AHRQ

Research Activities

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Highlights

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Regular Features

A common ear surgery for children does not measurably improve development at age 3

A new study cosponsored by the Agency for Healthcare Research and Quality and the National Institute of Child Health and Human Development indicates that in most cases, inserting tubes in the eardrums—a procedure called tympanostomy—of children under age 3 who have fluid in the middle ear has no measurable effect on improving their speech, language, cognitive, or psychosocial development at age 3.

Fluid in the middle ear—otitis media with effusion (OME)—is usually associated with a mild to moderate hearing loss that, although temporary, has been thought by some health professionals to result in long-term impairment of children's development. Approximately 280,000 children under age 3 undergo tympanostomy each year, according to 1996 estimates.

Jack L. Paradise, M.D., and his colleagues at the Children's Hospital of Pittsburgh and the University of Pittsburgh enrolled 6,350 healthy infants from 2 to 61 days of age in the study and evaluated them regularly for middle-ear effusion. Before the age of 3 years, 429 children with persistent effusion were randomly assigned to have tympanostomy tubes inserted either as soon as possible or up to 9 months later if effusion persisted. By age 3, 169 children in the early-treatment group (82 percent) and 66 children in the late-treatment group had received tympanostomy tubes. There were no significant differences between the two groups of children in speech, language, cognition, or psychosocial development. Most of the children in the early-surgery group received surgery within 60 days, whereas most in the late-surgery group either received surgery after more than 6 months or had not received surgery by age 3. The study was conducted between May 1991 and December 1995.

On the General Cognitive Index of the McCarthy Scales of Children's Abilities, the children in the early-surgery group tested at 99, and the children in the late-surgery group tested at 101; both

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Third U.S. Preventive Services Task Force issues first recommendations. See page 23.

Ear surgery for children

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scores are in the average range. On a test of the children's expressive language, the children in the early-surgery group scored 124 while the others scored 126, which are average scores. Other assessments used in the study are measures of receptive language, sentence length, grammatical complexity, speech-sound production (pronunciation), parent-child stress levels, and children's behavior.

According to the researchers, these findings should not be applied to children who have experienced OME for longer periods than those studied by the researchers or to children with more severe degrees of hearing loss. Also, they caution that the results of tests when the children reach ages 4 and 6 years may differ from those found at age 3.

In an accompanying editorial, James M. Perrin, M.D., Director, Division of General Pediatrics and Center for Child and Adolescent Health Policy, Massachusetts General Hospital for Children, and a member of AHRQ's National Advisory Council, notes that these findings provide evidence to support the use of a cautious approach in referring young children with middle-ear effusion to receive tympanostomy tubes. Dr. Perrin also points out that this study provides no evidence that the insertion of tubes improves developmental outcomes at the age of 3, although it does decrease the persistence of effusion and reduce short-term hearing loss.

For more information, see "Effect of early or delayed insertion of tympanostomy tubes for persistent otitis media on developmental outcomes at the age of 3 years," by Dr. Paradise, Heidi M. Feldman, Ph.D., M.D., Thomas F. Campbell, Ph.D., and others in the April 19, 2001 *New England Journal of Medicine* 344, pp. 1179-1187. ■

Children's Health

By the time extremely low birthweight babies reach adolescence, their parents have adjusted fairly well to work and family life

Extremely low birthweight (ELBW) infants (2.2 lbs or less), who usually are very premature, typically suffer from neurodevelopmental problems, ill health, and recurrent hospitalizations in infancy compared with children born at term. Later, they often develop cognitive deficits, school problems, and behavioral difficulties, which are burdensome and stressful for parents. But by the time these children reach adolescence, their parents have adjusted fairly well to their work and family life, according to a study supported by the Agency for Health Care Research and Quality (HS08385). This is not to minimize the difficulties experienced earlier by parents of ELBW children, many of whom still feel that it has taken a significant toll on their emotional health, explain the Canadian researchers who conducted the study.

