AHRQ

Research Activities

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Highlights

Departments

Regular Features

Risk of uterine rupture during labor is higher for women with a prior cesarean delivery

Researchers at the University of Washington have found that women with a prior cesarean section who undergo labor for their second child are at increased risk for rupture of the uterus compared with women who elect to have another c-section. Uterine rupture is an uncommon but serious obstetrical condition that may result in hysterectomy, urologic injury, or a need for blood transfusion for the mother and neurologic impairment in the infant. Each year in the United States, approximately 60 percent of women with a prior cesarean delivery elect to have a trial of labor in a subsequent pregnancy.

The researchers analyzed the records of more than 20,000 women who had their first child delivered by c-section in Washington State from 1987 through 1996 and also delivered a second child either by cesarean or following labor during the same time period. They found that a total of 91 women had a uterine rupture during the second birth. Women with a spontaneous onset of labor were 3.3 times more likely to have a uterine rupture than women who had a repeat c-section without labor. Uterine rupture was highest when prostaglandin—a naturally occurring substance in the body that is sometimes used to induce labor—was used for the second birth. Compared with women who had repeat c-sections without labor, women who were induced without prostaglandin were nearly five times more likely to have a uterine rupture, and women with prostaglandin induction were 15 times more likely to have uterine rupture.

The study was led by Mona Lydon-Rochelle, Ph.D., and supported by the Agency for Healthcare Research and Quality (National Research Service Award T32 HS00034) and the National Institute of Nursing Research at the National Institutes of Health.

For more information, see "Risk of uterine rupture during labor among women with a prior cesarean delivery," by Dr. Lydon-Rochelle, Victoria L. Holt, Ph.D., Thomas R. Easterling, M.D., and Diane P. Martin, Ph.D., in the July 5, 2001 *New England Journal of Medicine* 345(1), pp. 3-8. ■

Organ donations increase when families have good information about the donation process

People often do not have all the information they need to make decisions about donating a family member's organs nor do they have a clear understanding of the donation process, according to a new study funded by the Agency for Healthcare Research and Quality (HS08209). Almost 80,000 patients are waiting for organ donations for transplantation at a time when the United States is experiencing a critical shortage of organs. Evidence shows that families' refusal to consent to patient organ donation may be a factor in limiting the availability of organs.

In the largest, most comprehensive study ever carried out to understand how family members make decisions about organ donations, researchers at Case Western Reserve University and the University of Pittsburgh conducted interviews with health care providers, organ donation professionals, and adult family members at nine trauma hospitals, including two pediatric hospitals. The hospitals were located in southwest Pennsylvania and northeast Ohio. Interviews were conducted over a 5-year period from January 1994 to December 1999; medical records also were reviewed.

The researchers found that:

- Families who knew the patient's wishes were seven times as likely to donate organs as those who didn't know the patient's wishes.
- Families who were kept updated about their loved ones' condition and got timely and detailed information on organ donation were five times as likely as those who didn't to donate.
- Families who met with organ donation professionals about the donation process were more than three times as likely as those who did not to donate, despite sociodemographic factors or preconceived attitudes that would tend to negate a decision to donate.
- Families who first met with the health care provider and then with an organ donation professional were almost three times as likely as those who didn't to consent to organ donation.

In addition, the authors conclude that the study supports regulations implemented in August 1998 by the Health Care Financing Administration, now known as the Centers for Medicare and Medicaid Services, requiring that only trained organ donation professionals approach families about donation requests. According to lead author Laura A. Siminoff, Ph.D., of Case Western Reserve University, public education has been key in building awareness about the success of organ donations and transplantation and improving the health of critically ill patients. As a result, the demand for organs has increased dramatically since 1988. However, the supply of organs has not kept pace with the demand. This research helps explain why, notes Dr. Siminoff.

Earlier this year, Health and Human Services Secretary Tommy G. Thompson launched a national campaign to encourage Americans to agree to organ donation. In addition to a partnership with businesses and others to promote donation in the workplace, the Secretary unveiled a model national organ donor card that includes space for signatures of the donor and two witnesses. The purpose of the witness signatures is to help ensure that family members or others who may need to consent to donation will know the patient's wishes.

For more information, see "Factors influencing families' consent to donation of solid organs for transplantation," by Dr. Siminoff, Nahida Gordon, Ph.D., Joan Hewlett, Ph.D., and Robert M. Arnold, M.D., in the July 4, 2001 *Journal of the American Medical Association* 286(1), pp. 71-77. ■

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Massage may be an effective alternative to conventional medical care for persistent back pain

Back pain is one of the most common reasons that Americans use complementary and alternative medical (CAM) therapies. For example, in 1997, one-third of U.S. adults with low back pain visited a CAM provider—usually chiropractors, massage therapists, and acupuncturists—for their problem. According to a recent study supported in part by the Agency for Healthcare Research and Quality (HS09351), massage effectively relieved persistent back pain and/or disability, but Traditional Chinese Medical (TCM) acupuncture by licensed acupuncturists was relatively ineffective.

Researchers led by Daniel C. Cherkin, Ph.D., of the Group Health Cooperative, Seattle, WA, randomized 262 patients (aged 20 to 70 years) with persistent back pain to receive acupuncture (94 patients), therapeutic massage (excluding acupressure and shiatsu that may have effects similar to acupuncture) that focused on manipulation of soft tissues (78), or self-care educational materials that included recommended exercises (90). Patients were allowed up to 10 massage or acupuncture visits over 10 weeks. The researchers assessed symptoms (0-10 scale, with 10 being most severe symptoms) and dysfunction (0-23 scale, with 23 being greatest dysfunction) by telephone interviews initially and 4, 10, and 52 weeks later.

After 10 weeks, massage patients had less severe symptoms than self-care patients (3.41 vs. 4.71) and less dysfunction than self-care (5.88 vs. 8.92) and acupuncture (5.89 vs. 8.25) patients. Only 5 percent of patients in the massage group compared with 19 percent in the acupuncture and self-care groups reported more than a week of restricted activity. After 1 year, massage was no better than self-care, but it was better than acupuncture at decreasing symptoms (3.08 vs. 4.74) and dysfunction (6.29 vs. 8.21). However, because many acupuncturists felt constrained by protocols that prohibited them from using herbs and Chinese massage, it is unclear whether a less constrained approach would have been more effective. It also is unclear which aspect of massage therapy makes it effective.

See "Randomized trial comparing Traditional Chinese Medical acupuncture, therapeutic massage, and self-care education for chronic low back pain," by Dr. Cherkin, David Eisenberg, M.D., Karen J. Sherman, Ph.D., and others, in the April 2001 *Archives of Internal Medicine* 161, pp. 1081-1088. ■

Sepsis evaluation in hospitalized infants with lower respiratory tract infections varies greatly

Infants 3 months or younger suffering from bronchiolitis, a viral respiratory infection, usually have a fever. Even though evidence suggests a low chance of serious bacterial infection (SBI, sepsis) in feverish infants with bronchiolitis, sepsis evaluation is common and varies substantially among pediatric hospitals, according to a study supported by the Agency for Healthcare Research and Quality (contract 290-95-0042).

After controlling for illness severity, infant age, and pediatric intensive care unit (PICU) stay, 10

continued on page 4

Also in this issue:

Sepsis evaluation in infants

continued from page 3

hospitals studied varied 46-fold in the likelihood that an infant would undergo a sepsis evaluation (from 13 percent to 84 percent of infants). Only 1.3 percent of infants were found to have SBI. Unnecessary evaluation or treatment for sepsis in infants with bronchiolitis has been shown to lead to increased costs, testing, longer hospital stays, and exposure to antibiotics. In this study, sepsis evaluation resulted in an increase of more than $1,777 in costs and about a 1-day longer PICU stay. These results are based on analysis of the medical records of 303 infants 3 months or younger, who were hospitalized for bronchiolitis in 1995 and 1996 in 1 of 10 pediatric hospitals.

Infants with a sepsis evaluation (175 out of 303) received blood, urine, or cerebrospinal fluid culture or parenteral antibiotics. Sicker and younger infants with higher fevers who received PICU treatment were more likely to be evaluated for sepsis, but the risk of SBI was low even for these infants. The researchers recommend that hospitalized infants with typical bronchiolitis be observed without a sepsis evaluation or antibiotic treatment for atypical signs or symptoms inconsistent with bronchiolitis. If these are present, cultures should be obtained and antibiotic treatment initiated.

More details are in "Variation among 10 pediatric hospitals: Sepsis evaluations for infants with bronchiolitis," by Juli A. Antonow, M.D., M.H.A., Randall J. Smout, M.S., Julie Gassaway, R.N., M.S.N., and others, in the April 2001 *Journal of Nursing Care Quality* 15(3), pp. 39-49. ■

Heart Disease

Study finds no differences in heart attack followup care provided to Medicare fee-for-service and HMO patients, but effective drugs are underprescribed for both

Type of Medicare coverage may make no difference when it comes to the likelihood that elderly beneficiaries seen by doctors for care following a heart-attack will receive effective treatment, according to a new study supported by the Agency for Healthcare Research and Quality (HS09718). Findings reported by a team of Harvard Medical School researchers indicate that patients in Medicare's traditional fee-for-service program were approximately just as likely as those in Medicare HMOs to be prescribed three drugs proven effective for improving the survival of older patients who have had heart attacks—beta blockers, which slow the heart rate and prevent abnormal heart rhythms; ACE inhibitors, which improve heart function; and cholesterol-lowering drugs, which reduce atherosclerosis.

Furthermore, although the researchers were unable to say what percentages of the patients should have received these medications, the usage rates of beta blockers and cholesterol-lowering drugs were low—about a third of the patients were prescribed them. This is about the same percentage that were given calcium channel blockers, which are less effective but continue to be prescribed. These low rates indicate that there are significant opportunities for improving the quality of post-acute myocardial infarction care for both Medicare fee-for-service and HMO patients.

Estimates from the National Health and Nutrition Examination Survey suggest that at least 53 percent of men and 64 percent of women age 65 and older with coronary artery disease have low-density lipoprotein levels that would benefit from cholesterol-lowering therapy. Also, randomized trials of beta blockers that included elderly heart attack patients indicate that elderly patients may benefit more than younger patients from these drugs.

