



Research Activities

No. 235, March 2000

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System errors, not patient factors, are responsible for most hospital medication errors

Over 6 of every 100 patients admitted to the hospital suffer a drug-related injury (adverse drug event or ADE). In a recent study, sicker patients with longer hospital stays were more likely than other patients to experience problems from medications. Patient-level risk factors had a smaller than expected impact, according to the study by the ADE Prevention Study Group. The group, supported in part by the Agency for Healthcare Research and Quality (HS07107), found that after controlling for level of care and pre-ADE length of hospital stay, only a few patient factors (for example, age, multiple drug therapy, and impaired renal or liver function) increased the risk of suffering from an ADE. What's more, the group of patients with such risk factors was relatively small.

This suggests that improving systems by which hospital drugs are ordered, dispensed, and administered rather than targeting ADE-prone individuals is more apt to succeed in battling this important and costly problem, according to David W. Bates, M.D., M.Sc., of Brigham and

Women's Hospital. System approaches often involve the use of patient-specific data. For example, data indicating a patient has renal failure will prompt physicians to adjust aminoglycoside dosages. Other system approaches might include development of standardized labeling for tubing in situations in which multiple intravenous medications are being administered simultaneously.

The study group based their findings on analysis of patient factors associated with ADEs for 4,108 patients admitted to two hospitals. They used computerized data from one hospital and case patients with an ADE and matched control patients from another hospital. The drug exposure data in the case-control analysis suggested that no major drug class was responsible for a disproportionate share of the ADEs, with the possible exception of analgesics.

See "Patient risk factors for adverse drug events in hospitalized patients," by Dr. Bates, Elizabeth B. Miller, David J. Cullen, M.D., M.Sc., and others, in the November 22, 1999 *Archives of Internal Medicine* 159, pp. 2553-2560. ■

Health and economic benefits are substantial when pregnant women stop smoking

Maternal smoking during pregnancy contributed to up to one-fourth of the low birthweight (LBW) infants born in the United States in the 1980s. These infants are more apt to be admitted to neonatal intensive care units, are more susceptible to illnesses such as respiratory infections, and generally require more expensive care than normal birthweight infants. Excess direct medical costs per live birth for each pregnant smoker (in 1995 dollars) was \$511, and the total cost was \$263 million. However, a new study shows that reducing smoking prevalence by just 1 percentage point would prevent 1,300 low birthweight live births and save \$21 million in direct medical costs in the first year. Over

7 years, it would prevent 57,200 low birthweight infants and save \$572 million in direct medical costs.

These figures don't even include other direct costs, such as childhood respiratory illness because of secondhand smoke exposure postnatally, or indirect costs, such as loss of life because of sudden infant death syndrome associated with maternal smoking and treatment or long-term rehabilitation of LBW infants. The study was conducted by the Patient Outcomes Research Team (PORT) for the Prevention of Low Birth Weight in High-Risk and Minority Women and was supported in part by the Agency for Healthcare Research and Quality (PORT contract 290-92-0055).

The researchers used simulations based on data on neonatal costs per live birth to calculate excess direct medical costs for each LBW infant and savings associated with a drop in smoking by pregnant women. The cost estimates for LBW were based on a large population database representing 85 percent of all live births in California after widespread use of surfactants to reduce respiratory problems in LBW newborns.

For more details, see "Short-term health and economic benefits of smoking cessation: Low birth weight," by James M. Lightwood, Ph.D., Ciaran S. Phibbs, Ph.D., and Stanton A. Glantz, Ph.D., in the December 1999 *Pediatrics* 104(6), pp. 1312-1320. ■

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Heart Disease/Stroke

Lipid-lowering drugs are underused in patients hospitalized with recurrent heart attacks

Patients with both established coronary artery disease (CAD) and high cholesterol (hyperlipidemia) are at 10 times greater risk of dying than high-cholesterol patients without overt CAD. Yet, a new study found that only one-third of heart attack patients who were eligible to take lipid-lowering drugs (LLDs) were taking them at the time of hospital admission. What's more, only a tenth of these high-risk patients with untreated hyperlipidemia (total cholesterol above 240 mg/dL) were discharged from the hospital with a prescriptions for LLDs. Elderly patients in

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Use of lipid-lowering drugs

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particular were less likely to be treated with LLDs, even though studies have shown that they have a 30 percent risk of death 1 year after heart attack compared with a 5 percent risk for younger patients.

The undertreatment of high blood cholesterol levels in this vulnerable population could be corrected by starting heart attack patients on LLDs during hospitalization in conjunction with modification of behavior and diet. Overall, if all of the eligible but untreated patients had used LLDs for 5 years before their admission, about 15 heart attacks or cardiovascular deaths might have been prevented, notes principal investigator Stephen B. Soumerai, Sc.D., of Harvard Medical School. In the study supported in part by the Agency for Healthcare Research and Quality (HS07357), first author Sumit R. Majumdar, M.D., M.P.H., Dr. Soumerai, and their colleagues analyzed the medical records of 2,938

patients hospitalized for heart attack at 37 community hospitals in Minnesota during 1995 and 1996.

Of these, 622 patients had a history of CAD and hyperlipidemia and were eligible for LLDs. However, only 37 percent of eligible patients received LLDs, and 89 percent of untreated patients were discharged from the hospital without an LLD prescription. Of the patients who were using LLDs, only 15 percent achieved the recommended goal of a total cholesterol below 160 mg/dL. Patients who used two or more LLDs were more apt to achieve blood cholesterol goals than patients who used only one LLD (31 percent successful vs. 14 percent).

More details are in "Undertreatment of hyperlipidemia in the secondary prevention of coronary artery disease," by Sumit R. Majumdar, M.D., M.P.H., Jerry H. Gurwitz, M.D., and Dr. Soumerai, in the December 1999 *Journal of General Internal Medicine* 14, pp. 711-717. ■

Specialists and generalists working together provide the best care for heart disease patients

Numerous studies comparing cardiologist and generalist care for patients with coronary heart disease conclude that specialists are more aware of effective drug therapies and tend to use more appropriate cardiac procedures than generalists. However, there are certain problems with these comparisons, notes John Ayanian, M.D., M.P.P., of Harvard Medical School, in a recent editorial. For example, most studies have compared cardiac treatments and outcomes based solely on the specialty of admitting or attending physicians, without determining whether cardiologists collaborated as consultants in the care of generalists' patients.

One study found that use of thrombolytic therapy, aspirin, and beta blockers was equivalent whether cardiologists cared

for heart attack patients as attending or consulting physicians and was higher than when generalists cared for these patients alone. Another study showed that use of beta blockers was actually higher for heart attack patients receiving collaborative care than when cardiologists or generalists provided care alone. A third study of outpatients with congestive heart failure demonstrated that those with reduced left ventricular function were more likely to receive an angiotensin converting enzyme inhibitor at adequate dosage when treated by general internists or by internists and cardiologists working together than when treated by cardiologists alone.

According to Dr. Ayanian, whose work is supported by the Agency for Healthcare Research

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Caring for heart disease patients

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and Quality (HS09718), rather than focusing on “either-or” comparisons of generalists and specialists, a more productive approach would be to design and

evaluate systems of care in which specialists play a greater or lesser role in the care of specific types of patients. The key question is not whether specialists provide value in patient care, but instead, for what types of patients and clinical decisions is their value greatest?

See “Generalists and specialists caring for patients with heart disease: United we stand, divided we fall,” by Dr. Ayanian, in the February 15, 2000 *American Journal of Medicine* 108(3), pp. 259-261. ■

Men are four times more likely than women to suffer a stroke due to large-vessel atherosclerosis

Over 400,000 men and women suffer from a first ischemic stroke each year in the United States. Although these strokes may be classified by the several different causes that produce them, scant data exist on the incidence rates and risk factors for different types of ischemic stroke.

A recent study, supported in part by the Agency for Healthcare Research and Quality (Stroke Prevention Patient Outcomes Research Team, PORT, 290-91-0028), examined some of these incidence rates and risk factors. It found that men and women had significantly different rates for strokes due to atherosclerosis with stenosis (narrowing of the blood vessel). After adjustment for age, men had four times the rate of this type of stroke as women (47 vs. 12 per 100,000), a difference in incidence that could explain why U.S. rates of carotid endarterectomy (surgical opening of a blocked carotid artery) are 30 to 60 percent higher in men than in women.