Using a questionnaire, they asked parents about the impact of the disabilities of ELBW children born between 1977 and 1982 in Ontario; at the time of interview the children were between 12 and 16 years of age. Parents of 145 ELBW survivors and parents of 123 term children (controls) completed the questionnaire. A significantly higher proportion of ELBW parents felt that their child's health had influenced their own emotional health (21 vs. 10 percent of parents of control children) and that there were other negative effects on the family.

The impact of ELBW children on the marriage was mixed. Far more parents of ELBW than control

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Low birthweight babies

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children reported that their child's health status had caused stresses and strains (14 vs. 6 percent), had brought the partners closer together (25 vs. 7 percent), and was a major factor in separation and divorce (4 vs. 0 percent). ELBW children also had a more negative impact than control children on siblings, primarily because of less parental attention (14 vs. 4 percent).

Despite these problems, 68 percent of parents of ELBW children and 58 percent of parents of controls said they supported saving all infants of borderline viability. Also, 98 percent of parents of ELBW children and 97 percent of parents of controls believed that parents should make the final decision about life-saving measures for such infants.

More details are in "Impact of extreme prematurity on families of adolescent children," by Saroj Saigal, M.D., F.R.C.P., Elizabeth Burrows, M.B.A., Barbara L. Stoskopf, R.N., M.H.Sc., and others, in the November 2000 *Journal of Pediatrics* 137, pp. 701-706. ■

Researchers explore children's access to and use of health care services

Access to and use of health care services by children in the United States is the focus of the inaugural issue of the journal *Ambulatory Pediatrics*. Six articles appearing in the journal were either authored by researchers at the Agency for Healthcare Research and Quality or supported by AHRQ grants. The first study shows that children's use of health care services varies considerably depending on the type of insurance coverage they have, and that children's hospitalization rates vary substantially across States. The second study found few differences between Medicaid and commercially insured children in a Northern California health maintenance organization in access to care, use of health care services, and satisfaction with care.

Four other studies provide a strong methodologic basis for pediatric health services research. In the first study, the researchers review the recent history of child health services research. The other three studies deal with methodologic issues in measuring quality of child health care, the development and use of pediatric outcome measures, and problems faced by investigators involved in pediatric effectiveness research.

McCormick, M.C., Weinick, R.M., Elixhauser, A., and others. (2001, January). "Annual report on access to and utilization of health care for children and youth in the United States - 2000," *Ambulatory Pediatrics* 1(1), pp. 3-15.

This article provides an update on insurance coverage, use of health care services, and health expenditures for children based on data gathered through the Medical Expenditure Panel Survey, an ongoing nationally representative survey of medical care use and expenditures and the Healthcare Cost and Utilization Project, a family of administrative databases. Both data collection efforts are sponsored by AHRQ.

The researchers found that there were few changes in insurance coverage of children and adolescents between 1996 and 1998. About two-thirds of American children were covered by private insurance, and 19 percent were covered by public sources. The remaining 15 percent were uninsured. Of the 72 percent

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of children who had at least one visit to a doctor's office, the average number of visits was 3.9. However, this ranged from 2.7 among the uninsured to 4.2 for those with private insurance.

Slightly more than half of children had a prescription, with an average of 5.4 prescriptions per child with a prescription. The majority of children (85 percent) incurred medical expenditures, and for those children, medical expenditures averaged $1,019. Private health insurance was by far the largest payer of medical care expenses for children (55 percent). However, nearly 21 percent of all expenditures were paid out-of-pocket by children's families.

The researchers also found substantial differences in average length of pediatric hospitalization across States, ranging from 2.7 to 4 days. Rates of hospital admission through the emergency department also varied from 9 percent to 23 percent across States. Injury was the major reason for hospitalization, accounting for one in six hospital stays among children 10 to 14 years of age. In the 10- to 17-year-old age group, one in seven hospital stays was related to a mental disorder. Among 15- to 17-year-old youths, more than one-third of all hospital stays were related to pregnancy and childbirth.