The researchers also found no major differences in the percentages of patients in both types of Medicare plans who were told by their doctors to exercise more and/or quit smoking. The only significant difference

continued on page 5

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Heart attack followup care

continued from page 4

was that the traditional Medicare patients were referred more often to cardiac rehabilitation programs, possibly because of professional fees for this service under fee-for-service care.

When the researchers studied elderly Medicare patients as a whole, they found several unexplained regional differences among patients who lived in either the Northeast, California, or Florida. Those in Northeastern States were prescribed beta blockers and ACE inhibitors more often than were Medicare patients in California or Florida, but they were less likely to be given drugs to lower their cholesterol levels. According to the study's leaders, John Z. Ayanian, M.D., and Barbara J. McNeil, M.D., Ph.D., these variations suggest the need for tailoring educational efforts to the geographic area.

The study findings are based on interviews conducted in 1996 and 1997 with roughly 1,000 Medicare patients aged 65 and older approximately 18 months after discharge from a hospital for heart attack.

For more information, see "Quality of ambulatory care after myocardial infarction among Medicare patients by type of insurance and region," by Mary E. Seddon, M.B., Ch.B., M.P.H., Dr. Ayanian, Mary Beth Landrum, Ph.D., and others, in the July 8, 2001 *American Journal of Medicine* 111(1), pp. 24-32. ■

Variation in use of coronary angiography after heart attack may reflect use in patients who don't need it

Use of coronary angiography to diagnose heart problems in heart attack patients varies substantially across geographic regions. The source of these differences apparently is not overuse of the procedure in some regions (use for patients who clearly don't need it) or underuse (non-use for patients whose clinical criteria warrant its use) in others. Rather, regional variations in use of the procedure are due primarily to its use in patients for whom angiography is judged either appropriate but not necessary or uncertain.

It is these gray areas that prompt varied clinical decisions that cannot easily be judged as appropriate or inappropriate care. Minimizing geographic variation in use of this procedure depends on better defining care for patients with discretionary indications, concludes Edward Guadagnoli, Ph.D., of Harvard Medical School.

In a study supported by the Agency for Healthcare Research and Quality (HS08071), Dr. Guadagnoli and colleagues used statistical models to estimate the true underlying rate of angiography for 95 hospital referral regions and measured the degree of variability within each appropriateness category (necessary; appropriate, but not necessary; uncertain; and unsuitable) by calculating the difference between the high and low rates for all regions. Criteria for suitability for the procedure included factors such as duration of symptom onset, patient age, use of clot-busting (thrombolytic) therapy, and presence of a complication such as shock or chest pain.

The difference between high and low angiography use rates across regions was only 16.3 percent for patients identified as clearly unsuitable for the procedure. The greatest variation in use was for patients with indications judged appropriate but not necessary or uncertain. When the researchers accounted for regional variation associated with these indications, the difference between the high and low overall rates decreased from 33 percent to 11 percent. In contrast, variation in the overall rate remained high when researchers accounted for underuse in necessary situations and overuse in unsuitable situations.

More details are in "Impact of underuse, overuse, and discretionary use on geographic variation in the use of coronary angiography after acute myocardial infarction," by Dr. Guadagnoli, Mary Beth Landrum, Ph.D., Sharon-Lise T. Normand, Ph.D., and others, in the May 2001 *Medical Care* 39(5), pp. 446-458. ■

Researchers examine the accuracy of current technology for diagnosing acute cardiac ischemia

The accurate diagnosis and triage of patients with acute cardiac ischemia (ACI, unstable angina and/or heart attack), should increase their survival and reduce unnecessary hospital admissions. Four new studies by the New England Medical Center Evidence-based Practice Center (EPC) are summarized here. The researchers examined the accuracy and clinical effect of current technologies for diagnosing ACI in the emergency department (ED). The EPC's work is supported by the Agency for Healthcare Research and Quality (contract 290-97-0019) and led by Joseph Lau, M.D.

According to the first study, many of the current technologies for diagnosing ACI in the ED remain under-evaluated, especially regarding their clinical effect. The second study shows that out-of-hospital electrocardiography (ECG) is excellent for diagnosing acute myocardial infarction (AMI, heart attack) and very good for diagnosing ACI. According to the third study, echocardiography and nuclear scans with technetium-99m sestamibi imaging appear to have good diagnostic performance for selected low- and moderate-risk patients. In the fourth study, the researchers conclude that biomarkers alone will greatly under-diagnose ACI and are inadequate to make triage decisions in the ED.

Lau, J., Ioannidis, J.P., Balk, E.M., and others. (2001, May). "Diagnosing acute cardiac ischemia in the emergency department: A systematic review of the accuracy and clinical effect of current technologies." ***Annals of Emergency Medicine*** **37(5), pp. 453-460.**

These investigators performed a meta-analysis of selected studies published from 1966 through 1998 on the accuracy and clinical effect of diagnostic technologies for ACI. This revealed that single measurements of biomarkers (proteins or enzymes in the heart muscle, such as troponin 1, creatine(CK)-MB, and myoglobin) of patients arriving at the hospital ED have low sensitivity for AMI, but they do have high specificity. Serial measurements greatly increased the sensitivity for AMI, while maintaining excellent specificity. Diagnostic technologies to evaluate ACI in selected populations, such as ECG, sestamibi myocardial perfusion imaging, and stress ECG (ECG readings while a patient runs on a treadmill) may have very good to excellent sensitivity. However, they have only been studied in small, restricted ED populations.

The Goldman Chest Pain Protocol had good sensitivity (about 90 percent) for AMI but did not result in any differences in hospitalization rate, length of stay, or estimated costs in the single clinical effect study performed. Also, its applicability to patients with unstable angina has not been evaluated. The use of an Acute Cardiac Ischemia-Time-Insensitive Predictive Instrument (ACI-TIPI) led to the appropriate triage of 97 percent of patients with ACI arriving at the ED and reduced unnecessary hospitalizations. Overall, biomarkers were the least costly but had the lowest effectiveness for appropriate triage. ACI-TIPI was the most effective and cost-effective diagnostic technology.

Ioannidis, J.P., Salem, D., Chew, P.W., and Lau, J. (2001, May). "Accuracy and clinical effect of out-of-hospital electrocardiography in the diagnosis of acute cardiac ischemia: A meta-analysis." ***Annals of Emergency Medicine*** **37(5), pp. 461-470.**

Out-of-hospital ECG enables paramedics to begin thrombolytic (clot-busting) therapy for patients with suspected AMI before they arrive at the hospital. Out-of-hospital ECG has excellent diagnostic performance for AMI and very good performance for ACI, according to this study. Out-of-hospital thrombolysis also saved time from symptom onset to treatment and improved short-term mortality, with a less clear impact on long-term mortality. These

continued on page 7

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Diagnosing acute cardiac ischemia

continued from page 6

findings are based on a meta-analysis of 11 studies involving 7,508 patients.

Five studies showed a pooled diagnostic sensitivity of 76 percent for ACI and a specificity of 88 percent. The respective figures in eight studies for AMI were a sensitivity of 68 percent and specificity of 97 percent. This diagnostic accuracy of out-of-hospital ECG for AMI and ACI was similar to that of the standard ECG, which is the gold standard in the management of patients with chest pain. Both in randomized and nonrandomized studies, out-of-hospital thrombolysis shortened the time from onset of symptoms to thrombolytic treatment by 40 to 60 minutes. Hospital mortality was reduced by 16 percent. There was no clear effect on long-term mortality, but data were sparse.

When combined with thrombolysis, out-of-hospital ECG may save about 45 minutes to 1 hour compared with waiting to give thrombolysis at the hospital. These findings were based on substantial evidence from patient groups with few exclusion criteria. Therefore, the evidence appears to support consideration of an out-of-hospital ECG for all patients with chest pain when first seen by paramedics.

Ioannidis, J.P., Salem, D., Chew, P.W., and Lau, J. (2001, May). "Accuracy of imaging technologies in the diagnosis of acute cardiac ischemia in the emergency department: A meta-analysis." ***Annals of Emergency Medicine*** **37(5), pp. 471-477.**

Echocardiography and nuclear scans with technetium-99m sestamibi scanning offer two noninvasive options for assessing patients with suspected ACI. Both imaging technologies appear to have very good diagnostic performance for selected low- and moderate-risk patient groups. However, more evidence should be accumulated on their performance in the ED setting, conclude the researchers.

Their findings are based on a meta-analysis of 10 studies of rest echocardiography, 2 studies of dobutamine stress echocardiography, and 6 studies of technetium-99m sestamibi scanning. Patients often were highly selected to represent low- or moderate-risk groups. When limited to ED studies, rest echocardiography showed excellent sensitivity of 93 percent and good specificity of 66 percent. The results were similar when all studies were considered, including reports of patients admitted to the hospital and those sent to the cardiac care unit. There were insufficient studies on stress echocardiography in the ED to properly assess the technology.

Technetium-99m sestamibi scanning also showed excellent sensitivity (92 to 100 percent) and good specificity (49 to 84 percent) for AMI. For ACI, the random-effects pooled sensitivity was 89 percent, and pooled specificity was 77 percent.

Balk, E.M., Ioannidis, J.P., Salem, D., and others. (2001, May). "Accuracy of biomarkers to diagnose acute cardiac ischemia in the emergency department: A meta-analysis." ***Annals of Emergency Medicine*** **37(5), pp. 478-494.**

Biomarkers for ACI that have been studied include creatine kinase (CK) and CK-MB, myoglobin, and troponin I and T, which are heart muscle enzymes or proteins. The limited evidence available to evaluate the diagnostic accuracy of biomarkers for ACI suggests that biomarkers have very low sensitivity to diagnose ACI. Biomarker tests had sensitivities of 16 to 19 percent, and serial biomarker tests had sensitivities of 31 to 45 percent. Thus, many patients with unstable angina would be missed by using biomarkers alone, and biomarkers alone would be inadequate to make triage decisions in the ED.

