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Research Activities

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Highlights

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Risk of bleeding is low in elderly nursing home stroke survivors taking aspirin and warfarin

Prevalence of stroke increases with age and often requires nursing home placement in the 5-year period following a stroke. Medications that reduce the risk of stroke and prevent blood thickening and coagulation are underused among nursing home residents, in part due to physician fears that they might cause internal bleeding from overthinning of the blood. However, a recent study concludes that the risk of internal bleeding associated with the use of these medications is small.

In the study, which was supported by the Agency for Healthcare Research and Quality (HS11256), Brown University researchers analyzed Medicare claims data from 1992 to 1997. They compared first hospitalizations for bleeds among elderly stroke survivors (3,433 cases) with stroke survivors not hospitalized for bleeding (13,506 controls) residing within the same nursing home during the same year and quarter.

Stroke survivors who used aspirin (an antiplatelet), the anticoagulant warfarin, or a combination of antiplatelet and anticoagulant agents had a slightly increased likelihood of hospitalization for an adverse bleeding event (1.07, 1.26 and 1.34 times higher, respectively) than nonusers, after controlling for other known risk factors for bleeding. The majority of the combination therapy group took aspirin and warfarin (38 percent) or aspirin and ticlopidine (55 percent) in combination.

The researchers calculated that about 467 people needed to be treated with aspirin for one person to be hospitalized for bleeding (126 with warfarin and 96 with combination therapy). The risk of experiencing an adverse bleed was elevated in both high- (more than 325 mg/d) and low-dose (325 mg/d or less) aspirin. Since warfarin underdosing was probable in the sample, the risk of hospitalization for bleeding from warfarin may be higher with more aggressive treatment regimens. Concurrent use of nonsteroidal antiinflammatory drugs, antibiotics, and gastrointestinal protectants were more prevalent in those hospitalized for bleeding than in controls.

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Stroke prevention

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For more information, see "Effect of antiplatelet and anticoagulant agents on risk of hospitalization for bleeding among a population of elderly nursing home stroke survivors," by Brian J. Quilliam, Ph.D., Kate L. Lapane, Ph.D., Charles B. Eaton, M.D., M.S., and Vincent Mor, Ph.D., in the October 2001 *Stroke*, pp. 2299-2304. ■

Women's Health

First-time mothers who have unassisted deliveries fare better than those who have c-sections or assisted vaginal deliveries

Of the nearly 4 million deliveries in the United States in 1996, 22 percent were by cesarean, 14 percent were vaginal deliveries assisted by forceps or vacuum extraction, and 64 percent were spontaneous vaginal deliveries. A new study reveals that first-time mothers who had cesarean or assisted vaginal deliveries had significantly lower general health and functioning 7 weeks postpartum than women who had unassisted vaginal delivery. In fact, women with assisted vaginal deliveries reported substantially worse sexual, bowel, and urinary functioning than women with spontaneous vaginal deliveries. This information should help doctors advise women about what to expect in the postpartum recovery period, given their delivery method, conclude the researchers from the University of Washington in Seattle.

In a study that was supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00034), the researchers analyzed data from a survey of maternity care at 10 hospitals in Washington State of women giving birth for the first time to a single infant in 1991. Compared with women who had c-sections, more women with unassisted vaginal delivery said they had no limitation when performing vigorous activities, such as running, lifting heavy objects, and participating in strenuous sports (65 vs. 45 percent); had no difficulty doing normal household tasks (50 vs. 34 percent); had excellent general health (32 vs. 20 percent); and had no limitations in social activities in the past month (56 vs. 45 percent).

Significantly more women with assisted vaginal delivery said they had not resumed sexual activity compared with women who had an unassisted vaginal delivery (40 vs. 29 percent) and suffered from bowel or urinary tract problems that interfered with their daily activities (50 vs. 40 percent). The mechanical trauma accompanying assisted vaginal delivery may have contributed to these women's problems following childbirth, note the researchers. They suggest that doctors should selectively substitute vacuum extraction for forceps, restrict use of episiotomy, and use more effective suture techniques and other methods to minimize the mechanical trauma of assisted vaginal delivery to improve the postpartum functioning of these women.

See "Delivery method and self-reported postpartum general health status among primiparous women," by Mona T. Lydon-Rochelle, Ph.D., M.P.H., Victoria L. Holt, Ph.D., M.P.H., and Diane P. Martin, Ph.D., M.A., in the July 2001 *Paediatric and Perinatal Epidemiology* 15, pp. 232-240. ■

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AHRQ
Office of Health Care Information
2101 East Jefferson Street, Suite 501
Rockville, MD 20852
(301) 594-1364

Mary L. Grady, Managing Editor
Gail Makulowich, Contributing Editor
Joel Boches, Design and Production
Karen Migdail, Media Inquiries

HPV testing should be added to cervical cancer screening of HIV-positive women

Women who have HIV infection are at greater risk for being infected with the human papillomavirus (HPV) and precursor lesions of cervical cancer than women without HIV. In fact, persistent HPV infection (with high-risk types of HPV) has been strongly linked to development of both cervical precancerous lesions and cervical cancer.

The currently recommended cervical cancer screening policy in HIV-infected women could be made more efficient by adding an HPV test to the first two Pap smears for HIV-infected women within the year after HIV diagnosis and modifying subsequent screening intervals based on HPV test results. This targeted screening strategy would be effective and cost effective and is a simple modification to existing guidelines, according to a study supported in part by the Agency for Healthcare Research and Quality (HS07317).

The researchers estimate that in HIV-infected women on antiretroviral therapy, cervical cytology screening via Pap smears every 6 months for women with detectable HPV DNA and annual screening for all others would cost $10,000 to $14,000 per quality-adjusted life year gained, compared with no screening. This targeted screening strategy capitalizes on the high negative predictive value of a negative HPV test, allowing those women who are at lower risk of cancer to be stratified to less aggressive strategies.

A universal screening strategy consisting of annual Pap smears for all women (with no HPV testing) was 15 percent less effective and had a less attractive cost-effectiveness ratio. Targeted screening may be most beneficial for those HIV-infected women at particularly high risk for loss to followup, since efforts and resources to improve adherence to more frequent preventive and gynecologic care could be targeted to those at greatest risk for high-grade lesions and cancer (i.e., detectable HPV), explains Sue J. Goldie, M.D., M.P.H., of the Harvard School of Public Health.

Dr. Goldie and her colleagues developed a theoretical model to simulate the natural history of cervical cancer precursor lesions in HIV-infected women. The model incorporated data from prospective cohort studies, national databases, and published literature and was used to calculate quality-adjusted life expectancy, life expectancy, lifetime costs, and cost-effectiveness of targeted screening and universal screening. Probabilities of progression and regression of cervical lesions were conditional on transient or persistent infections with HPV, as well as stage of HIV and effectiveness of antiretroviral therapy.

See "Cost effectiveness of human papillomavirus testing to augment cervical cancer screening in women infected with the human immunodeficiency virus," by Dr. Goldie, Kenneth A. Freedberg, M.D., M.Sc., Milton C. Weinstein, Ph.D., and others, in the August 1, 2001 *American Journal of Medicine* 111, pp. 140-149. ■

Also in this issue:

Nonmotor symptoms of Parkinson's Disease are common but frequently overlooked by physicians

Parkinson's Disease (PD) is a slowly progressive, degenerative, neurologic disorder that destroys certain neurons and depletes the neurotransmitter dopamine. It usually strikes adults over the age of 60, but it may affect younger people, especially following acute encephalitis or carbon dioxide, metallic, or other poisoning. People with PD typically have motor symptoms of tremor, muscle rigidity, and bradykinesia (slowed or minimal movement). Other motor symptoms often associated with PD include poorly articulated speech, a shuffling gait and stooped posture, and loss of facial expression that creates the appearance of apathy and depression (masked face).

These patients suffer from nonmotor symptoms as well, which are frequently overlooked by physicians, according to a recent review of the disease by Andrew Siderowf, M.D., of the Parkinson's Disease and Movement Disorders Center, University of Pennsylvania, whose work is supported by the Agency for Healthcare Research and Quality (K08 HS00004). In many cases, neuropsychiatric disturbances are a highly disabling aspect of the disease. Dementia troubles from 20 to 30 percent of patients, and depression afflicts 30 to 60 percent of PD patients at some point. Sensory symptoms such as numbness, aching, tingling, and muscle soreness are reported by up to 40 percent of PD patients. Other nonmotor symptoms range from sleep disturbances to sexual dysfunction and urinary incontinence.

Increasing age is the strongest risk factor for PD, with only 5 per 100,000 people under age 40 affected compared with 700 per 100,000 of those over age 70, with a modestly increased risk for men. Surprisingly, being a smoker and heavy coffee drinker seems to reduce the risk of developing PD. There is sufficient rationale for studies into the role of caffeine, and the adenosine neurotransmitter system (the site of action of caffeine) in the pathogenesis of PD. Although currently available evidence suggests that most cases of PD do not have a major genetic component, studies of families with defined genetic defects have produced insights with relevance for sporadic as well as familial PD.

See "Parkinson's Disease: Clinical features, epidemiology, and genetics," by Dr. Siderowf, in the August 2001 *Neurologic Clinics* 19(3), pp. 565-578. ■

Primary care staff and clinician-family relationships are critical elements in efforts to improve quality of care

A growing number of family practice and other primary care doctors are being asked to deliver better quality services with fewer resources. As a result, many practices fall short in delivery of preventive, chronic disease, and mental health services. Hiring primary care staff to meet clinical goals and not just economic goals (collaborative care model) has been proposed as one way to achieve better quality primary care services.

A recent study revealed that family practices often used non-nurses to perform patient care duties, and that staff roles were determined primarily by local needs and physician expectations rather than by education, training, or licensure. A second study found that the current environment does not encourage long-term relationships between physicians

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Primary care roles

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and family members that are necessary to develop the kind of family knowledge and connectedness that could improve family health.

These two studies were based on month-long field observations at 18 Nebraska family practices, including observations of 1,637 clinical encounters and in-depth interviews with practice staff and physicians. Both studies were led by Benjamin F. Crabtree, Ph.D., of the Robert Wood Johnson Medical School, and supported by the Agency for Healthcare Research and Quality (HS08776).

Aita, V., Dodendorf, D.M., Lebsack, J.A., and others. (2001, October). "Patient care staffing patterns and roles in community-based family practices." ***Journal of Family Practice*** **50(10), available online at www.jfponline.com.**

Family practices employ a broad range of nursing and non-nursing staff, including registered nurses, licensed practical nurses, certified medical assistants, radiology technicians, and trained and untrained medical assistants. Each profession requires tailored educational preparation for specific patient care roles. However, according to this study, the responsibilities given to patient care staff often were not tied to professional training, and many non-nurses were cross-trained to perform patient care.

The staffing patterns among the 18 family practices studied varied greatly, with most practices employing at least one registered nurse (10 of 18), licensed practical nurse (5), or both (4). Nevertheless, the majority of practices used non-nursing personnel as the predominant patient care staff. Competitive health care market forces may have led many practices to seek less expensive help to provide patient care. This could have resulted in many traditional nursing roles being performed by non-nursing patient care staff, whose training was too limited in scope to enhance and contribute flexibly to recommendations for collaborative care, according to the researchers.

Family practices should formalize expectations of staff to reflect training and experience and explicitly configure staff to meet the needs, values, and goals of the practice, suggest the researchers. In this study, only two practices had strategic matching of staff with the goals of the practice. Most of the practices tried to get by with the minimum educational preparation and number of staff members, which seems to be tied to economic returns. Clinicians should heed collaborative care models that recommend enhancing quality of care by hiring staff trained to meet clinical goals and not just economic goals, conclude the researchers.