Reprints (AHRQ Publication No. 01-R036) are available from AHRQ.**

Newacheck, P.W., Lieu, T., Kalkbrenner, A.E., and others. (2001, January). "A comparison of health care experiences for Medicaid and commercially enrolled children in a large, nonprofit health maintenance organization." ***Ambulatory Pediatrics*** **1(1), pp. 28-35.**

Enrollment of children in Medicaid managed care programs has grown dramatically in recent years. To date, however, few studies have attempted to assess whether differences exist in the types of care delivered to Medicaid and commercially enrolled children within the same HMO. This study addressed that issue and found few differences in the quality of care provided to Medicaid and commercially enrolled children in a large non-profit HMO.

The researchers compared access to care, satisfaction, and use of services between Medicaid and commercially sponsored children enrolled in a large California HMO during 1998 through use of a telephone survey and administrative data. They found few differences between the two groups in either of the three measures of care. Where access differences were present, such as problems in finding a personal care provider, the differences favored Medicaid-enrolled children. Medicaid enrollees experienced significantly fewer access problems and barriers to care than commercial enrollees, even after adjustment for confounding factors.

The investigators found a difference only in the volume of emergency department (ED) visits between Medicaid and commercial enrollees across the six use variables they examined; 19 percent of Medicaid enrollees had at least one ED visit, compared with 16 percent of commercial enrollees. They found no differences between the two groups among the four care satisfaction variables and two global assessments of care received. These results suggest that Medicaid-enrolled children in HMOs experience care that is as good as or better than the care provided to their commercially enrolled counterparts.

Reprints (AHRQ Publication No. 01-R039) are available from AHRQ.**

Lohr, K.N., Dougherty, D., and Simpson, L. (2001, January). "Methodologic challenges in health services research in the pediatric population." ***Ambulatory Pediatrics*** **1(1), pp. 36-38.**

These authors review the recent history of child health services research (CHSR). They point out that children have long been underrepresented in medical research, and a series of agenda setting meetings held between 1994 and 1997 highlighted the importance of addressing CHSR. Congressional interest has increased budgets at the National Institutes of Health and AHRQ for research on children, and AHRQ has significantly increased its support for CHSR. The Agency funded more than $9 million in new grants focused on child health in FY 1999 and published a strategic plan for children's health services research. AHRQ's reauthorization legislation in 1999 included several provisions to promote CHSR, including naming children a priority population, calling for research networks, and

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linking CHSR to priorities for training future investigators.

The authors point out that CHSR must address multiple methodologic challenges which affect study design, the research itself, and the reporting of results. Some of these challenges are common to the field of health services research, some stem from the characteristics that children share with other vulnerable populations (for example, the frail or aged elderly), and others are unique to children and adolescents. For example, children's health outcomes may vary depending on their developmental stage. Also, important factors lie within the child's environment, such as the family or community. This article provides an introduction and overview of other articles published in this issue of *Ambulatory Pediatrics* on methodologic issues in child health services research.

Reprints (AHRQ Publication No. 01-R038) are available from AHRQ.**

Christakis, D.A., Johnston, B.D., and Connell, F.A. (2001, January). "Methodologic issues in pediatric outcomes research." *Ambulatory Pediatrics* 1(1), pp. 59-62.

Many of the approaches, models, and techniques used in pediatric outcomes research have been imported uncritically from experience with adult populations. As a result, some of the most interesting and critical aspects of pediatric outcomes research have yet to be fully developed, according to these researchers. They cite several critical challenges in conceptualizing and measuring outcomes for children and adolescents. For example, researchers have to take into account the dynamics of childhood development by identifying outcome measures that discriminate between changes in status or function that are the expected result of normal development and those that might reasonably be credited to the effects of an intervention.

Also, the priority given to different types of health outcomes varies by age, developmental stage, and family and community expectations. For example, what most troubles a 5-year-old girl with acute lymphocytic leukemia may be the pain associated with treatment. A teenager who faces a similar challenge may suffer most from the dependence associated with illness and the threat the illness represents to the developmental task of individuation in adolescence.

Also, most children are healthy. As a result, health supervision or well-child care accounts for a substantial portion of the average pediatrician's day. Yet it is difficult to measure the benefit of well-child care in terms of traditional health status outcomes for most children. What's more, there is a long time delay between health interventions for certain acute childhood conditions such as obesity and significant outcomes of interest, for example, heart disease. Researchers also must take into account the crucial roles that the family system, neighborhood, and community play in fostering or hindering good outcomes for the child.