Individual biochemical markers drawn in the ED had uniformly low test sensitivity for AMI (less than 50 percent) but high specificity (more than 85 percent). Myoglobin testing appeared to have slightly higher sensitivity than the other biomarkers, although few studies had examined the diagnostic performance of troponin testing. Myoglobin testing also had generally higher sensitivity than CK or CK-MB testing for diagnosis of AMI. For AMI diagnosis alone, multiple testing for individual biomarkers over time substantially improved sensitivity, while retaining high specificity, at the expense of additional time.

The researchers conducted a meta-analysis of studies published between 1966 and 1998 on the diagnostic performance of these biomarkers for AMI and ACI. Only four studies evaluated all patients with ACI: 73 focused only on diagnosis of AMI. The researchers conclude that further studies are needed on the clinical effects of using biomarkers for patients with ACI in the ED and on optimal timing of serial testing and in combination with other tests. ■

Newborns weighing 2.2 pounds or less have long-term behavior problems related mostly to social and attention deficits

Extremely low birthweight (ELBW) babies, who weigh about 2.2 pounds or less at birth, often suffer from major disabilities such as cerebral palsy, mental retardation, blindness, and deafness. A new four-country study of ELBW babies shows that 8 to 10 years later, these children suffer from behavioral difficulties as well. They tend to have trouble making friends, be immature, repeat acts, be impulsive, and have trouble with concentration.

In spite of cultural differences, ELBW children in the Netherlands, Germany, Canada, and the United States had very similar difficulties in thought, social interactions, and attention compared with normal birthweight (NBW) babies or national norms. This suggests that biological mechanisms contribute to the behavior problems of ELBW children. They should be monitored for the development of these behavior problems in order to prevent subsequent learning difficulties and improve social integration, concludes Elysee T.M. Hille, Ph.D., of TNO Prevention and Health, the Netherlands.

In a study supported by the Agency for Healthcare Research and Quality (HS08385), Dr. Hille and her European and North American colleagues examined results of the Child Behavior Checklist (CBCL) completed by parents or guardians of 78 to 150 ELBW children in each of the four countries. The children were 8 to 10 years of age at the time of the study. The "total problem score" resulting from the CBCL comprises eight behavior scales divided into three bands: aggressive and delinquent behavior (externalizing score); anxious, somatic, and withdrawn behavior (internalizing score); and social, thought, and attention problems.

ELBW children in each country had significantly higher scores only for social, thought, and attention problems, which were from 0.5 to 1.2 standard deviations higher in ELBW than NBW children or national norms. ELBW children were no more likely than other children to be withdrawn, anxious, depressed, aggressive, or delinquent (steal or swear). Central nervous system insult due to prenatal or neonatal complications can explain some of the behavior problems, notes Dr. Hille. Another possible mechanism for the social difficulties might be differences in parental behavior as a result of life-threatening events in the perinatal period. Also, problems with social relationships have been found to be more frequent in ELBW children, whose poor processing of multiple cognitive stimuli may produce problems in social situations that demand processing of several cues at the same time.

For more information, see "Behavioural problems in children who weigh 1,000 grams or less at birth in four countries," by Dr. Hille, A. Lya den Ouden, M.D., Saroj Saigal, M.D., and others, in the May 26, 2001 *Lancet* 357, pp. 1641-1643. ■

Elderly patients have more complications and are more likely to die after noncardiac surgery than younger patients

Elderly patients who undergo noncardiac surgery have a higher rate of complications and death and stay in the hospital an average of 1 day longer than similar non-elderly patients. However, even in patients age 80 and older, the rate of complications is not prohibitive, and mortality is still low, according to a study supported by the Agency for Healthcare Research and Quality (HS06573). These findings suggest the need to develop strategies to reduce postsurgical complications and improve physical recovery of elderly patients after noncardiac surgery, conclude Thomas H. Lee, Jr., M.D., M.S., of Harvard Medical School, and Lee Goldman, M.D., M.P.H., of the University of California School of Medicine, San Francisco.

continued on page 9

Noncardiac surgery in elderly patients

continued from page 9

The researchers studied the medical charts of 4,315 patients 50 years of age or older who underwent nonemergency major noncardiac procedures at an urban medical center to identify perioperative complications, in-hospital mortality, and length of hospital stay. Patients 70 to 79 years of age had nearly double the likelihood of perioperative complications or in-hospital death (odds ratio, OR 1.8), and those 80 years of age or older had slightly more than double the likelihood of such problems (OR 2.1) compared with younger patients.

For example, major cardiac and noncardiac perioperative complications occurred in 4.3 percent of patients aged 59 or younger, 5.7 percent of patients 60 to 69 years of age, 9.6 percent of patients 70 to 79 years of age, and 12.5 percent of patients aged 80 or older. In-hospital mortality was significantly higher in patients 80 years of age or older than in younger patients (2.6 vs. 0.7 percent), and they stayed an average of 1 day more in the hospital. Major cardiac complications ranged from unstable angina and heart attack to cardiac arrest. Major noncardiac complications ranged from pulmonary embolism and respiratory failure to acute renal failure or stroke.

See "Impact of age on perioperative complications and length of stay in patients undergoing noncardiac surgery," by Carisi A. Polanczyk, M.D., Sc.D., Edward Marcantonio, M.D., M.S., Dr. Goldman, and others, in the April 17, 2001 *Annals of Internal Medicine* 134(8), pp. 637-643. ■

Hospitalization of the elderly for pneumonia and heart rhythm problems rose dramatically in the 1990s

Pneumonia and heart rhythm disorders are common and costly health problems among the elderly. The type of pneumonia and the type of heart arrhythmia suffered by elderly Medicare patients determine their risk of hospitalization. Two studies by researchers at the Agency for Healthcare Research and Quality show a dramatic increase in hospitalization of elderly Medicare patients for certain types of pneumonia and heart arrhythmias during the 1990s. The studies are summarized here.

Baine, W.B., Yu, W., and Summe, J.P. (2001, July). "Epidemiologic trends in the hospitalization of elderly Medicare patients for pneumonia, 1991-1998." ***American Journal of Public Health*** **91(7), pp. 1121-1123.**

The risk that elderly Medicare patients would be hospitalized for pneumonia from 1991 to 1998 varied by pneumonia type, race, and sex. For example, hospitalizations for aspiration pneumonia (pneumonitis due to inhalation of food or vomit) nearly doubled during the 8-year period, far outpacing growth in the Medicare population. This type of pneumonia had a very high case-fatality rate, disproportionately affected black men, and represented a "smoldering epidemic," according to the investigators. They analyzed a 5 percent sample of Medicare hospital inpatient bills for patients 65 years and older who were discharged from 1991 through 1998 with a principal diagnosis of pneumonia.

Aspiration pneumonia and pneumonia caused by an "unspecified organism" accounted for 77 percent of pneumonia hospitalizations in 1998. All pneumonia diagnoses differed markedly in age-specific hospitalization by case-fatality rates, race, and mean hospital and intensive care stays. For example, aspiration pneumonia had the highest case-fatality rate (23 percent) during hospitalization, followed by pneumonia due to staphylococci (21 percent), pseudomonas (16 percent), *Klebsiella pneumoniae* (14 percent), and "other gram-negative bacteria" (11 percent). Fatal outcomes were least likely with pneumococcal (8 percent) or *Haemophilus influenzae* (4 percent) pneumonia.

The age-adjusted risk of hospitalization was higher among blacks than among whites of the same sex for aspiration pneumonia and pneumonia due to *K. pneumoniae*. In addition, only black men had significantly higher rates of hospitalization for pneumonia due to an unspecified organism. White men were at higher risk of being hospitalized than black men for pneumococcal pneumonia. Whites of both sexes were at higher risk than blacks for being hospitalized for pneumonia due to *H. influenzae*. Staphylococcal and pseudomonal pneumonia used the most health care resources, measured by mean length of hospital stay (12.4 and 11.9 days,

continued on page 10

Hospitalization of the elderly

continued from page 9

respectively) and intensive care (1.6 days each). Pneumonia due to unspecified organisms had the briefest mean hospital stay (7.6 days).

Baine, W.B., Yu, W., and Weis, K.A. (2001, June). "Trends and outcomes in the hospitalization of older Americans for cardiac conduction disorders or arrhythmias, 1991-1998." *Journal of the American Geriatrics Society* 49, pp. 763-770.

The aging heart is susceptible to various types of disturbances in normal heart rhythm and conduction of electrical impulses. Each type or arrhythmia or conduction disorder carries a different risk of hospitalization. These researchers reviewed a 5 percent sample of Medicare discharge files from 1991 through 1998 with a principal diagnosis of heart arrhythmia or conduction disorder to identify risk of hospitalization associated with each type of disorder. Analysis revealed striking and unexplained variation in hospitalization for these problems. The observed trends and variation were not homogeneous among principal diagnoses or between men and women or blacks and whites.

Annual hospitalizations for sinoatrial node dysfunction, atrial flutter, atrial fibrillation, or ventricular fibrillation increased more rapidly than did the elderly Medicare population. Yet, hospitalizations for ventricular extrasystoles (extra heart contractions) or asystole (no contractions, cardiac arrest) showed steep declines. Hospitalizations for sinoatrial node dysfunction (a group of rhythms with a nonsinus pacemaker), atrial fibrillation, Mobitz I, or complete atrioventricular block all increased steeply and continuously with patient age. In contrast, hospitalizations for atrial flutter or ventricular tachycardia or fibrillation peaked among those 75 to 84 years of age.

White men were at particularly high risk for hospitalization for atrial flutter or ventricular tachycardia or fibrillation, and among the white majority, men had higher hospitalization rates than women for nine of the most common diagnoses. Whites, particularly women, had the highest hospitalization rates for atrial fibrillation. Blacks, especially black women, had a disproportionately higher risk for hospitalization for the group of nonsinus pacemaker rhythms. ■

Outpatient geriatric evaluation and management programs slow functional decline of the elderly

Retirement of the baby boom generation, which will begin over the next decade, will bring with it widespread disability and increased long-term care costs. One way to slow functional decline among the elderly is through outpatient geriatric evaluation and management (GEM), concludes a study supported through an interagency agreement between the National Institute on Aging and the Agency for Healthcare Research and Quality (AG/HS11047). GEM uses an interdisciplinary team of healthcare professionals to assess an older person's medical, functional, psychosocial, nutritional, and environmental needs. The team then creates a comprehensive plan of care that is communicated to the person's physician and then implemented by the GEM interdisciplinary team.