For this study, the researchers used the Rochester Epidemiology Project medical records linkage system to identify all 454 Rochester, MN, residents who suffered a first ischemic stroke between 1985 and 1989. Ninety-six percent of the population of Rochester is white, and 51 percent is female. The age- and sex-adjusted incidence rates of ischemic stroke per 100,000 in this population were 27 were due to large-vessel cervical or intracranial atherosclerosis with over 50 percent stenosis; 40 due to cardioembolic causes (blood clots originating from the heart); 25 due to lacunae (strokes due to blockages in tiny blood vessels deep in the brain); 52 due to uncertain cause; and 4 due to other or uncommon cause. Hypertension occurred with strikingly similar frequency among study patients with stroke due to large-vessel disease, cardioembolic stroke, and lacunae. There was no difference in history of prior transient ischemic attack.

Subtype-specific stroke incidence rates also provide a means of more accurately comparing racial differences and differences between men and women in stroke mechanisms. In comparing this study with a study of blacks in metropolitan Cincinnati, OH, the researchers found that although blacks had a higher overall age- and sex-adjusted ischemic stroke incidence compared with whites (246 vs. 147 per 100,000), the incidence of stroke due to large-vessel atherosclerosis with stenosis was significantly greater among whites than blacks (27 vs. 17 per 100,000). This difference could not be attributed to a disparity in procedure rates since the same proportion (54 percent) of patients in both studies received diagnostic tests to detect carotid stenosis.

Details are in “Ischemic stroke subtypes: A population-based study of incidence and risk factors,” by George W. Petty, M.D., Robert D. Brown, Jr., M.D., Jack P. Whisnant, M.D., and others, in the December 1999 *Stroke* 30, pp. 2513-2516. ■

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Evidence shows that warfarin is the drug of choice to prevent stroke in certain patients with atrial fibrillation

A common type of irregular heart beat, atrial fibrillation (AF), affects over 2 million people in the United States. Yet only one-third of AF patients, who are at risk of stroke, receive the anticoagulant warfarin to prevent stroke. Doctors may be underutilizing this drug, especially given the results of a recent study supported by the Agency for Healthcare Research and Quality (contract 290-97-0006). Scientific evidence gathered during the study suggests that physicians should prescribe warfarin to prevent a first stroke for patients with AF at average or greater risk of stroke. It also suggests that aspirin may prove useful in subgroups with a low risk of stroke, even though the evidence for this was inconclusive.

Doctors must trade off the benefits of anticoagulation that the drug warfarin provides to AF patients with its potential to cause hemorrhage due to blood thinning, notes Jodi B. Segal, M.D., M.P.H. Dr. Segal and colleagues at the Johns Hopkins University Evidence-based Practice Center recently conducted a meta-analysis of 11 trials of anticoagulants and antiplatelet agents to prevent stroke in adults with non-postoperative AF. Compared with patients taking placebo, those taking warfarin had a 70 percent less chance of a first stroke and a two-fold increased risk of minor hemorrhage. Thus, for AF patients at low risk of stroke, the benefit of warfarin may be offset by the

increased risk of bleeding. Aspirin was inconclusively more efficacious than placebo for stroke prevention, and there was inconclusive evidence regarding more major bleeds. Assuming a baseline risk of a first stroke at 45 strokes per 1,000 patient-years, warfarin could prevent 30 strokes at the expense of only 6 additional major bleeds. Aspirin could prevent only 17 strokes but without increasing major hemorrhage. The studies that directly compared the two drugs suggested 25 percent fewer strokes among patients on warfarin than on aspirin, with only suggestive evidence for more major hemorrhage.

See "Prevention of thromboembolism in atrial fibrillation: A meta-analysis of trials of anticoagulants and antiplatelet drugs," 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 General Internal Medicine* 15(1), pp. 56-67.

Editor's note: The AHRQ-supported evidence report on which this journal article is based is being prepared for publication. We anticipate its release in summer 2000. To add your name to the list to receive a copy when it is published, contact the AHRQ Clearinghouse and request a copy of Evidence Report No. 12, *Management of New Onset Atrial Fibrillation* (AHRQ Publication No. 00-E007). See the back cover of *Research Activities* for ordering information.* ■

Clinical Decisionmaking

Physicians in HMOs should more aggressively manage hypertension

Better control of hypertension lessens a person's risk of developing coronary artery disease, stroke, congestive heart failure, renal insufficiency, and peripheral vascular disease. However, a study of a large health maintenance organization (HMO) suggests that HMOs have room to improve in this area. Their physicians should be more aggressive in the treatment of high

blood pressure, particularly systolic blood pressure (SBP), whose importance has been underemphasized until recently, concludes the study, which was supported in part by the Agency for Healthcare Research and Quality (MEDTEP Research Center for Diverse Populations, HS07373).

Researchers led by Mark Alexander, Ph.D., of the University of California, San Francisco, and

the Kaiser Permanente Medical Care Program, retrospectively assessed blood pressure control for a random sample of adult patients with hypertension in a large HMO. Using patients' mean and last office blood pressure measurements to evaluate hypertension control, they found that about 70 percent of hypertensive patients in the HMO

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Managing hypertension

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had good diastolic blood pressure (DBP) control (<90 mm Hg). However, less than 40 percent of patients had hypertension controlled to an SBP less than 140 mm Hg. About 30 percent had both DBP and SBP under control.

The proportion of patients meeting the criteria for blood pressure control was similar whether the researchers used the mean BP for all visits, the last recorded BP, or control at 50

percent or more of visits. However, the proportion of patients with combined BP control at 75 percent or more of their visits was half that of the other methods. Older patients were more apt to have elevated SBP, whereas younger patients were more likely to have elevated DBP. SBP control may be more difficult to achieve in the elderly without producing symptoms of dropped blood pressure, such as dizziness upon standing. On the other hand, doctors may simply be less inclined

to push therapy aggressively to achieve this goal. Physicians also may be concerned about excessively lowering DBP while trying to achieve SBP control, explain the researchers.

See "Evaluating hypertension control in a managed care setting," by Dr. Alexander, Irene Tekawa, M.A., Enid Hunkeler, M.A., and others, in the December 13, 1999 *Archives of Internal Medicine* 159, pp. 2673-2677. ■

Bilingual asthma scale can help clinicians assess symptoms in Latino children

A new Spanish-English scale for measuring the control of asthma symptoms in Latino children from low-income families has been developed, tested, and found reliable in a study supported in part by the Agency for Healthcare Research and Quality. The eight-item scale will allow health care workers to obtain information from Latino parents about the degree of control of their child's asthma despite language and educational barriers.

Asthma is increasing rapidly among children. Between 1980 and 1994, for example, asthma among U.S. children 5 to 14 years of age increased by 74 percent; the disease is the most common chronic illness affecting Latino children. But there are few reliable instruments for measuring the severity and frequency of asthma's symptoms in non-English-speaking and low-literacy populations, in spite of findings that language and literacy levels can affect the reliability and validity of survey measures.

The eight-item instrument developed in this study asks parents, in English and Spanish, to indicate the frequency of their child's symptoms on a scale ranging from "every day" to "never," and it includes a "don't know" response. The symptoms listed are coughing, wheezing, shortness of breath, asthma attacks, and chest pain. The instrument also asks parents about the number of times their child has awakened at night during the previous 4 weeks because of asthma, and it

asks parents to provide an overall rating of the severity of their child's asthma.

The symptom scale was tested by interviewing parents of 234 inner-city children treated for asthma in an emergency department at the time of their initial visit and 1 month later. About 69 percent of the children, whose average age was 9 years, were identified by their parents as being Latino. Just over half (54 percent) of interviews with parents about their children's symptoms were conducted in Spanish; the rest were conducted in English. There were no major differences in the reliability and validity of the responses between the Spanish- and English-speaking parents. However, larger studies will be required to confirm language equivalence in the bilingual scale, the researchers note. The study was led by Marielena Lara, M.D., M.P.H., of the UCLA/RAND Program on Latino Children with Asthma. Peter Gergen, M.D., of the Agency for Healthcare Research and Quality's Center for Primary Care Research, is a co-author of the study.

For more information, see "An English and Spanish pediatric asthma symptom scale," by Dr. Lara, Cathy Sherbourne, Ph.D., Naihua Duan, Ph.D., and others, in the March 2000 issue of *Medical Care* 38(3), pp. 342-350. Reprints (AHRQ Publication No. 00-R021) are available from AHRQ.** ■

Routine medical testing before cataract surgery usually is not necessary

Since 1984, nearly all cataract surgeries in the United States have been done on an outpatient basis, with low rates of complications and deaths. However, patients with cataracts tend to be elderly and to have serious coexisting illnesses. As a result, many doctors believe that a medical examination with laboratory testing must be performed before a patient can be considered eligible for surgery. However, a recent study found that routine medical testing before cataract surgery does not increase the safety of the surgery, and for the most part, is unnecessary.