Kaplan, S.H., Greenfield, S., Connolly, G.A., and others. (2001, January). "Methodologic issues in the conduct and interpretation of pediatric effectiveness research." *Ambulatory Pediatrics* 1(1), pp. 63-70.

These researchers highlight the unique features and methodologic problems of pediatric effectiveness research. The definition of pediatric care has expanded to include problems with genetic origins due to advances in gene therapy, and problems with social behavior, such as domestic violence, teen pregnancy, and guns in households. Providers are being asked to add these problems to routine clinical screening, including identification of high-risk families—for example, those with compromised household safety. Effective management of these problems often involves people other than clinicians. Defining the boundaries of care for these problems is a critical first step in conducting pediatric effectiveness studies, according to these authors.

Researchers also must choose appropriate outcome measures. The time window needed to observe changes in outcomes related to effective care also can affect the choice of appropriate outcome measures. For example, studies of effective pediatric care for a chronic disease such as asthma or juvenile diabetes over a certain time period require a broader array of outcomes, including both clinical and general health status measures. Also, for some types of pediatric interventions, the child is not the sole or even the primary target of the intervention; instead it is the family, parents, or even the community.

Certain requirements must be met to conduct methodologically sound pediatric effectiveness studies. First, development of well-tested outcome measures in pediatrics, which has lagged far behind that for adults, is needed. Second, case-mix adjustment measures that go beyond diagnoses and include multiple clinical severity variables must be developed for children. Third, more methodologic attention is needed to ensure that the target whose care is being evaluated is specified at the earliest design stages of effectiveness studies in order to choose the appropriate sampling

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units, comparison groups, and analytic methods. Finally, long-term observational studies are needed to understand how care versus child, family, or environmental characteristics affects outcome measures over time.

Palmer, R.H., and Miller, M.R. (2001, January). "Methodologic challenges in developing and implementing measures of quality for child health care." ***Ambulatory Pediatrics*** **1(1), pp. 39-52.**

Research on methods of quality measurement for child health care is urgently needed, given the limited number of measures currently available to assess care provided to children, assert these authors. One potential shortcut is to adapt existing process-based measures developed for adults. For example, there are multiple measures for routine screening tests in outpatient care for adults such as the HEDIS 2000 measure of breast cancer screening and measures of appropriate use of diagnostic radiology and laboratory services from the Developing and Evaluating Methods to Promote Ambulatory Care Quality Project. This prior work can provide templates for measures that cover multiple aspects of well-child care, such as vision and hearing screens and dental referrals.

For conditions that affect children and adults, measures designed for adults could be adjusted to reflect the specific differences in care process needed for children. For example, the IMSystem measures for patient education on insulin use could capture parental education instead. For the many conditions that affect children only, however, researchers need to develop new quality measures that are unique to childhood.

A major challenge is finding ways to overcome the problem that typifies pediatrics, that of only a few cases of each of a large number of serious chronic illnesses. The researchers suggest two possible approaches: one is to aggregate cases across conditions to create generic measures, such as followup diagnostic tests performed in the emergency department; and the other is to create composites of quality of life, functional status, and routine followup evaluations across multiple chronic diseases.

A particular problem is capturing the consequences of childhood illness for both children and their parents. Further refinement of child survey techniques may address these issues. Last, a different type of challenge is to find techniques to integrate data about the care that children receive across different health care settings and across non-health care agencies that contribute to children's health.

Reprints (AHRQ Publication No. 01-R037) are available from AHRQ.** ■

Efforts to improve the quality of health care services for children show positive results

Despite many recent attempts to improve the quality of child health services, numerous gaps remain. In fact, widespread improvement in the quality of health services for children is hampered by significant barriers.