Chad Boult, M.D., M.P.H., M.B.A., and his University of Minnesota colleagues compared the effects of outpatient GEM with those of usual health care on the functional ability and use and cost of healthcare services among Medicare beneficiaries age 70 and older who were at high risk of repeated hospitalization. They randomized 274 patients to usual care and 294 patients to GEM. The primary physicians of the participants assigned to usual care doctors were notified that their patients were at high risk for repeated hospitalizations so that they could modify ongoing usual care to address this risk.

After adjustment for patient differences, GEM patients were 33 percent less likely than usual care patients to lose functional ability, 40 percent less likely to experience increased health-related restrictions in their daily activities or to use home healthcare services, and 56 percent less likely to have possible depression during the next 12 to 18 months. Mortality rates, use of most health services, and total Medicare payments did not differ significantly between the two groups. The GEM intervention cost $1,250 per person. In communities where the usual primary care of older people is less ideal than the medically progressive study community, GEM may produce cost savings and even greater preservation of function.

More details are in "A randomized clinical trial of outpatient geriatric evaluation and management," by Dr. Boult, Lisa B. Boult, M.D., M.P.H., Lynne Morishita, M.S.N., and others, in the April 2001 *Journal of the American Geriatrics* Society 49, pp. 351-359. ■

Older adults often view incontinence as a normal part of aging and don't bother to discuss it with their doctors

Urinary incontinence (UI) affects more than 13 million Americans. Without proper medical attention, UI can become progressively worse and can cause rashes, pressure sores, and skin and urinary tract infections, as well as decreased social activity and quality of life. Incontinence can be improved, if not cured, in 8 out of 10 cases, but fewer than half of adults with UI mention the problem to their doctors. Apparently, it's not embarrassment or lack of awareness of treatment options that prevent older adults from discussing incontinence. Rather, they do not see UI as abnormal or a serious medical condition, concludes Stuart J. Cohen, Ed.D., of the University of Arizona.

In a study supported by the Agency for Healthcare Research and Quality (HS08716), Dr. Cohen and his colleagues surveyed 49 community-dwelling adults (age 60 and older) with UI who had recently seen a primary care physician (PCP) at one of 41 primary care practice sites. The participants had not been asked about UI, and they did not raise the issue. Of 149 patients with UI who were not screened for UI by their PCPs, only 31 percent initiated a discussion with their doctor about UI, while nearly 70 percent did not.

Adults who did not discuss UI were older, had less frequent leaking accidents and fewer nighttime voids, and were less bothered by UI than those who did. Even adults with a fairly high frequency of UI (average of 1.7 episodes per day) did not view UI as abnormal or a serious medical condition. The two main reasons why patients did not seek help were the perception that UI is not a big problem (45 percent) and is a normal part of aging (19 percent). These findings indicate that patient education is needed to address the view that UI is a normal part of aging and a problem of minimal importance, concludes Dr. Cohen.

More details are in "Why older community-dwelling adults do not discuss urinary incontinence with their primary care physicians," by Elizabeth Dugan, Ph.D., Christine P. Roberts, B.A., Dr. Cohen, and others, in the April 2001 *Journal of the American Geriatrics Society* 49, pp. 462-465. ■

Quality of Care

Health care organizations can reclaim dissatisfied patients by developing effective service recovery programs

When patients have a negative encounter with a health care provider, they are less likely to use that provider again, more likely to talk negatively about the provider, and more likely to shop for and switch to another provider. One way an organization can ensure repeat business is by developing a strong customer service program that includes service recovery as an essential component, suggest Dawn Bendall-Lyon, Ph.D., and Thomas L. Powers, Ph.D., of the University of Alabama at Birmingham.

Service recovery means that the service provider takes responsive action to "recover" lost or dissatisfied customers and convert them into satisfied customers. Service recovery cannot take place if the provider is unaware of dissatisfied customers. However, only 5-10 percent of unhappy patients actually complain following an unsatisfactory experience. Instead, many leave silently with the intention of never returning, and the organization loses the opportunity of addressing the problem.

In a study supported by the Agency for Healthcare Research and Quality (HS09446), the researchers identified the six steps involved in using complaint management as an effective service recovery tool:

1. Encourage complaints as a quality improvement tool (rather than a staff disciplinary tool).
2. Establish a team of representatives to handle complaints.
3. Resolve customer problems quickly and effectively.

continued on page 12

Customer service in health care organizations

continued from page 11

4. Develop a complaint database to identify trends and generate regular reports of complaint information to hospital management and staff.
5. Commit to identifying failure points in the service system.
6. Track trends and use information to improve service processes and minimize future complaints.

For more information, see "The role of complaint management in the service recovery process," by Drs. Bendall-Lyon and Powers, in the May 2001 *Joint Commission Journal on Quality Improvement* 27(5), pp. 278-286. ■

Health Care Delivery/Clinical Practice

Use of health services in the United States stays fairly constant over 40 years

Despite substantial changes in the organization and financing of health care in the United States, the estimated monthly use of health care services by Americans has remained remarkably consistent over the past four decades, according to a new study supported by the Agency for Healthcare Research and Quality.

In updating a landmark 1961 study by Kerr White, M.D., researchers led by Larry A. Green, M.D., of the Robert Graham Center in Washington, DC, found that in an average month, 800 of every 1,000 American men, women and children experience health-related symptoms, 217 visit a physician, and 8 are hospitalized. Fewer than 1 per 1,000 is admitted in a month to a teaching hospital. These figures are similar to Dr. White's earlier estimates that in an average month, 750 of 1,000 adults experienced an illness, 250 sought care from a physician, 9 were hospitalized, and 1 was referred to a teaching hospital.

The research team, which included David Lanier, M.D., of AHRQ's Center for Primary Care Research, based its estimates primarily on data from AHRQ's 1996 Medical Expenditure Panel Survey (MEPS), which tracks the health care use of a nationally representative sample of noninstitutionalized Americans. Other data sources, including a Gallup Survey conducted in April-May, 2000, were used to estimate the number of people who considered seeking health care and those who received care from a provider of complementary or alternative medicine.

According to the researchers, these findings reconfirm that the majority of medical care experienced by most Americans occurs outside hospitals. The findings suggest that researchers, educators, and clinicians should strive for a more balanced view of the "ecology" of health care. For example most measures of the quality of health care that are currently in use were developed for hospital settings, and much of the recent interest in medical errors has focused on the safety of patients in hospitals. As Dr. Green and his colleagues point out, the ecology model highlights the opportunities that would be missed by limiting quality and safety programs to hospitals. They call for comprehensive medical information systems that span all sites of care.

For details, see "The ecology of medical care revisited," by Dr. Green, George R. Fryer, Jr., Ph.D., Barbara P. Yawn, M.D., and others in the June 28, 2001, *New England Journal of Medicine* 344(26), pp. 2021-2025. Reprints (AHRQ Publication No. 01-R079) are available from AHRQ.** ■

Dental visits have remained stable over the past 20 years, despite some age and sociodemographic differences

Slightly more than 40 percent of the U.S. population visited the dentist at least once during 1977, 1987, and 1996. Despite the stability of dental visits over the past 20 years, there were distinct age and sociodemographic differences, according to a study by Richard J. Manski, D.D.S., M.B.A., Ph.D., and John F. Moeller, Ph.D., of the Agency for Healthcare Research and Quality, and William R. Maas, D.D.S., of the Centers for Disease Control and Prevention.

For example, children between 6 and 18 years of age had higher dental use rates than any other age group for each of the 3 years studied. Elderly people and children under age 6 were more likely to increase their dental use. For example, 41 percent of seniors and 21 percent of young children had at least one visit in 1996 compared with slightly less than 30 percent of seniors and less than 14 percent of young children in 1977.

As expected, poorer and less-educated individuals were less likely to have seen a dentist than people with more income or more education during each of these periods. However, the gap in use rates between lower and higher income people widened during the 20-year period. Also, women and employed people were more likely to have seen a dentist than were men or unemployed people during 1977, 1987, and 1996. Minorities were less likely than whites to have visited a dentist during each of the time periods studied, but the use rate gap narrowed by 1996.

The increased use of dental services by the elderly may reflect increased retention of natural teeth among seniors during the past 20 years. Greater dental use by children younger than age 6 may reflect an increased recognition of the importance of primary teeth, decreased tolerance of untreated decay, and/or more dentists who are willing to treat young children. These findings are based on an analysis of data on the civilian, community-based U.S. population during 1977, 1987, and 1996 from the National Medical Care Expenditure Survey (NMCES), National Medical Expenditure Survey (NMES), and Medical Expenditure Panel Survey (MEPS).

See "Dental services: Analysis of utilization over 20 years," by Drs. Manski, Moeller, and Maas, in the May 2001 *Journal of the American Dental Association* 132, pp. 655-664. Reprints (AHRQ Publication No. 01-R068) are available from AHRQ.** ■

Doctors' dissatisfaction grew steadily over the last decade

If Massachusetts is representative of the Nation as a whole, physicians' satisfaction with their professional lives has declined substantially in the last 15 years. This is the finding of a recent study sponsored by the Agency for Healthcare Research and Quality (HS08841) in conjunction with the Robert Wood Johnson Foundation. The researchers compared findings from surveys of Massachusetts primary care physicians in 1986 and in 1997.

By 1997, fewer than two-thirds of physicians were satisfied with most areas of practice, and fewer than half were content with the time they spent with patients, the amount of leisure time they had, and incentives for providing high quality care, as compared with physicians in 1986. However, respondents in both 1986 and 1997 said they were satisfied with the quality of care they were able to provide.

This research shows that changes in the way health care is delivered affect more than the patients. Both the public and private sectors need to work together to help health care professionals adapt to changes in the structure and organization of America's health care system, according to lead author Allison Murray, M.D., M.P.H., of the University of Calgary.

Dr. Murray and her colleagues also studied differences in the experiences of physicians working in different types of medical practices. Nearly half of physicians in practices that contract with multiple insurers reported one or more insurance company denials of patient care in the prior year. Physicians in these practice arrangements were highly dissatisfied with the procedures required for obtaining health plan authorization for patient care, compared with physicians who worked exclusively with one health plan. In addition, fewer than half of the physicians indicated that they would recommend the health plans with which they were associated to family members or friends.

