



# Research Activities

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## Blacks hospitalized for mini strokes are less likely than whites to receive diagnostic tests, see a specialist, or have surgery

A recent study by the Stroke Prevention Patient Outcomes Research Team (PORT) indicates that racial differences exist in treatment of patients at risk for stroke. Black patients hospitalized with transient ischemic attacks (TIAs, also called mini strokes) are significantly less likely than comparable white patients to receive diagnostic testing and surgery to prevent stroke and to have a neurologist as their attending physician. These findings are compatible with the documented gap between blacks and whites in receipt of cardiac tests and procedures.

Under the leadership of David Matchar, M.D., of Duke University and with support from the Agency for Healthcare Research and Quality (PORT contract 290-91-0028), the PORT researchers analyzed Medicare inpatient hospital records to identify a random 20 percent sample of elderly patients who were hospitalized with TIA in 1991. They found that blacks were significantly less likely than whites to receive cerebral angiography (40 vs. 48 percent), anticoagulant therapy (21 vs.

35 percent), or carotid endarterectomy (0.5 vs. 2 percent). Even blacks who received noninvasive diagnostic tests had about half (0.54) the odds of whites of undergoing cerebral angiography, and the black patients who did undergo this procedure had one-fourth the odds (0.27) of receiving carotid endarterectomy (surgical removal of plaque blocking the carotid artery in the neck).

These black-white differences in utilization of services for cerebrovascular disease largely persisted even after controlling for patient characteristics, comorbidity (other diseases), and ability to pay. One reason for the difference may be that blacks were less likely than whites to have a neurologist as an attending physician (24.7 vs. 28.8 percent). The investigators found that patients treated by neurologists were significantly more likely to be referred for cerebrovascular testing and to receive anticoagulant therapy but less likely to undergo carotid endarterectomy.

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## Treatment for mini strokes

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Other explanations may lie in racial differences in the etiology of cerebrovascular disease (e.g., blacks being less likely to have \extracranial disease amenable to carotid endarterectomy) or in patient preferences. More research is needed on how patients are referred to specialists and on possible racial or sociocultural

differences in health beliefs that could affect the willingness of patients to undergo tests and procedures.

See “Racial variation in treatment for transient ischemic attacks: Impact of participation by neurologists,” by Janet B. Mitchell, Ph.D., David J. Ballard, M.D., Ph.D., and others, in the March 2000 *Health Services Research* 34(7), pp. 1413-1428. ■

## Heart Disease/Diabetes

### Race, not sex, limits access to life-saving therapies for heart attack patients

**A** new study funded by the Agency for Healthcare Research and Quality finds that black Medicare beneficiaries, regardless of sex, are significantly less likely than whites to receive reperfusion therapies, which open blocked arteries to prevent a potential heart attack. The study, conducted by researchers at the University of Alabama at Birmingham, adds to the current body of evidence on racial disparities and access to health care.

More than 1 million patients in the United States have heart attacks each year, and most of them are candidates for reperfusion therapy—either

thrombolytic drugs or primary angioplasty—as recommended by the American College of Cardiology and the American Heart Association. However, the researchers found that only 57 percent of all patients who were eligible for this treatment actually received it. White men were most likely to receive the reperfusion therapies (59 percent), followed by white women (56 percent), black men (50 percent), and black women (44 percent). After careful analyses accounting for differences in age, symptoms, and results of diagnostic tests, the researchers concluded that, regardless of sex, blacks were less likely than whites to receive this potentially life-saving therapy.

According to the researchers, the reasons for the lower rate of reperfusion therapy use in blacks are not readily apparent, but they may include the preferences of the patient, the expertise and preferences of the physician, hospital barriers to treatment, or unrecognized differences in patients’ symptoms associated with race. Other likely explanations are clinical ambiguity about the treatments, physicians’ lack of training or insufficient knowledge, and physicians’ own preferences or biases. Finally, cultural barriers may have contributed to racial disparities in the administration of these therapies. More research is warranted to explore and define these barriers, conclude the researchers.

The researchers reviewed the medical records of 234,769 Medicare beneficiaries in the United States from February 1994 to July 1995. From those records, 26,575 white and black patients met the strict eligibility criteria for reperfusion therapy. Statistical analyses of prevalence ratios determined the predictors of reperfusion use, dividing the study population into four subgroups of patients by race and sex.

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## Access to heart attack therapies

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The study was performed with support from two AHRQ research grants (HS08843 and HS09446) on impact of guidelines on quality of care for unstable angina and on benchmarking for quality of care, both directed by Catarina I. Kiefe, Ph.D., M.D., of the University of Alabama School of Medicine, Birmingham.

For more information on the study, see "Relation of race and sex to the use of reperfusion therapy in medicare beneficiaries with acute myocardial infarction," by John G. Canto, M.D., M.S.P.H., Jeroan

J. Allison, M.D., Dr. Kiefe, and others in the April 13, 2000 *New England Journal of Medicine* 342(15), pp. 1094-1100.

**Editor's note:** AHRQ plans to spend up to \$20 million over the next 5 years to fund up to four centers of excellence to study the root causes of disparities in health care and develop strategies to eliminate them. This new program was developed to respond to the U.S. Department of Health and Human Services' Initiative on Eliminating Racial and Ethnic Disparities and a comparable goal in the U.S. Surgeon General's Healthy People 2010 program. ■

## CABG surgery may be the optimal therapy for heart attack patients with end-stage renal disease

**C**ardiovascular disease is the most common cause of death in patients with end-stage renal disease (ESRD). Unfortunately, none of the clinical trials of the 1970s and 1980s comparing medical therapy with coronary artery bypass graft (CABG) surgery included patients with ESRD. However, a new study of ESRD patients suffering from acute myocardial infarction (AMI, heart attack) suggests that CABG is probably superior to medication alone or coronary angioplasty. Researchers from the University of California, San Francisco, and Harvard's Schools of Medicine and Public Health studied 640 ESRD patients with AMI during 1994-1995 as part of the Health Care Financing Agency's Cooperative Cardiovascular Project.

The majority of patients were treated with medication alone; 7 percent were treated with percutaneous transluminal coronary angioplasty (PTCA), and 5 percent underwent CABG. At 1 year, over half (53 percent) of the patients had died, with substantially lower survival seen among the elderly. Overall, 69 percent of ESRD patients who underwent CABG survived for 1 year compared with

54 percent of those who underwent PTCA and 45 percent of those on medication alone. After adjustment for other factors affecting death rates, the CABG group had a lower relative risk of death, but it was not significantly lower.

Nevertheless, given the lack of other clinical trial data on ESRD patients with AMI, CABG may be the optimal therapy for such patients as long as they are well enough to tolerate major cardiac surgery and their life expectancy is more than 6 months. Also, given the exceptionally poor outcomes observed for patients treated with medical therapy alone, it may be premature to dismiss PTCA and newer revascularization procedures (for example, stents) as a therapeutic option for this high-risk group of patients, conclude the researchers. Their work was supported in part by the Agency for Healthcare Research and Quality (HS06503 and HS08071).

More details are in "Survival after acute myocardial infarction in patients with end-stage renal disease: Results from the cooperative cardiovascular project," by Glenn M. Chertow, M.D., M.P.H., Sharon-Lise T. Normand, Ph.D., Laurie R. Silva, Ph.D., and

Barbara J. McNeil, M.D., Ph.D., in the May 2000 *American Journal of Kidney Diseases* 35(6), pp. 1044-1051. ■

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## Some drugs provide better control of heart rate for patients with atrial fibrillation at both rest and exercise

The goal of therapy for adults suffering from atrial fibrillation (abnormally fast heart rate) is to control their rapid heartbeat. If the heart continues to beat out of control, it can worsen congestive heart failure, myocardial ischemia, or breathlessness and palpitations.

Drugs that are effective for heart rate control at rest may not be effective during exercise, concludes a study by researchers at the Evidence-based Practice Center at Johns Hopkins University, which is supported by the Agency for Healthcare Research and Quality (Contract 290-97-0006). They reviewed 45 randomized controlled trials published before May 1998, which evaluated 17 drugs used for heart rate control in adults with non-postoperative atrial fibrillation.

The researchers found that the nondihydropyridine calcium-channel blockers, diltiazem and verapamil, worked best for heart rate control at rest and with exercise, since these drugs do not decrease exercise tolerance. Selected beta-blockers such as nadolol or second-generation beta-antagonists such as atenolol and metoprolol also are efficacious at rest and with exercise. There is some evidence, however, that beta-blockers cause a transient decrease in exercise tolerance. For patients unlikely to exercise, such as

those incapacitated by other illness, digoxin should provide acceptable heart rate control at rest.

Trials evaluating other drugs yielded little evidence to support their use, but they may yet be promising, according to the researchers. They expect, for example, that the third-generation beta-blockers such as carvedilol will be effective in heart rate control, with an improvement in exercise tolerance. Both heart rate control and exercise tolerance affect the mortality and well-being of patients with atrial fibrillation, including their ability to conduct their daily lives.

More details are in "The evidence regarding the drugs used for ventricular rate control," by Jodi B. Segal, M.D., M.P.H., Robert L. McNamara, M.D., M.H.S., Marlene R. Miller, M.D., and others in the January 2000 *Journal of Family Practice* 49(1), pp. 47-59.

**Editor's note:** The report from which these findings are drawn, *Management of New Onset Atrial Fibrillation*, Evidence Report/Technology Assessment No. 12 (AHRQ Publication No. 00-E007), is expected to be available from AHRQ by fall 2000\*. A summary of the report (AHRQ Publication No. 00-E006) is available now.\* See the back cover of *Research Activities* for ordering information. ■

## Researchers examine ways to improve care of patients with diabetes

Lowering high blood-sugar levels in patients with diabetes (glycemic control) is essential to reduce their risk of complications associated with diabetes. These range from impaired circulation that can lead to infections and amputation to kidney disorders, vision problems, and blindness. Four recently published studies supported by the Agency for Healthcare Research and Quality examine the quality of diabetes care and ways to improve management of this chronic disease.