A recent study by Denise Dougherty, Ph.D., of the Agency for Healthcare Research and Quality, and her colleagues at Massachusetts General Medical School found that several quality improvement (QI) methods have demonstrated effectiveness. These include reminder systems for office-based preventive services that substantially improved physicians' immunization, screening, and pediatric counseling practices. Successful inpatient pathways (documenting processes of care) or guidelines range from those that improved the quality of pediatric emergency care to those that increased the use of antiinflammatory medications from 2 percent to 25 percent among children with asthma.

These findings come from a review of published literature from 1985 to 1997 on QI initiatives. In addition, Dr. Dougherty and her colleagues interviewed experts experienced in QI for child health services. Interviews with experts revealed that barriers to QI for children were similar to those for adults, despite the experts' perceptions that pediatric QI is more difficult. The good news is that the number of pediatric QI studies being reported in the literature has grown in the past few years. Limitations include the following: most of the studies reviewed by the researchers involved children under 5 years of age; and for most QI interventions assessed, evidence was insufficient to adequately inform clinicians and administrators. Also, reportedly successful QI initiatives more commonly described improvement in administrative measures such as rate of hospitalization or length of stay rather than functional status or quality of life.

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Quality of children's health care

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Efforts in child QI need to move beyond administrative process measures and take on child health outcomes such as quality of life and optimal development, suggest the researchers. Their study provides a much-needed baseline for pediatric care improvement efforts, notes AHRQ Deputy Director Lisa Simpson, M.B., B.Ch., M.P.H., F.A.A.P., in an accompanying commentary.

More details are in "A report card on quality improvement for children's health care," by Timothy G. Ferris, M.D., M.P.H., Dr. Dougherty, David Blumenthal, M.D., M.P.P., and James M. Perrin, M.D.; and "Quality of Care: Time to make the grade," by Dr. Simpson, in the January 2001 *Pediatrics* 107(1), pp. 143-155, 171. Reprints (AHRQ Publication No. 01-R020) are available from AHRQ.** ■

Clinical Decisionmaking

Use of warfarin to reduce risk of stroke in very elderly people with atrial fibrillation is challenging

Clinical trials in the 1990s demonstrated that antithrombotic therapy, especially warfarin, can prevent strokes in trial participants who have chronic atrial fibrillation (AF). Because most trial participants were younger than age 80, the safety and benefits of prescribing antithrombotic therapy to very elderly patients have been controversial. Clarifying the safety and benefits for octogenarians is important because the risk of stroke, the prevalence of chronic AF, and the occurrence of adverse events from anticoagulation increase with age.

In a recent review article, Brian F. Gage, M.D., M.Sc., of the Washington University School of Medicine, and colleagues at the University of Washington and the University of California at Davis use the case of an otherwise healthy 80-year-old man who has AF and hypertension—conditions that increase the risk of stroke—to clarify the risks and benefits of prescribing warfarin in the very elderly. They estimate that this patient has a 4 percent stroke risk without warfarin therapy and a 3 to 4 percent risk for hemorrhage with warfarin, and that warfarin is likely to prolong survival by about 0.1 quality-adjusted life-year more than aspirin would. However, this latter estimate is sensitive to the risk of hemorrhage and the patient's preferences.

Compared with aspirin, warfarin would reduce his stroke rate by 2 percent per year and increase his risk of major hemorrhage by 2 to 3 percent per year. After discussing these risks, the patient understands that stroke is usually much more debilitating then hemorrhage, and he chooses to take warfarin and undergo regular blood monitoring (via international normalized ratio [INR] testing).

Based on several prior studies, the researchers conclude that the optimal INR for patients who have nonvalvular AF is at least 2.0; the optimal INR remains controversial, especially in an 80-year-old patient, but they choose a target INR of 2.5. Because advanced age is associated with lower steady-state warfarin dose requirements, many experts initiate warfarin therapy with an initial dose of 2 to 4 mg rather than a higher dose. A reasonable plan is to check the INR of outpatients two to four times during the first week of warfarin therapy and twice during the second week. The time

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Warfarin usage

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between INR tests should be increased gradually as a steady-state response (optimal thinness of blood) is achieved.