According to AHRQ grantee Dana Gelb Safran, Sc.D., of the New England Medical Center, many of

continued on page 14

Doctor dissatisfaction

continued from page 13

these physicians began practicing decades ago in a system with virtually no oversight or restraint on spending. From their perspective, the changes in their professional lives have been profound and, for the most part, unwelcome. If we had tracked physician satisfaction in other parts of the country with health care markets similar to Massachusetts, we would expect similar findings, concludes Dr. Safran.

Dr. Safran points out that there are many reasons why physician satisfaction is important. Numerous studies have reported that dissatisfaction leads to increased physician turnover, which in turn leads to decreased continuity of care for patients and increased costs to the medical system. Other research has shown a positive relationship between physician satisfaction and patient satisfaction. Physician satisfaction also affects the morale of health care workers and staff who work closely with the physicians.

In conclusion, Dr. Safran noted that the changes that have come to the medical profession over the past 10-15 years have put enormous pressure on physicians with regard to their productivity and performance. And, as America's health care system continues to evolve, the satisfaction of patients and health care professionals alike will need to be monitored to assure the future quality of health care services.

For details, see, "Doctor discontent: A comparison of physician satisfaction in different delivery system settings, 1986 and 1997," by Dr. Murray, Jana E. Montgomery, Sc.M., Hong Chang, Ph.D., and others, in the July 2001 *Journal of General Internal Medicine* 15, pp. 451-459. ■

Health Care Costs and Financing

Hospital mergers may save less than anticipated

Hospital mergers may produce lower cost (expenses per admission) and price (revenue per admission) savings than previously estimated, according to a study published in the July-August 2001 issue of *Health Affairs*. The study was sponsored by the Agency for Healthcare Research and Quality (HS09201). The researchers examined changes in costs and prices for nearly 1,800 short-term hospitals from 1989 to 1997. In contrast to previous studies, which just compared merging hospitals with nonmerging hospitals in the same markets, the researchers separated nonmerging hospitals into two groups—those that were rivals of the merging hospitals and those that were not competitors.

When the researchers compared merging hospitals in high HMO-penetration markets with their nonmerging rivals, they found that the former group's average cost savings were only a modest 2.3 percentage points. They also found that the average price growth of merging hospitals in high HMO-penetration markets was almost identical to that of their competitors. On the other hand, the researchers found that mergers in low HMO-penetration markets appear to produce greater cost and price savings for the hospitals involved.

Details are in "Hospital mergers and savings for consumers: Exploring new evidence," by Heather Radach Spang, Ph.D., Gloria Bazzoli, Ph.D., and Richard J. Arnould, Ph.D., in the July/August 2001 *Health Affairs* 20(4), pp. 150-158. ■

Facility, patient, and community factors are associated with long-term care costs for people with mental retardation

People with mental retardation were housed primarily in large institutions in the 1960s, but they are now living predominantly in community residences. A new study may aid planning for the residential care of approximately 100,000 people with mental retardation who are on waiting lists for community residences. The study shows that severity of disability, facility characteristics, and community resources are associated with the long-term care costs for people with mental retardation.

The study was conducted by Jeffrey A. Rhoades, Ph.D., of the Agency for Healthcare Research and Quality, and Barbara M. Altman, Ph.D., of the National Center for Health Statistics. They analyzed data from the Institutional Population Component of the 1987 National Medical Expenditure Survey of health care use and expenditures by the U.S. population.

The mean daily expense was significantly greater for those with severe or profound mental retardation. Younger residents (less than 22 years) and those with greater needs for assistance (limited in two or more activities of daily living) had greater daily expenses. Daily expenses were higher for minority residents than white residents. The mean daily expense was also higher in larger facilities with 16 or more beds compared with those that had 3 to 15 beds. This was probably due to the higher level of disability and severity of retardation, requiring greater levels of care, among residents of larger facilities.

Nonprofit or government facilities, facilities with a higher number of services included in the basic charge, and facilities that routinely provide more additional services had higher daily expenditures. Finally, facilities located in the Northeast or Midwest had higher daily expenditures than other regions of the country. The level of community affluence (per capita income)—but not generosity of State programs—also influenced daily expenses for residents. After analyzing the interaction of these factors, the researchers conclude that moving people with borderline, mild, moderate, or severe mental retardation to smaller facilities could result in cost savings or at least no additional cost.

See "Personal characteristics and contextual factors associated with residential expenditures for individuals with mental retardation," by Drs. Rhoades and Altman, in the April 2001 *Mental Retardation* 39(2), pp. 114-129. Reprints (AHRQ Publication No. 01-R070) are available from AHRQ.** ■

Special Populations

Although a surprisingly large number of homeless people work, most can't live on their earnings

People who are homeless have several potential sources of income to support themselves: employment, government programs, panhandling, and illegal activities. A new study shows that a surprisingly large number of homeless people in California worked during the early 1990s, but few were able to generate significant earnings from employment alone.

The 14 percent of the homeless who worked the most earned a median monthly income of $600, the 34 percent who worked fewer hours earned a median monthly income of $169, and 52 percent did not work at all. Physical health problems that limited work or daily activities were a particular barrier to employment. Those with drug and alcohol abuse problems (72 percent of the homeless vs. 27 percent of the general population) worked fewer hours.

While 69 percent of the homeless group were eligible for Supplemental Security Income (SSI) or Social Security Disability Insurance (SSDI), only 14 percent of those who were eligible participated. Take-up rates were much higher (29 percent) for those with physical limitations than for those with a major mental disorder and no physical disability (5 percent) and those with only a severe substance use disorder (5 percent). About 10 percent of the sample received Aid to Families with Dependent Children for an

continued on page 16

Employment among homeless people

continued from page 15

average of $628 per month, and another 10 percent received SSI or SSDI benefits for $618 per month. About 40 percent of homeless adults received benefits from General Assistance, a public program of last resort, with a mean monthly cash benefit of only $322.

Clearly, more research is needed to find ways to improve access of eligible homeless people to income support programs, conclude Samuel H. Zuvekas, Ph.D., and Steven C. Hill, Ph.D., of the Center for Cost and Financing Studies, Agency for Healthcare Research and Quality. They used a random sample of 471 homeless people from a survey conducted in Alameda County, CA, initially and 6 months later during 1991 to 1993.

More details are in "Income and employment among homeless people: The role of mental health, health and substance abuse," by Drs. Zuvekas and Hill, in the *Journal of Mental Health Policy and Economics* 3, pp. 153-163, 2000. Reprints (AHRQ Publication No. 01-R069) are available from AHRQ.** ■

Announcements

AHRQ funds new projects, including a study of care for living organ donors

The Agency for Healthcare Research and Quality recently funded new research grants, small project grants, and conference grants. One of these is a 2-year project (AHRQ grant HS11472) aimed at improving the way organ transplant centers serve living organ donors. While most organ donations are derived from people who have died, certain organs or parts of organs can be transplanted from living donors. Living donation is the fastest-growing source of organs, especially kidneys, at a time when the need for organs far exceeds the available supply.

Building on their previous research, Rebecca P. Winsett, Ph.D., and colleagues at the University of Tennessee in Memphis will evaluate existing organizational and operational structures at transplant centers with high volumes of living donation. They also will interview living donors to determine their experiences with existing operations, and they will design models for care and postsurgical support for those who elect to become living donors.

A total of 22,827 organs were transplanted in the United States in 2000, an increase of 5.4 percent over 1999. This total includes 5,532 organs from living donors, an increase of 16.5 percent over 1999. There were 13,290 kidneys transplanted in 2000, and 5,227, or 40 percent, of these were from living donors. The waiting list for organs in the United States is nearly 80,000, including almost 50,000 patients awaiting kidney transplants.

The new AHRQ project, totaling $100,000, adds to the body of research supported by AHRQ on organ donation. Earlier findings from AHRQ have evaluated reasons why families and individuals choose for or against organ donation and interventions to help increase organ donation. Other projects funded recently by AHRQ include:

Measuring quality of care for homeless adolescents

Project director:	B.J. Ensing, E.N.P.
Organization:	University of Washington Seattle, WA
Project number:	AHRQ grant HS11414
Project period:	7/6/01-6/30/05
First year funding:	$100,790

Minimizing antibiotic resistance in Colorado

Project director:	Ralph Gonzales, M.D.
Organization:	University of California San Francisco, CA
Project number:	AHRQ grant HS13001
Project period:	7/1/01-6/30/05
First year funding:	$654,096

Shared decisionmaking: Prostate cancer screening by couples

Project director:	Robert Volk, Ph.D.
Organization:	Baylor College of Medicine Houston, TX
Project number:	AHRQ grant HS10612
Project period:	7/1/01-6/30/05
First year funding:	$462,452

continued on page 17

New projects

continued from page 16

Small Project Grants

Access to Medicare hospice for nursing home residents

Project director:	Pedro Gozalo, Ph.D.
Organization:	Brown University Providence, RI
Project number:	AHRQ grant HS11457
Project period:	7/1/01-6/30/02
Funding:	$99,996

Hospital care for patients with work-related conditions

Project director:	Allard Dembe, Sc.D.
Organization:	University of Massachusetts Medical School Worcester, MA
Project number:	AHRQ grant HS11497
Project period:	7/1/01-6/30/02
Funding:	$99,962

Management of peripheral arterial disease

Project director:	Vivian Ho, Ph.D.
Organization:	University of Alabama Birmingham, AL
Project number:	AHRQ grant HS11501
Project period:	7/1/01-6/30/02
Funding:	$65,259

Status epilepticus outcomes in the United States

Project director:	Edwin Trevathan, M.D.
Organization:	Washington University St. Louis, MO
Project number:	AHRQ grant HS11453
Project period:	7/1/01-6/30/02
Funding:	$91,733

Conference Grants

Conference on guideline standards

Project director:	Richard Shiffman, M.D.
Organization:	Yale University School of Medicine New Haven, CT
Project number:	AHRQ grant HS10962
Project period:	7/1/01-6/30/02
Funding:	$49,624

Epistemology and ethics of quality improvement

Project director:	Joanne Lynn, M.D.
Organization:	RAND Health Santa Monica, CA
Project number:	AHRQ grant HS10961
Project period:	7/1/01-6/30/02
Funding:	$50,000 ■

Methods seminar scheduled for fall 2001

The Academy for Health Services Research and Health Policy will present the fourth in a series of fall seminars in health services research methods November 5-7, 2001, at the Doubletree Hotel in Rockville, MD, a suburb of Washington, DC. The objectives of the seminar series are to facilitate the use of Federal and State databases in conducting health services research, provide participants with an opportunity to learn from experts, and present an opportunity for attendees to network and share experiences with others in the field.