The first study, jointly supported by AHRQ and the Bureau of

Primary Health Care, Health Resources and Services Administration, shows that community health centers, like other providers, often do not adhere to care recommendations of the American Diabetes Association (ADA). The second AHRQ-supported study (HS09722) shows that endocrinologists can achieve good glycemic control in patients with diabetes, but complex treatment regimens are usually required. Two additional AHRQ-supported studies (HS09722) demonstrate that patterns of high blood-fat levels may be different among black and

white patients with diabetes and that structured programs can improve glycemic control in black patients. These studies are briefly summarized here.

**Chin, M.H., Auerbach, S.B., Cook, S., and others. (2000, March). "Quality of diabetes care in community health centers." *American Journal of Public Health* 90(3), pp. 431-434.**

Community health centers typically serve poor patients and often have limited resources. Given these special challenges, this study assessed the quality of diabetes

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## Diabetes care

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care in these centers. The researchers reviewed the charts of 2,865 adult diabetes patients in 55 Midwestern community health centers using ADA measures of quality of care. Two-thirds of the centers were rural, 41 percent used practice guidelines, 22 percent had implemented diabetes flowcharts, and 61 percent had a diabetes patient education program.

Many patients at these centers had not received standard diabetes monitoring services to prevent and diagnose complications of the disease. On average, 70 percent of patients at each center had measurements of glycosylated hemoglobin, an indicator of blood-sugar levels; 26 percent had dilated eye exams; 66 percent had diet intervention; and 51 percent received foot care. The average glycosylated hemoglobin value per center was 8.6 percent (over 8 percent is considered poor glycemic control).

Adherence to ADA quality of care standards varied widely across the centers, and few centers performed uniformly well across all process-of-care standards. Only three centers were among the top 25 percent on all four quality of care measures: glycosylated hemoglobin measurement, dilated eye examinations, diet intervention, and foot care. Use of practice guidelines for diabetes was independently associated with greater adherence to the quality-of-care standards for diabetes.

Doctors at community health centers—similar to physicians in

other settings—do not meet ADA standards of care for patients with diabetes, according to this study. Meeting ADA standards is difficult in many clinical settings, including community health centers, and the strategies needed to improve care may vary from setting to setting. The authors suggest the need for a wider total quality management (TQM) effort or chronic disease management approach to enhance diabetes care in resource-strapped community health centers.

**Editor's note:** Variations in care for diabetes pose a particular problem for poor patients. AHRQ is currently supporting a study, "Improving diabetes care collaboratively in the community" (AHRQ grant HS10479). This research project will test the ability of TQM and other quality improvement strategies, used in conjunction with methods of behavioral change, to improve diabetes care in community settings where these patients are typically seen.

**Miller, C.D., Phillips, L.S., Tate, M.K., and others. (2000, April). "Meeting ADA guidelines in endocrinologist practice." *Diabetes Care* 23, pp. 444-448.**

Although patients referred to endocrinologists may have many diabetes complications, the endocrinologists can use complex treatment regimens to achieve good glycemic control for these patients and meet ADA quality of care guidelines. For this study, charts were reviewed for patients who were seen in 1998 and had at least two visits in the previous year.

Metabolic outcomes (blood sugar, blood pressure, and blood fats) were measured and ADA process-of-care measures were examined.

The 121 patients with type 2 diabetes had had the diabetes for an average of 12 years; 80 percent had high blood pressure, 64 percent had hyperlipidemia (high blood-fat levels), 78 percent had neuropathy (inflammation and degeneration of the peripheral nerves), and 21 percent had albuminuria (abnormally high levels of protein in the urine). On average, they had hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) levels of 6.9 percent, reflecting good control of blood sugar; 84 percent had HbA<sub>1c</sub> levels of 8 percent or less (over 8 percent is considered poor control). However, complex therapeutic regimens were required. Only 38 percent used oral medications alone, and 54 percent of these used two or more medications. Thirty-one percent used oral medications and insulin, and 26 percent used insulin alone; 42 percent of insulin therapy involved three or more injections per day. Within a year, 74 percent of patients had dilated eye exams, 70 percent had lipid profiles, and 55 percent had urine albumin screening; 87 percent had a foot exam at their last visit. The 30 patients with type 1 diabetes had had the disease for 20 years, and all used insulin at an average of 3.4 injections per day. On average, they had glycosylated hemoglobin levels of 7.1 percent; 80 percent of these patients had glycosylated hemoglobin levels of 8 percent or less.

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**Note:** Only items marked with a single (\*) or double (\*\*) asterisk are available from AHRQ. Items marked with a single asterisk (\*) are available from AHRQ's clearinghouse. Items with a double asterisk (\*\*) are also available through AHRQ InstantFAX. Three asterisks (\*\*\*) indicate NTIS availability. See the back cover of *Research Activities* for ordering information. Consult a reference librarian for information on obtaining copies of articles not marked with an asterisk.

## Diabetes care

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Thus, the endocrinologists in this study used complex treatments to achieve good blood-sugar control for their diabetic patients, despite their patients' many coexisting illnesses and diabetic complications. This finding contrasts with previous studies, based mostly on patients in primary care settings, which often have shown relatively poor glycemic control in patients with diabetes. The endocrinologists also achieved good control of their patients' blood pressure and lipid levels, as well as substantial rates of screening for diabetic complications.

**Cook, C.B., Erdman, D.M., Ryan, G.J., and others. (2000). "The pattern of dyslipidemia among urban African Americans with type 2 diabetes." *Diabetes Care* 23 (3), pp. 319-324.**

This study found that the lipid profiles of patients with type 2 diabetes differed by sex and race. Diabetes is associated with a greater risk of problems and death from heart and blood vessel disease. Thus, reducing lipid levels (fat in the blood) is one of the goals of treating diabetic patients. The pathogenesis of heart disease in diabetes is complex, but serum lipids are frequently abnormal. Many diabetic patients have low levels of high-density lipoprotein (HDL) cholesterol, high levels of triglycerides (TG), and high levels of low-density lipoprotein (LDL) cholesterol. Ideally, individuals should have low TG, high HDL, and low LDL. However, there have been no previous studies of large numbers of black men and women with type 2 diabetes, a population

at high risk of heart and blood vessel disease.

The researchers retrieved the fasting serum lipid profiles of 4,014 blacks and 328 whites with type 2 diabetes. They applied ADA criteria to classify LDL, HDL, and TG levels into risk categories. They then used regression analysis to determine the influence of sex and race on the probability of having a lipid level outside the recommended target range. The most common pattern of abnormal blood lipids was a high LDL combined with a low HDL, detected in nearly 50 percent of blacks and 42 percent of whites. The percentages of blacks with higher, borderline, and low-risk LDL concentrations were 58 percent, 26 percent, and 16 percent, respectively, and for whites 54 percent, 29 percent, and 16 percent, respectively. For HDL, 41 percent, 33 percent, and 26 percent of blacks fell into each risk class, compared with 73 percent, 18 percent, and 9 percent of whites.

Nearly 81 percent of blacks had TG concentrations that fell into the low-risk category compared with 50 percent of whites. Blacks had lower probabilities of having a low HDL or high TG compared with whites, and women were more likely than men to have a high LDL, low HDL, and low TG. The authors suggest using these lipid profiles to develop more effective strategies to treat abnormal lipid levels for patients with type 2 diabetes.

**Cook, C.B., Ziemer, D.C., El-Kebbi, I.M., and others. (1999, September). "Diabetes in urban African-Americans. XVI. Overcoming clinical inertia improves glycemic control in patients with type 2**

**diabetes." *Diabetes Care* 22(9), pp. 1494-1500.**

This study concludes that structured programs can improve glycemic control in urban blacks with type 2 diabetes who tend to have poor glycemic control and high rates of diabetes-related complications. Structured diabetes management programs typically incorporate elements of patient education, use of nurse case managers, and protocols to guide therapeutic decisions.

The researchers examined the effectiveness of this type of program in a group of patients with type 2 diabetes at an urban diabetes unit between 1992 and 1996. The program emphasized intensification of therapy when glucose monitoring showed high levels. Patients seen in the unit often were poor, many could not read well, and many had diabetes-related eye or kidney disorders.

The researchers provided the patients with a 6-month intensive diabetes education program. During frequent followup visits 1, 2, and 4 weeks later and again at 2, 4, 6, and 12 months, the researchers reinforced the importance of self-management and adjusted medications according to a stepped-care protocol. They emphasized lifestyle changes such as diet and exercise during the first 2 months of therapy and tapered or discontinued medications in those who were not ketosis-prone or did not have symptomatic hyperglycemia. If blood sugar or glycosylated hemoglobin (HbA<sub>1c</sub>) targets (7 percent or less) were not met within the first 2 months, medications were reinstated or advanced.

These patients had an average initial HbA<sub>1c</sub> of 9.3 percent, but

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HbA<sub>1c</sub> improved after 1 year of care. Assessment of management in 1992-1994 revealed that “clinical inertia” was a common problem; therapy often was not advanced even though glucose levels were elevated. Following institution of a quality improvement initiative focused on advancement of therapy

when indicated, followup HbA<sub>1c</sub> improved in 1995-1996 versus 1992-1994, whether patients were managed with diet alone, oral medication, or insulin. Mean HbA<sub>1c</sub> after 1 year of care was 7.6 percent in 1995-1996, significantly improved over the 8.4 percent level in 1992-1994. The percentage of diabetic patients achieving a target HbA<sub>1c</sub> of 7 percent or less

improved progressively from 1993 to 1996, with 57 percent of patients attaining this goal in 1996.

The data indicate that strategies designed to overcome clinical inertia may be critical to improvement in glucose levels as needed to reduce the development and progression of diabetes complications. ■

## Primary Care

### Assessing a patient's willingness to adopt dietary and lifestyle changes is the first step toward sustained weight loss

**T**he majority of adults in the United States (55 percent) are overweight, and two-thirds of those with weight problems are likely to also have diabetes, heart disease, high blood pressure, or another obesity-related condition. Yet few obese adults seen by primary care physicians receive effective treatment. Doctors, constrained by time and not reimbursed for obesity counseling, often can do little more than tell their patients to “eat less and exercise more.”

