, limited the comparability of results, and hindered efforts to focus limited resources on further development of the most promising measures, assert these researchers. They present a framework for the selection of a core set of measures and point out that differences in priorities among stakeholders complicate the selection process. They clarify divergent perspectives of various stakeholders, such as the technical clinical processes that physicians focus on, personal experience relied on by consumers and families, and utilization measures favored by managed behavioral health organizations. Finally, the researchers make recommendations for further development of core quality measures for mental health care.

**Koroukian, S.M., and Rimm, A.A. (2002).** “The Adequacy of Prenatal Care Utilization’ (APNCU) index to study low birth weight: Is the index biased?” (AHRQ National Research Service Award training grant T32 HS00059). *Journal of Clinical Epidemiology* 55, pp. 296-305.

The period from 1981 to 1995 showed increasing trends toward use of more prenatal resources but worsening trends in birth outcomes, according to a recent nationwide study of 54 million births that used the Adequacy of Prenatal Care Utilization (APNCU) index to

measure resource use. However, this study demonstrates that there is a bias in the APNCU index and that more intensive resource use is in fact associated with improved birth outcomes. The index categorizes use of prenatal care services as follows: adequate plus (A+), adequate, intermediate, and inadequate based on the ratio of observed to expected or recommended (O/E) number of prenatal visits. Preterm births were disproportionately represented in the A+ category: 61 percent of births prior to 37 weeks were A+, whereas only 19 percent of term births were A+. This apparent bias results from the fact that the schedule of prenatal visits recommended by the American College of Obstetricians and Gynecologists allocates nearly one-third of the total visits to the last 4-5 weeks of gestation, suggesting falsely that women grouped in the A+ category were most likely to deliver low birthweight infants. The authors recommend discontinuing use of the APNCU index to study the association between low birthweight and prenatal care use.

**Kravitz, R.L., Bell, R.A., Franz, C.E., and others. (2002, February).** “Characterizing patient requests and physician responses in office practice.” (AHRQ grant HS09812). *Health Services Research* 37(1), pp. 217-238.

The Taxonomy of Requests by Patients (TORP) is a refined system for characterizing patient requests and physician responses in office practice. These researchers assessed the reliability, applicability, and validity of TORP based on independent ratings by two coders using TORP of audiotaped recordings of 131 patient visits (71 to general internists and 60 to

cardiologists). Intercoder agreement on the sorting of requests into categories (reliability) and intercoder agreement on the labeling of elements of discourse as patient requests and subsequent classification into categories (unitizing reliability) were substantially beyond chance. The researchers conclude that TORP should be a useful tool for understanding the clinical negotiation between doctors and patients and should be applicable to both generalist and specialist practices.

**McCormack, L.A., Garfinkel, S.A., Hibbard, J.H., and others. (2002, February).** “Health insurance knowledge among Medicare beneficiaries.” (AHRQ grant HS09218). *Health Services Research* 37(1), pp. 43-63.

The objective of this study was to assess the effect of new consumer information materials about the Medicare program on beneficiary knowledge about their health coverage under Medicare. These investigators randomly assigned Medicare beneficiaries in the Kansas City area to a control group and three treatment groups each receiving a different set of Medicare informational materials: the handbook only; a bulletin (abbreviated version of the handbook); or a survey report, which compared the quality of health care provided by the five local Medicare HMOs. The researchers then conducted a 15-item Medicare knowledge survey of 2,107 beneficiaries. For both new and experienced beneficiaries, all three treatment groups had modestly higher knowledge scores relative to the control group, including the critical areas of cost, coverage, and supplemental insurance options. Compared with

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controls, experienced beneficiaries in the bulletin group scored 7 percentage points higher and those who received either the handbook or the survey report scored 9 percentage points higher. Among new beneficiaries, members of all three treatment groups scored about 9 percentage points higher than the controls.

**Okkes, I.M., Polderman, G.O., Fryer, G.E., and others. (2002, January).** “The role of family practice in different health care systems. A comparison of reasons for encounter, diagnoses, and interventions in primary care populations in the Netherlands, Japan, Poland, and the United States.” *Journal of Family Practice* 51(1), available online at [www.jfponline.com/content/2002/01/jfp\\_0102\\_0072.asp](http://www.jfponline.com/content/2002/01/jfp_0102_0072.asp).