Main, D.S., Holcomb, S., Dickinson, P., and others. (2001, October). "The effect of families on the process of outpatient visits in family practice." ***Journal of Family Practice*** **50(10), available online at www.jfponline.com.**

This study demonstrated that physician knowledge of family context gained from the care of multiple family members over time improves the quality of medical decisions. The current environment does not encourage long-term relationships between physicians and family members that are necessary to develop the kind of family knowledge and connectedness shown by the physicians observed in this study, note the researchers. They found that family context clearly affected outpatient visits at the 18 family practices studied.

In many ways, the doctor treated the family, not just the patient. For example, one doctor took the opportunity to discuss the effect of a mother's smoking habit and passive smoke on her infant, who had developed asthmatic bronchitis. In another case, knowing that a patient's child had died in a car accident enabled a doctor to make the connection between a patient's not taking his heart medications and depression over his daughter's death. Thus, the physician was able to counsel the patient appropriately.

Of the 1,600 patient encounters analyzed, 58 percent were family-oriented in some way. Patients were accompanied during 35 percent of all outpatient visits, with the vast majority of these visits involving children. Family history or a family member's problems were discussed during 23 percent of all visits, even when no family member was present.

By analyzing these "family-oriented" visits, the researchers identified six ways that family context informed and affected the outpatient visit: 1) illuminated patient disease, illness, and health; 2) helped identify the source of a patient's disease; 3) focused attention on the health and illness of family members; 4) demonstrated family concern for a patient's health; 5) involved the family as a care resource and care collaborator; and 6) prompted a family member to receive unscheduled care. ■

Six percent of blunt trauma patients seen in the ER have injuries to the thoracolumbar spine

About 6 percent of more than 2,400 blunt trauma patients seen at a trauma center over the course of a year who had x-rays of the thoracolumbar (TL) spine had injuries to that area. The most common site of injury in this study was the thoracolumbar junction. Nearly half (44 percent) of patients with an injury of one thoracolumbar vertebra also had a second injury, and a third of patients with multiple injuries had discrete (noncontiguous) injuries. Therefore, emergency department doctors who see one injury to the TL spine should carefully search for other injuries, not only near the site of the initially identified injury, but throughout the entire TL spine, suggests principal investigator William R. Mower, M.D., Ph.D., of the University of California, Los Angeles School of Medicine.

In a study that was supported in part by the Agency for Healthcare Research and Quality (HS08239), Dr. Mower and his colleagues evaluated the prevalence, distribution, and demographics of TL spine injuries among 2,404 blunt trauma patients who underwent TL spinal x-rays at one trauma center. The thoracolumbar junction—the transition zone from thoracic to lumbar vertebrae and a fragile area for several reasons—was the most common site of injuries. Among the 6.3 percent of patients with vertebral injuries, 16.2 percent occurred at lumbar vertebra 1 (L1), 14.6 percent at L2, 11.1 percent at L3, and 10.4 percent at thoracic vertebra 12 (T12), making these the most commonly injured vertebrae.

Over half (52 percent) of injuries to the thoracic spine were compression fractures, while transverse process fractures (48 percent) were the most common injuries to the lumbar spine. Injuries were most common (34 patients) in those aged 30-39 years and were least common (12 patients) in those under 18 years. A smaller peak in injuries occurred in those aged 70-79 years.

Previous studies of TL spine injury, which focused only on special populations and did not reflect the pattern of injuries seen in the ED, were of limited use to ED physicians.

More details are in "Epidemiology of thoracolumbar spine injury in blunt trauma," by James F. Holmes, M.D., Paul Q. Miller, B.ScH., Edward A. Panacek, M.D., and others, in the September 2001 *Academic Emergency Medicine* 8, pp. 866-872. ■

Researchers examine anemia, dialysis methods, and nephrologist referral among patients with kidney disease

Four studies supported in part by the Agency for Healthcare Research and Quality recently examined health issues confronting individuals who suffer from chronic renal insufficiency (CRI) and acute renal failure (ARF). The first study (National Research Service Award fellowship F32 HS00143) reveals that CRI patients typically develop anemia long before they reach end-stage renal disease (ESRD), but management of this anemia is suboptimal even among nephrologists. A second study (HS08365) finds that early referral of CRI patients to a nephrologist reduces their risk of hemodialysis-related complications.

A third study (HS09398) shows that late referral to a nephrologist, considered common enough to be a public health problem, does not influence the type of dialysis treatment patients receive, but it may influence switching from the less costly peritoneal dialysis to more costly hemodialysis. A fourth study (HS06466) suggests that continuous hemodialysis, a new alternative to intermittent hemodialysis (IHD), does not improve survival of ICU patients with acute renal failure over IHD, but study limitations suggest the need for more research. All four studies are described here.

Kazmi, W.H., Kausz, A.T., Khan, S., and others. (2001, October). "Anemia: An early complication of chronic renal insufficiency." *American Journal of Kidney Diseases* 38(4), pp. 803-812.

Individuals apparently develop severe anemia (hematocrit [Hct] less than 30 percent) early in the

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course of CRI and long before they develop ESRD. Treatment of anemia with recombinant human erythropoietin (rHuEPO) and supplemental iron can improve left ventricular hypertrophy and reduce hospitalizations for congestive heart failure among patients with CRI and ESRD. Unfortunately, management of this type of anemia is suboptimal, even among patients under the care of nephrologists. Doctors clearly need to be educated about anemia management of patients with CRI, conclude these researchers.

They retrospectively studied 605 adults with elevated serum creatinine levels indicative of CRI (greater than 1.5 mg/dL in women and 2.0 mg/dL in men) in nephrology practices in the Boston area to identify factors associated with severe anemia and examine anemia management practices in CRI patients. Anemia began early during the course of CRI and progressively worsened with deteriorating renal function. Even at serum creatinine levels less than 2 mg/dL, 45 percent of patients had an Hct less than 36 percent. By the time these patients were referred to a nephrologist, 59 percent had an Hct less than 36 percent and 15 percent had an Hct less than 30 percent. Moreover, anemia worsened during followup.

Among patients with severe anemia, only 11 percent and 27 percent were being administered rHuEPO and iron at the time of the first visit, and this figure increased to 55 percent and 44 percent during followup, respectively. Current guidelines for dialysis and predialysis patients recommend a target Hct for rHuEPO therapy between 33 percent and 36 percent. The fact that third-party payers often do not pay for rHuEPO before ESRD until the patient has an Hct less than 30 percent, and that many patients made few visits to the nephrologist, may partly explain low use of this drug.

Astor, B.C., Eustace, J.A., Powe, N.R., and others. (2001, September). "Timing of nephrologist referral and arteriovenous access use: The CHOICE study." ***American Journal of Kidney Disease*****s 38(3), pp. 494-501.**

Arteriovenous (AV) vascular accesses for hemodialysis provide greater blood flow rates than percutaneous dialysis catheters and are associated with much lower rates of blood clots, infection, and narrowing of blood vessels. For this reason, guidelines recommend placement of an AV vascular access (crafted natural portal or synthetic graft) before beginning chronic hemodialysis therapy to prevent the need for complication-prone dialysis catheters. Yet referral to a nephrologist within a few months of anticipated need for dialysis often allows insufficient time for adequate vascular-access preparation, demonstrating the need for much earlier referral, conclude the researchers. They examined the questionnaire responses and laboratory and medical record data collected for a nationally representative group of 356 ESRD patients.

The proportion of patients using an AV access at the beginning of hemodialysis therapy increased from 10 percent for those referred to a nephrologist less than 1 month, to 32 percent for those referred 1 to 4 months, 28 percent for those referred 4 to 12 months, and 46 percent for those referred more than a year before they began hemodialysis therapy. Similarly, patients referred to a nephrologist within a month of beginning hemodialysis used a dialysis catheter for a median of 202 days compared with 64, 67, and 19 days (probably just until AV access matured) for patients referred 1 to 4, 4 to 12, and more than 12 months before beginning hemodialysis therapy, respectively.

Patients referred at least 4 months before beginning hemodialysis were more likely than patients referred later to use an AV fistula, rather than a synthetic graft, as their first AV access (45 vs. 31 percent). These associations remained after adjustment for age, sex, race, education, insurance coverage, coexisting illness,

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underlying renal diagnosis, and other factors. Unfortunately, regardless of the time of referral, fewer than 33 percent of patients used an AV access at the initiation of hemodialysis, and more than 25 percent had not used an AV access 6 months after beginning hemodialysis. Factors other than timing of referral to a nephrologist may have a significant impact on the lack of timely AV-access creation in these patients.

Winkelmayer, W.C., Glynn, R.J., Levin, R., and others. (2001). "Late referral and modality choice in end-stage renal disease." ***Kidney International*** **60, pp. 1547-1554.**

This study found that choice of initial renal replacement therapy by patients with end-stage renal disease (ESRD) was not associated with timing of nephrologist referral, after accounting for patient clinical and sociodemographic characteristics. However, those referred to a nephrologist 3 months or less prior to beginning peritoneal dialysis (PD), which can be done at home and is less costly than hemodialyis (HD), were more likely than those referred earlier to switch from PD to HD within 6 months. Late referral of CRI patients to a nephrologist can impair educated choices and lead to inadequate preparation for PD. In addition to the cost savings associated with PD compared with HD, early referral may minimize or delay the costs when switching from PD to HD is necessary.

The researchers analyzed New Jersey Medicare/Medicaid claims data on all patients who started hemodialysis between 1991 and 1996 and were diagnosed with renal disease more than a year prior to hemodialysis. Of this group, 35 percent had their first nephrologist consultation 3 months or less prior to initiation of dialysis. After controlling for patient demographic characteristics, socioeconomic status, and underlying renal disease, age and race influenced the choice of initial treatment methods, but timing of the referral did not.

However, patients starting on peritoneal dialysis (PD) who were referred late were nearly 50 percent more likely to switch to hemodialysis (HD) than were patients who saw a nephrologist earlier. This effect was very pronounced in the first month of treatment but was not present in the following months. This suggests that some patients may have acclimated to PD as their treatment modality. On the other hand, perhaps because they did not have appropriate vascular access for HD, some patients may have started hemodialysis on PD to bridge the period until their fistula or graft was ready to use. In patients originally on HD, diabetic nephropathy and black race influenced the likelihood of switching to PD, but the timing of referral did not.

Mehta, R.L., McDonald, B., Gabbai, F.B., and others. (2001). "A randomized clinical trial of continuous versus intermittent dialysis for acute renal failure." ***Kidney International*** **60, pp. 1154-1163.**

Despite advances in intensive care unit (ICU) and dialysis technology over the past four decades, death rates due to acute renal failure (ARF) remain distressingly high, with in-hospital mortality rates ranging from 50 to 80 percent. The worldwide standard of care for ARF requiring dialysis in the ICU is intermittent hemodialysis (IHD). Continuous hemodiafiltration techniques, which have recently emerged as alternative therapies for these patients, do not improve their survival over IHD, according to this study.

However, this study did not control for other factors that might influence ARF outcomes such as nutrition support, hemodynamic support, timing of dialysis initiation, and dose of dialysis. Also, despite randomization, patients in the continuous therapy group were sicker, and more of them had liver failure than those in the IHD group. This could explain their higher mortality rates. More studies of larger groups of patients are needed to better compare the benefits of these two types of hemodialysis, conclude the researchers.