A recent study offers suggestions on how doctors can help their patients lose weight over time. It shows that patients are receptive to losing weight under their doctor's supervision, but that patients vary in their readiness to adopt specific weight-loss behaviors. For instance, some patients may be ready to increase their exercise but not to reduce the fat in their diet. Others may be ready to eat more fruits and vegetables but not to eat smaller portions of food. If doctors can identify which behaviors patients are willing to change, they can begin an effective weight-loss program, notes Everett Logue, Ph.D., of Summa Health System.

In a study supported by the Agency for Healthcare Research and Quality (HS08803), Dr. Logue and colleagues studied the feasibility of using an obesity intervention based on the transtheoretical model of behavior change and chronic disease care. The rationale for the model was that treatment for obesity would be more effective if it could be tailored to the

patient's readiness and ability to change target behaviors. The researchers used the model to construct a questionnaire, which they administered to 284 obese family practice patients to examine their receptivity (stage of change) to six target behaviors: dietary fat, portion control, vegetable intake, fruit intake, usual physical activity, and planned exercise.

Patients answered questions about their readiness to change each of these behaviors with statements ranging from “not thinking about changing” to “actively making the change for more than 6 months.” “Preparation” (almost ready to change) was the most frequently reported stage of change. However, patients in the preparation stage for one target behavior often were not in that stage for other target behaviors. These profiles indicate which behavior(s) a patient is ready to work on at any given clinical visit and can be used by doctors to get the “right” weight-loss advice to the right obese patients at the right time. The challenge is to find the time and resources to support these programs in day-to-day clinical practice, notes Dr. Logue.

See “Obesity management in primary care: Assessment of readiness to change among 284 family practice patients,” by Dr. Logue, Karen Sutton, Ph.D., David Jarjoura, Ph.D., and William Smucker, M.D., in the May-June 2000 *Journal of the American Board of Family Practice* 13, pp. 164-171. ■

## Language difficulties are as much of a barrier to health care for some Latinos as being uninsured

Limited ability to speak English among Spanish-speaking Latinos dissuades them from seeing a doctor for health problems as much as a lack of health insurance does, according to a new study. This is particularly troublesome, since growing numbers of poor Spanish-speaking patients are entering Medicaid managed care plans, which have few interpreters and culturally competent staff to help these patients communicate. These plans need to develop effective systems to improve communication between health care providers and patients, conclude Kathryn Pitkin Derose, M.P.H., of the University of California, Los Angeles, and David W. Baker, M.D., M.P.H., of Case Western Reserve University.

In their study, which was supported by the Agency for Healthcare Research and Quality (National Research Service Award

training grant T32 HS00046), they interviewed 465 Spanish-speaking Latinos (mostly Mexican Americans) and 259 English speakers of various ethnicities, who visited a hospital emergency department in 1993 and 1994. The researchers analyzed patient demographics, health insurance status, source of care, health status, and number of outpatient physician visits in the prior 3 months. They also gave study participants an English literacy test. Among those patients who saw a physician at least once, Latinos with fair and poor English proficiency reported about 22 percent fewer later physician visits than non-Latinos whose native language was English, after adjustment for other determinants of doctors' visits. There was no difference in physician visits between Latinos with good English proficiency and English-speaking non-Latinos.

The barrier to health care for Latinos with poor English proficiency was similar to barriers presented by lack of insurance and lack of a regular source of care. For example, Medicaid patients reported 42 percent more visits than uninsured patients, and patients with a regular source of care reported 41 percent more physician visits than those who had no regular source of care. This lower use of physician services by Latinos who have difficulty speaking English is disturbing, especially since in this study more than half of these patients rated their usual health as fair or poor.

See "Limited English proficiency and Latinos' use of physician services," by Drs. Derose and Baker, in the March 2000 *Medical Care Research and Review* 57(1), pp. 76-91. ■

## Women's Health

### Hysterectomy is often recommended for indications judged inappropriate by established criteria

Hysterectomy is second only to cesarean section as the most common major operation performed on U.S. women, and there have long been concerns about its overuse. A new study of women enrolled in nine managed care organizations (MCOs) in Southern California seems to support this concern. According to the study's findings, almost three-fourths (70 percent) of hysterectomies performed between 1993 and 1995 on 497 women enrolled in these MCOs were

recommended inappropriately. These cases did not meet the level of care recommended by an expert panel. What's more, 76 percent of women who underwent the operation for endometriosis, chronic pelvic pain, or premenopausal abnormal bleeding, indications for which criteria sets have been developed by the American College of Obstetricians and Gynecologists (ACOG), did not meet ACOG criteria for performing hysterectomy.

Overall, the most common indications for hysterectomy were benign tumors (leiomyomata, often called fibroid tumors, 60 percent of hysterectomies), pelvic relaxation (11 percent), pain (9 percent), and bleeding (8 percent). The most common reasons that recommendations for hysterectomy were considered to be inappropriate were inadequate diagnostic evaluation and failure to try alternative treatment before hysterectomy. For example, neither

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## Hysterectomy

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a laparoscopy nor a laparotomy was done before hysterectomy on 77 percent of women with pelvic pain to exclude other causes of pain that might be resolved without a hysterectomy. Also, 45 percent of women with abnormal uterine bleeding did not have endometrial sampling (usually done to rule out cancer) before hysterectomy.

In addition, 21 percent of women with pain or bleeding did not receive (or were not offered) a trial of medical treatment for the problem first. Finally, 14 percent of the women had clinical characteristics such that, regardless of diagnostic or therapeutic steps taken before surgery, the panel would have considered the procedure inappropriate (for example, surgery for pelvic relaxation in a woman with first-

degree uterine prolapse and no incontinence or pain). This research was supported in part by the Agency for Healthcare Research and Quality (HS07095).

See "The appropriateness of recommendations for hysterectomy," by Michael S. Broder, M.D., David E. Kanouse, Ph.D., Brian S. Mittman, Ph.D., and Steven J. Bernstein, M.D., M.P.H., in the February 2000 *Obstetrics & Gynecology* 95(2), pp. 199-205. ■

## Women use more health care services than men, and their health care costs more

**W**omen tend to use more primary care services and to have higher overall medical charges than men. However, they have similar hospitalization rates and costs as men, according to a study supported by the Agency for Healthcare Research and Quality (HS06167). At the beginning of this study, women reported significantly lower mental and physical health status than men. Thus, it is not surprising that they had a significantly higher mean number of primary care visits (4 vs. 3) and diagnostic services (10 vs. 7) over the course of a year than men.

Primary care physicians may be more likely to order laboratory, radiologic, and other diagnostic tests for women who make more frequent visits and have continuing complaints, explains principal investigator, Klea D. Bertakis, M.D., M.P.H. Dr. Bertakis and her colleagues from the University of California, Davis, randomly assigned 509 new adult patients to primary care physicians at a university medical center. They interviewed the patients to collect sociodemographic data and used a questionnaire to assess patients' self-reported health status; the process was repeated a year later.

The researchers found that women had about the same mean number of specialty clinic visits as men (2.8 vs. 2.3), emergency department visits (0.31 vs.

0.25), and hospitalizations (0.17 vs. 0.19). They did not find higher referral rates for specialty care for men that have been found by other researchers.

On the other hand, women had higher annual charges than men for primary care, specialty care, emergency treatment, and diagnostic services, as well as total annual charges, after adjustments for health status, sociodemographic factors, and clinic assignment. The higher charges for specialty care and emergency treatment for women, despite similar visit rates as men, may be due to the poor health status of women, which in turn may have led to more complicated and costlier care when they were seen, suggests Dr. Bertakis.

This is the first study of its kind to control for patient health status (using the Medical Outcomes Study Short Form-36) and sociodemographic variables in addition to physician specialty.

More details are in "Gender differences in the utilization of health care services," by Dr. Bertakis, Rahman Azari, Ph.D., Jay Helms, Ph.D., and others, in the February 2000 *Journal of Family Practice* 49(2), pp. 147-152. ■

## Studies explore appropriateness of PSA testing for prostate cancer

The prostate-specific antigen (PSA) test is used to screen men for prostate cancer.

Although the clinical value of the test is still hotly debated, its use has been rising. This relatively costly test may be inappropriately used in many cases, according to two studies supported by the Agency for Healthcare Research and Quality and summarized here. The first study (HS07107) found that 76 percent of PSA tests at one hospital were either performed too frequently or not age-appropriate. The second study (HS08397 and HS09538) showed that during the mid-1990s, primary care physicians' decisions to use PSA tests were not age-appropriate.

**Poteat, H.T., Chen, P., Loughlin, K.R., and others. (2000). "Appropriateness of prostate-specific antigen testing." *American Journal of Clinical Pathology* 113, pp. 421-428.**

Establishing simple limits on patient age and frequency of testing for the PSA test could eliminate 74 percent of inappropriate PSA tests, concludes this study. The researchers identified appropriate criteria for use of the PSA test and used the criteria to evaluate appropriateness of PSA test use on outpatients and inpatients at a university teaching hospital. Appropriate PSA test criteria included assessing prostate cancer progression after therapy, evaluating treatment efficacy during therapy, and monitoring for prostate cancer recurrence two to four times a year. Also, patients 1, 2, or 3 years or more after curative treatment should receive a PSA

assay every 3, 4, and 6 months, respectively.

The PSA test should also be used for diagnostic workup and staging for men with signs or symptoms associated with prostate cancer, for men with cancer of unknown primary site, and to establish a baseline value for beginning therapy for benign prostatic hypertrophy with a drug such as finasteride. The researchers viewed as "appropriate but debated" a once-yearly screening of asymptomatic men aged 50 to 75 years. They considered it inappropriate to screen asymptomatic men older than 75 years, asymptomatic men with less than 10 years of life expectancy, asymptomatic men with no risk factors who are younger than 50 years, and men with risk factors before age 40.

Using these criteria, the researchers found that 21 percent of PSAs used for outpatients and 17 percent used for inpatients were inappropriate. Among outpatients, 52 percent of tests were done for screening and 19 percent for monitoring for cancer recurrence. For inpatients, workup for cancer (56 percent) was the most frequent and cancer screening the second (25 percent) most frequent reason for testing. Of tests failing the appropriateness criteria, 76 percent resulted from excessively frequent and age-inappropriate screening. Of the 87 tests considered inappropriate, only 1 test result influenced clinical management of patients younger than 75 years.