These researchers compared the content of family practice in different countries using databases containing information on reasons for encounter, diagnoses, and interventions. They found important differences and striking similarities. Differences in the numbers of episodes and of encounters per patient per year were small compared with differences in use per episode of care, including both diagnostic and therapeutic interventions. Substantial differences were found in prescribing antibiotics, oral contraceptives, cardiovascular medications, and gastrointestinal therapies. Prescribing behavior in the Netherlands and the United States was similar, while very different patterns were found in Japan and Poland. Similarities were much higher in patients' reasons for encounter than in diagnoses. Nevertheless, even under very

different conditions in the four countries studied, there was substantial overlap in the top 30 symptom/complaint reasons for encounter, incidence rates, and encounters per diagnosis.

**Patton, L.L., Shugars, D.A., and Bonito, A.J. (2002, February).** “A systematic review of complication risks for HIV-positive patients undergoing invasive dental procedures.” (Contract 290-97-0011). *Journal of the American Dental Association* 133, pp. 195-203.

These investigators reviewed the research literature to determine the strength of the evidence regarding whether HIV-infected patients are at higher risk of developing complications—such as infection, bleeding, or delayed healing—from invasive oral procedures than similar patients without HIV. They found no studies involving surgery on the jaw, periodontal therapy, prophylaxis, dental implants, or scaling and root planing and only one study reporting a few immediate endodontic therapeutic complications. They conclude that the evidence is insufficient with respect to any additional risk associated with these procedures among people with HIV/AIDS. They also consider the evidence to be too poor to rule in or out a meaningful relationship between HIV status and complications from tooth extractions.

**Sherman, K.J., Cherkin, D.C., and Hogeboom, C.J. (2001).** “The diagnosis and treatment of patients with chronic low-back pain by traditional Chinese medical acupuncturists.” (AHRQ grants HS09351, HS09989). *Journal of Alternative and Complementary Medicine* 7(6), pp. 641-650.

These researchers used data from two sources, an acupuncture teaching clinic and seven acupuncturists involved in a clinical trial, to examine more than 150 initial visits to acupuncturists using Traditional Chinese Medical (TCM) diagnoses and treatments for patients with chronic low back pain. They could not identify any clear and consistent set of diagnostic groups or acupoint prescriptions. Although three principal TCM diagnoses are outlined by TCM textbooks, acupuncturists studied classified only one-third of patients into a single one of these diagnostic categories. Instead, they often gave patients multiple diagnoses. Acupuncturists prescribed a wide variety of acupoints. However, only a handful of points were used regularly by most acupuncturists, and individual acupuncturists usually had favorite points rarely used by others. More than half of acupuncture patients with low back pain received additional treatments, including heat (36-67 percent) and cupping (16 to 21 percent). It is unknown whether these different approaches are equally effective.

**Titler, M.G., and Everett, L.Q. (2001, December).** “Considerations for critical care investigators.” (AHRQ grant HS10482). *Critical Care Nursing Clinics of North America* 13(4), pp. 587-604.

Use of evidence-based guidelines in clinical practice is sporadic at best, and research continues to demonstrate that these guidelines are used inconsistently by nurses and physicians. This article describes a research model based on a model of diffusion of innovations to guide researchers in studying the adoption of evidence-

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## Research briefs

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based practices in critical care environments. The authors point out that the nature, credibility, and localization of the innovation (clinical practice guideline) and the use of “practice prompts” influence adoption of the innovation. Mass communication and didactic education are most appropriate during the initial stage of communicating with potential users about adopting the innovation. Interpersonal communication and trying out an innovation are appropriate during the persuasion and decisionmaking stages. Local opinion leaders, such as respected physicians, can aid adoption of guidelines by modeling, peer influence, and altering group norms. Outreach visits conducted by a trained person who meets one-on-one with practitioners also help spur adoption of evidence-based practices.