Their multicenter trial randomized 166 ICU patients with ARF to either IHD or continuous hemodiafiltration. Overall ICU and in-hospital mortalities were 50.6 and 56.6 percent, respectively. Continuous therapy was associated with more ICU deaths (59.5 vs. 41.5 percent) and in-hospital deaths (65.5 vs. 47.6 percent) than intermittent dialysis. Median ICU length of stay from the time of nephrology consultation was 16.5 days, and complete recovery of renal function was observed in 34.9 percent of patients, with no significant group differences. ■

NICUs vary in their use of vasopressors to stabilize blood pressure in very low birthweight infants

Very low birthweight (VLBW) infants, who weigh less than 3.3 pounds, are vulnerable to hypotension (very low blood pressure) and its associated clinical complications, such as intraventricular hemorrhage (IVH). Neonatal intensive care units (NICUs) often use vasopressor medications to raise blood pressure and increase cardiac contractility among hypotensive infants.

Despite the potentially severe consequences of low blood pressure, no widely accepted neonatal blood pressure standard has been defined. A new study that was supported by the Agency for Healthcare Research and Quality (HS07015) found that six NICUs in Massachusetts and Rhode Island cared for VLBW babies with varied prevalence of hypotension and hypertension and differed in their use of vasopressors to stabilize these infants.

The researchers evaluated differences in the prevalence of hypotension and hypertension among 1,288 VLBW infants admitted to six NICUs as part of an ongoing study of variations in outcomes of VLBW newborns. They recorded the lowest and highest mean blood pressures within the first 12 hours and the use of vasopressors within the first 24 hours of NICU admission, as well as the occurrence of IVH.

Two of the six NICUs had significantly higher percentages of infants with at least one hypotensive blood pressure, with prevalences of 24 to 45 percent. Hypotensive infants were significantly smaller, younger, and sicker than other infants. NICUs varied nine-fold in their use of vasopressors to treat infants, ranging from 4 percent at one NICU to 39 percent at another, a range that could not be explained by inter-NICU differences in birthweight, illness severity, or rates of hypotension. This may reflect specific NICU preferences for proactive versus reactive strategies (that is, treating before rather than after development of hypotension). Finally, the researchers found a borderline association between severe IVH and hypotension but not between severe IVH and hypertension.

See "Variations in prevalence of hypotension, hypertension, and vasopressor use in NICUs," by Issa Al-Aweel, B.S., DeWayne M. Pursley, M.D., M.P.H., Lewis P. Rubin, M.D., and others, in the *Journal of Perinatology* 21, pp. 272-278, 2001. ■

Rotavirus vaccine to prevent infantile gastroenteritis may not be as harmful as previously reported, but more studies are needed

Rotaviruses are the most common cause of severe gastroenteritis in infants and young children. In the United States, rotaviruses cause an estimated 50,000 pediatric hospital admissions and 20 deaths each year. In less developed countries, rotavirus is responsible for 600,000-800,000 deaths among infants and young children each year.

In 1998, a live attenuated rotavirus vaccine, Rotashield, was licensed in the United States to prevent gastroenteritis-related severe diarrhea in infants. However, it currently is unavailable due to safety concerns raised by the Centers for Disease Control and Prevention (CDC). The CDC reported that the vaccine increased the risk of intussusception by approximately 20-fold immediately following the first dose of vaccine compared with nonvaccinated infants.

A recent study conducted by researchers at the National Institute of Allergy and Infectious Diseases and the Agency for Healthcare Research and Quality was unable to detect an increase in hospital infant admission rates for intussusception in a period following introduction of the vaccine (October 1998 to June 1999) compared with a similar prevaccine period (October 1997 to June 1998). AHRQ researcher Anne E. Elixhauser, Ph.D., and her colleagues analyzed hospital discharge data from the Agency's Healthcare Cost and Utilization Project (HCUP) for 1993-1999 from 10 States, where an estimated 28 percent of infants had received Rotashield. They compared hospitalization rates for intussusception during pre- and

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postvaccination periods for infants younger than 12 months.

Overall infant hospitalizations for intussusception during the Rotashield period compared with the previous period was 4 percent lower (10 cases) by direct comparison and 10 percent lower (27 cases), after adjustment for trends, suggesting a negligible risk for the vaccine. Among infants aged 45-210 days (target age range for a first Rotashield dose), they estimated an increase in intussusception admissions of 1 percent (one excess admission) by direct comparison and 4 percent (4-6 excess admissions) by trend comparison, corresponding with a risk range of one excess admission in 66,000 to 302,000 infants. This contrasted with an expected increase of 23-100 percent based on CDC relative risk estimates. The authors suggest that this finding of a lower than expected risk of intussusception due to rotavirus vaccine should be considered in decisions to make the vaccine available, especially among populations at high risk for rotavirus infection. An extended study including 21 HCUP States will be completed in 2002.

More details are in "Effect of rotavirus vaccination programme on trends in admission of infants to hospital for intussusception," by L. Simonsen, Ph.D., D.M. Morens, M.D., Dr. Elixhauser, and others, in the October 13, 2001 *Lancet* 358, pp. 1224-1229. Reprints (AHRQ Publication No. 02-R016) are available from AHRQ.** ■

Dental sealants reduce the number of cavities and costs for cavity-prone, Medicaid-insured children

Dental sealants are typically placed on molar surfaces to prevent tooth decay, since molars are more prone to decay than other teeth. Children of low-income families are more likely to have decayed teeth than other children. Fortunately, all States now include sealants as a dental benefit for poor children enrolled in their Medicaid dental programs.

Dental sealants reduced the number of decayed tooth surfaces among Medicaid-insured children and had the most impact on children with more cavities before sealant placement. In addition, use of sealants saved Medicaid money for children prone to cavities, according to a study supported by the Agency for Healthcare Research and Quality (HS06993).

Medicaid and society will benefit by providing for sealant placement in cavity-prone children, concludes Gary Rozier, D.D.S., M.P.H., of the University of North Carolina, Chapel Hill. Dr. Rozier and his colleagues based their findings on assessment of the dental experiences of 15,438 children enrolled in the North Carolina Medicaid program from 1985 to 1992. They analyzed dental services for decay of permanent first molars (caries-related services involving the occlusal surface, CRSOs) and cumulative dental expenditures, controlling for characteristics of the child, treating dentist, and the child's county of residence.

Sealants were effective in preventing CRSOs, but they were most effective for children who had more dental services for cavities before sealant placement. Restoration rates (cavity fillings) for high-risk children peaked at 8 years for unsealed teeth and at 9 years for sealed teeth (18 vs. 8 percent). There were savings in Medicaid expenditures related to sealant use within 2 years of application for children with two or more prior CRSOs. The savings for sealed versus unsealed teeth peaked at $15.21 per child at 9 years for the high-risk group, and ranged from $9.54 at 9 years for the middle-risk group to $2.31 at 10 years for the low-risk group.

More details are in "Treatment outcomes and costs of dental sealants among children enrolled in Medicaid," by Jane A. Weintraub, D.D.S., M.P.H., Sally C. Stearns, Ph.D., Dr. Rozier, and Cheng-Chung Huang, M.P.H., in the November 2001 *American Journal of Public Health* 91(11), pp. 1877-1881. ■

Researchers examine the influence of hospital surgery volume, procedure type, and patient age on surgical risk

Previous research has shown that patients who undergo surgery at hospitals that conduct a low volume of such surgeries are less likely to have good outcomes compared with those treated at high-volume hospitals. A recent study goes a step further to conclude that employers and health care purchasers could prevent many surgery-related deaths by requiring hospital volume standards for high-risk procedures such as coronary artery bypass graft surgery and esophagectomy. A second study concludes that population-based deaths from elective high-risk surgery among older adults are considerably higher than typically reported in case series and trials. Both studies on surgical risk, which are summarized here, were supported in part by the Agency for Healthcare Research and Quality (HS10141) and led by John D. Birkmeyer, M.D., of the Department of Veterans Affairs Medical Center.

Birkmeyer, J.D., Finlayson, E.V., and Birkmeyer, C.M. (2001, September). "Volume standards for high-risk surgical procedures: Potential benefits of the Leapfrog initiative." ***Surgery*** **130, pp. 415-422.**

Despite the generally poorer outcomes of patients who undergo surgical procedures at hospitals that conduct a low volume of such procedures (low-volume hospitals, LVHs) compared with high-volume hospitals (HVHs), very few efforts have been made to regionalize certain procedures and move patients to HVHs. An exception is an initiative by the Leapfrog Group, comprised of several large employers and health care purchasers in the United States, who collectively employ over 20 million people in the Midwest and on the Pacific Coast. The Leapfrog Group soon will require hospitals caring for their employees to meet volume standards for five high-risk procedures: coronary artery bypass graft (CABG) surgery, abdominal aortic aneurysm (AAA) repair, coronary angioplasty, esophagectomy (for esophageal cancer), and carotid endarterectomy (CEA).

This study estimated that with full implementation nationwide, the Leapfrog volume standards would save 2,581 lives. Volume standards would save the most lives with CABG (1,486), followed by AAA repair (464), coronary angioplasty (345), esophagectomy (186), and CEA (118). If only 50 percent of patients estimated to be taken care of at metropolitan LVHs were moved to HVHs, 1,290 total lives would be saved. Similarly, if the volume standards were only half as effective as baseline assumptions, 1,290 lives would be saved.

In any case, the number of lives potentially saved remains substantial enough for the Centers for Medicare & Medicaid Services (formerly the Health Care Financing Administration or HCFA), a Leapfrog liaison, to explore volume standards for the Medicare population. These findings are based on an analysis of data from AHRQ's Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample and other sources. The researchers estimated the total number of each of the five procedures performed each year in U.S. metropolitan hospitals. They then projected the effectiveness of volume standards (in terms of relative risks of mortality) for each procedure by using data from a published structured review.

Finlayson, E.V., and Birkmeyer, J.D. (2001, July). "Operative mortality with elective surgery in older adults." ***Effective Clinical Practice*** **4, pp. 172-177.**

Surgeons understandably tend to be optimistic about the benefits of surgery and typically underestimate surgical risks. Data on surgical mortality usually represent outcomes for experienced tertiary care centers and carefully selected patients, which also result in somewhat overly optimistic risk estimates. To help patients make informed decisions about whether to undergo elective high-risk surgery, surgeons and primary care physicians need more realistic estimates of surgical risks. Toward this end, these investigators used the national Medicare database to examine operative mortality (death within 30 days of the operation or before discharge) in 1.2 million Medicare patients who were hospitalized between 1994 and 1999 for major elective surgery (six cardiovascular procedures and eight major cancer resections).

Overall, mortality risk increased with age. Operative mortality for patients 80 years of age and older was more than twice that of patients 65 to 69 years of age. Operative mortality also varied by

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Surgical risk

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procedure. Procedures associated with relatively low mortality included carotid endarterectomy (1.3 percent of patients) and nephrectomy (2.3 percent). Overall mortality was greater than 10 percent for other procedures, such as mitral valve replacement (10.5 percent), esophagectomy (13.6 percent), and pneumonectomy (13.7 percent).

These mortality rates were higher than those reported in clinical trials and surgical texts. Although they give some indication of surgical risk, they are only a starting point. Doctors who counsel patients about the risks of elective surgery need to consider other factors. Besides age, other patient characteristics—such as coexisting illnesses, whether the surgery is a reoperation, and urgency of the operation—should be considered. Specific details about the procedure as well as its complexity also can modify risk. Finally, a patient's risk of death from surgery is influenced by where the operation is performed and who performs the surgery. ■

Studies focus on anesthesia management in cataract surgery

More than 1 million cataract surgeries are performed in the United States each year at a cost of about $3.4 billion to the Medicare program. Most of these operations are done on an outpatient basis using a variety of local anesthesia techniques, which seem to be determined mostly by surgeon preference and practice setting.