This three-day meeting, "Using Federal and State Databases," will feature the following databases:

- HCUP–Healthcare Cost and Utilization Project
- MEPS–Medical Expenditure Panel Survey
- NHIS–National Health Interview Survey
- National Health Care Survey, Parts 1 and 2
- Medicare and Medicaid Databases
- VA Databases

Participants may select up to three databases (one each day) to study in-depth with the database developers and users. The seminar is being cosponsored by the Academy, the Agency for Healthcare Research and Quality, Department of Veterans Affairs, Centers for Medicare and Medicaid (formerly the Health Care Financing Administation), and the National Center for Health Statistics.

To register online or obtain session descriptions, faculty bios, and more information, visit www.academyhealth.org/seminars/fall2001. Send questions via e-mail to seminars@ahsrhp.org. ■

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.

***Ambulatory Pediatric Association Child Health Services Research Conference*. James Perrin, M.D., Ambulatory Pediatric Association, McLean, VA. AHRQ grant HS09815, project period 4/1/98-9/30/98.**

This report describes a conference convened in 1998 by the Ambulatory Pediatric Association to provide a forum for introducing junior investigators to key issues in child health services research. (Abstract, executive summary, and final report, NTIS accession no. PB2001-104035; 12 pp, $23.00 paper, $12.00 microfiche)***

***Assessing Health Data Needs in a Changing Environment*. William D. White, M.A., Ph.D., University of Illinois, Chicago. AHRQ grant HS09526, project period 6/1/97-5/31/99.**

These researchers explored the validity of a tool widely used in business applications, value chain analysis, as a conceptual framework for considering improvements in health data system design. They found that important limitations exist in applying value chain concepts to health care, particularly in identifying appropriate sequences of activities for analysis. However, their research suggests that linking value chain analysis with decision theoretic analysis could have implications for improving the design of health care data systems. (Abstract and executive summary, NTIS accession no. PB2001-105018; 10 pp, $12.00 paper, $12.00 microfiche)***

***Benefits of Carotid Endarterectomy in Patients with Contralateral Occlusion*. Rhonda Pindzola, M.S., Ph.D., University of Pittsburgh, Pittsburgh, PA. AHRQ grant HS09021, project period 9/1/96-8/31/00.**

The objective of this study was to assess the usefulness of cerebrovascular blood flow measurements in making treatment decisions for patients with blockages of the carotid artery, a significant risk factor for stroke. (Abstract, executive summary, and final report, NTIS accession no. PB2001-102654; 24 pp, $23.00 paper, $12.00 microfiche)***

***Cardiac Arrhythmia Patient Outcomes Research Team (PORT)*. Mark Hlatky, M.D., Stanford University, Stanford, CA. AHRQ grant HS08362, project period 8/1/94-11/30/00.**

The principal goal of the Cardiac Arrhythmia PORT was to identify the best strategies to prevent sudden cardiac death among patients with known heart disease. The researchers documented substantial increases over time in specialized testing and use of implantable cardiac defibrillators (ICDs) in arrhythmia patients. They found that the drug amiodarone and ICDs each improved survival. Patients from the community who were treated with an ICD had better quality of life, but costs were $20,000 higher over 2 years, compared with patients treated with amiodarone who did not receive an ICD. The ICD was generally cost effective compared with amiodarone therapy among patients who had experienced an episode of ventricular tachycardia or fibrillation and potentially cost effective in patients with severe heart damage. The researchers identified cost-effective management strategies for the most severely ill patients and established benchmarks for assessing the value of investigational tests and procedures for the larger population of at-risk patients. (Abstract, executive summary, and final report, NTIS accession no. PB2001-104029; 42 pp, $25.50 paper; $12.00 microfiche)***

***Changing Physician Behavior*. Jan Temple, M.Ed., Ph.D., Medical University of South Carolina, Charleston. AHRQ grant HS10088, project period 1/24/00-1/23/01.**

The purpose of this workshop was to foster a dialogue between peer review organizations and academic continuing medical education (CME) for the enhancement of physician practice patterns and to encourage collaboration and partnerships in delivery of effective physician education. The workshop focused on theory and models of change that best impact physician behavior. The program included factors that affect commitment to change, effective educational interventions, new directions in physician education, findings from a recent study on the role of CME in peer review organizations, and the value of partnership in enhancing quality health care. (Abstract, executive summary, and final report, NTIS accession no. PB2001-105906; 28 pp, $23.00 paper, $12.00 microfiche)***

continued on page 19

Grant final reports

continued from page 18

Computer-Based Documentation and Provider Interaction. **Kevin Johnson, M.D., Johns Hopkins University School of Medicine, Baltimore, MD. AHRQ grant HS10363, project period 9/30/99-9/29/00.**

These researchers investigated the impact of computer-based documentation (CBD) on parent and provider satisfaction with the pediatric health care encounter, the duration of the encounter, and parent-provider interaction during the encounter. The project involved children younger than 18 months being seen for well-baby care. Parents and providers in the intervention group used CBD, and those in the control group used paper-based documentation. Visits were 5 minutes longer, on average, with CBD. There were no differences between the two groups in overall satisfaction, but there was a strong correlation between provider satisfaction and the perceived helpfulness of CBD. Statements of partnership and an open-ended questioning style occurred more often in the CBD group. There were no other differences in communication style between the two groups. (Abstract, executive summary, and final report, NTIS accession no. PB2001-105021. AHRQ grant HS10363, 18 pp, $23.00 paper, $12.00 microfiche)***

Differences in Quality of Care. **Arnold Epstein, M.D., Harvard Medical School, Boston, MA. AHRQ grant HS07098, project period 9/30/94-9/29/99.**

The researchers focused on the differences in use of cardiac procedures among women, minorities, and the poor. They reviewed medical charts for over 5,000 Medicare patients, aged 65-75, who underwent coronary angiography in five States (Alabama, California, Georgia, New Jersey, and Pennsylvania) during 1991-1992. They evaluated the appropriateness of coronary artery bypass graft (CABG) surgery and percutaneous transluminal angioplasty (PTCA) for patients who underwent cardiac catheterization. Rates of both CABG surgery and PTCA were higher among whites than blacks. Rates of CABG surgery also were significantly higher for men and for people from non-poor households. The researchers examined underuse by race, sex, and income but found significant differences only by race. (Abstract and executive summary, NTIS accession no. PB2001-104027; 16 pp, $23.00 paper, $12.00 microfiche)***

ED Triage Instrument to Predict Resource Needs and Outcomes. **Richard C. Wuerz, M.D., Brigham and Women's Hospital, Boston, MA. AHRQ grant HS10381, project period 9/30/99-9/29/00.**

The Emergency Severity Index (ESI) triage algorithm facilitates quick triage of emergency department (ED) patients at presentation into five levels based on resources needed and urgency. The researchers developed a standard training program in ESI triage with a set of 20 cases. In seven EDs representing varied regions of the country, they trained nurses to use the ESI flow chart, tested them on the training cases, recorded their triage of ED patients in parallel with a research nurse, and demonstrated excellent agreement. The researchers used ESI distributions to describe case mix at these different EDs and validated the ESI against inpatient admissions, ED length of stay and resource intensity, and 60-day all-cause mortality. (Abstract and executive summary, NTIS accession no. PB2001-105903; 20 pp, $23.00 paper, $12.00 microfiche)***

Evaluation of Safety Data Reporting in Randomized Trials. **Joseph Lau, M.D., New England Medical Center, Boston, MA. AHRQ grant HS10345, project period 9/30/99-9/29/00.**

This project focused on the reporting of safety information in published reports from randomized controlled trials across several medical disciplines. The researchers surveyed safety reporting in 192 randomized drug trials involving 130,074 patients in seven medical areas. The quality and quantity of safety reporting varied across medical areas, study design, and settings, but they were largely inadequate. The severity of clinical adverse events was adequately defined in only 39 percent of trial reports. Only 46 percent of the reports stated the frequency of specific reasons for discontinuation of study treatment due to toxicity. The amount of space allocated to safety results was 0.3 page, similar to the space devoted to contributor names and affiliations. (Abstract, executive summary, and final report, NTIS accession no. PB2001-104028; 18 pp, $23.00 paper, $12.00 microfiche)***

Family Linkages Supporting Hyperbilirubinemia Guidelines. **Charles Homer, M.D., M.P.H., Children's Hospital, Boston, MA. AHRQ grant HS09390, project period 9/30/96-9/29/00.**

These researchers developed and implemented a computer-based decision support system to enhance

continued on page 20

Grant final reports

continued from page 19

management of infants who have jaundice and evaluated its impact on clinicians knowledge of and adherence to practice guidelines. The system links disparate sources of medical information across multiple sites using the Internet. The research was carried out in three sites receiving the intervention and three matched sites not receiving it. Performance on several review criteria—obtaining a maternal history and assessing for a family history of hemolytic disease— improved at intervention sites. No meaningful differences in emergency department laboratory testing occurred. More infants in primary care intervention sites received at least one bilirubin test after the intervention. Knowledge about the evaluation and treatment of newborn jaundice increased significantly among all study participants between the pre- and postintervention period. (Abstract, executive summary, and final report, NTIS accession no. PB2001-102809; 52 pp, $27.00 paper, $12.00 microfiche)***

Health Insurance of Older Americans. **Jeanette Rogowski, Ph.D., RAND, Santa Monica, CA. AHRQ grant HS07048, project period 4/1/95-3/31/99.**