The overall rate of intraoperative and postoperative complications was the same for patients who underwent a standard battery of laboratory tests and those who did not (31 medical events per 1,000 operations). Most problems

occurred during surgery and were not serious, and it was rarely judged that medical tests would have helped to reduce the risk or severity of these problems. Also, there was no evidence that preoperative medical testing resulted in postponement or cancellation of surgery for patients found to be at risk for medical problems.

Of course, this does not mean that medical testing is unhelpful or not indicated for all patients. However, tests prior to cataract surgery should be ordered only when the history or a finding on physical examination indicates the need for a test, even if surgery had not been planned (for example, new or worsening angina would almost certainly prompt electrocardiography even if the patient was not scheduled for cataract surgery).

These findings are based on a study supported by the Agency for Healthcare Research and Quality (HS08331), which was led by Oliver D. Schein, M.D., M.P.H., of Johns Hopkins University. Dr. Schein and his colleagues randomly assigned elective cataract operations in 18,189 patients at nine centers to be preceded or not preceded by a standard battery of tests ranging from electrocardiography and complete blood count to measurement of serum glucose, electrolytes, urea nitrogen, and creatinine.

See "The value of routine preoperative medical testing before cataract surgery," by Dr. Schein, Joanne Katz, Sc.D., Eric B. Bass, M.D., M.P.H., and others, in the January 20, 2000 *New England Journal of Medicine* 342, pp. 168-175. ■

Less than 10 percent of medical decisions are made with participation of a fully informed patient

Physicians are being encouraged to involve their patients in decisions about medical tests and procedures. However, many of them have not embraced the concept in day-to-day office practice, according to a study supported in part by the Agency for Healthcare Research and Quality (HS07289). It found that less than 10 percent of medical decisions were actually made with the participation of a fully informed patient (i.e., doctors provided patients with the pros and cons of the test, procedure, or medication regimen; informed them of their options and any side effects; and helped them reach an individualized decision about the right course to take).

Lead author, Clarence H. Braddock III, M.D., M.P.H., of the University of Washington, and his colleagues analyzed audiotapes of 1,057 encounters between patients and 59 primary care physicians (PCPs) and 65 surgeons in two States. Criteria for patient involvement in basic decisions included

discussion of the nature of the decision and asking the patient to voice a preference. More complex decisions had more stringent criteria for patient involvement. Results showed that basic decisions (for example, about laboratory tests) were most often completely informed (17.2 percent). No intermediate decisions (for example, changing the dose of a medication or changing to a new medication) and only 0.5 percent of complex decisions (such as prostate cancer screening) were completely informed.

Among the elements of informed decisionmaking, discussion of the nature of the intervention occurred most frequently (71 percent of cases), but alternatives (5.5 to 29.5 percent) and uncertainties (1.1 to 16.6 percent) associated with the decision were seldom discussed. Assessment of patient understanding was done least frequently (1.5 percent). Length of visit and

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Medical decisions

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relationship with the doctor were not significantly associated with the degree of informed decisionmaking. These findings raise quality-of-care concerns, since there is mounting evidence that inadequate patient involvement may interfere with patient acceptance of treatment and adherence to medical regimens, notes

principal investigator Wendy Levinson, M.D., of the University of Chicago.

See "Informed decision making in outpatient practice: Time to get back to basics," by Dr. Braddock, Kelly A. Edwards, M.A., Nicole M. Hasenberg, M.P.H., and others, in the December 22, 1999 *Journal of the American Medical Association* 282(24), pp. 2313-2320. ■

Primary Care

Race and ethnicity play an important role in patient satisfaction with primary care physicians

Asian patients rated the performance of their doctors significantly less favorably than did white patients in a new study evaluating differences in attitudes toward primary care physicians among patients of various ethnic and racial backgrounds. The study, which was conducted by researchers at the Kaiser Permanente Medical Care Program in Northern California and the University of California, San Francisco, was funded by the Agency for Healthcare Research and Quality (HS08269). It appears in the March issue of *Medical Care*.

The study included reports from 1,007 Asian patients, 836 black patients, 710 Hispanic patients, and 7,747 white patients who received care from a mix of general internists, internal medicine

subspecialists, and family physicians at 13 Kaiser facilities. The patients, who were between the ages of 35 and 85, were asked to rate doctors on their technical competence, communication skills, overall accessibility, prevention, and health promotion activities and to rate their overall satisfaction with the care they received.

Among different Asian ethnic subgroups, Chinese and Filipino patients appeared less likely to be satisfied with their physicians, while Japanese patients were least likely to say they would recommend their doctors. Hispanic patients rated physicians' accessibility and technical skills less favorably than white patients. Black patients gave physicians' use of the latest technology and of psychosocial and lifestyle health

promotion a higher rating than white patients.

According to the study's principal investigator, Joe V. Selby, M.D., of Kaiser Permanente, these findings may represent actual differences in quality of care or variations in patient perceptions, expectations, and/or questionnaire response styles. Dr. Selby and his colleagues conclude that more research is needed to assess in accurate and culturally appropriate ways whether health plans are meeting the needs of diverse patient populations.

Details are in "Racial and ethnic differences in a patient survey: Patients' values, ratings, and reports regarding physician primary care performance in a large health maintenance organization," in the March 2000 *Medical Care* 38(3), pages 300-310. ■

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Having an ongoing relationship with a doctor greatly reduces ER visits by elderly patients

Many emergency department (ED) visits by the elderly can be avoided by having an ongoing relationship with a doctor, concludes a study supported in part by the Agency for Healthcare Research and Quality (Rural Health Research Center contract 290-93-0136). In general, elderly patients with more severe illness are more apt than patients who are not as sick to visit the ED. However, regardless of age and illness severity, elderly Medicare patients in this study who had a regular doctor-patient relationship were about half as likely to visit the ED as those who did not have a principal-care doctor (a doctor who saw the patient for the majority of clinical visits). This was true whether the principal-care doctor was a primary care physician or a specialist.

First author Roger A. Rosenblatt, M.D., M.P.H., of the University of Washington School of Medicine, principal investigator Laura-Mae Baldwin, M.D., M.P.H., of the University's Rural Health Research Center, and colleagues studied ED use by Medicare patients in Washington State who were older than 65 years in 1994 and not members of a health maintenance organization. A total of 18 percent of patients had one or more ED visits during the year,

with the oldest and sickest having more visits. However, those with a generalist principal-care physician had half the odds (odds ratio, OR, 0.47) and those with a specialist principal-care physician had about half the likelihood (OR, 0.58) of visiting the ED of those without such relationships. Even the sickest patients had 31 percent fewer ED visits if they had a principal-care doctor, after controlling for patient case mix, Medicaid eligibility, and rural/urban residence.

An ongoing doctor-patient relationship allows many problems to be discovered and addressed before they reach a point of urgency, and it improves access to doctors in their usual office settings. This study suggests that in disrupting a sustained relationship between a patient and doctor—which often happens when patients change health plans—something of value is destroyed. Increased ED use can be an indicator of that disruption, concludes Dr. Rosenblatt.

For more details, see “The effect of the doctor-patient relationship on emergency department use among the elderly,” by Dr. Rosenblatt, George E. Wright, Ph.D., Dr. Baldwin, and others, in the January 2000 *American Journal of Public Health* 90, pp. 97-102. ■

Doctors' psychological traits have little if any bearing on their referral decisions

Primary care physicians (PCPs) in the United States vary widely in the rates at which they refer patients to specialists. Patient characteristics and physician practice factors, rather than physician psychological factors, appear to influence physician referral patterns, according to a study supported by the Agency for Healthcare Research and Quality (HS09397). University of Rochester researchers, led by Peter Franks, M.D., analyzed 1995 referral data from a large managed care organization that did not link financial incentives directly to referrals. They combined these data with a survey of 173 PCPs in the

organization who reported their age, sex, and psychological characteristics, as well as practice characteristics.

Results showed that about 40 percent of patients were referred by their PCPs to specialists in 1995. Patient severity of illness (case mix) and certain practice characteristics explained most of the variation in referral rates. Both the observed and case-mix-adjusted referral rates showed moderate correlations with a number of physician practice variables. For example, patients were more apt to be referred if their physician was female, had been in practice longer, was an internist, or used a narrower range of diagnoses. Other physician

practice variables were not significant.