Use of additional intravenous anesthetic agents to decrease pain and alleviate anxiety is associated with increased complications, but cataract surgery nevertheless remains a safe, low-risk procedure, concludes a study supported in part by the Agency for Healthcare Research and Quality (HS08331). A second AHRQ-supported study (contract 290-97-0006) finds that cost and preferences are important considerations when choosing an anesthesia management strategy. For some surgeries, substantial cost savings may be had for a small change in preference. Both studies are described here.

Katz, J., Feldman, M.A., Bass, E.B., and others. (2001, October). "Adverse intraoperative medical events and their association with anesthesia management strategies in cataract surgery." ***Ophthalmology*** **108, pp. 1721-1726.**

These investigators compared medical complications due to different anesthesia strategies for cataract surgery among patients mostly in their 70s, who underwent 19,250 cataract surgeries at nine centers in the United States and Canada between 1995 and 1997. They looked at local anesthesia applied topically or by injection, with or without oral and intravenous sedatives, opioid analgesia, hypnotics, and diphenhydramine (Benadryl). Twenty-six percent of surgeries were performed with topical anesthesia and the remainder with injection anesthesia. Results revealed no increase in deaths or hospitalizations associated with any specific anesthesia strategy. Although the findings suggested that the current common practice of administering multiple intravenous agents for cataract surgery may not be optimal, the surgery nevertheless remains a low-risk, safe procedure.

Overall, there was no significant difference observed in the prevalence of intraoperative problems between topical and injection anesthesia without intravenous sedatives (0.13 vs. 0.78 percent). The use of intravenous sedatives was associated with a significant increase in adverse events for topical (1.20 percent) and injection anesthesia (1.18 percent) relative to topical anesthesia without intravenous sedation. The use of short-acting hypnotic agents with injection anesthesia also was associated with a significant increase in adverse events when used alone (1.40 percent) or in combination with opiates (1.75 percent), sedatives (2.65 percent), and a combination of opiates and sedatives (4.04 percent), even after adjustment for age, sex, duration of surgery, and anesthesiology risk class.

Nevertheless, the total percent of medical problems was 1.95 percent and 1.23 percent intraoperatively and postoperatively, respectively, and there were no deaths on the day of surgery and very few hospitalizations. Most of the problems were associated with arrhythmias (particularly bradycardia), hypertension, hypotension, and angina. The researchers conclude that the choice of anesthesia strategy is complex and should include a careful weighing of patient preferences and clinician

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Anesthesia management in cataract surgery

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assessment of the medical risks associated with different strategies to achieve optimal results.

Reeves, S.W., Friedman, D.S., Fleisher, L.A., and others. (2001). "A decision analysis of anesthesia management for cataract surgery." ***American Journal of Ophthalmology*** **132(4), pp. 528-536.**

Cost and preferences are important considerations when choosing an anesthesia management strategy for cataract surgery. The investigators compared the trade-offs in cost and preference for six strategies differing in sedation, local anesthetic, and monitoring approach.

A panel of physicians and anesthetists assigned preference values to the strategies and potential outcomes on a 0 to 1 scale. Outcome probability estimates were obtained from a study of 19,557 cataract surgeries and from the panel, and cost estimates were derived from several sources. Anesthesiologists were calculated to cost $1,000 per 10-hour day (about 10 cases per day at $100 a case).

The researchers found that strategy 1 (intravenous sedation with block anesthesia with an anesthesiologist present throughout the surgery) had the highest expected net preference value. It was 19 percent greater (0.875 vs. 0.738) than the net preference for the next most preferred strategy 2 (oral sedation with block anesthesia and an anesthesiologist on call), but the expected anesthesia costs per case were much greater for strategy 1 ($324) than for strategy 2 ($42).

Strategy 2 was superior to strategies 3 (oral sedation plus block anesthesia and no anesthesiologist available), 5 (oral sedation plus topical anesthesia plus anesthesiologist on call) and 6, which had the lowest net preference value (oral sedation plus topical anesthesia with no anesthesiologist available). A substantially higher expected net preference value was obtained for strategy 2 for about the same expected cost per case. Strategy 2 was dominant over strategy 4 (intravenous sedation plus topical anesthesia and an anesthesiologist present) because it had a higher expected preference value (0.738 vs. 0.644) at a significantly lower expected net cost ($41.47 vs. $324.72).

In this study, the researchers evaluated both traditional approaches to care, as well as models not commonly employed in the United States at this time (i.e., no anesthesiologist involved). They conclude that substantial cost savings may be available in the management of anesthesia in some cataract surgeries for a small change in preference. ■

Mental Health

Few patients being treated for depression in primary care are counseled about substance abuse problems

Substance abuse complicates the diagnosis and treatment of depression, and patients suffering from depression are less likely than other patients to have their alcohol and/or drug problems diagnosed. A new study found that more than 30 percent of depressed women and men visiting primary care doctors had drug or alcohol problems. Yet only 8 percent of these patients, mostly men, had been counseled about drug or alcohol use during their most recent primary care visit.

Substance abuse continues to carry more stigma for women than for men, and this may discourage some women from seeking help from a health care provider. This may make detection of substance abuse problems in women more difficult, explains Kenneth B. Wells, M.D., M.P.H., of the University of California, Los Angeles.

In the study, which was supported in part by the Agency for Healthcare Research and Quality (HS08349), the researchers analyzed data from a large survey of 46 managed care clinics in 5 States that were participating in a study to improve quality of care for depression. The researchers calculated the frequency of problematic alcohol and drug use among male and female patients who had symptoms of depression and determined whether they had received

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Depression counseling

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substance abuse counseling at their last primary care visit. Of 1,187 depressed patients surveyed, 30 percent of women and 39 percent of men reported problematic substance use. A total of 8 percent of women and 19 percent of men reported hazardous drinking, and 26 percent of women and 29 percent of men reported problematic drug use, including use of illicit drugs and misuse of prescription drugs.

Only 8 percent of the patients who reported hazardous drinking or problematic drug use were counseled about drug or alcohol use during their last primary care visit. Men were more than three times as likely to have been counseled as women about these problems (15.6 vs. 4.5 percent). Although depressed women were less likely than men to have problems with alcohol or marijuana, they were more likely than men to misuse sedatives. The combination of problematic alcohol and drug use was more common among depressed men, but as many women as men had problematic use of more than one drug.

More details are in "Problematic substance use, depressive symptoms, and gender in primary care," by Carol A. Roeloffs, M.D., Arlene Fink, Ph.D., Jurgen Unutzer, M.D., M.P.H., and others, in the September 2001 *Psychiatric Services* 52, pp. 1251-1253. ■

QI programs that foster collaboration between mental health specialists and primary care doctors enhance depression care

Depression is frequently underdiagnosed and undertreated by primary care doctors, who see this problem often. The good news is that quality improvement (QI) programs in which mental health specialists collaborate with primary care doctors can substantially increase rates of antidepressant treatment, according to a new study supported in part by the Agency for Healthcare Research and Quality (HS08349). Jurgen Unutzer, M.D., M.P.H., and Kenneth B. Wells, M.D., M.P.H., of the University of California, Los Angeles, and their colleagues randomized 48 managed care primary care clinics to participate in either usual care (UC) or one of two QI programs: QI-Meds or QI-Therapy.

In the QI-Meds group, nurse specialists contacted patients taking antidepressants monthly for 6 or 12 months and helped primary care providers manage antidepressant medications. The nurse had a psychiatric expert available for consultation, and patients who preferred counseling were referred to psychotherapy options available to their practice (with regular co-pay levels). Patients in the QI-Therapy group could be referred to therapists, who provided individual or group cognitive behavioral therapy (CBT) for 12 to 16 sessions at a reduced copay. They also could receive medications from their regular primary care providers or see a nonstudy therapist with usual copayments. Clinics in the usual care group were mailed clinical practice guidelines on depression.

Patients enrolled in both QI programs had significantly higher rates of antidepressant use than those in the usual care group during the initial 6 months of the study (52 percent in the QI-Meds group, 40 percent in the QI-Therapy group, and 33 percent in the UC group). Patients in the QI-Meds group also had a greater reduction in long-term use of minor tranquilizers for up to 2 years (decline from 4.6 to 2.5 percent) compared with no reduction among patients in the other two groups (which remained at 4 to 6 or 7 percent), most likely due to the active followup of patients by a depression nurse specialist.

Details are in "Two-year effects of quality improvement programs on medication management for depression," by Dr. Unutzer, Lisa Rubenstein, M.D., M.S.P.H., Wayne J. Katon, M.D., and others, in the October 2001 *Archives of General Psychiatry* 58, pp. 935-942. ■

Using a simple set of clinical criteria is a cost-effective approach to treating suspected acute bacterial sinusitis

About 3 million people visit the doctor each year for symptoms that suggest sinusitis, but not all of these patients have a bacterial infection or need a prescription for an antibiotic. Strategies for diagnosing and treating suspected acute bacterial sinusitis can include no antibiotic treatment, empirical antibiotic treatment, clinical criteria-guided treatment, and x-ray guided treatment.

Joseph Lau, M.D., and colleagues at the Evidence-based Practice Center at New England Medical Center created a model to examine which of these approaches is a cost-effective strategy in most clinical settings for treating suspected acute bacterial sinusitis. The model simulated a 14-day course of illness, included sinusitis prevalence, antibiotic side effects, serious sinusitis complications, costs, and symptom severity. The researchers concluded that in most primary care settings, the evidence supports using clinical criteria to guide antibiotic treatment of otherwise healthy patients with mild to moderate symptoms suspicious for community-acquired acute bacterial sinusitis.

Use of antibiotics based on symptoms alone may be cost effective if the goal is to minimize symptom days, if prevalence of mild and moderate symptoms exceeds 63 percent, and if patients have severe symptoms and prevalence exceeds 51 percent. However, basing treatment on symptoms alone would mean that many patients would receive antibiotics unnecessarily. If this resulted in increased antibiotic resistance, costs would substantially rise, but benefits would decrease both for using clinical criteria to determine treatment and for treating patients empirically with antibiotics. The researchers found that basing initial antibiotic treatment on costly radiography tests is never cost effective.

This study was based on a systematic review of the literature by New England Medical Center's Evidence-based Practice Center (EPC) and was supported by the Agency for Healthcare Research and Quality (contract 290-97-0019, HS09796, and National Research Service Award training grant T32 HS00060). The EPC produced two evidence reports and summaries based on their review (see editor's note below).

This study is reported in "Strategies for diagnosing and treating suspected acute bacterial sinusitis," by Ethan M. Balk, M.D., M.P.H., Deborah R. Zucker, M.D., Ph.D., Eric A. Engels, M.D., M.P.H., and others, in the October 2001 *Journal of General Internal Medicine* 16, pp. 701-711.

Editor's note: Copies of the full evidence report from which this study was drawn, *Diagnosis and Treatment of Acute Bacterial Sinusitis* (AHRQ Publication No. 99-E016)* and a summary of the report (AHRQ Publication No. 99-E015)** are available from AHRQ. A supplement, *Diagnosis and Treatment of Uncomplicated Acute Sinusitis in Children* (AHRQ Publication No. 01-E005)* and summary of the supplement (AHRQ Publication No. 01-E007)** also are available from AHRQ.* See the back cover of *Research Activities* for ordering information. ■

Hospital emergency departments play a critical role in monitoring the Nation's health care safety net

An Institute of Medicine (IOM) report called the health care safety net in the United States "intact but endangered" in 2000. In response to IOM recommendations to monitor the safety net, the Agency for Healthcare Research and Quality, Health Resources and Services Administration, and Office of the Assistant Secretary for Planning and Evaluation of the U.S. Department of Health and Human Services began a joint safety net monitoring initiative in an expert meeting on November 9, 2000.