The near elderly are a vulnerable population group with high expected medical expenses but few affordable sources of health insurance other than employers. Severing the employment relation, whether voluntarily or involuntarily, places older workers at risk of being uninsured or of paying high prices for their health insurance. Public polices aimed at increasing access to affordable insurance for the near elderly can decrease the rate of being uninsured among early retirees, but this may encourage retirement from the workforce. The size of the retirement effect is influenced by the cost of the health insurance and differs between partial and full retirement. Women and men also have different labor force responses to postretirement health insurance. These differences must be taken into account in order to accurately forecast the effects of public policies that increase access to affordable insurance for the near elderly. (Abstract, executive summary, and final report, NTIS accession no. PB2001-105020; 24 pp, $23.00 paper, $12.00 microfiche)***

Impact of Dispatching Nontraditional EMS Resources. **Terri A. Schmidt, M.D., Oregon Health Sciences University, Portland, OR. AHRQ grant HS09836, project period 9/30/98-9/29/00.**

The goal of this project was to develop criteria to help dispatchers distinguish callers who need an emergency response from those who can be appropriately served by alternative resources. The researchers compared the disposition of 911 calls with chief complaints of a fall, bleeding, back pain, trauma, or "sick" that were assigned the lowest severity level with EMS and hospital charts. They reviewed 532 cases; 56 involved back pain, 158 involved a fall, 48 were for a laceration, 197 involved "sick" patients, and 73 were for trauma. More than half of the calls involved females (319), and the average age of callers was 52. About 25 percent of callers had an EMS critical event, and 29 had an ED critical event (CE). Callers older than 50 were more likely to have a CE. There was no association between the answers to specific questions and the likelihood of a CE, and no group of callers had a high likelihood of not needing an EMS response. (Abstract, executive summary, and final report, NTIS accession no. PB2001-103511; 26 pp, $23.00 paper, $12.00 microfiche)***

Investigation of Patient Outcomes Related to Interdisciplinary Discharge Planning Collaboration. **William Corser, Ph.D., University of Wisconsin, Madison. AHRQ grant HS10792, project period 6/15/00-6/14/01.**

The researchers examined the relationship between professionals' ratings of their inpatient discharge planning collaboration (IDPC) and patient characteristics with the rates of postdischarge outcomes experienced by a sample of elderly veterans. There were significant relationships between levels of IDPC and the rates of emergency room visits and falls experienced by veterans. Variables such as age, length-of-stay, comorbidity burden, admission diagnosis, unit of discharge, and level of social functioning had a significant influence on the rates of certain outcomes. This study provided the first indication of how interdisciplinary health care collaboration may influence the postdischarge outcomes experienced by elderly patients in contemporary practice settings. (Abstract and executive summary of dissertation, NTIS accession no. PB2001-102807; 18 pp, $23.00 paper, $12.00 microfiche)***

Linking Health Services Research with Health Policy**. Mary Wakefield, Ph.D., George Mason University, Fairfax, VA. AHRQ grant HS10087, project period 1/1/00-12/31/00.**

In June 2000, a small conference of rural health services researchers, health policymakers, and

continued on page 21

Grant final reports

continued from page 20

journalists was convened to consider how to make better use of ongoing rural research findings in the formulation of public policy. The conference and a subsequent report focused specifically on what the rural research community of scholars and institutions could do to make its growing body of knowledge about rural health services more useful to public policymakers. (Abstract, executive summary, and final report, NTIS accession no. PB2001-104793; 42 pp, $25.50 paper, $12.00 microfiche)***

Making Coverage Decisions About Emerging Technologies. **Nancy V. Chockley, M.B.A., National Institute for Health Care Management, Washington, DC. AHRQ grant HS09849, project period 2/1/99-1/31/00.**

This report describes a 1-day conference held in 1999 on ways to make research more accessible and useful to private plans and public programs in making coverage determinations about emerging procedures and technologies. (Abstract, executive summary, and final report, NTIS accession no. PB2001-104789; 26 pp, $23.00 paper, $12.00 microfiche)***

Medical Care Use and Costs for Adults with Sleep Apnea. **Dennis G. Fryback, Ph.D., University of Wisconsin, Madison. AHRQ grant HS08281, project period 7/1/94-12/31/96.**

Sleep-disordered breathing is a problem with high prevalence as shown by the Wisconsin Sleep Cohort Study (WSCS) of working adults, affecting 9 percent of women and 24 percent of men. It is one suspected cause of hypertension, and it is associated with increased trauma in auto accidents, psychological disorders, and other conditions. The researchers examined whether undiagnosed sleep-disordered breathing is associated with lower health status and increased use and costs of outpatient medical care services and prescription medicines. Administrative medical records over 3 years were obtained from four HMOs for 686 members of the population-based WSCS. Individuals with the undiagnosed condition showed a dose-response decrement in six of eight SF-36 health status scales, with scores equivalent to or worse than those associated with many chronic conditions. Controlling for age and body mass index, both men and women with undiagnosed sleep-disordered breathing had statistically significant higher annual prescription drug costs, and men with the condition used more outpatient services than men who did not have the condition, while women used more services overall. (Abstract, executive summary, and final report, NTIS accession no. PB2001-102563; 42 pp, $25.50 paper, $12.00 microfiche)***

National Congress on Childhood Emergencies, 2000. **Jane Ball, Dr.P.H., Children's Research Institute, Washington, DC. AHRQ grant HS10084, project period 1/1/00-12/31/00.**

This is the final report of a national conference on childhood emergencies with emphasis on quality improvement and research. (Abstract, executive summary, and final report, NTIS accession no. PB2001-102808; 28 pp, $23.00 paper, $12.00 microfiche)***

Online Commentary Use and Antimicrobial Prescribing. **Rita Mangione-Smith, M.D., University of California, Los Angeles. AHRQ grant HS10187, project period 7/1/99-9/30/00.**

Online commentary is talk that describes what a physician is seeing, feeling, or hearing during the physical examination of a patient. Earlier research has suggested that this technique might help physicians reduce inappropriate antibiotic prescribing. The researchers examined the relationship between online commentary use and physicians' prescribing decisions. The study involved 10 physicians and 306 parents who were attending sick visits for their children between October 1996 and March 1997. Physicians who used "no problem" online commentary (e.g., "her ears look perfect") prescribed antibiotics less often than physicians who used "problematic" online commentary. In viral cases, when physicians thought parents expected antibiotics, "no problem" online commentary was used exclusively in 79 percent of cases where physicians resisted the pressure to prescribe antibiotics versus 29 percent of cases where physicians acquiesced to parental pressure to prescribe. (Abstract, executive summary, and final report, NTIS accession no. PB2001-102806; 32 pp, $25.50 paper, $12.00 microfiche)***

Ownership, Status, Market Concentration, and Hospital Pricing. **Gary J. Young, J.D., Ph.D., Boston University, Boston, MA. AHRQ grant HS09568, project period 9/30/97-9/29/99.**

The traditional control of nonprofit hospitals by the communities they serve has been offered as a justification for restraining antitrust enforcement of mergers involving nonprofit hospitals. In this project, the researchers used a panel data set to examine empirically the relationship between market

continued on page 22

Grant final reports

continued from page 21

concentration and price growth for three types of nonprofit hospitals: independent (or stand alone) facility, member of a local hospital system, and member of a nonlocal hospital system. All three types of nonprofit hospitals exercised market power in the form of higher prices, and hospitals that were members of non-local systems were more aggressive than independent hospitals or members of local hospital systems in exercising market power. (Abstract, executive summary, and final report, NTIS accession no. PB2001-104616; 22 pp, $23.00 paper, $12.00 microfiche)***

Pharmacy-Based Patient Monitoring in an IPA HMO. **L. Douglas Ried, PH.D., University of Florida, Gainesville. AHRQ grant HS08221, project period 4/1/95-10/31/97.**

The researchers pilot-tested a pharmacy-based, patient monitoring protocol designed to modify the relationship between providing pharmaceutical care and medication use outcomes among patients of community-based pharmacy practitioners. Much of the improvement in outcomes predicted for those with moderate to severe asthma was realized. Anecdotal reports and trends indicate that the care of patients was successful, and patients were satisfied with their care. (Abstract, executive summary, and final report, NTIS accession no. PB2001-104788, AHRQ grant HS08221; 52 pp, $27.00 paper, $12.00 microfiche)***

Program of Rural Health Demonstration Activities. **Keith J. Mueller, Ph.D., University of Nebraska Medical Center, Omaha. AHRQ grant HS08610, project period 9/30/94-9/30/00.**

The purpose of this project was to facilitate implementation of managed care health plans in rural areas by having university-based research and technical experts work with local communities. Over the 5-year project, the external environment, including Medicaid and Medicare policies, changed from pressure to adopt managed care plans to departure of managed care plans from service areas. The project emphasis shifted to one of helping local health care providers be more influential regarding the terms of contracts they signed and in improving the health of residents of their communities. Through direct participation in local rural provider networks, assistance in planning and market analysis, and educational activities, the project team helped local providers gain greater control of health care financing. (Abstract and executive summary, NTIS accession no. PB2001-105022; 28 pp, $23.00 paper, $12.00 microfiche)***

Research Agenda Conference on Pediatric Quality of Care. **Alice Hersh, M.S., Association for Health Services Research, Washington, DC. AHRQ grant HS09323, project period 8/1/96-7/31/97.**

The national invitational conference, "Improving Quality of Health Care for Children: An Agenda for Research," was called to identify the key research issues and questions that should be included in a research agenda on quality improvement in children's health services. (Abstract and executive summary, NTIS accession no. PB2001-105023; 36 pp, $25.50 paper, $12.00 microfiche)***

Scoring Methods and Measurement Properties of Health Status Measures. **Kitty S. Chan, Johns Hopkins University, Baltimore, MD. AHRQ grant HS10166, project period 7/1/99-12/31/00.**

Summative scoring is a popular method of scoring multi-item scales, but item response theory (IRT) has been suggested as a more attractive scoring alternative. Using data from studies of asthma, end-stage renal disease, and previously injured subjects, as well as a random sample of the general U.S. population, the effect of IRT and summative scoring on the measurement precision and responsiveness of the 10-item SF-36 physical functioning scale were compared. Results suggest that IRT can provide improvements in score precision and instrument responsiveness, but these benefits may not apply to other health status instruments and experimental conditions. (Abstract and executive summary of dissertation, NTIS accession no. PB2001-102805; 16 pp, $23.00 paper, $12.00 microfiche)***

Staffing, Case Mix, and Quality in Nursing Homes. **Christine Kovner, Ph.D., New York University, New York, NY. AHRQ grant HS09814, project period 4/1/98-9/30/99.**

The goal of this invitational conference was to define issues and problems in the delivery of care in nursing homes. Attendees identified research priorities and developed a research agenda focused on care delivery, nurse staffing levels, and quality of care in nursing homes. (Abstract, executive summary, and final report, NTIS accession no. PB2001-105019; 16 pp, $23.00 paper, $12.00 microfiche)***

Thrombolytic Predictive Instrument Clinical Trial. **Harry Selker, M.D., M.P.H., New**

continued on page 23

Grant final reports

continued from page 22

England Medical Center, Boston, MA. AHRQ grant HS08212, project period 6/1/94-5/31/98.