**Collins, M.M., Stafford, R.S., and Barry, M.J. (2000, February). "Age-specific patterns of prostate-specific antigen testing among primary care physician visits." *Journal of Family Practice* 49(2), pp. 169-172.**

A substantial proportion of PSA testing occurs among men whose age makes them less likely to benefit from screening, concludes this study. Although the 1997 American College of Physicians' clinical guideline states that men aged 50-69 years will benefit most if prostate cancer screening ultimately proves effective, the authors found that primary care physicians (PCPs) used 17 percent of PSA tests on men younger than 50 years, only 50 percent for men aged 50 to 69 years, and fully 33 percent for men aged 70 years and older. The frequency of PSA testing was highest (7 percent) during visits by men aged 60 to 64 years, 65 to 69 years, and 70 to 74 years. It was slightly lower for men 75 to 79 years (6.3 percent) and moderately lower for men older than 80 (3 percent).

These findings suggest that physicians' decisions to screen men for prostate cancer during the mid-1990s did not take into account patients' ages. The rate of PSA testing did not decline substantially until the age of 80. At that age, even use of PSA testing at 3 percent of visits was still high considering the greater risk posed to these elderly men by other potential causes of death, such as stroke or heart attack. These men also are at greater risk from

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## PSA testing

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complications related to prostate cancer treatment and have a relatively short time to benefit from these treatments, according to the authors.

Their findings were based on analysis of office visits made by adult men to family physicians, general internists, general practitioners, and geriatricians, which were recorded by the 1995 and 1996 National Ambulatory Medical Care Surveys. The

researchers used the data to estimate the probability of a PCP ordering a PSA test during a visit. ■

## Health Care Quality

### Hospitalization of children for asthma varies according to the child's age and sex and several other factors

**T**he number of childhood asthma cases and deaths increased during the past decade. During that time the proportion of children hospitalized for severe asthma (between 4 and 5 percent) didn't change much. Adolescents and boys were more likely to be hospitalized for severe asthma (respiratory distress or failure) than children aged 5 to 12 and girls, concludes a study supported in part by the Agency for Healthcare Research and Quality (HS09564).

In addition to patient age and sex, region of the country and hospital teaching status were significantly associated with variation in the severity of asthma among hospitalized children.

Hospitals in western, southern, and north-central regions of the country were more apt to care for a greater proportion of children with severe asthma than hospitals in the northeast. Also, urban teaching compared with nonteaching hospitals were more likely to care for a higher proportion of children with severe asthma.

Between 1990 and 1995, the median length of hospital stay decreased for children with low-severity asthma (accompanied by respiratory or middle ear infections) but remained the same for children with high-severity asthma (respiratory distress or failure).

During the same period, inflation-adjusted median total charges did not change significantly for any severity class. These findings were based on analysis of national data from the Healthcare Cost and Utilization Project Nationwide Inpatient Sample (NIS).

Medical College of Wisconsin researchers, led by John R. Meurer, M.D., M.M., selected the discharge records of patients 18 years of age and younger who were hospitalized for asthma in 1990 or 1995. Using these criteria, Dr. Meurer and colleagues analyzed the discharge records of more than 168,000 children in 746 hospitals in 1990 and over 174,000 children in 811 hospitals in 1995. The researchers call for studies to estimate State-level asthma prevalence and hospitalization rates to provide more precise estimates of the burden of asthma among children and the frequency of hospital care.

More details are in "Asthma severity among children hospitalized in 1990 and 1995," by Dr. Meurer, Varghese George, Ph.D., Steve Subichin, M.S., M.B.A., and others, in the February 2000 *Archives of Pediatric and Adolescent Medicine* 154, pp. 143-149. ■

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## Embedding clinical guidelines in a computer charting system doesn't always improve care

Doctors disagree about the best way to treat young children with a high fever (38°C or higher) of unknown source. David L. Schriger, M.D., M.P.H., and colleagues at the University of California, Los Angeles, embedded clinical guidelines for managing these and other febrile children in the university hospital's computerized Emergency Department Expert Charting System (EDECS). In a study supported in part by the Agency for Healthcare Research and Quality (HS06284), they examined the impact of this approach on the care of 830 febrile children under the age of 3 years seen in the hospital's emergency department (ED).

The researchers found that although EDECS improved documentation of care, there was no consistent measurable impact on quality of care or medical charges for these children. Once the physician entered the relevant medical history and physical data, the program provided suggestions regarding the appropriateness of various diagnostic tests and treatment. When the physician selected the "Rationale" button, the reasoning for each recommendation was displayed. When he or she deviated from a recommendation, EDECS requested an explanation. Once initial testing and treatment were completed, EDECS provided further advice about the need for additional testing and treatment, reevaluation and disposition of the patient, and after-care instructions for patients sent home.

Use of the EDECS increased physicians' mean documentation of 21 essential history and physical examination items from 80 percent when they had used handwritten charts to 92 percent and increased mean documentation of 10 after-care items from 48 percent to 81 percent. However, there was no demonstrable improvement or worsening in appropriateness of care and no change in hospital charges for these children.

These findings contrast sharply with improved care and reduced charges that resulted from similar software designed to manage occupational exposures to potentially infectious blood and body fluids in health care workers. The authors suggest that the controversy surrounding treatment of children with fever of unknown source may have hampered the willingness of doctors to follow the EDECS guidelines and the small number of children with fever without source in the sample may have limited their ability to demonstrate changes that did occur.

For more details, see "Implementation of clinical guidelines via a computer charting system: Effect on the care of febrile children less than three years of age," by Dr. Schriger, Larry J. Baraff, M.D., Kelly Buller, M.D., M.P.H., and others, in the March 2000 *Journal of the American Medical Informatics Association* 7(2), pp. 186-195. ■

## Consumers' assessments of Medicare managed care plans can distinguish different dimensions of quality of care

The Consumer Assessment of Health Plans Survey (CAHPS®), which was developed initially by the Agency for Healthcare Research and Quality, is now being used by many purchasers of health care, including major employers, purchasing groups, and the Health Care Financing Administration (HCFA), to assess health insurance plans. HCFA recently conducted the Medicare managed care (MMC) implementation of CAHPS®

(CAHPS®-MMC), collecting data on over 200 plans.

Harvard University researchers analyzed survey data from 89,419 Medicare beneficiaries enrolled in 212 Medicare managed-care plans who responded to CAHPS®-MMC in 1998. The researchers, who were supported in part by AHRQ (NRSA training grant T32 HS00020), found that the survey distinguished several dimensions of quality of care related to an individual plan or its network of providers.

Among the 85 survey items, MMC-specific items asked about ease of obtaining needed medical equipment; physical, occupational, or speech therapy; home health services; and prescription medicines. Other MMC items concerned advice to quit smoking, flu shots, personal doctor's knowledge about medical decisions, and the health plan's handling of complaints. Four factors explained 75 percent of the variance in survey responses:

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## Assessments of managed care

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interactions around delivery of care in the doctor's office; customer service from the plan; access to medical services provided by the plan, such as specialist care or equipment; and advice on health-promoting activities such as diet and smoking cessation.

The delivery composite was most strongly correlated with overall ratings of care, doctor, and

specialist, whereas the customer composite was most strongly correlated with overall rating of the plan. The health care delivery composite comprised about 16 items that referred to direct provision of care. These included interactions with doctor, nurse, and office staff (for example, doctor communicates well, spends enough time, and knows patient history, and office staff is helpful and courteous), and access to primary care (for example, getting advice and appointments as soon as

wanted). The customer composite contained five questions about member interactions with the health plan, including payments, paperwork, and customer service.

More details are in "Dimensions of consumer-assessed quality of Medicare managed care health plans," by Alan M. Zaslavsky, Ph.D., Nancy D. Beaulieu, Ph.D., Bruce E. Landon, M.D., M.B.A., and Paul D. Cleary, Ph.D., in the February 2000 *Medical Care* 38(2), pp. 162-174. ■

## Health Care Costs and Financing

### Letting employees keep their doctors and low cost drive small business' choice of health plans

Obtaining lower cost insurance and satisfying employees who want to keep their current doctors may be more important to small businesses when negotiating health care coverage than are the plans' quality of care or accreditation status, according to a new study sponsored by the Agency for Healthcare Research and Quality.

When small firm owners and business managers who participated in focus groups held in Baltimore, MD, and San Jose, CA, were asked to rate the importance of six features of health plans, they gave no points to accreditation status and rated clinical quality as next to last. Even when shown State-wide data indicating that the plans they were using were consistently low-performing, some of the participants said they would be reluctant to change if their employees were happy with the plan. The employers cited plan price, physician availability, plan benefits, and employee satisfaction, respectively, as the four most important characteristics used to make a purchase decision.

According to the study, led by Mark W. Legnini, Dr.P.H., Senior Vice President of the Washington, DC-based Economic and Social Research Institute, the business owners and managers also said that neither they nor their insurance agents compare the performance data of plans because they feel purchasing insurance has become too complex, and

they cannot afford the time it would take to fully understand the data.

Moreover, the business owners were skeptical of performance measurement data, especially when it contradicted their own experience or opinions. They also treated with skepticism claims of important differences among health plans and providers, and—because of the commercialization of the Internet—they said they didn't trust data from unfamiliar sources on Web sites to provide unbiased information.

Information about health plan performance does not compete successfully for attention with other activities necessary for running a successful business, notes Dr. Legnini, whose organization conducted the study with the help of the public opinion research firm of Lake, Snell, Perry and Associates under a Small Business Innovation Research (SBIR) contract (AHRQ contract 290-98-0024).

Dr. Legnini and his colleagues recommend that lists of quality performance measures be shortened to help them compete for business owners' attention. They also recommend that measures focus on the types of care that can make a real difference when the patient's life is actually at risk, as opposed to focusing on care that has no immediate impact, such as preventive services. Furthermore, health care report cards should deal with the performance of doctors and hospitals and not with that of health plans, which the authors say

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## Choice of health plans

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most patients view as insurance companies and not as actual providers of health care. The authors also make recommendations concerning public education and

regulatory programs to ensure a consistent and high level of quality from providers.