The hospital emergency department (ED) will be one key source of data for this monitoring, as EDs provide a considerable proportion of the country's safety

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Health care safety net

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net services. Although the role of the ED as a safety net for uninsured patients has been well documented, it is not clear how the ED functions to provide ongoing, regular care for low-income populations. Several questions remain unanswered. For example, why and how do safety net patients rely on the ED to provide preventive care, urgent acute care, and nonurgent acute care, and to what extent do EDs have the resources to provide for this care without constraining their ability to provide emergency care to other patients?

Among the many other questions that need to be answered are how the ED fits into other systems of care; whether ED data can be monitored on an ongoing basis to understand trends and provide early warning of impending health care crises, particularly those that may affect safety net populations; and whether EDs can help monitor system failures within the safety net. The development and integration of data systems that include relevant clinical information from ED encounters will be crucial to creating a dynamic, policy-relevant monitoring system for the safety net. Also, collaboration between the health services research and emergency medicine communities will be critical to accomplishing this goal, conclude Robin M. Weinick, Ph.D., and Helen Burstin, M.D., M.P.H., of AHRQ's Center for Primary Care Research. They suggest ways for meeting these challenges in a recent article.

See "Monitoring the safety net: Data challenges for emergency departments," by Drs. Weinick and Burstin, in the November 2001 *Academic Emergency Medicine* 8(11), pp. 1019-1021. Reprints (AHRQ Publication No. 02-R017) are available from AHRQ.** ■

Market Forces

HMO market penetration does not account for poorer financial performance of public compared with private hospitals

Public hospitals, which typically provide a medical safety net for the poor and medically indigent, had lower operating margins, similar revenues, and higher expenses compared with private hospitals in 1995. Nevertheless, this poorer performance could not be traced to HMO market penetration, concludes a study by Jan P. Clement, Ph.D., of Virginia Commonwealth University, and Kyle L. Grazier, Dr.P.H., of the University of Michigan. The study was supported in part by the Agency for Healthcare Research and Quality (HS09217).

The researchers examined the interaction of hospital-specific measures (for example, bed occupancy and type of ownership) and market-specific measures (ranging from hospital competition to physicians per 1,000 population) with ownership in a study of over 2,300 hospitals in 321 metropolitan areas in 1995 to examine the impact of HMO market penetration on hospital financial performance. Although all hospitals located in markets with higher HMO penetration had lower revenues and expenses than hospitals located in markets with lower HMO penetration, the financial performance of public hospitals was not any more or less influenced by HMO penetration, even though public hospitals were weaker financially.

However, public hospitals in high-minority markets had both higher expenses and lower revenues per case than other hospitals. The effect of a market with a higher proportion of aged members was negative for all hospitals but more so for public hospitals. In contrast, markets with more for-profit competitors contributed to better financial performance by public hospitals, perhaps because managers of public hospitals adopted some of their competitors' practices in such markets, explain the researchers. They conclude that, in spite of managed care, reimbursement policies and management actions can alleviate the financial vulnerability of public hospitals and allow them to maintain their traditional roles in caring for the poor.

More details are in "HMO penetration: Has it hurt public hospitals?" by Drs. Clement and Grazier, in the fall 2001 *Journal of Health Care Finance* 28(1), pp. 25-38. ■

Local market conditions may inhibit the development and growth of physician organizations

A recent study reveals diverse structure and function among physician organizations (POs) in four different regional markets that have a similar history of managed care penetration. In the study, which was supported by the Agency for Healthcare Research and Quality (HS09929), Harvard University researchers conducted site visits in four health care markets in 1999: Boston and Los Angeles/Orange County, considered to be high-cost markets, and Portland and Minneapolis/St. Paul, considered to be low-cost markets. They interviewed executives of medical groups, managed care plans, major hospitals, and other groups, as well as practicing physicians, and supplemented the interview data with market data.

In spite of the similar history of managed care penetration across the four markets, there was substantial diversity seen in both the structure and function of physician organizations across the markets. Where downward pressure on insurance premiums existed alongside relatively weak hospitals, physicians took the opportunity to profit from reducing costs by accepting delegated risk and utilization management (Southern California). Where hospitals and specialists were in a position to resist decreases in their revenue and premiums were low to begin with, the lack of resources and rewards for improving clinical management thwarted the growth of large independent POs (Portland). In Portland, the formation of specialist organizations also appeared motivated by a desire to resist attempts by primary care POs to profit from reducing specialist costs (through reducing fees or referrals).

In Boston and Minneapolis, physicians and hospitals aligned in vertically integrated organizations as a counterbalance to the market power of the managed care organizations (MCOs). In Boston, the relative market power of these delivery systems combined with high premiums gave providers an opportunity to profit from delegated risk contracts. However, very little excess capacity was eliminated, and clinical management did not progress far.

Overall, only a small share of POs outside of California had developed much capacity for utilization or clinical management and shared risk with MCOs. With health care premiums once again escalating, POs will need to evolve before they can be viewed as a broadly viable force for innovation in managing care, conclude the researchers.

See "Managed care and market power: Physician organizations in four markets," by Meredith B. Rosenthal, Ph.D., Bruce E. Landon, M.D., and Haiden A. Huskamp, Ph.D., in the September/October 2001 *Health Affairs* 20(5), pp. 187-193. ■

Agency News and Notes

U.S. Preventive Services Task Force urges clinicians and patients to discuss aspirin therapy

The U.S. Preventive Services Task Force (USPSTF) has issued a strong recommendation that clinicians discuss the benefits and harms of aspirin therapy with healthy adult patients who are at increased risk of coronary heart disease (CHD), primarily heart attacks. The USPSTF recommendation appears in the January 15, 2002, issue of the *Annals of Internal Medicine.*

Recent studies reviewed by the USPSTF found that regular use of aspirin reduced the risk of CHD by 28 percent in people who had never had a heart attack or stroke but who were at increased risk. Those considered at increased risk for CHD are men over the age of 40, postmenopausal women, and younger people with risk factors for CHD, (e.g., smoking, diabetes, hypertension). Every year, more than 1 million Americans die from heart attacks and other forms of CHD.

In addition to its benefits, the Task Force also noted that aspirin can have serious side effects. Aspirin may increase the incidence of gastrointestinal bleeding and cause a small increase in the incidence of hemorrhagic strokes, which involve bleeding in the brain. Although

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Aspirin therapy

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the benefits of aspirin outweigh the harms for people who have an increased risk of CHD, the harms may exceed the benefits for those who are at average or low risk for heart disease. Rather than starting to take aspirin on their own, patients should discuss these risks and benefits with their health care providers.

Discussions about aspirin should take into account a patient's overall risk of heart disease. This can be estimated by assessing a patient's age, sex, blood pressure, cholesterol levels, and information on whether they smoke or have diabetes. The Internet offers several easy-to-use, free calculators that individuals can use to determine levels of cardiovascular risk over a 5- or 10-year period. Examples are http://hin.nhlbi.nih.gov/atpiii/calculator.asp?usertype=prof#moreinfo and http://www.med-decisions.com.

The USPSTF considers a 5-year risk of 3 percent or more (meaning that 3 people in 100 will have a heart attack within the coming 5 years if they do not undertake any kind of preventive therapy) as increased risk. The balance of benefits and harms of aspirin is the most positive among this group.

The USPSTF, a panel of independent, private-sector experts in prevention and primary care, based its conclusion on a report by the Evidence-based Practice Center at RTI (Research Triangle Institute) and the University of North Carolina (Chapel Hill) School of Medicine. Aspirin for the Primary Prevention of Cardiovascular Events is the sixth recommendation to be released by the current USPSTF.

Working with the Evidence-based Practice Center, the USPSTF conducts rigorous, impartial assessments of scientific evidence for a broad range of preventive services. It grades the strength of evidence from "A" (strongly recommends) to "D" (recommends against). An "I" recommendation, in which the USPSTF finds insufficient evidence to recommend for or against a particular intervention, means evidence that the service is effective is lacking, of poor quality, or conflicting, and the balance of harms and benefits cannot be determined. The aspirin recommendation is a grade "A" or "strongly recommend."

The aspirin recommendation is available at the AHRQ Web site at www.ahrq.gov/clinic/3rduspstf/aspirin/. Previous USPSTF recommendations, summaries of the evidence, easy-to-read fact sheets explaining the recommendations, and related materials are available from the AHRQ Publications Clearinghouse (see the back cover of *Research Activities* for ordering information) and through the National Guideline Clearinghouse™ at www.guideline.gov. AHRQ is planning to compile all of the USPSTF chapters and evidence summaries in a semiannual notebook that will include a cumulative index.

To help clinicians apply Task Force recommendations in practice and to help patients understand which clinical preventive services they should expect clinicians to provide, AHRQ sponsors the Put Prevention Into Practice (PPIP) program. Information about the PPIP program and products and a list of other USPSTF products under review are available on the AHRQ Web site at www.ahrq.gov/clinic/prevenix.htm. ■

New Web site helps hospital-based doctors and nurses diagnose anthrax, smallpox and other rare infections

A new Web site funded by the Agency for Healthcare Research and Quality teaches hospital-based physicians and nurses how to diagnose and treat rare infections and exposures to bioterrorism agents such as anthrax and smallpox. Designed by researchers in the Center for Disaster Preparedness at the University of Alabama at Birmingham (UAB) under a contract from AHRQ, the Web site is the first of its kind to offer free continuing education credits in bioterrorism preparedness to clinicians.

The site currently offers five online courses through the UAB Office of Continuing Medical Education for emergency department clinicians, including physicians, nurses, radiologists, pathologists, and infection control practitioners. The Web address is www.bioterrorism.uab.edu.

Courses cover identification of six potential bioterrorism agents and commonly associated syndromes, including anthrax, smallpox, botulism, tularemia, viral hemorrhagic fever, and plague. There is no cost to take the courses, and each course offers 1 hour of continuing education credit.

Courses include case-based scenarios and photos followed by

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New Web site

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multiple choice questions and answers, according to Margaret Tresler, program manager for UAB's Center for Disaster Preparedness. When users give a wrong answer, they receive an explanation telling why the answer is incorrect. The interactive modules are designed to be easily accessible and user-friendly, keeping in mind that clinicians are busy.

Courses were developed by a diverse group of researchers and clinicians representing various fields, including emergency medicine, health administration, public health, nursing, and education. Lead investigators for the project are Thomas Terndrup, M.D., Professor and Chair of the Department of Emergency Medicine at UAB and Director of UAB's Center for Disaster Preparedness, and Norman Weissman, Ph.D., Professor of Health Services Administration and Medicine and Director of UAB's Center for Outcomes Research and Education. Improvements to the site are planned. ■

AHRQ and NIH form partnership to broaden evidence used in consensus development conferences

The Agency for Healthcare Research and Quality and the Office of Medical Applications of Research (OMAR) at the National Institutes of Health (NIH) have entered into a partnership to ensure that the panelists participating in NIH Consensus Development Conferences have the latest scientific evidence to support their deliberations.

Located in NIH's Office of the Director, OMAR works closely with NIH's institutes, centers, and offices to assess, translate, and disseminate the results of biomedical research that can be used in the delivery of health services. OMAR convenes NIH Consensus Development Conferences on complex issues of medical importance to health care providers, patients and the general public.