See "Warfarin therapy for an octogenarian who has atrial fibrillation," by Dr. Gage, Stephan D. Fihn, M.D., M.P.H., and Richard H. White, M.D., in the March 20, 2001 *Annals of Internal Medicine* 134, pp. 465-474. ■

Routine hospitalization of all cocaine users seen in the ER for cardiac symptoms may not be warranted

Cocaine users who end up in the hospital emergency department (ED) typically complain of chest pain, shortness of breath, dizziness, or heart palpitations or other symptoms suggestive of acute cardiac ischemia (ACI): heart attack or unstable angina. However, few cocaine-using ED patients ultimately prove to have ACI and need to be hospitalized, according to the results of a multicenter study supported by the Agency for Healthcare Research and Quality (HS07360). Of the 3 percent of 10,689 ED patients with ACI symptoms who were cocaine users, only 2.1 percent proved to have ACI (0.7 percent had a heart attack, and 1.4 percent had unstable angina).

Harry P. Selker, M.D., M.S.P.H., of Tufts University School of Medicine, was principal investigator of this AHRQ-funded study. Dr. Selker and his colleagues examined the actual incidence of ACI among cocaine-using patients who arrived at the EDs of 10 study hospitals with symptoms of ACI. Patients with cocaine-induced complaints were as likely to be admitted to the coronary care unit as non-cocaine users (14 vs. 18 percent), yet they were much less likely to have confirmed unstable angina (1.4 vs. 9.3 percent) or AMI (0.7 vs. 8.6 percent). More research is needed on the best and most cost-effective approach, short of routine hospital admission, for triaging patients with cocaine-associated symptoms, conclude the researchers.

The two cocaine-using patients who had heart attacks had presenting electrocardiograms (ECGs) consistent with ACI. None of the 37 cocaine users with cocaine-associated symptoms other than chest pain and no ECG abnormalities proved to have ACI. For these extremely low-risk patients, resolution of symptoms after the administration of a benzodiazepine—a minor tranquilizer—and the absence of ACI on repeat ECG may support ED discharge with referral for addiction counseling, conclude the authors of the study.

See "Acute cardiac ischemia in patients with cocaine-associated complaints: Results of a multicenter trial," by James A. Feldman, M.D., Susan S. Fish, Pharm.D., M.P.H., Joni R. Beshansky, R.N., M.P.H., and others, in the November 2000 *Annals of Emergency Medicine* 36(5), pp. 469-476. ■

Reactivity to allergen skin tests has no bearing on mortality or cancer risk

Allergies affect at least 10 percent of the population and 75 percent of those whose parents both have allergies, and the incidence of allergies is increasing worldwide. It has long been speculated that atopy—or reactivity to allergen skin testing—has a broader influence on health than just the allergic symptoms associated with it. Some think that it may boost or weaken immune system surveillance. For example, atopy may play a protective role in cardiovascular disease by increased immune system activity resulting in decreased platelet aggregation (blood thickness) or increase risk via mast cell release of histamine provoking coronary artery spasm. Another theory is that atopy may speed up cancer via an excessively active immune system which attacks the body's own cells, or it may prevent cancer by keeping aberrant cells in check.

Conflicting findings of previous studies are due in part to methodological issues and failure to control for important cancer and cardiovascular risk factors such as smoking. However, a recent study that controls for such factors shows no relationship between atopy and subsequent mortality.

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Allergen skin tests

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Peter J. Gergen, M.D., of the Agency for Healthcare Research and Quality, and his colleagues used data from the second National Health and Nutrition Examination Survey (NHANES II), a representative sample of the U.S. population from 1976-1980, to compare baseline health status and atopic status (allergen skin test reactivity) with cause of death through 1992 for participants 30 years of age or older at baseline. Reactivity was defined as a weal (a raised bump on the skin) 3 mm or larger in response to one of eight allergens ranging from house dust and cat to ragweed and Bermuda grass.

The investigators found no association between allergen skin test reactivity and deaths from all causes. Results did not change when cancer or heart disease mortality was examined separately. Likewise, the presence or absence of allergic symptoms did not alter findings.