For further details, see "Where does performance measurement go from here?" by Dr. Legnini, Laurie E. Rosenberg, Michael J. Perry, and Neil J. Robertson, in the May-June 2000 *Health Affairs* 19(1), pp.173-178. ■

## Differences in hospital admission rates between managed care and other insurers leveling off

A study that compares data from the Agency for Healthcare Research and Quality's 1996 Medical Expenditure Panel Survey (MEPS) and its 1987 predecessor, the National Medical Expenditure Survey (NMES), finds that people enrolled in managed care plans are no longer less likely to be admitted to hospitals than are individuals covered by non-managed care health plans.

The findings indicate that falling hospitalization rates among non-managed care plans account for much of the change. The once-higher hospital admission rate of non-managed care plans declined 27 percent from 7.8 percent in 1987 to 5.7 percent in 1996, a rate roughly equivalent to that of

managed care plans. The study found less change in hospital length of stay between the two groups over the same period. AHRQ researchers Robin Weinick, Ph.D., and Joel Cohen, Ph.D., suggest that one reason for the decline in hospital admissions by non-managed care plans may be changing characteristics of managed care enrollees. From 1987 to 1996, the number of Medicaid beneficiaries in managed care plans increased. In addition, non-managed care enrollees were less likely to be in fair or poor health in 1996 as compared with 1987, while the proportion of enrollees in managed care in fair or poor health remained the same.

Changes made by insurers and providers also may have

contributed to the decline, according to the researchers, who cite the effects of utilization review and other restrictions put in place by non-managed care plans to remain competitive. In addition, practice changes made by providers to meet managed care requirements may have affected their non-managed care patients. The bottom line, conclude the authors, is that the competitive advantage with respect to inpatient hospital use enjoyed by managed care plans in the past had eroded by 1996.

For more information, see "Leveling the playing field: managed care enrollment and hospital use, 1987-1996," by Drs. Weinick and Cohen, in the May/June 2000 *Health Affairs* 19(1), pp. 178-184. ■

## Most midcareer physicians object to cost-control arrangements that influence clinical decisionmaking

Managed care brought in its wake financial incentives to doctors to reduce the number of tests, treatments, and referrals they order for their patients. However, most midcareer physicians strongly object to this intrusion into the doctor-patient relationship and believe these cost-control arrangements are unethical, according to a study supported in part by the Agency for Healthcare Research and Quality (HS09196).

Researchers from St. Vincents Hospital in New York, New York Medical College, and Georgetown University conducted the first national survey on this topic. They randomly surveyed 1,549 physicians 8 to 17 years past their medical residency. More than three-

fourths of the doctors believed that personal financial incentives to doctors to encourage restraint in testing, treatment, or referrals were not ethically acceptable. About 80 percent said that professional commitment to the traditional medical ethic of undivided loyalty to patients had diminished during the past decade. More than half of surveyed doctors believed that their own patients' trust in them had weakened over the past 5 years.

Most doctors vehemently objected to so-called gag rules of health plans. For instance, 87 percent felt strongly that health care payers' efforts to discourage doctors from telling patients about coverage

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## Cost-control arrangements

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restrictions were ethically unacceptable. Also, 78 percent of them felt that it was highly unethical for health plans to discourage disclosure of physician financial incentives.

Physicians who reported that the overall personal financial incentives in their practices encouraged them to reduce services were significantly more likely than other doctors to have ethical objections to such

incentives and to believe that the ethic of undivided loyalty to patients had diminished. These findings clearly underscore the depth of physicians' concern about payers' efforts to control clinical costs.

More details are in "Physicians' ethical beliefs about cost-control arrangements," by Daniel P. Sulmasy, O.F.M., M.D., Ph.D., M. Gregg Bloche, M.D., J.D., Jean M. Mitchell, Ph.D., and Jack Hadley, Ph.D., in the March 13, 2000 *Archives of Internal Medicine* 160, pp. 649-657. ■

## Cost and cost-effectiveness of clinical interventions are quite different

**L**ow-technology interventions are not necessarily cost effective, and high-technology interventions are not necessarily cost ineffective. Applying clinical interventions for prevention, diagnosis, and treatment where they offer the most benefit is the key to the most cost-effective care, asserts Richard A. Deyo, M.D., M.P.H., of the University of Washington, in a recent commentary. He points out, for example, that coronary bypass surgery costs about \$30,000 per operation. This surgery is most cost effective for the patients at highest risk of heart attack, who have the most to gain from it.

For example, use of bypass surgery instead of medication for patients with left main coronary artery disease results in a cost-

effectiveness ratio of about \$2,300 to \$5,600 per year of life saved. At the other end of the spectrum, use of this surgery for heart disease in which only two vessels are blocked does not deliver a similar sized "bang for the buck." The cost-effectiveness ratio for bypass surgery for these patients is in the range of \$28,000 to \$75,000 per year of life saved, a point at which some might ask, "Is it worth it?"

American society generally accepts treatments as appropriate if they cost less than about \$50,000 per quality-adjusted life-year gained. However, the notion of quality-adjusted life-years is complex, explains Dr. Deyo. One would not want to give the same credit to a lifesaving treatment that leaves somebody blind for the next 10 years as one that leaves a person

with perfect vision for the next 10 years. It is not simple to measure the cost part of the ratio either, further complicating the issue of cost-effectiveness. For instance, the charge for direct medical care is not the same as the total care costs for an illness. Finally, there is the issue of opportunity costs. This refers to the fact that if we spend our money doing one thing, we cannot spend it for doing something else. For example, if an extra \$500 million is spent on bypass surgery, there is \$500 million less for prenatal care, cancer screening, or other services.

See "Cost-effectiveness of primary care," by Dr. Deyo, in the January 2000 *Journal of the American Board of Family Practice* 13(1), pp. 47-54. ■

## Medicare reforms that will raise out-of-pocket costs for some elderly people need careful consideration

**M**edicare costs amounted to \$217 billion, 12 percent of the Federal budget, in 1998. The aging of the American population means that these costs will continue to rise. Nevertheless, the authors of a recent study highlight the burden of out-of-pocket costs for some subgroups of the Medicare population. They caution that the potential impact of proposed program changes aimed at cost containment, such as a shift from a "defined benefit" toward a "premium support" model, need careful consideration.

Higher income elderly people who are in good health may have little difficulty absorbing increased out-of-pocket costs. However, the burden of increased out-of-pocket costs would fall most heavily on those with chronic health conditions and without employer-subsidized supplemental coverage or Medicaid, conclude the authors. The study was supported in part

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## Medicare reforms

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by the Agency for Healthcare Research and Quality (HS09566).

Using data from the 1995 Medicare Current Beneficiary Survey, Stephen Crystal, Ph.D., of Rutgers University, and his colleagues analyzed the burden of out-of-pocket expenditures on the elderly. They found that payments to providers and insurance premiums averaged 19.0 percent of income for Medicare beneficiaries alive during all of 1995. However, expenditures were 28.5 percent of income for those in poor health, 22.4 percent for those over age 85, and 31.5 percent for those in the lowest income group, despite Medicaid coverage for some.

Elderly people relying on fee-for-service Medicare only (23.0 percent of income) experienced more burden than those with employer-sponsored coverage (16.1 percent) and those in Medicare HMOs (14.8 percent). Because of the high cost of Medigap premiums, the highest mean burden was experienced

by those purchasing Medicare supplemental coverage on an individual basis (25.5 percent). Multivariate analyses found that privately purchased supplemental coverage, as well as functional impairment, number of medical conditions, and self-perceived health were each associated with a higher out-of-pocket burden, while HMO participation was associated with a lower burden. Out-of-pocket expenditures accounted for 15.2 percent of total expenditures for all payers.

Prescribed medication costs accounted for 33.9 percent of overall out-of-pocket payments by elderly people to health care providers. The share was even higher for those in the lowest two-fifths of income—39.6 percent for those in the lowest group and 40.2 percent in the second-lowest group. Dental services accounted for 18.3 percent.

See “Out-of-pocket health care costs among older Americans,” by Dr. Crystal, Richard W. Johnson, Ph.D., Jeffrey Harman, Ph.D., and others, in the *Journal of Gerontology: Social Sciences* 55B, S51-S62, 2000. ■

## Long-Term Care

### Nursing home advance directives reduce use of health care services without affecting satisfaction or mortality

**A**dvan­ce directives, so-called living wills, enable individuals to decide what life-saving treatments they wish (or do not wish) to receive if their life is endangered, so that these wishes can be carried out if the patient is unable to voice these wishes at that time. Systematic implementation of an advance directive program in nursing homes apparently saves health care resources that would otherwise be spent on care not wanted by nursing home patients, concludes a study supported by the Agency for Healthcare Research and Quality (HS07878). The study found that such a program reduced hospitalizations and health care costs.

D. William Molloy, M.R.C.P., F.R.C.P.C., of McMaster University, and colleagues matched six Ontario nursing homes with a total of 1,292 residents into three pairs. They randomized one home in each pair to receive the Let Me Decide advance directive program and the other home in each pair to continue with their usual policies concerning advance directives. The Let Me Decide program provided a range of choices for levels of care for a serious illness, resuscitation, and nutritional support. It also included education programs for nursing home staff that included videotapes and in-service training, use of a health care facilitator, the requirement that physicians review and sign each directive, and

steps to ensure that the directive was prominently placed in the medical record and transferred with patients who moved to an acute care hospital.

Homes that implemented the advance directive program reduced the rate of hospitalizations (0.27 hospitalizations per program patient versus 0.48 per control patient) and health care costs (saving about \$1,200 per patient [Editor’s note: This study was conducted in Canada, but the savings are reported in U.S. dollars]). In addition, satisfaction with care was not significantly different in program and control nursing homes, and mortality rates were similar (24 vs. 28 percent).

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## Advance directives

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The study did not collect evidence on the impact of the advance directive program on relief

of patients' symptoms or patient quality of life.