AHRQ will provide evidence-based reports on selected topics for consensus development conferences in 2002 and 2003. The reports will be developed by the Agency's Evidence-based Practice Centers (EPCs). The EPCs review all available, relevant scientific literature on clinical topics, produce evidence reports and technology assessments, conduct research on methodologies and the effectiveness of their implementation, and participate in technical assistance activities.

The first four topics and the dates of the conferences are:

- Endoscopic retrograde cholangiopancreatography (ERCP) for diagnosis and therapy (January 14-16, 2002).
- Management of clinically inapparent adrenal mass (incidentaloma) (February 4-6, 2002).
- Management of hepatitis C (June 10-12, 2002).
- Symptom management in cancer: Pain, depression, and fatigue (July 15-17, 2002).

OMAR will hold a press event on the final day of each conference. Press statements will be available from OMAR's Web site at http://consensus.nih.gov/. A summary of each AHRQ evidence report developed for an OMAR conference will be available on AHRQ's Web site at http://www.ahrq.gov/clinic/epcix.htm. ■

Attention researchers: Do you have a story to tell? If so, AHRQ needs you

Nobel Prize winner Sir Peter Brian Medawar said it best: "Among scientists are collectors, classifiers and compulsive tidiers-up; many are detectives by temperament and many are explorers, some are artists and others artisans." Whether you're an artist at algorithms, classifier of clinical outcomes, or explorer of evidence-based medicine, your help is needed with the Agency's Impact Case Studies Program.

Now in its 8th year, the Impact Case Studies Program systematically catalogues the impact AHRQ research has on outcomes, quality, cost, use, and access. The goal is to track the impact of AHRQ research in a way the public can both understand and appreciate.

These impact case studies are not journal articles, research summaries, or even abstracts. They

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AHRQ needs you

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are one- to two-page briefs that describe, in layman's terms, how AHRQ-funded research is being used by government (Federal, State, and local); individual clinicians, practices, clinics, and hospitals; insurance companies; professional associations; and schools of public health and medicine. As such, impact case studies tell a story about how AHRQ research is used daily by clinicians, policymakers, and patients; in other words, they explain the impact of health services research.

Case studies help us explain how public funds are being used to improve health care for all Americans. We gather this information for use in Congressional testimony, Agency budget documents, and other key materials.

You, the researcher, are often our best source of leads and contact information. Your assignment is simple—tell us how findings from your AHRQ-supported research have been put to use. All we need is the name of a user and a brief description of how the research is being used. We'll take it from there. We follow up with the user, prepare a summary or "impact case study," and send it through a clearance process to ensure the information is accurate and clearly stated.

AHRQ's Impact Case Studies Program is helping the Agency tell its story while generating a broader discussion of impact among health services researchers. With publication of the 100th case study this winter, the Impact Case Studies program has reached an important milestone. We need your help as we work toward the next 100 case studies. If you have a lead to pass along, please contact your AHRQ project officer or Jane Steele at 301-594-6350, or by e-mail at jsteele@ahrq.gov. ■

Announcements

New MEPS reports are now available from AHRQ

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 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 two publications described here are newly released from the MEPS program. Copies are available from AHRQ.* See the back cover of *Research Activities* for ordering information.

***Disparities and Gender Gaps in Women's Health, 1996.* MEPS Chartbook No. 8 (AHRQ Publication No. 02-0003). Kass-Bartelmes, B.L., Altman, B.M., and Taylor, A.K.**

This report presents charts showing estimates of health insurance, access to care and use of care, and health status among women of different ages and racial/ethnic groups in America, as well as differences between men and women. In 1996, Hispanic women were more likely than women in any other racial/ethnic group to be uninsured, young women (ages 18 to 29) were less likely than others to be without a usual source of care, and Hispanic and black women were more likely than white women to be in fair or poor health. Medicaid enrollment for women increased from 1987 to 1996. Compared with men, higher proportions of women were covered by Medicaid in both 1987 and 1996; women had higher total health care expenses for ambulatory care, prescription medicines, and home health services in 1996; and women were more likely than men to have functional limitations in 1996. These estimates are drawn from the MEPS Household Component and the 1987 National Medical Expenditure Survey.*

***Women in the Health Care System: Health Status, Insurance, and Access to Care*. MEPS Research Findings 17 (AHRQ Publication No. 02-0004). Altman, B.M., and Taylor A.K.**

This report focuses on adult noninstitutionalized women in the United States in 1996. In terms of health status, the report shows

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perceived health, mental health, and the presence of a number of different limitations. Health insurance status is examined in terms of whether women are publicly insured, privately insured, or uninsured and whether insured women are policyholders or dependents. Data on women's usual source of health care, use of ambulatory care services, and use of selected preventive services are used to examine access to care. The report does not compare women's health to men's health but instead looks at the health status of women by various demographic and health characteristics that may be associated with disparities in access to care or other disadvantages in the health care system, including a measure that combines marital status, presence of children in the household, and age of children. The estimates shown come from the MEPS Household Component. ■

Audiotapes now available from workshops on important health topics

The Agency for Healthcare Research and Quality's User Liaison Program (ULP) coordinates and hosts workshops and teleconferences for State and local health officials. These workshops are designed to provide policymakers and other officials at the State and local levels with timely information on emerging and critical health care topics.

The workshops are recorded on audiotapes that are available for purchase from the AHRQ Publications Clearinghouse. Listed below are audiotapes from recent workshops. Go to the AHRQ Website at www.ahrq.gov;news/ulp/ulptapes.htm for a complete listing of audiotapes. See the back cover of *Research Activities* for ordering information. Please request audiotapes by title and order number.

Trends in Health Care Delivery Systems: Managed Care and Other Alternatives, December 3-5, 2001, Memphis, TN. Order no. AHRQ 02-AV03, cost $25.

Appropriate Drug Use and Prescription Drug Insurance Programs: Adding Value by Improving Quality, November 5-7, 2001, Denver, CO. Order no. AHRQ 02-AV02, cost $25.

Putting Measurement to Work: What States Can Do to Improve the Quality of Health Care Delivered to Adults, October 17- 19, 2001, Philadelphia, PA. Order no. AHRQ 02-AV01, cost $25.

The Next Revolution: The Role of Informatics in Improving Health Care. A Series of Three Web-Assisted Teleconferences, July 25, 26, and August 1, 2001. Order no. AHRQ 01-AV11A, cost $10.

Building a High Quality Long Term Care Paraprofessional Workforce: A Series of Two Audio Teleconferences, July 17 and 19, 2001. Order no. AHRQ 01-AV05A, cost $10.

Beyond Olmstead: Making Community-Based Services Work for All Persons with Disabilities, July 11-13, 2001, Chicago, IL. Order no. AHRQ 01-AV10, cost $25.

Beyond State Reporting: Brushing up on Issues Related to Medical Errors and Patient Safety, June 6-8, 2001, Nashville, TN. Order no. AHRQ 01-AV09, cost $25. ■

Grant final reports now available from NTIS

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

***Changing Markets and Hospitals: Managed Care and Strategic Alliances with Physicians.* Alison Evans Cuellar, M.B.A., University of California, Berkeley. AHRQ grant HS10760, project period 6/15/00-6/14/01.**

A striking development in the organization of medical care has been the formation of strategic alliances between hospitals and physicians. By 1998, 60 percent of hospitals had formed such

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alliances, which vary from loosely networked open configurations to exclusive fully integrated models. Hospital-physician integration likely reflects providers' responses to rapidly expanding managed care. This researcher examined the roles of transaction cost economics and market power motives for these alliances and the consequences for hospital performance, using panel data from Arizona, Florida, and Wisconsin for 1994-1998. The study revealed substantial evidence that these alliances improve market power, particularly among those types where the physicians are exclusive to the hospital and among those in less competitive hospital markets. (Abstract and executive summary of dissertation, NTIS accession no. PB2002-100391; 8 pp, $12.00, $12.00 microfiche)***

Continence for Women: State of the Science. **Karen J. Kelly Thomas, Ph.D., Association of Women's Health, Obstetric and Neonatal Nurses, Washington, DC. AHRQ grant HS10107, project period 6/1/00-5/31/01.**

The conference, Continence for Women: State of the Science, was held in Seattle, WA, June 3, 2000 as a research dissemination conference for primary care clinicians aimed at translating research into clinical practice. Conference participants discussed the prevalence of urinary incontinence, behavioral therapies for decreasing incontinence, and educational strategies for nurses in clinical practice to teach women self-care techniques that promote continence. (Abstract, executive summary, and final conference report, NTIS accession no. PB2001-109048; 18 pp, $23.00 paper, $12.00 microfiche)***

Financial Burden of Health Care Costs for the Elderly. **Stephen Crystal, Ph.D., Rutgers University, Piscataway, NJ. AHRQ grant HS09566, project period 9/30/97-9/29/98.**

Even with Medicare, out-of-pocket health care costs are substantial for older people. For many, the impact is modest; but for a subgroup of Medicare enrollees, it is large related to income, and it constitutes a significant financial burden. These researchers used Medicare Current Beneficiary Survey data to examine the characteristics of Medicare enrollees most affected by out-of-pocket health costs. They found that health care expenditures averaged 19.0 percent of income for full-year Medicare beneficiaries alive during all of 1995. Functional impairment, number of medical conditions, self-perceived health, and privately-purchased supplemental coverage were associated with higher out-of-pocket costs. HMO participation was associated with lower costs. Out-of-pocket expenditures averaged 15.2 percent of total health care expenditures. Half of these out-of-pocket payments were for prescription drugs and dental services. The researchers concluded that the burden of out-of-pocket costs is heaviest for those with chronic health conditions and without employer-subsidized supplemental coverage or Medicaid, and that the impact of Medicare reform proposals on these subgroups needs to be carefully evaluated. (Abstract, executive summary, and final report, NTIS accession no. PB2002-100266; 20 pp, $23.00 paper, $12.00 microfiche)***

HMO Research Network Conference. **Michael R. Vonkorff, Sc.D., Group Health Cooperative, Seattle, WA. AHRQ grant HS10951, project period 3/1/01-2/28-02.**

The seventh annual HMO Research Network Conference was held April 24-25, 2001, in Seattle, WA. The HMO Research Network comprises the major public domain research centers situated in large health maintenance organizations. This national meeting provides a forum to advance the individual and collective research efforts of these organizations and enhance their ability to respond to national goals to enhance the overall quality of health care delivery systems. Objectives of the 2001 HMO Research Network Conference were to identify challenges and opportunities inherent in the conduct of research in health care delivery systems; disseminate research findings and discuss methodologic issues from studies conducted in HMOs; stimulate multisite collaborative research; contribute to the national research agenda; and identify areas in which the Network is uniquely positioned to enhance the quality and effectiveness of health care delivery. (Abstract, executive summary, and final report, NTIS accession no. PB2001-109050; 14 pp, $23.00 paper, $12.00 microfiche)***

Immunization Barriers: A Study of Pediatric Nurse Practitioners. **Richard K. Zimmerman, M.D., M.P.H., University of Pittsburgh. AHRQ grant HS09527, project period 6/1/97-5/31/99.**

These researchers studied barriers to childhood immunization. They conducted a national survey in 1997 of 252 pediatric nurse practitioners (PNPs) using computer-assisted telephone interviewing. Almost half (44 percent) of the respondents were less likely to vaccinate a child

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during an acute care visit compared with a routine, well-child visit; 56 percent treated the situations equally, suggesting that this is one barrier. Some PNPs were overly cautious when interpreting contraindications. Half of the respondents (49 percent) said they would be likely to refer an uninsured child to a public health vaccine clinic but were unlikely to refer an insured child. Nearly 70 percent of the PNPs who do not receive free vaccine supples said they would be likely to refer an uninsured, poor child compared with 46 percent of those who receive free vaccine supplies. (Abstract, executive summary, and final report, NTIS accession no. PB2002-100268; 58 pp, $27.00 paper, $12.00 microfiche)***

INCLEN 2000: Workshop for Improving the Quality of Care. **David Fraser, M.D., INCLEN, Inc., Philadelphia, PA. AHRQ grant HS10103, project period 8/1/00-7/31/00.**

INCLEN is a worldwide network of over 1,000 physicians, biostatisticians, and health social scientists who believe that fighting disease and improving health care depend on integrating the principles of epidemiology into clinical practice. Since its inception, INCLEN has trained over 500 health practitioners at 69 medical schools in 30 countries, primarily in the developing world, to a master's degree level in clinical epidemiology.