More details are in "Is allergen skin test reactivity a predictor of mortality? Findings from a national cohort," by Dr. Gergen, Paul C. Turkeltaub, M.D., and C.T. Sempos, Ph.D., in *Clinical and Experimental Allergy* 30, pp. 1717-1723, 2000. Reprints (AHRQ Publication No. 01-R062) are available from AHRQ.** ■

Cervical smears in previously screened postmenopausal women are poor predictors of cervical neoplasia

Gynecologists continue to debate how often postmenopausal women need Pap smears to screen for cervical cancer. Current recommendations range from discontinuing screening at 65 years of age in previously screened women with a history of normal cervical smears to lifelong screening at less frequent, but undefined, intervals.

Recent studies have demonstrated a low incidence of important cervical disease in previously screened women older than 50 years of age. In fact, a new study concludes that because of poor positive predictive value (chance that a positive smear actually indicates precancerous or cancerous cells), cervical smears should not be performed within 2 years of normal Pap smears in postmenopausal women. This approach would avoid many false-positive test results leading to needless patient concern, followup diagnostic testing, and invasive procedures, explain the researchers.

The researchers, who were supported in part by the Agency for Healthcare Research and Quality (HS07373), used cervical smears collected prospectively during the Heart and Estrogen/Progestin Replacement Study of postmenopausal women who still had a uterus and were suffering from coronary artery disease. The women were followed an average of 4 years at 20 different sites. Cervical smears were done during the women's annual visits to the study gynecologists. The researchers identified 2,561 women who had normal cervical smears at study entry and an abnormal cervical smear at the first or second annual visit. Women were randomized to either estrogen/progestin replacement therapy or placebo.

The positive predictive value of any smear abnormality identified 1 year after a normal smear was 0 percent; the positive predictive value of abnormalities found within 2 years was 0.9 percent. Within 2 years of a normal smear, 110 women in the trial (23 per 1,000 person-years) had a cytologic abnormality. Of these, all but one were false positive. In hormone-treated women compared with non-hormone-treated women, the incidence of cytologic abnormalities was not significantly higher.

See "The positive predictive value of cervical smears in previously screened postmenopausal women: The heart and estrogen-progestin replacement study," by George F. Sawaya, M.D., Deborah Grady, M.D., M.P.H., Karla Kerlikowski, M.D., and others, in the December 19, 2000 *Annals of Internal Medicine* 133(12), pp. 942-950. ■

Feedback from an electronic medical record can help primary care doctors improve their initial management of depression

Depressed patients who are treated by primary care physicians (PCPs) often receive inadequate treatment. This has been attributed in part to PCPs' low rate of recognizing depression and lack of awareness about and implementation of effective, guideline-based depression care. However, screening primary care patients for depression with a standard screen, informing PCPs of the results via electronic medical record (EMR), and presenting them with patient-specific treatment recommendations can influence their initial management of the disorder. These findings are from a recent study supported by the Agency for Healthcare Research and Quality (HS09421) and led by Bruce L. Rollman, M.D., M.P.H., of the University of Pittsburgh School of Medicine.

Dr. Rollman and his colleagues examined the impact of this approach on the initial management of 212 depressed patients by 16 internists. When a patient was identified by a computerized mood module as having major depression, PCPs were notified via an interactive e-mail alert generated through the EMR system and via an electronic letter signed by the study investigators. The doctor was asked to say whether he agreed, disagreed, or was unsure about the diagnosis. Reminders and scheduling of return visits were sent via e-mail to active care doctors, regardless of their agreement or disagreement with the diagnosis. Usual care doctors received no additional patient-specific advice or reminders of care during followup. Passive care PCPs were reminded of their patients' depression diagnosis on the paper encounter form generated for each patient visit, with suggestions to treat, but no details on how to treat.

About 65 percent of PCPs agreed with the diagnosis, 13 percent disagreed, and 23 percent were uncertain. Internists who agreed sooner with the depression diagnosis were more likely to make a medical chart notation of depression, prescribe antidepressant medication therapy, or refer the patient to a mental health specialist. Guideline exposure conditions (active, passive, and usual care) did not affect the agreement rate or treatments provided by the PCPs. However, active care doctors were less likely to ignore the electronic messages than doctors in the other two groups.