Of physician psychological factors, only greater psychosocial orientation and malpractice fear were associated with greater likelihood of referral. When physician practice factors were excluded from the analysis, risk aversion was positively associated with referral likelihood.

For more details, see “Why do physicians vary so widely in their referral rates?” by Dr. Franks, Geoffrey C. Williams, M.D., Ph.D., Jack Zwanziger, Ph.D., and others, in the March 2000 *Journal of General Internal Medicine* 15(3), pp. 163-168. ■

Primary care providers often fail to cover the most significant injury prevention issues during well-child visits

Injuries are the primary cause of death among those 19 years of age and younger. Given the limited time doctors have to counsel parents and children about injury prevention, they tend to select only certain topics. Although two-thirds of primary care providers counsel parents of children age 5 and younger on how to prevent car-crash related injuries (66 percent) and ingestion of poisons (62 percent), few counsel them on drowning prevention (32 percent) and firearm injuries (16 percent). Unfortunately, attitudes about certain injuries rather than knowledge about the prevalence of particular childhood injuries affect the prevention counseling topics that doctors and pediatric nurse practitioners address.

Use of the Injury Prevention Program developed by the American Academy of Pediatrics could help to ensure that the most

significant injury prevention issues are discussed consistently during well-child examinations, concludes a study supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00046). Shari Barkin, M.D., M.S.H.S., currently of Wake Forest University, and her colleagues at the University of California, Los Angeles, surveyed a random sample of 465 pediatricians, family physicians, and pediatric nurse practitioners in Los Angeles County. They asked clinicians about the injury prevention counseling they provided during well-child examinations on motor vehicle crashes, toxic ingestion, drowning, and firearm injuries.

When asked to rank order the four injury topics, most providers were clear that they would discuss motor vehicle crash injury prevention first and knew that these

crashes were the primary cause of death and disability for young children. However, they generally disagreed about which injury prevention topic was next in importance, and were unclear about the relative prevalence of the other three types of injuries. Attitudes were more predictive of their counseling topics. Believing that it was less important to counsel on drowning and firearm injury prevention (even though childhood drowning injury was a significant problem in Los Angeles County) significantly decreased the likelihood that clinicians would do so.

More details are in "Predicting clinician injury prevention counseling in young children," by Dr. Barkin, Arlene Fink, Ph.D., and Lillian Gelberg, M.D., M.S.P.H., in the December 1999 *Archives of Pediatric and Adolescent Medicine* 153, pp. 1226-1231. ■

Quality of Care

Patient satisfaction with hospital care depends in part on the degree of symptom improvement during the stay

When patients are admitted to the hospital, they are typically suffering from a variety of symptoms. With today's short hospital stays, focus on laboratory data, and use of diagnostic and therapeutic interventions, the patient's symptoms often receive inadequate attention. However, patients still give high priority to their symptoms.

A decrease in symptoms by the time of hospital discharge tends to correlate with patient satisfaction with hospital care, concludes a study supported by the Agency for Healthcare Research and Quality (HS07719). Simply asking patients at the time of discharge whether they have any persistent symptoms and discussing whether further evaluation may be warranted would be a reasonable step in enhancing

patient-centered care, suggest Kurt Kroenke, M.D., the study's first author, Clement J. McDonald, M.D., principal investigator, and their Indiana University colleagues.

During a 1-year period (July 1996-June 1997), they interviewed 2,126 medical patients hospitalized at one Indiana hospital within 2 hours of admission; they reinterviewed the same patients within 24 hours of discharge about symptoms, satisfaction with care, and length of hospital stay. The researchers found that symptoms were common at the time of hospital admission, particularly fatigue (80 percent of patients), dyspnea (labored breathing, 60 percent), cough (51 percent), dizziness (51 percent), headache (47

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Satisfaction with hospital care

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percent), chest pain (46 percent), and nausea or vomiting (43 percent).

Individual symptoms failed to resolve by hospital discharge about 25 to 50 percent of the time. Symptoms were more apt to persist if patient stays were short, patients had more severe symptoms when admitted to the hospital, and they had more total symptoms. Patients' satisfaction with care was clearly associated with total symptom severity score at discharge and the degree of symptomatic improvement that occurred during hospitalization in four areas:

physical symptoms, emotional symptoms, daily functioning, and self-rated health. For example, each five-unit increase in the symptom improvement score was associated with a mean improvement in satisfaction of 0.35. Each five-unit increase in the symptom severity score was associated with a mean worsening in satisfaction of 0.5.

For more details, see "Symptoms in hospitalized patients: Outcome and satisfaction with care," by Dr. Kroenke, Timothy Stump, M.S., Daniel O. Clark, Ph.D., and others, in the November 1999 *American Journal of Medicine* 107, pp. 425-431. ■

Elderly patients' satisfaction with doctor visits does not necessarily indicate quality of care

Elderly patients tend to be more satisfied with visits to the doctor than younger patients. Their initial visits with a doctor tend to be more polite and formal, with physicians more apt to chat with older than younger patients. However, this politeness may be at the expense of discussing more important health issues, since doctors are more likely to counsel younger patients and provide them with health education and prevention services than they are older patients.

The more superficial chatting may prevent older patients from having all of their health needs identified and addressed. In fact, elderly patients' satisfaction with medical care in general and with a specific visit may not necessarily indicate better quality of care, concludes a study supported by the Agency for Healthcare Research and Quality (HS08029).

Edward J. Callahan, Ph.D., and fellow researchers at the

University of California, Davis, observed the interactions of physicians (second and third-year residents) and 509 new adult, nonpregnant patients at a university family medicine and general internal medicine clinic. They compared care for patients 65 and older, those 45 to 64 years, and those 18 to 44 years of age. After controlling for patient health status and demographics, they found that older patients had more return visits and reported higher levels of satisfaction than younger patients.

Although the oldest patients experienced more chatting in their longer visits, they were given less counseling, asked fewer questions, had less discussion about their families and their use of substances, were asked to change their health behavior habits less often, and were given less health education than the youngest patients. More of each visit with the oldest patients was spent

checking on compliance with earlier treatment and developing treatment plans. Visit content for those aged 45 to 64 fell between the oldest and youngest groups.

Some of the observed differences in visit length and content may stem from social rules prescribing respect for older patients, resulting in less personal challenge to and education of older patients regarding their health habits and self-care. On the other hand, perhaps physicians choose to focus their health promotion messages on patients they feel are more likely to change.

See "The influence of patient age on primary care resident physician-patient interaction," by Dr. Callahan, Klea D. Bertakis, M.D., M.P.H., Rahman Azari, Ph.D., and others, in the January 2000 *Journal of the American Geriatrics Society* 48, pp. 30-35. ■

Patients base their satisfaction with pharmacy care on their social interaction with the pharmacist, not technical quality

Pharmacists are moving away from their traditional role as drug dispensers to a new role as full-fledged members of the health care team providing direct, patient-centered care.

Consequently, pharmacists are interested in demonstrating that pharmaceutical care improves the quality of care provided to patients and ultimately patient outcomes, including satisfaction with care. However, patients typically rate the pharmacy care they receive not on the technical quality of the care, which they may not be qualified to judge, but on their social interaction with the pharmacist.

For example, a recent study found that more than 65 percent of asthma patients reported that they had recently received basic monitoring services (39 percent) or comprehensive disease management services (26 percent)

from their pharmacist. Yet patients who received higher levels of pharmaceutical care expressed no more confidence in their pharmacist's ability to help them manage their asthma than did those who received lower levels of care. On the other hand, patients who said their pharmacist was courteous and gave them prompt personal attention were more likely to believe their pharmacist was able to help them manage and prevent asthma-related problems. Personal attention from the pharmacist (personal and prompt attention to requests, willingness to spend time, and friendliness) was clearly the most important factor in their satisfaction with pharmacy care and their belief that the pharmacist was able to help them manage their condition and prevent asthma-related problems.

Given their new role, pharmacists should increase patients' awareness of the value of

pharmaceutical care services, so that a pharmacist's competence, not just friendliness, affects patient satisfaction with pharmaceutical care, conclude L. Douglas Ried, Ph.D., and colleagues at the College of Pharmacy, University of Florida, Gainesville. In the study supported in part by the Agency for Healthcare Research and Quality (HS08221), they surveyed 145 adult patients with asthma enrolled in the pharmacy clinics of two Florida managed care organizations about their satisfaction with pharmaceutical care services.