See "Systematic implementation of an advance directive program in nursing homes," by Dr. Molloy,

Gordon H. Guyatt, F.R.C.P.C., Rosalie Russo, and others, in the March 15, 2000 *Journal of the American Medical Association* 283(11), pp. 1437-1444. ■

## Dental Research

### Application of topical fluoride during children's dental checkups has no impact on restorative care

Current recommendations suggest that dentists apply topical fluoride only to the teeth of children who have moderate or high risk of dental caries. Yet a new study shows that about two-thirds of privately insured Michigan children who saw a dentist from 1990 through 1997 received topical fluoride at every recall visit, nearly two times each year. In addition, there was no association between how frequently the dentists applied topical fluoride and restorative care (fillings for cavities). The use of topical fluoride by dentists began in the 1970s in Michigan, when there were high levels of caries and few areas had fluoridated water, which is not currently the case, explains Stephen Eklund, D.D.S., M.H.S.A., Dr.P.H., of the University of Michigan.

In a study supported by the Agency for Healthcare Research and Quality (HS09554), Dr. Eklund and his colleagues reviewed dental claims data for 15,190 children seeing 1,556 dentists from 1990 through 1997. The dental claims file used for this study includes data on dental care provided to more than 2 million individuals by more than 6,000 different

dentists, covering about 25 percent of the State of Michigan. The goal of the study was to correlate application of topical fluoride with dental fillings.

The researchers found that children who received topical fluoride most frequently were at least as likely to receive fillings as children who received little or no topical fluoride, which argues against the protective action of fluoride when used in a wholesale manner. Indeed, the most powerful predictor of restorative care was the tendency of individual dentists to place restorations in children. Dentists tended to fall into one extreme or the other, rarely using fluoride (1 treatment per 100 examinations) or almost always using it (98 per 100 examinations). Clearly, these dentists were not following current recommendations for selective use of fluoride only in patients at higher risk of dental caries.

See "Professionally applied topical fluoride and restorative care in insured children," by Dr. Eklund, James L. Pittman, D.D.S., M.S., Keith E. Heller, D.D.S., M.P.H., Dr.P.H., in the Winter 2000 *Journal of Public Health Dentistry* 60(1), pp. 33-38. ■

## HIV/AIDS Research

### Researchers examine factors affecting quality of life for people with HIV

Improved treatments and longer survival times have made functioning and quality of life important treatment goals for people infected with the human immunodeficiency virus (HIV) that causes AIDS. Yet mood disorders

and victimization by violence (often related to HIV-seropositive status) threaten the quality of life for many people who have HIV, according to two recent studies supported by the Agency for Healthcare Research and

Quality (HS08578). A third AHRQ-supported study (HS07809) shows that certain combination drug therapies that enhance these patients' quality of life also can

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## HIV quality of life

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increase their risk of developing sensory neuropathy.

**Sherbourne, C.D., Hays, R.D., Fleishman, J.A., and others. (2000, February). "Impact of psychiatric conditions on health-related quality of life in persons with HIV infection." *American Journal of Psychiatry* 157(2), pp. 248-254.**

Nearly 40 percent of people infected with HIV suffer from depression, a rate that is two to three times higher than it is among the general population. Other psychiatric illnesses and substance abuse also are relatively common among patients with HIV. This is the first study to show the burden that mood disorders such as anxiety and depression place on health-related quality of life (HRQOL) for this group of patients. The researchers used data from a nationally representative sample of 2,864 people receiving care for HIV in the United States (the AHRQ-supported HIV Costs and Service Utilization Study, HCSUS) to examine the extent to which psychiatric conditions (mood disorders, substance use, and heavy drinking) were associated with decrements in their HRQOL.

Of the entire group studied, nearly half had some type of mood disorder, 12 percent were drug abusers, and 6 percent were heavy drinkers (three or more drinks on half the days of the past month). After controlling for the effects of HIV symptoms, CD4 cell count, and stage of disease, patients with any mood disorder had significantly worse functioning and well-being than those without a mood disorder on HRQOL measures of physical and mental health. This was reflected in more days of disability, reduced social

functioning, and greater pain, fatigue, and other symptoms. In fact, the degree of poorer physical health for those with mood disorders was equal to the difference between working and being unemployed.

These findings substantiate the considerable additional illness burden associated with mood disorders in HIV-infected people. Probable drug dependence was associated with poorer HRQOL, but most of the impairment disappeared after controlling for the likely presence of a mood disorder, perhaps because depression and anxiety are so intrinsic to the problems of drug dependence. Heavy drinking was not associated with diminished HRQOL, but if heavy drinking had been defined by more drinks, the result might have been different.

Reprints (AHRQ Publication No. 00-R023) are available from AHRQ.\*\*

**Zierler, S., Cunningham, W.E., Andersen, R., and others. (2000, February). "Violence victimization after HIV infection in a U.S. probability sample of adult patients in primary care." *American Journal of Public Health* 90(2), pp. 208-215.**

Revealing their HIV-positive status triggered physical assaults on about 45 percent of HIV-infected people who were attacked by someone close to them in this national sample of 2,864 HIV-infected adults receiving medical care and enrolled in the HIV Costs and Service Utilization Study (HCSUS). Overall, 21 percent of women, 12 percent of men who reported having sex with men, and 8 percent of heterosexual men reported physical harm after their HIV diagnosis.

Women who identified themselves as gay, lesbian, or bisexual reported partner or

other relationship violence nearly as often as women who self-identified as heterosexual (24 vs. 20 percent). Yet women living with a male versus female sexual partner were almost three times more likely to report violence after their HIV diagnosis (25 vs. 9 percent). Also, women whose CD4 cell counts were at least 500 reported nearly 75 percent more violence than women with lower cell counts, suggesting that revealing HIV status may have triggered the violence. National surveys of U.S. women aged 19 to 29 years in poor families indicate that 6 percent have been assaulted, which is less than one-third the rate reported by the HIV-infected women surveyed by HCSUS.

Men at higher risk of being assaulted were those who reported sex with men, were 40 years of age or younger, were Hispanic, self-identified as gay or bisexual, had no financial assets, had a female partner, were homeless, or reported a history of drug dependence. Men with a high school education or less had nearly three times the odds of being harmed as more educated men.

**Moore, R.D., Wong, W-M. E., Keruly, J.C., and McArthur, J.D. (2000). "Incidence of neuropathy in HIV-infected patients on monotherapy versus those on combination therapy with didanosine, stavudine, and hydroxyurea." *AIDS* 14, pp. 273-278.**

Sensory neuropathy (inflammation and degeneration of the peripheral nerves) is a common side-effect of the nucleoside analogue antiretroviral drugs didanosine (ddI) and stavudine (d4T), occurring in 15 to 30 percent of patients taking either of these drugs. The drugs are being used more often in combination to more effectively reduce HIV viral

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## HIV quality of life

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load (number of HIV particles per ml of blood) in HIV-infected patients, and they will continue to play an important role in HIV antiretroviral therapy. Hydroxyurea is used to enhance the antiviral efficacy of these drugs.

Unfortunately, this study found that the combination of ddI and d4T increased the risk of neuropathy over that of either drug alone, and that hydroxyurea further increased this risk. The combined use of these three drugs was

associated with a 7.8-fold increase in risk of sensory neuropathy compared with patients on ddI alone and a 5.6-fold increased risk compared with d4T alone, after adjustment for disease severity and other factors. The combined use of both drugs without hydroxyurea was associated with a 3.5-fold increased risk of neuropathy compared with ddI alone and a 2.5-fold increased risk compared with d4T alone.

For ddI or d4T monotherapy, neuropathy is usually reversible with drug cessation, dose reduction, or symptomatic

treatment with drugs such as amitriptyline. Further study is needed to determine if neuropathy is reversible when these drugs are used in combination. Clinicians need to be aware that the risk of sensory neuropathy is likely to be higher when these drugs and hydroxyurea are used together, caution the researchers. They calculated the incidence rates of neuropathy for each of five regimens: ddI (with or without hydroxyurea), ddI plus d4T (with or without hydroxyurea), and d4T for 1,116 patients at Johns Hopkins AIDS services. ■

**Correction/clarification:** The lead article (page 1) in the April 2000 issue of *Research Activities* summarizes a study by Gifford, Morton, Fiske, and others, on lack of progress as a reason for cesarean. Within the article, the statement "... doctors may be more at ease with risks associated with c-sections than they are with continuing to observe a labor in the second stage that is not progressing as rapidly as expected" is misleading. As the authors point out in their paper, "Many cesareans are done during the latent phase of labor [up to 10 cm dilation] and in the second stage of labor [10 cm dilation through delivery] when it is not prolonged." Thus, use of the term "second stage" was unnecessarily restrictive. We apologize for any confusion this misstatement may have caused. ■

## Announcements

### AHRQ funds new grants

The following research, projects, small project grants, conference grants, and National Research Service Award fellowship were funded recently by the Agency for Healthcare Research and Quality. Readers are reminded that findings usually are not available until a project is nearing completion.