**Valenta, Z., and Weissfeld, L. (2002). “Estimation of the survival function for Gray’s piecewise-constant time-varying coefficients model. (AHRQ grant**

**HS09694). *Statistics in Medicine* 21, pp. 717-727.**

The Cox proportional hazards (PH) model has been widely used for the analysis of biomedical data from both longitudinal studies and clinical trials. This is mainly due to its appealing mathematical simplicity, as well as its general availability through most statistical packages. These authors demonstrate the usefulness of Gray’s extension of the Cox’s PH model for right-censored survival data. They provide an example of the estimated survival functions and the corresponding confidence limits derived from Cox’s PH and Gray’s PC-TVC model for a liver transplant data set.

**Williams, J.W., Noel, P.H., Cordes, J.A., and others. (2002, March 6). “Is this patient clinically depressed?” (AHRQ contract 290-97-0012). *Journal of the American Medical Association* 287(9), pp. 1160-1170.**

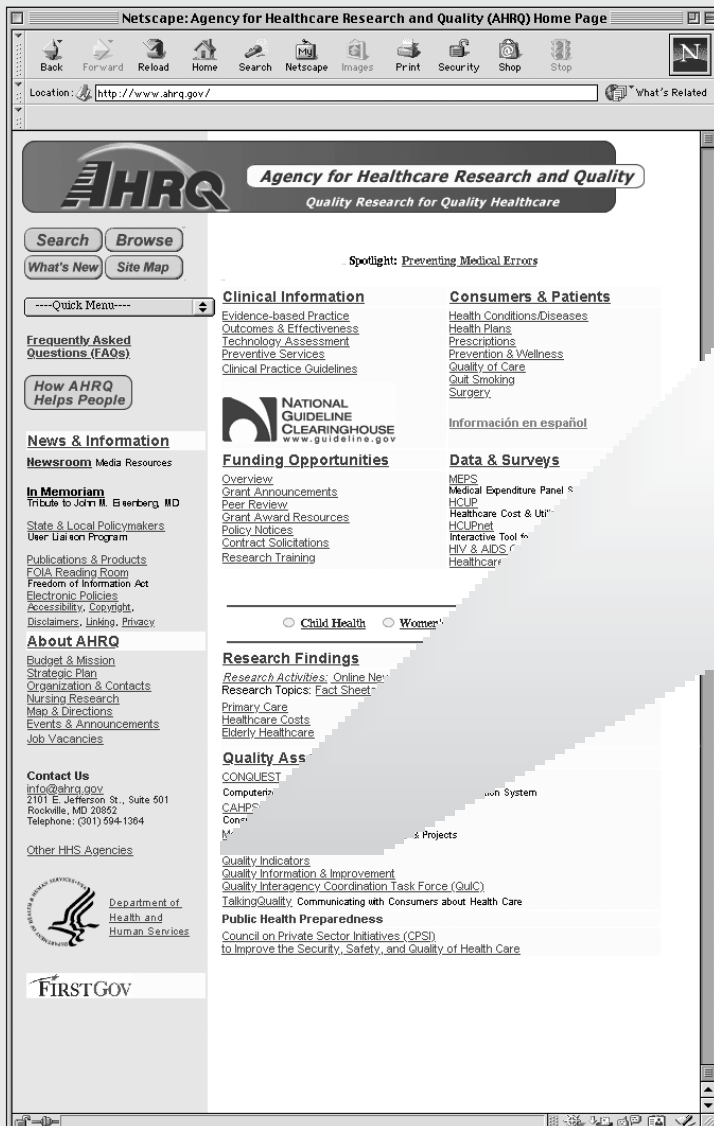
These researchers reviewed studies that used depression questionnaires to evaluate at least 100 primary care patients and compared questionnaire results with accepted diagnostic criteria for major depression. The 28

published studies assessed 11 questionnaires, which ranged in length from 1 to 30 questions and took from 1 to 5 minutes to administer. All questionnaires were diagnostically accurate. Overall, a positive depression screen was 3.3 times as likely to be seen in someone with depression as in someone without the illness. A negative depression screen was much less (0.2 times) likely to be seen in a depressed person. Given the similar diagnostic accuracy of the questionnaires studied, the researchers recommend that physicians choose questionnaires based on brevity, response format, the desire to screen for other psychiatric illnesses, and the need to monitor response. In a clinic with an 8 percent prevalence of major depression or prolonged minor depression (dysthymia), a doctor seeing 100 patients a week can expect that 30 will screen positive for depression, of whom 7 would meet the criteria for clinical depression after a clinical interview. ■



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