See "Patients' satisfaction and their perception of the pharmacist," by Dr. Ried, Feng Wang, M.D., Henry Young, and Ratanaporn Awiphan, in the November/December 1999 *Journal of the American Pharmaceutical Association* 30(6), pp. 835-842. ■

Health Care Costs and Financing

Cost does not appear to be the main factor in insurers' drug coverage decisions

Contrary to popular belief, cost does not appear to be the primary factor influencing managed care organizations' (MCOs') decisions regarding coverage for pharmaceuticals, and drug coverage decisions are made by clinical professionals rather than accountants or chief financial officers. According to a study of four relatively new drugs approved by the Food and Drug Administration within the past 3 years, value judgments, rather than cost, seem to play a central though largely unspoken role in drug coverage decisions.

The study was conducted by the Clinical Bioethics Department at the National Institutes of Health's Clinical Center and the Agency for Healthcare Research and Quality. For the study, researchers

queried either chief medical officers or internal pharmacy benefits managers of 53 managed care organizations (a 63 percent response rate among the 84 MCOs initially contacted) about their coverage decisions regarding four new, expensive and controversial drugs: Enbrel and Celebrex, used to treat arthritis, Zyban for smoking cessation, and Viagra for erectile dysfunction.

More than 90 percent of the responding MCOs surveyed offer coverage for Enbrel and Celebrex. In contrast, MCOs covered Viagra and Zyban much less frequently, although not-for-profit MCOs were twice as likely as for-profit MCOs to cover Zyban. The respondents often attributed this to the decisionmakers' belief that Viagra and Zyban are

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Drug coverage decisions

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“lifestyle improvement” drugs and not necessary for the treatment of disease.

The researchers suggest that while benefit decisionmakers, usually a committee of health professionals, may see a clear distinction between diseases and lifestyle, such distinctions tend to be value-laden and controversial. These distinctions and the values they embody may need to be examined as

pharmacy coverage decisions become increasingly complex and contentious, the authors conclude.

Details are in “Drug coverage decisions: The role of dollars and values,” by Karen Titlow, M.A, Lauren Randel, M.D., Carolyn M. Clancy, M.D., and Ezekiel J. Emanuel, M.D., Ph.D., in the March/April 2000 *Health Affairs* 19(2), pp. 240-247. Reprints (AHRQ Publication No. 00-R022) are available from AHRQ.*



Worker preference may contribute to poorer health insurance coverage by small firms

It has long been assumed that small firms are less likely to provide health insurance coverage to workers than large firms because of the economic burden of insuring their workers. However, a new study finds that many workers seeking employment at firms not offering coverage may not place a high priority on health insurance as part of the overall benefits package. They would rather have higher salaries. Thus, reforms to expand coverage in the small group health insurance market may face limited success, conclude Alan C. Monheit, Ph.D., and Jessica Primoff Vistnes, Ph.D., of the Agency for Healthcare Research and Quality.

Using data from the 1987 National Medical Expenditure Survey, the authors examine whether single workers with weak preferences for health insurance sort themselves into jobs without coverage. Preferences are measured according to responses to the statements “I’m healthy enough

that I don’t need health insurance,” “Health insurance is not worth the cost,” and “I’m more likely to take risks than the average person.”

Descriptive analyses for a sample of single workers suggest that sorting by preferences for health insurance takes place, since workers with weak preferences for coverage were more likely than workers with strong preferences to take jobs that did not offer coverage.

The authors also test the preferences hypothesis by applying a model of job choice, which includes preferences for health insurance and controls for correlates of a worker’s wage level, expected medical care expenditures, costs of searching for jobs, labor market conditions, and area medical care costs.

Econometric analysis confirms the fact that single workers with weak preferences for coverage are more likely to take jobs without coverage and that preferences may be as important as other worker

characteristics in explaining the insurance status of uninsured workers with weak preferences for coverage. Drs. Monheit and Vistnes also find that workers who believe that their health status does not warrant coverage do incur lower health expenditures and report themselves to be in better health than workers with strong preferences for health insurance. Their analysis of sorting behavior suggests that efforts should be focused on creating incentives that raise the value of health insurance to targeted groups of small firm employees.

See “Health insurance availability at the workplace: How important are worker preferences?” by Drs. Monheit and Vistnes, in the *Journal of Human Resources* 34(4), pp. 770-785. Reprints (AHRQ Publication No. 00-R013) are available from AHRQ.** ■

Significant State-to-State differences found in health insurance offer rates, choice of plans, and premiums

In a recent analysis of the 1996 Medical Expenditure Panel Survey-Insurance Component (MEPS-IC), economists and statisticians at the Agency for Healthcare Research and Quality found State-to-State variability in employer-sponsored health insurance offer rates, plan choice, and employer premiums. The MEPS-IC covered establishments with at least one employee that were in business during the last quarter of 1996. [Editor's note: For purposes of MEPS, an establishment is a particular workplace or location. A firm is a company or business. A firm can have many establishments or only one.]

Although workers in small firms in general are less likely to be offered health insurance than workers in large firms, offer rates varied from State to State. Almost all establishments that were part of firms with 1,000 or more workers offered health insurance to their employees. For the smallest firms (fewer than 10 workers), Hawaii's rate of insured workers was more than double that of the national average for this firm size. This is not surprising because Hawaii mandates that businesses offer health insurance. Among the smallest firms, establishments in Mississippi were the least likely to offer health insurance (21.1 percent). Significant State variation in health insurance offer rates was also observed in establishments from firms with 10 to 24 and 25 to 99 employees.

Overall 22 percent of U.S. establishments that offered health insurance in 1996 offered a choice of

plans. However, this varied by firm size. More than half of establishments from firms with 1,000 or more workers offered a plan choice, compared with only 9 percent of establishments from firms with less than 10 workers. Establishments in Massachusetts, New York, Hawaii, Tennessee, and California were most likely to offer choice. Those in Wisconsin, Mississippi, Alabama, and Minnesota were least likely to do so. Although managed care plans are offered by a majority of establishments, their prevalence across the country ranged from about half to nearly all employers in a State offering a managed care plan. Other types of plans also varied greatly from State to State.

The cost of employer-sponsored single and family health insurance coverage averaged \$1,997 and \$4,953, respectively, in 1996. Massachusetts, Connecticut, and New Jersey had the highest annual single and family premiums relative to the national average. South Carolina, Arkansas, and New Mexico were among the States with the lowest single and family premiums.

See "Private employer-sponsored health insurance: New estimates by state," by James Branscome, M.S., Philip F. Cooper, Ph.D., John Sommers, Ph.D., and Jessica P. Vistnes, Ph.D., in the January 2000 *Health Affairs* 19(1), pp. 139-147. Reprints (AHRQ Publication No. 00-R016) are available from AHRQ.**



Medicaid programs provide a safety net for the uninsured, but they also crowd out private insurance

The rate of workers who accepted employment-based health insurance fell from 88 to 80 percent between 1987 and 1996, while the number of workers covered by Medicaid who had been offered employment-based coverage increased from 5 to 25 percent. Public health care programs like Medicaid cover people who otherwise would not have health insurance, either through direct health care services,

subsidies to health care providers, or direct health insurance. In this way, they serve as a safety net for the uninsured. On the other hand, they also crowd out private health insurance coverage, especially for low-income individuals who prefer "free care" like that provided by public hospitals, concludes a study supported by the Agency for Healthcare Research and Quality (HS07665).

Kevin N. Rask, Ph.D., of Colgate University, and Kimberly J. Rask, M.D., Ph.D., of Emory University School of Medicine, examined the impact of reimbursement funds and Medicaid on insurance choice. They based their analysis on the 1987 National Medical Expenditure Survey of a nationally representative sample of 15,000 households; the 1988 American Hospital Association annual survey;

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Medicaid programs

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and the 1989 and 1992 National Health Interview Surveys. They found that the effect of public hospitals on private health insurance coverage differed across income groups, and that there was no effect on the likelihood of private coverage for those at the highest and lowest ends of the income distribution. Interestingly, the presence of a public hospital in the respondent's county decreased the likelihood of Medicaid coverage.

Acquiring and maintaining Medicaid coverage requires enrollment and repeated eligibility

verifications. The availability of a public hospital may make it less urgent to enroll in Medicaid and less likely that eligible individuals will pursue enrollment unless they have an acute need for medical care. Also, study simulations suggested that public hospitals crowded out 11 percent of low-income people and 4 percent of middle-income individuals who otherwise would be privately insured.