INCLEN convened a plenary session and a series of workshops that were held October 15-18, 2001 in Bangkok, Thailand. A total of 386 participants from 39 countries attended. The workshops focused on four main areas: (1) discussion of new approaches in outcomes assessment, with a focus on integrating sociocultural differences and patient perspectives; (2) addressing methodological issues in measurement of quality of health care; (3) discussion of effective methods for disseminating clinical practice guidelines; and (4) description of advances in formation technology for quality measurement and monitoring. (Abstract, executive summary, and final report of workshop, NTIS accession no. PB100393; 298 pp, $56.00 paper, $23.00 microfiche)***

More Disease: How Major a Factor in Higher Utilization? **Michael Shwartz, Ph.D., Boston University. AHRQ grant HS09832, project period 19/39/98-3/31/01.**

Differences in small-area hospitalization rates have often been attributed to differences in practice style. An alternative hypothesis is that higher than expected hospitalization rates are an indicator that there is more disease. The goal of this study was to examine the correlation between 1997 small area hospitalization rates and outpatient-only treatment rates for 20 medical conditions for patients 65 and older in Massachusetts and to examine the relative importance of "practice style" vs. "more identified disease" in explaining variations in hospitalization rates. The researchers used 1997 inpatient and outpatient data obtained from the Centers for Medicare and Medicaid Services to estimate more stable rates of hospitalization. They also developed an approach to assess the relative importance of "practice style" and "more identified disease" in explaining variations in hospitalization rates. Across a number of different analyses, almost all of the correlations of hospitalization rates and outpatient-only treatment rates were positive. The hypotheses of no correlation was always rejected. It was not possible to identify either practice style or more disease as the more important factor for explaining hospitalizations. (Abstract, executive summary, and final report, NTIS accession no. PB2002-100269; 72 pp, $27.00 paper, $12.00 microfiche)***

***National Quality Forum: First Annual Meeting*.** **Kenneth W. Kizer, M.D., M.P.H., National Forum for Health Care, Washington, DC. AHRQ grant HS10114, project period 9/1/00-8/31/01.**

The National Quality Forum (NQF) held its first annual meeting September 7-8, 2000. The goal was to foster a sense of common purpose and develop a shared framework for quality measurement and reporting and to begin a substantive discussion of topics being undertaken by the forum. Over 140 individuals from 92 organizations participated in a mix of plenary sessions and smaller group discussions. Participant feedback suggests that future such meetings should emphasize interactive group discussions on National Quality Forum consensus topics. (Abstract, executive summary, and conference report, NTIS accession no. PB2002-100032; 38 pp, $25.50 paper, $12.00 microfiche)***

Patient-Based Quality Assessment for Chronic Disease. **Sheldon Greenfield, M.D., New England Medical Center, Boston, MA. AHRQ grant HS09756, project period 4/1/98-9/30/00.**

The goal of this project was to examine the usefulness of patient reports on quality of care by

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seeking answers to the following questions: Are patient reports accurate in relation to claims data? Do disease-specific outcomes provide better discrimination between health plans than generic measures such as the SF-36? Can a patient based measure of case mix—the Total Illness Burden Index, which is patient reported and independent of diagnosis—be used to adjust quality indicators, including satisfaction, functional status, and use of services? The researchers tested these questions in a national sample of 10,360 patients in six cities using a patient survey and a well developed claims database. There were 5,188 patients who had matched survey and claims records. They concluded that patient reports can be used as "case finding," indicating the need to seek more information only if the patient answers positively. This could reduce the amount of chart review necessary. They also concluded that disease-specific outcomes are more useful than generic measures in comparing health plans. Finally, the Total Illness Burden Index can be used to adjust quality measures. (Abstract, executive summary, and final report, NTIS accession no. PB2002-100392; 58 pp, $27.00 paper, $12.00 microfiche)***

***Physician/Patient Preferences in Hysterectomy*. Jeffrey F. Peipert, M.D., M.P.H., Women and Infants Hospital, Providence, RI. AHRQ grant HS09846, project period 4/1/99-5/31/01.**

Hysterectomy is now the second most common surgery performed in women, with over one-half million hysterectomies each year in the United States. Despite the staggering number performed, there are gaps in our knowledge base regarding patient needs and preferences, physicians' interpretation of clinical indications when recommending hysterectomy or alternative medical therapies, and most importantly, how these two factors converge to influence decisions about hysterectomy. In this study, physician and patient focus groups were held to explore the perceived factors influencing decisionmaking in hysterectomy. Identified themes from the focus groups include a two-tiered hysterectomy decisionmaking process, specific physician and patient characteristics that influence the shared decisionmaking process, and a need for additional outcomes data about differences in sexual functioning after hysterectomy and other differences as they relate to the three surgical routes of hysterectomy. (Abstract, executive summary, and final report, NTIS accession no. PB2002-100267; 26 pp, $23.00 paper, $12.00 microfiche)***

***Setting Criteria and Agendas for Quality Improvement Research.* Theodore Speroff, Ph.D., Vanderbilt University Medical Center, Nashville, TN. AHRQ grant HS10086, project period 12/01/99-5/30/01.**

This report describes a conference held in December 1999 as part of the International Scientific Symposium on Improving Quality and Value in Health Care. The primary goals of the conference were to develop a conceptual framework that distinguishes quality improvement research as a discipline in health care and define standards for methodologic rigor to be applied in quality improvement research. (Abstract, executive summary, and final report, NTIS accession no. PB2002-100033; 38 pp, $25.50 paper, $12.00 microfiche)*** ■

Research Briefs

Clark, J.A., and Talcott, J.A. (2001). "Symptom indexes to assess outcomes of treatment for early prostate cancer." *Medical Care* 39(10), pp. 1118-1130.

Both radical prostatectomy and external beam radiotherapy treatments for early prostate cancer often cause physical side effects, including urinary, bowel, and sexual dysfunction, which change the quality of men's lives. These researchers prospectively evaluated the outcomes of nearly 200 patients undergoing one or the other treatment by asking them to complete self-administered questionnaires before treatment and 3 and 12 months after treatment. They developed indexes of urinary, bowel, and sexual function and symptom-related distress based on questionnaire responses. Symptom and symptom-related distress indexes in each domain were highly correlated. The indexes accounted for significant proportions of the variance in health-related quality of life measures for these patients. The researchers conclude that these indexes may be helpful in monitoring outcomes of treatment for early prostate cancer.

DiSalvo, T.G., Normand, S.T., Hauptman, P.H., and others. (2001, September). "Pitfalls in

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assessing the quality of care for patients with cardiovascular disease." ***American Journal of Medicine*** **111, pp. 297-303.**

There are no clinical performance measures for cardiovascular disease that span the continuum of care from the hospital through postdischarge ambulatory care. After reviewing practice guidelines and the medical literature, these investigators developed potential performance measures related to cardiovascular disease therapy, diagnostic evaluation, and communication. They tested the feasibility of developing and implementing such measures for 518 patients with heart attack, 396 with congestive heart failure, and 601 with hypertension, who were enrolled in four major U.S. managed care plans at six geographic sites. They found that constructing meaningful clinical performance measures was straightforward, but implementing them on a large scale would require improved data systems. For example, diagnosis at discharge often didn't match administrative and records data, medical records were missing, and there were problems in identifying physicians accountable for care. In addition, many cases were excluded from measures of appropriate therapy because the measures were conditional on test results, and rates of performing key diagnostic tests were low.

Espino, J.U., and Wagner, M.M. (2001). "Accuracy of ICD-9-coded chief complaints and diagnoses for the detection of acute respiratory illness," in ***Proceedings of the AMIA Annual Fall Symposium, 2001.*** **Philadelphia: Hanley & Belfus; pp. 164-168.**

When clinicians fail to notice or report bioterrorist or naturally occurring disease outbreaks, public health systems are the next line of defense. Chief complaints and diagnoses from emergency departments (EDs) that are coded using the ICD-9 (International Classification of Diseases, Ninth Revision) and routinely collected for electronic submission of insurance claims have potential for use in public health surveillance, according to these authors. They constructed two detectors of acute respiratory illness: one based on ICD-9-coded chief complaints and one based on ICD-9-coded diagnoses, whose performance they measured against the human classification of cases based on review of ED reports. Using ICD-9-coded chief complaints, the sensitivity of detection of acute respiratory illness was 0.44 and its specificity was 0.97. The sensitivity and specificity using ICD-9-coded diagnoses were no different. These findings, coupled with the timeliness and electronic availability of such data, support use of detectors based on ICD-9-coding of ED chief complaints in public health surveillance.

Frosch, D., Porzsolt, F., Heicappell, R., and others. (2001). "Comparison of German language versions of the QWB-SA and SF-36 evaluating outcomes for patients with prostate disease." ***Quality of Life Research*** **10, pp. 165-173.**

The Quality of Well-Being Scale (QWB) and Medical Outcome Study 36-item short form (SF-36) are two different methods for measuring general health outcomes. Few studies have compared these approaches with one another, and no studies have compared German-language versions. These researchers administered the German QWB-SA and a German-language version of the SF-36 to clinical population groups with current diagnoses of prostate cancer, benign hyperplasia of the prostate, colon cancer, and rectal cancer. The researchers obtained data from German clinics on quality of life measures, cancer stage, and disease state. The QWB-SA and SF-36 were highly correlated. The QWB-SA was systematically related to disease state. Those with no symptomatic evidence had the highest scores followed by those who were stable with no metastatic disease and those with metastatic progression. Similar patterns were found for most SF-36 scales. However, the SF-36 did not discriminate between those with no evidence of disease and those with stable disease without metastasis.

Jenders, R.A., and Shah, A. (2001). "Challenges in using Arden Syntax for computer-based nosocomial infection surveillance," in ***Proceedings of the AMIA Annual Fall Symposium, 2001.*** **Philadelphia: Hanley & Belfus; pp. 289-293.**

The average incidence of nosocomial (hospital-acquired) infection (NI) is 5 to 10 percent, sometimes reaching 28 percent in intensive care units. Detection of NI outbreaks typically requires daily manual review of microbiology laboratory test results, which is prone to error and may miss trends in infection. In order to facilitate the computer-based detection of NIs, these investigators created a two-phase system. The first phase uses Arden Syntax to filter microbiology laboratory data in order to retain only those results suggesting actual infection. The second phase compensates for the single-patient focus of most installations of Arden Syntax by using a statistical

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monitor to track results over many patients across multiple hospital inpatient units. Preliminary data suggest that the first phase provides a significant reduction in the volume of messages that must be processed. The authors conclude by suggesting improvements in the Arden Syntax that would facilitate detection of NIs.

Lobach, D.F., Low, R., Arbanas, J.A., and others. "Defining and supporting the diverse information needs of community-based care using the Web and hand-held devices," in *Proceedings of the AMIA Annual Fall Symposium, 2001.* Philadelphia: Hanley & Belfus; pp. 398-402.