#### Research Projects

##### Assisted living and health system use

Project director: Charles D. Phillips, Ph.D.  
Organization: Myers Research Institute  
Beachwood, OH  
Project number: AHRQ grant HS10606  
Project period: 6/1/00 to 5/31/02  
First year funding: \$211,276

##### Evaluation of postnatal and postpartum care programs

Project director: Jutta Joesch, Ph.D.  
Organization: Battelle Centers for Public Health  
Research and Evaluation  
Seattle, WA  
Project number: AHRQ grant HS10138  
Project period: 3/01/00 to 11/30/01  
First year funding: \$599,336

##### Information interpretation in patient decision support

Project director: Margaret Holmes-Rovner, Ph.D.  
Organization: Michigan State University  
East Lansing, MI  
Project number: AHRQ grant HS10608  
Project period: 8/01/00 to 7/31/02  
First year funding: \$438,847

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## New grants

*continued from page 19*

### Interventions to improve pain outcomes

Project director: R. Sean Morrison, M.D.  
Organization: Mount Sinai School of  
Medicine  
New York, NY  
Project number: AHRQ grant HS10539  
Project period: 7/01/00 to 6/30/03  
First year funding: \$475,408

### Otitis media: Parent education to avoid antibiotic use

Project director: David P. McCormick, M.D.  
Organization: University of Texas Medical  
Branch  
Galveston, TX  
Project number: AHRQ grant HS10613  
Project period: 3/01/00 to 2/28/03  
First year funding: \$387,120

### Patient activation approach to improving diabetes care

Project director: Russell E. Glasgow, Ph.D.  
Organization: AMC Cancer Research Center  
Denver, CO  
Project number: AHRQ grant HS10123  
Project period: 4/05/00 to 3/31/04  
First year funding: \$850,378

## Small Grants

### Advancing risk adjustment for schizophrenia

Project director: Bradley C. Martin, Ph.D.  
Organization: University of Georgia  
Athens, GA  
Project number: AHRQ grant HS10815  
Project period: 7/01/00 to 1/31/02  
Funding: \$72,400

### Health expense-risk assessment using administrative data

Project director: Richard T. Meenan, Ph.D.  
Organization: Kaiser Foundation Research  
Institute  
Portland, OR  
Project number: AHRQ grant HS10688  
Project period: 7/01/00 to 6/30/01  
Funding: \$79,000

### Hospital CEOs' perception of competition: A pilot study

Project director: Min-Woong Sohn, Ph.D.  
Organization: University of Chicago  
Chicago, IL  
Project number: AHRQ grant HS10810  
Project period: 6/01/00 to 5/31/01  
Funding: \$73,143

### Managed care impact on critical care service utilization

Project director: Diane M. Dewar, Ph.D.  
Organization: State University of New York  
Albany, NY  
Project number: AHRQ grant HS10713  
Project period: 6/01/00 to 5/31/01  
Funding: \$70,514

## Conference Grants

### Building bridges VI: Using research to drive quality improvement

Project director: Barbara D. Lardy, M.P.H.  
Organization: American Association of  
Health Plans  
Washington, DC  
Project number: AHRQ grant HS10097  
Project period: 4/01/00 to 3/31/01  
Funding: \$49,450

### Credentialing specialist physicians

Project director: Philip G. Bashook, E.D.D.  
Organization: American Board of Medical  
Specialties  
Evanston, IL  
Project number: AHRQ grant HS10095  
Project period: 5/01/00 to 4/30/01  
Funding: \$10,000

### Health and productivity feasibility study

Project director: R. William Whitmer, M.B.A.  
Organization: Health Enhancement Research  
Organization  
Birmingham, AL  
Project number: AHRQ grant HS10099  
Project period: 5/01/00 to 4/30/01  
Funding: \$19,000

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## New grants

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### HMO research network national conference

Project director: Dennis D. Tolsma, M.P.H.  
Organization: Kaiser Permanente—Georgia  
Region  
Atlanta, GA  
Project number: AHRQ grant HS10096  
Project period: 4/04/00 to 4/03/01  
Funding: \$24,928

### Interpreting the volume-outcome relationship

Project director: Janet Marion Corrigan, Ph.D.  
Organization: National Academies, Institute  
of Medicine  
Washington, DC  
Project number: AHRQ grant HS10098  
Project period: 5/01/00 to 4/30/01  
Funding: \$39,241

### Measuring health-related quality of life for complementary medicine

Project director: Allan J. Best  
Organization: Vancouver Hospital  
Vancouver, BC, Canada  
Project number: AHRQ grant HS10101  
Project period: 5/01/00 to 4/30/01  
Funding: \$21,255

### Public health and managed care: Promoting a research agenda

Project director: Barbara J. Hatcher, Ph.D.  
Organization: American Public Health  
Association  
Washington, DC  
Project number: AHRQ grant HS10092  
Project period: 3/01/00 to 2/28/01  
Funding: \$30,000

### National Research Service Award

#### Patterns of care and outcomes in chronic renal failure

Fellow: Waqar H. Kazmi, M.D.  
Organization: New England Medical Center  
Boston, MA  
Project number: NRSA fellowship F32  
HS00143; Brian J. Pereira,  
sponsor  
Project period: 2-year fellowship  
Funding: \$46,300 ■

**Reprints available:** Reprints of a recent article by AHRQ Director John M. Eisenberg, M.D., are now available from the Agency's Clearinghouse. The article, "The Agency for Healthcare Research and Quality: New challenges, new opportunities," was published in the April 2000 issue of *Health Services Research* 35(1 part 1), pp. xi-xvi. See the back cover of *Research Activities* for ordering information. Request AHRQ Publication No. 00-R028. ■

## New publications available from AHRQ

The following publications are now available from the Agency for Healthcare Research and Quality. Please see the back cover of *Research Activities* for ordering information.

***Best Practice Network: Showcase for Innovation and Best Practices. AHRQ Conference Summary Report (Contract No. 290-95-2000 to Health Systems Research, Inc.). (AHRQ Publication No. OM00-0007), Kingston, L.***

This report summarizes an October 1998 conference organized by the Best Practice Network of the American Association of Critical Care Nurses. The Showcase for Innovation and Best Practices was designed to highlight innovative approaches to redesigning health care, with a focus on the role of benchmarking (comparison with best-quality programs). Among the presentations were case studies of how to benchmark care for specific health problems, as well as discussion of six strategies to implement benchmarking and clinical improvement.\*

***Making the Link: Strategies for Coordinating Publicly Funded Health Care Coverage for Children. AHRQ Research Report (Contract 290-98-0009 to the National Academy for State Health Policy). (AHRQ Publication No. 00-0014), Mann, C., Cox, L., and Ross, D.C.***

This report was developed for AHRQ's User Liaison Program, which gives State and local health care policymakers the information they need to make sound policy decisions. Burdensome application procedures have been shown to be major barriers to enrollment in the

State Children's Health Insurance Program (SCHIP). This report discusses administrative strategies that promote coordination between Medicaid and separate SCHIP-funded programs. Strategies reviewed include: one program/one name, a single agency to determine eligibility, simplified joint application and single point of entry, ending age-based eligibility rules, simplified verification requirements, alignment of income and asset rules, easy transition when eligibility is redetermined, continuous eligibility, and a common service delivery system.\*

***Medical Expenditure Panel Survey (MEPS).*** Several new reports are now available from the Medical Expenditure Panel Survey (MEPS). MEPS is the third in a series of nationally representative surveys of medical care use and expenditures sponsored by the Agency for Healthcare Research and Quality. MEPS is cosponsored by the National Center for Health Statistics (NCHS). The first survey, the National Medical Care Expenditure Survey (NMCES), was conducted in 1977; and the second survey, the National Medical Expenditure Survey (NMES) was carried out in 1987. MEPS, which began in 1996, collects detailed information on health care use and expenses, sources of payment, and insurance coverage of individuals and families in the United States. MEPS comprises four component surveys: The Household Component, the Medical Provider Component, the Insurance Component, and the Nursing Home Component. The following three reports are newly released from the MEPS program.

***Design, Methods, and Field Results of the 1996 Medical Expenditure Panel Survey Medical Provider Component. MEPS Methodology Report No. 9 (AHRQ Publication No. 00-0028), Machlin, S.R., and Taylor, A.K.***

The MEPS Medical Provider Component (MPC) is a survey of medical professionals and institutions that provided care to sample individuals in the MEPS Household Component. The MPC's primary focus is to collect data on expenditures for medical services provided to MEPS respondents. MPC data are critical in the development of MEPS national medical expenditure estimates because household respondents are not always a reliable source of information on medical expenditures. This report describes the design of and methods used in the 1996 MEPS MPC. In addition, information is included on the MPC objectives, instruments and procedures for data collection, sample sizes, and response rates.\*

***Health Insurance Status of the Civilian Noninstitutionalized Population: 1998. MEPS Research Findings No. 11 (AHRQ Publication No. 00-0023), Rhoades, J., Brown E., and Vistnes, J.***

This report from the MEPS Household Component provides preliminary estimates of the health insurance status of the civilian noninstitutionalized U.S. population during the first half of 1998, including the size and characteristics of all population with private health insurance, with public insurance, and without any health care coverage. During this period, 84.2 percent of Americans

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## New publications

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of all ages were covered by private or public health insurance, leaving 15.8 percent of the population, some 42.3 million people, uninsured. Among those younger than age 65, 82.2 percent had either

private or public coverage and 17.8 percent (42 million people) lacked health care coverage. Among the elderly population, there was a significant drop in private health insurance coverage and a significant increase in coverage by only public health insurance when

compared with 1997 estimates. The probability that an individual would be uninsured during this period was especially high for young adults aged 19–24 and members of racial and ethnic minorities (especially Hispanic males).\* ■

## 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 description of the project. See the back cover of *Research Activities* for ordering information.

***Assessing Outcomes of Dental Care with Claims Data.* Stephen A. Eklund, D.D.S., Dr.P.H., University of Michigan, Ann Arbor. AHRQ Grant HS09554, project period 9/30/97-9/29/99.**

The specific aims of this study included evaluation of the association between use of professionally applied topical fluoride and restorations (dental fillings) in primary and permanent teeth of children. In an analysis of insurance claims for treatment provided to 15,190 children by 1,556 different dentists, no association between the frequency of use of professionally applied topical fluoride and restorative care was found. The most powerful predictor of restorative care for these children was the overall propensity of the treating dentist to place restorations in children. Further, although professional application of topical fluoride is recommended only in children with moderate and high rates of dental caries (cavities), approximately

two-thirds of children in this study with a low number of caries received topical fluoride at every recall visit, nearly twice a year. [Editor's note: See page 17 of this issue of *Research Activities* for a summary of a journal article stemming from this grant.] (Abstract, executive summary, and final report, NTIS accession no. PB2000-103847; 24 pp, \$23.00 paper, \$12.00 microfiche)\*\*\*

***Cancer—Reaching Medically Underserved Populations.* Charles L. Bennett, M.D., Ph.D., Northwestern University School of Medicine, Chicago, IL. AHRQ Grant HS10080, project period 11/11/99-11/12/00.**

This conference report summarizes the sessions at the symposium, "Cancer—Reaching Medically Underserved Populations: Low Literacy and Culturally Specific Barriers," held on November 12, 1999. Conference participants focused on barriers, including those related to literacy and culture, to effective cancer prevention and treatment for minority and other medically underserved populations. Strategies were presented for developing research programs that address the specific needs of these populations, and techniques were explored to disseminate information regarding unique, effective programs that increase access to early detection, prevention, and treatment

programs for these groups. (Abstract, executive summary, and final report, NTIS accession number PB2000-103852; 22 pp, \$23.00 paper, \$12.00 microfiche)\*\*\*