Less restrictive Medicaid eligibility standards were associated with less private insurance coverage in all income groups. This suggests that potentially eligible individuals may

do without private insurance, anticipating the availability of public coverage if medical care is needed, note the researchers. They conclude that the increased costs associated with forgoing private insurance and instead relying on public services must be weighed against the benefits derived from providing expanded health care to those with no other option.

More details are in "Public insurance substituting for private insurance: New evidence regarding public hospitals, uncompensated care funds, and Medicaid," by Drs. Rask and Rask, in the *Journal of Health Economics* 19, pp. 1-31, 2000. ■

Managed Care

Financial incentives based on patient insurance may have unintended consequences

Physicians in group practices often have patients insured by both health maintenance organizations (HMOs) and fee-for-service (FFS) health plans. However, the payment incentives of both plans are usually transferred to the practice as a whole. Individual providers' decisions in the organization may be unaffected by or even at odds with incentives associated with the patient's insurance. However, when a group tries to redesign its reward system so that providers know a patient's insurance and its underlying incentives, physicians may become upset, leading to unintended consequences.

Overall, it's not a good approach, concludes a study supported by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00070). Ann Barry Flood, Ph.D., of Dartmouth Medical School, and her colleagues analyzed the impact of an administrative experiment by a large multispecialty group practice treating an equal number of HMO and FFS patients. It announced that each physician would be remunerated for HMO care based on a per capita budget and for FFS care based on billable services. There was no evidence that

the intended impact (reducing HMO care) occurred. Instead, it caused FFS resource use to drop (thereby becoming more cost effective for this group but generating less income) and failed to lower HMO care.

At this clinic, the providers valued the fact that all providers were rewarded consistently, regardless of specialty or patients treated, and it was important to them that the clinic valued all its physicians and patients without tolerating "tiers" of care. In contrast, the new incentive system was complicated. It set up differences in how gatekeeper specialties and other physicians were paid, and it deliberately invited a differential behavior toward patient care, depending on the patient's insurance. What's more, it rewarded "non-work" for HMO care, which sharply conflicted with the clinic culture's emphasis on productivity.

For more information, see "The promise and pitfalls of explicitly rewarding physicians based on patient insurance," by Dr. Flood, David M. Bott, Ph.D., and Elizabeth Goodrick, Ph.D., in the January 2000 *Journal of Ambulatory Care Management* 23(1), pp. 55-70. ■

Local leaders and circumstances determine how the arrival of managed care will be received in rural communities

The reactions of rural communities to managed care vary from defensive, with local players attempting to deflect what they perceive as the evils of managed care, to welcoming, when changes in health financing and organization are viewed as opportunities to improve local delivery systems. This is the conclusion of a study supported by the Agency for Healthcare Research and Quality (HS09195) and led by Keith J. Mueller, Ph.D., of the University of Nebraska Medical Center. He and colleagues studied the experiences of purchasers, providers, and others in six diverse rural communities. The rural sites in six States (Oklahoma, Minnesota, New York, Washington, Tennessee, and South Carolina) were selected because of significant anticipated or current changes ranging from expansion of Medicaid managed care to development of provider networks.

These case studies revealed that some local providers, led by local leaders, developed their own “bunker” strategies to ward off the

worst effects of financial discounting and medical management that managed care organizations (MCOs) wished to impose (Tennessee and South Carolina). In South Carolina, network leaders, caught between competing visions of local physicians and some hospital administrators, were leaning toward the physicians’ views. This meant they were reluctantly willing to consider managed care contracts but only on terms that maximized the independence of local providers. In Tennessee, providers’ resistance to change was more widespread; there were no clear advocates for changing current practices.

In each of the four sites where local objectives were furthered by market change, a local catalyst led the effort. When managed care became operational, major sources of support were available. In New York and Oklahoma, regional health systems were anchored by large regional hospitals that could support changing systems. In Washington, consolidations of local

physicians into a single clinic, which then affiliated with the one hospital in the region, led to a pooling of resources. Minnesota combined resources, but through a regional cooperative. In the communities studied, resources, leadership, and community capacity molded change to meet the needs of the community.

The researchers conclude that the most practical way to preserve and protect a local approach to health care and to maximize returns for local providers is to form integrated networks. This will allow rural providers to achieve the economies of scale necessary to support information systems, referral systems, and other techniques for achieving cost efficiencies. Also, large regional networks can aggregate populations to pool risk.

See “The changing landscape of health care financing and delivery: How are rural communities and providers responding?” by Dr. Mueller, Andy Coburn, Sam Cordes, and others, in the *Milbank Quarterly* 77(4), pp. 485-510. ■

Health Care Delivery/Access

Mandating longer hospital stays for newborns may not be the best way to prevent readmissions for jaundice

The drive to contain health care costs has dramatically shortened routine hospital stays for mothers and newborns. While just 36 percent of newborns in Washington State were discharged less than 30 hours after birth in 1991, 88 percent were discharged this early in 1995. Infants discharged this early are at higher risk of hospital readmissions related to newborn jaundice, which typically doesn’t show up during the first 3 days of life.

A recent study supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00034) found that the 750 healthy infants sent home less than 30 hours after birth were 34 percent more apt to be readmitted to the hospital for jaundice within the first 2 weeks of life than the 3,192 healthy infants discharged 30 to 78 hours after birth, after adjusting for other factors affecting risk of jaundice.

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Longer hospital stays for newborns

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On the other hand, there was no difference in how long the readmitted infants stayed in the hospital or risk of jaundice-related complications between early and late-discharge infants. In fact, the clinical significance of these readmissions was limited. Based on a 2.5 percent prevalence of jaundice in the healthy infants studied, 122 infants would have to remain in the hospital for longer than 30 hours to avoid one jaundice readmission. Thus, mandating longer neonatal stays (for example, current State and Federal laws mandating insurance coverage for 48-hour maternal and infant stays) may not be the most effective way to prevent hospital readmission for jaundice and its complications.

Instead, facilitating a safe transition from the hospital to the home and providing adequate support for early-discharge infants may be both medically and economically beneficial, conclude the University of Washington researchers. Led by Jacqueline Grupp-Phelan, M.D., M.P.H., currently with Children's Hospital Medical Center in Cincinnati, they used Washington State vital statistics data, birth data, and hospital discharge data from 1991 to 1995 to analyze the relationship between time of neonatal discharge and hospital jaundice readmission.

See "Early newborn hospital discharge and readmission for mild and severe jaundice," by Dr. Grupp-Phelan, James A. Taylor, M.D., Lenna L. Liu, M.D., M.P.H., and Robert L. Davis, M.D., M.P.H., in the December 1999 *Archives of Pediatric and Adolescent Medicine* 153, pp. 1283-1288. ■

Barriers to quality cancer care persist

Every year, millions of men and women in the United States undergo cancer screening, 1.2 million develop cancer, and more than 550,000 die from it. Unfortunately, access to quality cancer care remains a problem, according to a recent review of research studies. The review was led by Jeanne S. Mandelblatt, M.D., M.P.H., of Georgetown University Medical Center, and supported in part by the Agency for Healthcare Research and Quality (HS08395).

Key patient barriers to cancer care include old age, minority race, and low socioeconomic class. Physicians who are not trained or are ill-prepared to communicate the complexities of cancer care to diverse patient populations pose additional barriers to care. Finally, constraints of the medical care system can impede delivery of care. It still is not clear whether the growth of managed care will constitute another barrier or be a facilitator to smooth access to care, according to Dr. Mandelblatt.

For the review, Dr. Mandelblatt and colleagues analyzed studies

from 1980 to 1998 on access to cancer care, from initial screening, diagnosis, and staging to treatment, ongoing surveillance to detect recurrences, and end-of-life care. They used adapted behavioral models of care access, with patient-provider and provider-provider communication as key model components. The studies uncovered examples of barriers to care. For example, patients without private insurance received surgery for non-small-cell lung carcinoma less often than privately insured patients, and the rates of bone marrow transplantation for treatment of patients with leukemia or lymphoma were 34 to 50 percent lower for self-pay and Medicaid patients compared with privately insured patients.