Economic factors are shifting the focus of care from the hospital to the community. Community-oriented initiatives, however, often require partnerships that cross traditional boundaries. As a result, the initiatives often lack a common information infrastructure to support the care delivery process. These authors created and implemented a Web-based information and communication system to support the needs of a community-based healthcare project for Medicaid beneficiaries in Durham County, NC. They identified the relevant information requirements and stakeholders for community-based care and created a system interface that required only a Web browser and an information distribution system that used electronic mail. They also explored the use of hand-held devices by providers to download information from a clinical database and to access and collect patient information at the point of contact. The overall goal of the project was to lower costs and improve the quality of community-based health care through improved handling of information.

Ortiz, E., Meyer, G., and Burstin, H. (2001) "The role of clinical informatics in the Agency for Healthcare Research and Quality's efforts to improve patient safety." in *Proceedings of the AMIA Annual Fall Symposium, 2001.* Philadelphia: Hanley & Belfus; pp. 508-512.

The Institute of Medicine (IOM) issued a report on medical errors in 1998, which estimated that up to 98,000 people die in U.S. hospitals each year from errors. This report raised concerns about patient safety and suggested that this public health problem should be addressed like other epidemics such as heart disease, diabetes, and obesity. In 2001, the IOM released a followup report encompassing a broader range of quality issues. It concluded that the U.S. health care system is outmoded and incapable of providing consistent, high-quality care. The report also outlined a strategy for redesigning U.S. healthcare delivery to achieve safe, dependable, high-quality care, which emphasizes information technology as an integral part of the solution. The Agency for Healthcare Research and Quality is making a substantial investment in initiatives to reduce medical errors and improve patient safety. AHRQ developed a series of research solicitations that form an integrated set of activities to design and test best practices for reducing errors in multiple health care settings. This paper discusses the components of the program and the central role of medical informatics research in the Agency's efforts to improve patient safety in America.

Patrick, D.L., Engelberg, R.A., and Curtis, J.R. (2001, September). "Evaluating the quality of dying and death." *Journal of Pain and Symptom Management* 22(3), pp. 717-726.

Improving the quality of end-of-life care is a priority for patients, families, and clinicians. These authors propose a model to evaluate the quality of dying and death based on concepts elicited from literature review, interviews with people with and without chronic and terminal conditions, and consideration of desirable measurement properties. They defined the quality of dying and death as the degree to which a person's preferences for dying and the moment of death agree with observations of how the person actually died, as reported by others. They modified expected level of agreement by circumstances surrounding death that may prevent following a patient's prior preferences. The researchers derived six conceptual domains (symptoms and personal care, preparation for death, moment of death, family, treatment preferences, and whole person concerns) that encompassed 31 aspects of care. These could be rated by patients and others as to their importance prior to death and assessed by significant others or clinicians after death to assess the quality of the dying experience.

Peleg, M., Ogunyemi, O., Tu, S., and others. (2001). "Using features of Arden Syntax with object-oriented medical data models for guideline modeling," in *Proceedings of the AMIA Annual Fall Symposium, 2001.* Philadelphia: Hanley & Belfus; pp. 523-527.

Computer-interpretable guidelines (CIGs) that are linked to electronic medical records (EMRs) can provide patient-specific advice automatically at the point of care. There are several methods for

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encoding guidelines to make them computer-interpretable. All of these methods have constructs for defining criteria that relate medical concepts to patient data. Although each method has different constructs, they all use some sort of expression language for specifying local decision and eligibility criteria and a data model for medical concepts and patient data. These investigators describe how they used features of Arden Syntax with object-oriented medical data models for guideline modeling.

Sanders, G.D., Nease, Jr., R.F., and Owens, D.K. (2001). "Publishing Web-based guidelines using interactive decision models." *Journal of Evaluation in Clinical Practice* 7, pp. 175-189.

These investigators developed a Web-based system, ALCHEMIST, that automatically creates evidence-based guidelines which can be disseminated, tailored, and updated over the Web. They demonstrated the use of the ALCHEMIST system to develop Web-based guidelines for three clinical scenarios: chlamydia screening for adolescent women, antiarrhythmic therapy for the prevention of sudden cardiac death, and genetic testing for the BRCA breast cancer mutation. Using ALCHEMIST, they demonstrated that tailoring a guideline for a population at high-risk for chlamydia changes the recommended policy for control of the infection from contact tracing of reported cases to a population. They used ALCHEMIST to incorporate new evidence about the effectiveness of implantable cardioverter defibrillators (ICD) and demonstrated that the cost-effectiveness of ICD use improved from $74,000 per quality-adjusted life year (QALY) gained to $34,500 per QALY gained. Finally, they showed how a clinician could use ALCHEMIST to incorporate a woman's preferences for various health states to develop patient-specific recommendations for BRCA testing, which improved quality-adjusted life expectancy by 37 days.

Schneeweiss, S., Seeger, J.D., Maclure, M., and others. (2001). "Performance of comorbidity scores to control for confounding in epidemiologic studies using claims data." *American Journal of Epidemiology* 154, pp. 854-864.

Coexisting illnesses (comorbidity) with the one being studied is an important confounder in epidemiologic studies. These authors compared the predictive performance of comorbidity scores for use in epidemiologic research with administrative databases. The study participants were elderly Canadians who received angiotensin-converting enzyme inhibitors or calcium channel blockers at least once during the observation period. The researchers computed six scores for all 141,161 participants during the baseline year (1995-1996). Endpoints were death and health care use during a 12-month followup (1996-1997). Four scores based on the International Classification of Diseases, Ninth Revision (ICD-9) generally performed better at predicting 1-year mortality than the medication-based Chronic Disease Score (CDS)-1 and CDS-2. Number of distinct medications used was the best predictor of future physician visits and expenditures and a good predictor of mortality.

Shekelle, P.G., Park, R.E., Kahan, J.P., and others. (2001). "Sensitivity and specificity of the RAND/UCLA appropriateness method to identify the overuse and underuse of coronary revascularization and hysterectomy." *Journal of Clinical Epidemiology* 54, pp. 1004-1010.

The RAND/UCLA appropriateness method, which combines expert opinion with scientific evidence, has been used frequently in the United States and other countries to assess the appropriateness of medical procedures. It has been criticized for being potentially sensitive to panelist selection and potentially susceptible to misclassification (that is, labeling a procedure "inappropriate" when it was "appropriate" and vice versa). These researchers performed a parallel three-way replication of the appropriateness panel process for each of two procedures, coronary revascularization and hysterectomy. They demonstrated that the sensitivity and specificity of this method for identifying the overuse and underuse of coronary revascularization and the overuse of hysterectomy were comparable to the sensitivity and specificity of commonly used diagnostic tests. However, they cautioned that the imperfection of this method can lead to a clinically significant misclassification bias.

Tsui, F-C., Wagner, M., Datao, V., and Chang, C-C. (2001). "Value of ICD-9 coded chief complaints for detection of epidemics," in *Proceedings of the AMIA Annual Fall Symposium, 2001*. Philadelphia: Hanley & Belfus, pp. 711-715.

The threat of bioterrorism has elevated the importance of improving the Nation's capability to detect epidemics. These researchers assessed the usefulness for early detection of epidemics of chief complaints, coded using the ICD-9 (International Classification

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of Diseases, Ninth Revision), at the time of a patient's arrival at the emergency department. The authors measured sensitivity, positive predictive value, and timeliness of influenza detection using a respiratory set (RS) of ICD-9 codes and an influenza set (IS). They also measured inherent timeliness of these data using the cross-correlation function. For a 1-year period, the detectors had a sensitivity of 100 percent (1/1 epidemic) and positive predictive values of 50 percent for RS and 25 percent for IS. The timeliness of detection using ICD-9-coded chief complaints was 1 week earlier than the detection using pneumonia and influenza deaths (the gold standard). The inherent timeliness of ICD-9 data measured by the cross-correlation function was 2 weeks earlier than the gold standard.

Zeng, X., and Wagner, M. (2001). "Modeling the effects of epidemics on routinely collected data," in *Proceedings of the AMIA Annual Fall Symposium, 2001*. Philadelphia: Hanley & Belfus; pp. 781-785.

The development of computerized epidemic early detection systems has stimulated interest in new approaches to public health surveillance based on analysis of routinely collected data. The key underlying this new paradigm is that epidemics perturb the normal patterns of over-the-counter drug purchases; work and school absenteeism; emergency room visits; and other routinely collected data. These authors reviewed behavioral and cognitive models of patients' responses for diseases that would cause symptoms similar to those caused by known bioterrorism agents. They combined ideas from these models with a model of early detection of bioterrorism attack from routinely collected data. They conducted a literature review on factors influencing patients' behaviors and the pattern of health service use after onset of symptoms such as shortness of breath, which would conceivably be a result of diseases caused by bioterrorism attacks. The study focused on human behavior, such as care seeking and information seeking, in the period between the onset of initial symptoms and the first visit to health care facilities. The goal was to build a model relating known factors about these behaviors and their effects on routinely collected data, which may be useful to researchers in early bioterrorism detection, simulation, and response policy analysis. ■

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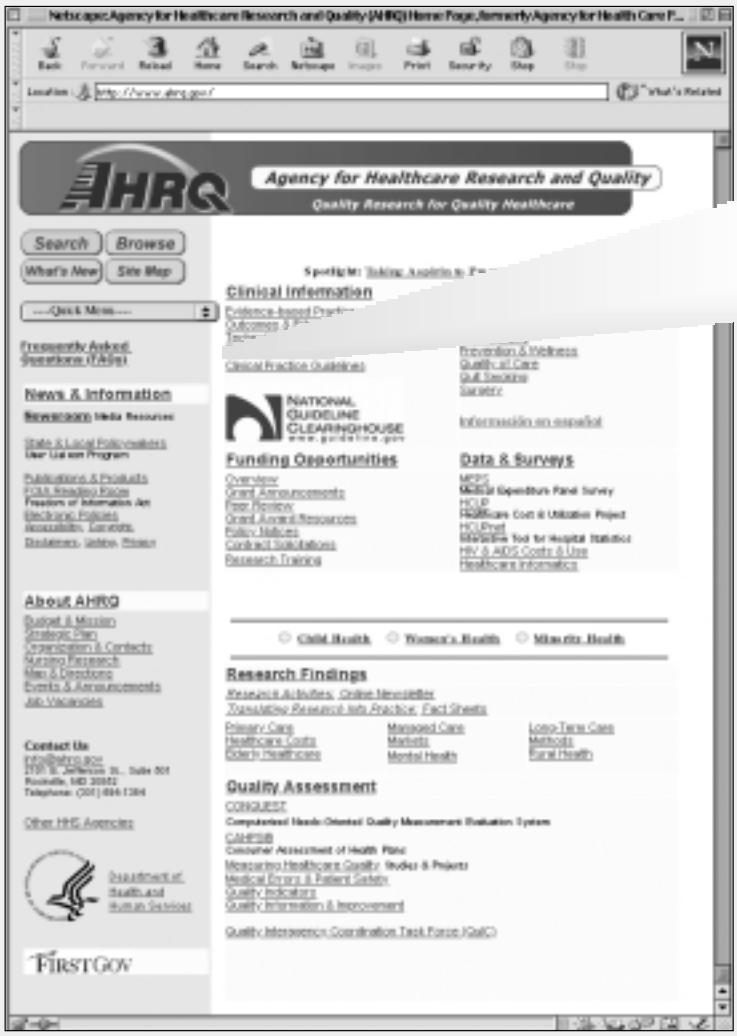

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