A 22-month randomized controlled clinical effectiveness trial was conducted to test whether the electrocardiography-based Thrombolytic Predictive Instrument (TPI), with its patient-specific predictions of treatment outcomes printed on the electrocardiogram (ECG) test header, facilitates thrombolytic and overall reperfusion therapy for acute myocardial infarction (AMI). In the emergency departments (EDs) of 28 urban, suburban, and rural U.S. hospitals, 1,197 patients with AMI with ECG ST elevation were randomized to control or TPI groups, and nonrandomized patients with AMI were included in a registry. Among 732 patients presenting with inferior AMIs, the TPI caused relative increases of about 10 percent in the use of thrombolytic therapy (TT), its use within 1 hour, and overall reperfusion by either TT or primary percutaneous transluminal coronary angioplasty (PTCA). For all AMIs, the TPI reversed the baseline lower treatment rates among women, with relative increases of 21 percent. When there was telephone consultation with an off-site physician, there were relative increases of 32 to 35 percent. Use of the TPI in the ED should increase the use and timeliness of TT and overall reperfusion therapy, especially for groups potentially more likely to be missed and in settings where physician input is by remote consultation. (Abstract, executive summary, and final report, NTIS accession no. PB2001-104790; 50 pp, $25.50 paper, $12.00 microfiche)***

Strategies for Care of the Very Low Birthweight Infant. **Nigel S. Paneth, M.D., Michigan State University, East Lansing. AHRQ grant HS08385, project period 9/30/96-9/29/00.**

The late consequences of intensive care of very low birthweight infants (VLBW), less than 1,500 g at birth, are not well established. The researchers examined five large population-based cohorts of VLBW infants (United States, Canada, Holland, Germany, and Jamaica) assessed at school age to establish the nature and frequency of neurodevelopmental disabilities, quality of life, and the relation of these to variations in intensiveness of neonatal care. All cohorts showed high rates of disabling cerebral palsy (DCP), mental retardation, school problems, and behavioral difficulties. Among infants weighing less than 1,000 g at birth, a remarkably similar pattern of behavioral disorder—including hyperactivity/attention deficit, thought disorders, and social problems—was found internationally. Mechanical ventilation, when associated with hypocapnia, was associated with elevated risk of DCP in the United States. Management of infants born at 23-26 weeks gestational age differed sharply across cohorts, with near universal mechanical ventilation in the United States but selective ventilation in Holland; mortality was lower in the United States, but DCP rates were much higher. Perceived quality of life in VLBW survivors was found to depend upon the reporter (physician, patient, teen survivor) in Canada and on method of ascertainment in Holland. Management of the VLBW infant continues to raise ethical dilemmas that cannot be resolved by physicians alone. (Abstract, executive summary, and final report, NTIS accession no. PB2001-105904; 26 pp, $23.00 paper, $12.00 microfiche)***

Study of Functional Outcome After Major Trauma. **Troy L. Holbrook, Ph.D., University of California, San Diego. AHRQ grant HS07611, project period 8/1/93-7/31/99.**

The Trauma Recovery Project (TRP) is a large prospective epidemiologic study designed to examine multiple outcomes after major trauma in adults aged 18 and older, including quality of life, functional outcome, and psychologic sequelae, e.g., depression and posttraumatic stress disorder (PTSD). Patient outcomes were assessed at discharge and at 6, 12, and 18 months after discharge. The researchers enrolled 1,048 eligible trauma patients triaged to four trauma center hospitals in the San Diego Trauma System. Functional outcome after trauma was measured using the Quality of Well-Being (QWB) scale, a sensitive index to the well end of the functioning continuum (range 0=death to 1,000=optimum functioning). Followup contact at any of the study time points was achieved for 926 (88 percent) subjects. At 12 months followup, there were very high levels of functional limitation, with no improvement at 18 months. This study demonstrated a prolonged and profound level of functional limitation after major trauma at 12- and 18-month followup. (Abstract, executive summary, and final report, NTIS accession no. PB2001-105549; 24 pp, $25.50 paper, $12.00 microfiche)***

continued on page 24

Grant final reports

continued from page 23

Validating Guidelines for the Treatment of Patients with Acute Myocardial Infarction. **Barbara J. McNeil, M.D., Ph.D., Harvard Medical School, Boston, MA. AHRQ grant HS08071, project period 9/1/94-8/31/00.**

The researchers used data from the Cooperative Cardiovascular Project to study experiences of patients in the hospital and on discharge after an acute myocardial infarction (AMI). Patients were hospitalized in one of seven States (California, Florida, Massachusetts, New York, Ohio, Pennsylvania, or Texas) between January 1, 1994 and July 31, 1995. These data were supplemented by information from the Veterans Administration, risk plans caring for Medicare enrollees, surveys from the American Hospital Association, surveys of hospital managers and physicians, and surveys of a sample of patients from this cohort. The researchers found marked underuse of necessary angiography for patients who had suffered an AMI.

This occurred in virtually all comparison groups examined, though it was highest (largest percentage of underuse) in patients in managed care settings and those with comorbid conditions, particularly chronic renal insufficiency. Treatment in a rural hospital or one that lacked angiography capability also predicted underuse. (Abstract, executive summary, and final report, NTIS accession no. PB2001-102666; 54 pp, $27.00 paper, $12.00 microfiche)*** ■

Research Briefs

Indurkhya, A., Gardiner, J.C., and Luo, Z. (2001). "The effect of outliers on confidence interval procedures for cost-effectiveness ratios." (AHRQ grant HS09514). ***Statistics in Medicine*** **20, pp. 1469-1477.**

Cost-effectiveness ratios (CERs) generally are used as summary statistics to compare competing health care programs relative to their cost and benefits. These authors describe methods used to obtain confidence intervals for CERs and discuss the effects of outliers in cost measures.

Ramsey, S.D., Sullivan, S.D., Kaplan, R.M., and others. (2001). "Economic analysis of lung volume reduction surgery as part of the National Emphysema Treatment Trial." ***Annals of Thoracic Surgery*** **71, pp. 995-1002.**

Emphysema affects about 2 million Americans. Lung volume reduction surgery (LVRS), a promising new surgical therapy for patients with severe emphysema, is controversial, with some contending that the surgery is insufficiently safe and lacking evidence as to its efficacy. In October 1997, patients began enrolling in what is now the National Emphysema Treatment Trial (NETT). This is a multicenter, randomized controlled trial of LVRS plus medical therapy versus medical therapy for patients with severe emphysema. This paper describes the goal of a parallel cost-effectiveness analysis of LVRS versus medical therapy for those who are eligible for the procedure. The researchers describe the economic and quality of life data that are being collected alongside the clinical trial, their methods of analysis, and their approach to presenting the results. Their analysis should provide timely economic data that can be considered along with the clinical results of the NETT.

Verrips, G.H., Stuifbergen, M.C., den Ouden, A.L., and others. (2001). "Measuring health status using the Health Utilities Index: Agreement between raters and between modalities of administration." (AHRQ grant HS08385). ***Journal of Clinical Epidemiology*** **54, pp. 475-481.**

The effects of prevention and therapy in medicine are conventionally measured in terms of mortality and morbidity. In chronic diseases, however, mortality and morbidity show little variance, and the patient's priorities may lie elsewhere. The aim of this study was to evaluate the Health Utilities Index (HUI) for assessing health status. The researchers invited a random sample from a group of 14-year-old very low birthweight Dutch children and their parents to participate in face-to-face or telephone interviews. All 300 participants were also sent a questionnaire by mail. Interrater and intermodality agreement were high for the physical HUI attributes, with little reported dysfunction, and poor for the psychological attributes, with more reported dysfunction. Children and parents reported more dysfunction in the psychological attributes when interviewed than when completing the mailed questionnaire. The authors

continued on page 25

Research Briefs

continued from page 24

conclude that HUI results and their interpretation vary with the source of information and modality of administration.

Wuerz, R.C., Milne, L.W., and Eitel, D.R. (2001). "Reliability and validity of a new five-level triage instrument." (AHRQ grant HS10381). *Academic Emergency Medicine* 7, pp. 236-242; Wuerz, R.C., Travers, D., Gilboy, N., and others. (2001). "Implementation and refinement of the emergency severity index." (AHRQ grant HS10381). *Academic Emergency Medicine* 8, pp. 170-176.

About 95 million people visited U.S. hospital emergency departments (EDs) in 1997. When patients arrive at the ED, a clinical assessment process known as triage is used to sort patients and treat those with high-acuity conditions first. Most U.S. hospitals use three triage categories, whereas five-level triage prevails in Canada, Australia, and England. These U.S. researchers developed a new five-level triage instrument, the Emergency Severity Index (ESI), which they validated against the clinical resource and hospitalization needs of adult patients triaged during 100 hours at two urban hospitals. Triage levels ranged from category 1, the most severe (for example, for patients who were intubated, did not have a pulse, or were unresponsive), and category 2 (for example, those in severe pain and distress) to those requiring no lab tests, x-rays, or procedures (category 5). The researchers implemented the ESI at two university hospital EDs in evaluation of 252 ED patients. Hospitalization was 28 percent overall and was strongly associated with triage level, decreasing from 92 percent of patients in triage category 1 to 2 percent of patients in triage category 5. The researchers conclude that the ESI is useful for stratifying patients into five groups with distinct clinical outcomes. ■

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