Beyond insurance inequalities, economically and socially disadvantaged patients had as much as a 60 percent lower chance of survival for breast cancer compared with more advantaged patients. There was a similar pattern for patients with multiple myeloma, lung cancer, and prostate cancer. Minority patients were more apt to

be diagnosed at advanced stages of the disease than whites, receive suboptimal cancer treatment, and have lower survival rates. Physician barriers ranged from screening biases and lack of culturally sensitive resources to time constraints and conflicting professional recommendations. Finally, medical system barriers ranged from financial disincentives to provide cancer care and inadequate tracking mechanisms to limited regional resources.

The authors conclude that additional research is needed to develop and test interventions to overcome remaining barriers. They also recommend that national and local data collection infrastructures be enhanced to measure changes in access and the impact of barriers on outcomes of care, including intermediate markers of cancer morbidity and mortality.

See "Equitable access to cancer services: A review of barriers to quality care," by Dr. Mandelblatt, K. Robin Yabroff, M.B.A., and Jon F. Kerner, Ph.D., in *Cancer* 86, pp. 2378-2390, 1999. ■

Providing a written appointment for followup care improves visit compliance among patients after hospital discharge

Increasingly shorter hospital stays have heightened the importance of followup medical visits after hospital discharge. Unfortunately, overburdened public hospitals and health care systems sometimes do not provide patients with written followup appointments at the time of discharge. Yet patients who are provided with written followup appointments are over three times more apt to make these medical visits than those without written appointments, concludes a study supported by the Agency for Healthcare Research and Quality (HS08093) and coauthored by Carolyn M. Clancy, M.D., Director of AHRQ's Center for Outcomes and Effectiveness Research.

Researchers led by Catarina I. Kiefe, Ph.D., M.D., of the University of Alabama at Birmingham, interviewed 372 patients admitted to a public hospital during hospitalization and after discharge, searched the hospital's electronic databases, and reviewed medical charts to identify factors related to compliance with postdischarge medical visits. Of the 344 patients who were discharged from the hospital with a followup appointment, 64 percent kept their first appointment. Appointment-keeping was directly associated with receiving a written appointment at the time of

discharge. The patients were predominantly young (average age of 48), black, and uninsured.

The most common single reason given by patients who missed their appointments was not knowing about the appointment. Even though hospital policy mandated that patients receive written confirmation of followup appointments at the time of discharge, this did not happen in 19 percent of cases. Another disturbing finding was the 14 percent no-show rate among those who had an appointment scheduled at the time of hospital discharge. Face-to-face reinforcement of the importance of keeping appointments or telephone reminders preceding them might further increase compliance with posthospitalization followup. As noted by the researchers, facilitating access to followup appointments may decrease hospital readmissions.

More details are in "Compliance with post-hospitalization follow-up visits: Rationing by inconvenience?" by Dr. Kiefe, Gustavo Heudebert, M.D., J. Brent Box, M.D., and others, in the Autumn 1999 *Ethnicity and Disease* 9, pp. 387-395. Reprints (AHRQ Publication No. 00-R015) are available from AHRQ.** ■

Case managers help people with HIV obtain home health care, emotional counseling, and other support services

People who are infected with the human immunodeficiency virus (HIV) that causes AIDS need a number of supportive services in addition to medical care. These range from insurance benefits advocacy, housing, and home health care to emotional counseling and substance abuse treatment. These services can both prevent hospitalizations and enhance quality of life. Patients with the most intensive contact with their case managers (once or twice a month) are least apt to have unmet needs for home health care, emotional counseling, and other support services, according to a study supported by the Agency for

Healthcare Research and Quality (HS08578).

The study found that of 2,832 HIV-infected adults receiving care, 67 percent needed at least one supportive service, and 27 percent had an unmet need for at least one service in the previous 6 months. Sixty percent of patients had case managers. Case managers are social workers, nurses, AIDS service organization staff members, or anyone else assigned to help patients get and coordinate care. Those who had case managers were 61 percent less apt to go without needed home care, half as likely to go without needed emotional counseling, and 30 percent less

apt to have any unmet need. In fact, more frequent contact with a case manager, such as once or twice a month, in the previous 6 months was significantly associated with even fewer unmet needs for services.

These findings are based on analysis of the HIV Cost and Services Utilization Study (HCSUS), a national probability sample of HIV-infected adults drawn from U.S. medical providers randomly selected from metropolitan and rural counties. The study was conducted by co-principal investigators Martin F. Shapiro, M.D., Ph.D., of Brown

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University, and Samuel A. Bozzette, M.D., Ph.D., from the University of California, Los Angeles and RAND Corporation,

first author Mitchell H. Katz, M.D., of the San Francisco Department of Public Health, and their colleagues.

See "Prevalence and predictors of unmet need for supportive services among HIV-infected persons: Impact of case

management," by Dr. Katz, William E. Cunningham, M.D., M.P.H., Vincent Mor, Ph.D., and others, in the January 2000 *Medical Care* 38(1), pp. 58-69. ■

Nursing Research

Researchers are studying the relationship between nurse staffing levels and nursing-sensitive patient outcomes

The many financial pressures placed on hospitals as well as the drive to use outpatient care whenever possible have resulted in fewer nurses taking care of more severely ill patients during ever shorter hospital stays. What's more, nonprofessional and unlicensed personnel such as nurse's aides are replacing registered nurses (RNs) in patient care roles at many hospitals. These developments are at the root of widely reported concerns that the workload of RNs is increasing, jobs are disappearing, morale is declining, and quality of care is worsening. Concerns about hospital quality of care led California to enact legislation in October 1999

that set mandatory hospital nurse staffing levels.

Despite such concerns about the impact of reductions in staffing levels on the quality of hospital care, there has been little evidence linking changes in the hospital nurse workforce to potentially adverse effects on patient outcomes. This research issue is now being addressed by eight federally funded studies, which are summarized in a recent paper by Peter I. Buerhaus, Ph.D., R.N., F.A.A.N., and Jack Needleman, Ph.D., of Harvard University, whose work is supported by the Agency for Healthcare Research and Quality (HS09958). Once completed, these studies, which

include four supported by AHRQ, should provide a richer understanding of which patient outcomes, both good and bad, are in fact sensitive to nursing. This, in turn, will enable hospital administrators to better understand the consequences of restructuring and staffing decisions and how different organizational models of nursing affect outcomes.

For more information, see "Policy implications of research on nurse staffing and quality of patient care," by Drs. Buerhaus and Needleman, in the March 2000 *Policy, Politics, and Nursing Practice* 1(1), pp. 5-15. ■

AHRQ News and Notes

National Guideline Clearinghouse more than triples in size

The National Guideline Clearinghouse (NGC) has more than tripled in size since its launch just over 1 year ago and now offers instant access to over 700 evidence-based clinical practice guidelines, related summaries, and other materials. With over 1.1 million visitor sessions and 20 million hits to date, the NGC (located on the Internet at <http://www.guideline.gov>) has proven to be a valuable

resource for physicians, nurses, and other health care professionals.

Developed by the Agency for Healthcare Research and Quality in partnership with the American Medical Association (AMA) and the American Association of Health Plans (AAHP), the NGC is an Internet-based resource that enables health care professionals to

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National Guideline Clearinghouse

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compare clinical recommendations more quickly than ever before. Updated continually, the NGC contains guidelines submitted by 125 health care organizations, associations, medical societies, and Federal agencies.

The site provides an easily accessible and comprehensive source of clinical guidelines, saving users hours of researching to find similar information.

The NGC provides comprehensive information through both simple and detailed search options, along with the ability to browse by disease, treatment or intervention or the name of the submitting organization. In addition, the NGC database offers a feature that allows the user to create tabular

comparisons of guideline summaries. It also contains syntheses of guidelines covering similar topics, noting areas of agreement and disagreement. Additionally, users can instantly find out what has been recently added to the NGC by clicking on the "What's New" feature icon.

AHRQ encourages organizations to submit guidelines for inclusion in the NGC. The inclusion criteria, as well as information on how to submit guidelines, are available on the site by clicking on "About NGC" in the upper right hand corner of each Web page. Or, for further information on the NGC, send an e-mail message to info@guideline.gov or call Jean Slutsky, NGC Project Officer, AHRQ, at 301-594-4042. ■

AHRQ releases nation's most current hospital discharge data

The Agency for Healthcare Research and Quality has released the 1997 Nationwide Inpatient Sample (NIS), the most current publicly available national database of hospital inpatient care use, outcomes, and charges on all patients for all payment sources. This newest NIS release includes hospital discharge information from approximately 7 million inpatient stays at over 1,000 hospitals in 22 States nationwide.