***Childhood Injuries Evaluated in the Office Setting.* Emalee G. Flaherty, M.D., Children's Memorial Hospital, Chicago, IL. AHRQ grant HS09811, project period 3/01/98-2/28/99.**

Health care providers in a regional, practice-based network completed written survey forms about their experience in treating child abuse. In the preceding year, 56 percent of 85 providers in 17 practices estimated that they had treated a total of 152 children they suspected had been abused. Seven providers indicated that they had not reported a child with suspected abuse. The same providers then collected information prospectively about consecutive office encounters. They recorded detailed information about injury-related visits involving about 659 injuries treated during 12,510 office encounters. None of the injuries was classified as "definitely caused by physical abuse," but the providers considered seven (1 percent) to be "moderately suspicious" for abuse. The researchers conclude that primary care providers report most but not all cases of suspected child abuse

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## Grant final reports

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that they identify, and that many variables influence their decisionmaking processes. (Abstract, executive summary, and final report, NTIS accession no. PB2000-103848; 34 pp, \$25.50 paper, \$12.00 microfiche)\*\*\*

### ***Impact of Ethics Consultation in the ICU.* Lawrence J. Schneiderman, M.D., University of California, San Diego. AHRQ grant HS09349, project period 9/30/96-9/29/99.**

This report describes a State-wide conference held in California to explore development of a consensus on institutional futility policies. Many of the hospital policies presented listed specific examples of clinical conditions that do not warrant life support, such as permanent dependence for survival on treatment available only in the ICU and irreversible multiorgan failure or end-stage illness. And, most of the policies presented provide that life-sustaining treatment of a permanently unconscious patient is inappropriate. Conference participants suggested that successful resolution of disputes over end-of-life care could be achieved more readily if hospitals were able to transfer patients to hospitals with a different standard of practice for end-of-life care. (Abstract, executive summary, and final report of a conference, NTIS accession no. PB2000-103851; 32 pages, \$25.50 paper, \$12.00 microfiche)\*\*\*

### ***PROs Febrile Infant Study.* Robert H. Pantell, M.D., American Academy of Pediatrics, Elk Grove, IL. AHRQ grant HS06485, project period 5/1/93-4/30/98.**

The purpose of this prospective, observational cohort study was to

document current clinical practices and costs in infants with fever, determine the accuracy of current clinical parameters, and attempt to develop an optimal clinical prediction model. The researchers obtained data collected by 577 pediatricians from March 1, 1995, to April 30, 1998, on 3,066 infants less than 3 months old with fever of at least 38°C (100.4°F). Over 1,100 of the infants required more than one office visit, and laboratory testing was performed on three-quarters of infants. Slightly more than one-third of the infants were hospitalized, and 52 percent received antibiotics. The average cost of treatment for a nonhospitalized infant was \$192.29, compared with \$3,412.82 for a hospitalized infant. No association between type of insurance and hospitalization rate was found. Rates of serious bacterial illness (SBI) were less than previous reports: 0.5 percent of infants had bacterial meningitis, and 1.7 percent had bacteremia. According to the researchers, these findings warrant changing current practice behaviors. (Abstract, executive summary, final report, and appendixes, NTIS accession no. PB2000-100683; 176 pp, \$44.00 paper, \$17.00 microfiche)\*\*\*

### ***Randomized Trial Comparing Acupuncture, Therapeutic Massage, and Self-Care Education for Chronic Low Back Pain.* Daniel C. Cherkin, Ph.D., Center for Health Studies, Seattle, WA. AHRQ grant HS09351, project period 9/30/96-3/31/99.**

The researchers randomly assigned 262 adults with persistent back pain to receive either self-care education, acupuncture, or massage. After 10 weeks, patients receiving massage or acupuncture

were more satisfied compared with those receiving self-care education. Massage was more effective than self-care in reducing symptoms and improving function and more effective than acupuncture in improving function. After 1 year, outcomes in the massage group were similar to those for self-care but significantly superior to those for acupuncture for symptoms and superior for function. The cost of outpatient care for back pain during the followup year (excluding the intervention costs) was up to 45 percent less in the massage group than in the other groups. (Abstract, executive summary, and final report, NTIS accession no. PB2000-101195; 56 pp, \$27.00 paper, \$12.00 microfiche)\*\*\*

### ***Solution for Verification Bias in Diagnostic Tests.* Xiao-Hua (Andrew) Zhou, Ph.D., Indiana University, Indianapolis. AHRQ grant HS08559, project period, 9/30/94-10/31/99.**

The researchers have developed four sets of new statistical methods for correcting verification bias in the evaluation of diagnostic tests. The first set consists of three methods for estimating the receiver-operator characteristics (ROC) curve of a diagnostic test and its corresponding area. The second set consists of three methods for comparing the relative accuracy of two diagnostic tests. The researchers also developed computer software for implementing these methods. These efforts will provide a comprehensive treatment of verification bias in efficacy studies of diagnostic tests and thus improve the usefulness of the studies. (Abstract, executive summary, and final report, NTIS accession number PB2000-103949; 16 pp, \$23.00 paper, \$12.00 microfiche)\*\*\*

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## Grant final reports

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***Use and Effects of Health Information.* Todd H. Wagner, B.A., University of California, Berkeley. AHRQ grant HS09997, project period 9/30/98-9/29/99.**

This study followed a natural experiment, the Healthwise Communities Project (HCP), that started in Boise, ID, in 1996. The results show that the intervention, which was designed to provide residents with self-care information, was associated with significant increases in the use of medical reference books, telephone advice nurses, and computers for health information. Nevertheless, health outcomes were not appreciably better or worse for the average resident. Positive gains were generally found in people with chronic conditions, such as diabetes and depression, suggesting that future self-care interventions could maximize effectiveness by targeting needy or at-risk populations with appropriately tailored information. (Abstract and

executive summary of a dissertation, NTIS accession no. PB2000-101191; 14 pp, \$23.00 paper, \$12.00 microfiche)\*\*\*

***Using Outcomes Data to Evaluate Health Plans, Delivery Networks, and Individual Providers.* David R. Nerenz, Ph.D., Henry Ford Health System, Detroit, MI. AHRQ grant HS09805, project period 1/1/98-12/31/98.**

This report describes the conference "Using Outcomes Data to Evaluate Health Plans, Delivery Networks, and Individual Providers," held April 22-24, 1998. Conference topics ranged from the broad and theoretical (e.g., Will outcomes data tell us what we want to know?) to the highly technical and specific (e.g., How can health plan data be used to risk-adjust outcomes and payments?). (Abstract, executive summary, and final report, NTIS accession no. PB2000-102989; 56 pp, \$27.00 paper, \$12.00 microfiche)\*\*\*

***Using the Complexity Model to Enhance Diabetes Management in Three Family Medicine Practices: A Qualitative, Comparative Case Study.* Lynn D. Helseth, Ph.D., University of Nebraska Medical Center, Omaha. AHRQ grant HS09994, project period 9/29/98-6/30/99.**

This study tested an intervention to change family practices' management of patients with diabetes, based on complexity theory, a conceptual model for understanding and directing changes in family medicine practices. Based on qualitative case study data—including observation of patient encounters, chart review, structured and unstructured observation, and informal and in-depth interviews—and guided by complexity theory, the researchers conducted tailored practice-level interventions in three community family medicine practices. (Abstract, executive summary, and dissertation, NTIS accession no. PB2000-101810; 230 pp, \$51.00 paper, \$23.00 microfiche)\*\*\* ■

**New report now available on self-care manuals.** Self-care manuals have been widely disseminated in the United States to the general public, employee group populations, and health care organizations. It has been thought that these manuals could improve patient health, satisfaction, and loyalty to health care providers and plans and, at the same time, reduce use of services and lower costs. With funding from the Robert Wood Johnson Foundation, a team at Oregon Health Sciences University (OHSU) recently completed a report that summarizes the available evidence on the effectiveness of self-care manuals. The report was produced with guidance from the AHRQ-funded Evidence-based Practice Center (EPC) at OHSU. To obtain a free copy of this spiral-bound, 98-page report, *Assessment of Self-Care Manuals*, contact the Oregon Health Sciences University, Department of Public Health and Preventive Medicine, 3181 S.W. Sam Jackson Park Road, Mailcode CB-669, Portland, OR 97201-3098; phone 503-494-8257; fax 503-494-4981. ■

Allison, J.J., Wall, T.C., Spettell, C.M., and others. (2000, March). "The art and science of chart review." (AHRQ grant HS09446). *Joint Commission Journal on Quality Improvement* 26(3), pp. 115-136.

Using a study of care of patients with depression as a model, these authors recommend specific methods for conducting chart review as part of research to improve quality of care. They point out that chart review is more difficult than it appears on the surface. It is also project-specific, making a "cookbook" approach difficult. Many factors, such as imprecisely worded research questions, vague specification of variables, poorly designed abstraction tools, and poor recording of data or missing data in the chart may compromise data quality. In designing a chart review software module for the quality of

depression care study, they considered four key aspects of chart review: classification, format, definition, and presentation. In this article, they describe how they integrated data collection with project design, chose the appropriate data collection format, designed the chart abstraction tool, precisely defined each variable, best used chart review personnel, and monitored data quality.

Morris, A.H. (2000, March). "Developing and implementing computerized protocols for standardization of clinical decisions." (AHRQ grant HS06594). *Annals of Internal Medicine* 132(5), pp. 373-383.

The human ability to retain only four to seven data constructs simultaneously in short-term memory contrasts sharply with the hundreds of variables encountered by doctors in the clinical

environment. Give this fact, these researchers point out that computerized protocols can improve clinical decisionmaking. Such protocols can be configured to contain much more detail than textual guidelines or paper-based flow diagrams. Computerized protocols also can generate patient-specific instructions for therapy that can be carried out with little variation from one clinician to another. However, clinicians must be willing to modify their personal styles of clinical management, note the authors. The authors examine this issue through case studies of the use of computerized protocols for mechanical ventilation and for management of intravenous fluid in patients with acute respiratory distress. ■

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