This data set provides researchers with an evidence base to understand patterns of hospitalization by Americans as a whole or by specific groups, such as children and the elderly, and to assess outcomes as well as hospital charges. The NIS is the only publicly available database that includes charge information from all payers (Medicare, Medicaid, private insurers) as well as data on the uninsured.

Like previous releases, the 1997 NIS contains more than 100 clinical and nonclinical variables, including: principal and secondary diagnoses and procedures; patient demographic characteristics such as sex, race, and median income; payment source; length of stay; total charges; and discharge status. The large size of the database permits analysis of rare conditions, such as congenital anomalies, and studies of infrequent procedures, such as organ transplantation. For researchers who want to analyze trends, NIS data sets are available for 1988 through 1997.

The NIS can be linked with databases containing county-level information, such as the Bureau of Health

Professions Area Resource File, a database of the U.S. Health Resources and Services Administration. The NIS also can be linked with descriptive hospital data from the American Hospital Association's Annual Survey of Hospitals.

The data set can be run on desktop computers and comes in ASCII format for ease of use with numerous off-the-shelf products, including SAS and SPSS. NIS also includes weights for producing national and regional estimates and comes with full documentation in Adobe Acrobat. SAS and SPSS users are provided programs for converting ASCII files.

The data set is part of a family of products produced by the Healthcare Cost and Utilization Project (HCUP), a Federal-State-industry partnership sponsored by AHRQ. A key goal of the partnership is producing standardized, high-quality data that measure and evaluate changes in the health care system.

The 1997 NIS is available on CD-ROM with accompanying documentation for \$160 from the National Technical Information Service (NTIS accession no. PB2000-500006).***

Go to www.ntis.gov/fcpc/hcupagreement.htm to order earlier NIS releases online from the NTIS Web site. To preview the NIS online, go to the HCUPNet Web site at <http://www.ahrq.gov/data/hcup/> and select "HCUPnet" under "What's New." ■

AHRQ announces new grant opportunities in health services research education

The Agency for Healthcare Research and Quality has made a major commitment to nurture the next generation of health services researchers. In line with this goal, AHRQ has announced support for the following three career development awards.

Predoctoral Fellowship Awards for Minority Students. AHRQ is cosponsoring a grant program with the National Institutes of Health aimed at increasing the number of health care researchers from minority populations, including blacks, Hispanics, American Indians, and Alaska Natives/Pacific Islanders. The goal of the program is to bring racial/ethnic diversity to the health care research community.

The program—the NIH Pre-Doctoral Fellowship Awards for Minority Students (F31)—provides up to 5 years of stipend and partial tuition support for health care research training leading to a Ph.D. (or equivalent) research degree or a combined M.D./Ph.D. degree. There is no payback requirement.

The two application receipt dates for 2000 are May 1 and November 15, and the corresponding earliest start dates for successful applicants are September 1, 2000 and May 1, 2001. The predoctoral fellowship awards for minority students provide:

- An annual stipend of \$15,060 (for FY 2000). This amount may be increased in future years.
- Partial support for the combined cost of the student's tuition, fees, and health insurance (the first \$3,000 and 60 percent of remaining costs).
- An institutional allowance of \$2,500 per 12-month period to help defray the awardee's expenses.

Mentored Clinical Scientist Development Awards. Mentored Clinical Scientist Development Awards (KO8) are intended to foster career development of promising new investigators in the field. These individual awards will provide support for the development of outstanding clinician research scientists with a

clinical doctoral degree, who have identified a mentor and will spend a minimum of 75 percent of a full-time effort developing their research careers. Awards will provide 3 to 5 years of support. Receipt dates for applications submitted in response to the KO8 Program Announcement are February 1, June 1, and October 1 each year.

Independent Scientist Awards. Independent Scientist Awards (KO2) also are intended to foster career development of new investigators in the field. Individual awards will support newly independent scientists with either a clinical or a research doctoral degree who can demonstrate the need for a period of intensive research focus. Receipt dates for applications submitted in response to the KO8 Program Announcement are February 1, June 1, and October 1 annually.

For more information on these three training programs, visit AHRQ's Web site at www.ahrq.gov and click on "Funding Opportunities/Research Training Assistance." ■

AHRQ to cosponsor second annual meeting for child health services researchers

The Agency for Healthcare Research and Quality is cosponsoring the Second Annual Child Health Services Researchers Meeting: The Role of Partnerships (CHSR 2000), to be held in conjunction with this year's meeting of the Association for Health Services Research in Los Angeles, CA. CHSR 2000 will build on the success of last year's CHSR meeting which attracted over 200 participants. CHSR 2000 will be held June 27 from 12:30 to 6:00 p.m., at the Westin

Bonaventure Hotel, the main hotel for the AHSR meeting.

In addition to AHRQ, other cosponsors for CHSR 2000 are the Ambulatory Pediatric Association, the American Academy of Nursing, the American Academy of Pediatrics, the Health Resources and Service Administration's Maternal and Child Health

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Child health meeting

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Bureau, and the National Association of Children's Hospitals and Related Institutions.

CHSR 2000 will open with a plenary luncheon, followed by eight breakout sessions. Two of the breakout sessions will focus on getting started in CHSR and cover grantsmanship and other aspects of

CHSR career-building. Another two sessions will focus on advanced methods in CHSR. Four other sessions will address social inequalities and their implications for CHSR and children's health care, errors in pediatric medicine, adolescent health services research, and children's mental health and health services research.

Registration for CHSR 2000 is \$70. To register, visit AHSR's Web site at www.ahsr.org/2000/registration.htm. For updated information on CHSR 2000, visit AHRQ's Web site and click on the Child Health button. Or, you may send an e-mail to Joyce Garrison at jgarriso@ahrq.gov, or kbastian@ahsr.gov. ■

Correction. The January 2000 issue of *Research Activities*, page 7, included the article "Back pain study examines pain intensity and functioning." Although the article correctly attributed AHRQ support for Richard A. Deyo, M.D., in his work on the project, it was misleading in its attribution of roles and support. The major funding for the Veterans Health Study and this analysis came from the Health Services Research and Development Program of the Veterans' Health Service. Xinhua Ren, Ph.D., was the lead investigator for this particular study, and Lewis Kazis, Ph.D., was the director of the parent Veterans Health Study. Drs. Ren and Kazis are based at the Center for Health Quality, Outcomes, and Economic Research (an HSR&D field program), Veterans Administration Medical Center, Bedford, MA. ■

Announcing a New, Enhanced HCUPnet

If you are a policymaker who needs access to hospital statistics, point your Web browser to the new and expanded HCUPnet (www.ahrq.gov/data/hcupnet.htm), a free, interactive online service for identifying, tracking, analyzing, and comparing statistics on hospital care collected by the Healthcare Cost and Utilization Project. National and regional data in HCUPnet are derived from the 1997 HCUP Nationwide Inpatient Sample, the largest all-payer inpatient database in the United States.

Who should investigate HCUPnet:

- Federal and State policymakers
- Health policy analysts
- Health program administrators
- Hospital and health plan analysts
- Health services researchers

Key features of HCUPnet include:

Choice of data from a national sample or participating State database (as of February 2000, participating states are Arizona, California, Colorado, Florida, Iowa, Massachusetts, New Jersey, Oregon, South Carolina, and Washington).

Searching on user-defined subset of inpatient stays (all stays, principal diagnoses, or principal procedures).

Selection of desired outcomes and measures.

Selection of one or a comparison of two or more patient groups by age, sex, insurance status, or median income of patient's ZIP code.

Analysis of one or comparison of two or more hospital types by ownership, teaching status, location, bedsize, and geographic region.

Possible uses of HCUPnet include:

Profile hospital utilization patterns of Medicaid clients.

Determine the percentage of births not covered by public or private insurance and whether outcomes are different for uninsured and insured births.

Track the frequency of hospitalizations for certain rare conditions, such as sickle cell anemia, or uncommon procedures, such as organ transplants.

Compare the diffusion of new hospital technologies across teaching versus nonteaching hospitals or across States.

For more information:

For more information on enhancements to HCUPnet as well as HCUP databases, software tools, and other products, send your questions via e-mail to hcup@ahrq.gov or visit AHRQ's Web site at www.ahrq.gov and select "Data."

Ordering Information

AHRQ makes documents available free of charge through its publications clearinghouse and AHRQ InstantFAX. Other AHRQ documents are available from the National Technical Information Service (NTIS) or the Government Printing Office (GPO). To order AHRQ documents:

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