See "The electronic medical record: A randomized trial of its impact on primary care physicians' initial management of major depression," by Dr. Rollman, Barbara H. Hanusa, Ph.D., Trae Gilbert, M.A., and others, in the January 22, 2001 *Archives of Internal Medicine* 161, pp. 189-197. ■

Outcomes/Effectiveness Research

Researchers study the causes of low back pain, use of imaging to identify herniated disks, and cancer in back pain patients

About two-thirds of adults suffer from low back pain at some time. Doctors differ widely in how they care for patients with low back pain, with evidence of excessive imaging and surgery for the problem. In most cases of low back pain, patients recover within a few weeks of the onset of symptoms. Although the more worried among us may fear cancer with back pain, less than 1 percent of primary care patients with low back pain have spinal cancer. Three studies supported by the Agency for Healthcare Research and Quality recently examined approaches to the diagnosis and treatment of various causes of back pain, ranging from disk herniation to spinal cancer.

The first study (AHRQ grant HS09804) provides a general overview of the causes, diagnosis, and treatment of low back pain. The second study (AHRQ grants HS08194 and HS09499) suggests imaging approaches that can distinguish age-related from more problematic intervertebral disk changes. In the third study (AHRQ grants HS06664, HS06344, and HS08194) the authors recommend a strategy for finding cancer in primary care outpatients with low back pain.

Deyo, R.A., and Weinstein, J.N. (2001, February). "Low back

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Low back pain

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pain." *New England Journal of Medicine* 344(5), pp. 363-370.

These researchers review the causes, diagnosis, and treatment of low back pain. They point out that for patients with nonspecific low back pain, a precise anatomically based diagnosis is often impossible, which leads to various imprecise diagnoses. The fact that low back pain often resolves on its own may partially explain the proliferation of unproved treatments that may seem to be effective. X-rays are useful in only a minority of patients, and use of more advanced imaging should be reserved for potential candidates for surgery. Computed tomography and magnetic resonance imaging are more sensitive than plain x-rays for the detection of early spinal infections, cancer, herniated disks, and spinal stenosis. The role of imaging in other situations is limited because of the poor association between low back pain symptoms and anatomic findings.

Bed rest is not recommended for the treatment of low back pain or sciatica, and a rapid return to normal activities is usually the best course. Back exercises are not useful for the acute phase, but they do help to prevent recurrences and treat chronic pain. Spinal manipulation and physical therapy are alternative treatments for symptomatic relief among patients with acute or subacute low back pain, but their effects are limited. Surgery is appropriate for a small proportion of patients with low back symptoms, such as those with sciatica.

Patients with suspected disk herniation should be treated nonsurgically for at least a month. Narcotic analgesics may be needed for pain relief, but they should be used only for limited periods. Bed rest does not accelerate recovery, but epidural corticosteroid injections offer temporary symptomatic relief for some patients. Diskectomy has produced better pain relief than nonsurgical treatment over a period of 4 years, but it's not clear whether there is any advantage after 10 years. Evidence regarding nonsurgical therapy for spinal stenosis is sparse. Use of an exercise bicycle or walking is recommended, with brief rest when pain occurs. Analgesics, nonsteroidal antiinflammatory drugs, physical therapy, and epidural corticosteroids may be useful, but there are no data from clinical trials. Even with successful surgery, symptoms often recur after several years.

Jarvik, J.G., and Deyo, R.A. (2000, January). "Imaging of lumbar intervertebral disk degeneration and aging, excluding disk herniations." *Radiologic Clinics of North America* 38(6), pp. 1255-1266.

These authors review imaging studies of the normal intervertebral disk, how it degenerates with aging, and the relationship of various aspects of disk degeneration to low back pain. They conclude that most degenerative disk changes are age-related, and only rarely are these disk changes helpful in the diagnosis of low back pain. Several studies showed that as the disk ages, it becomes less hydrated, prone to different types of tears, and progressively loses the capacity to absorb and transmit compressive loads to the vertebral column. With tear-related loss of integrity, the disk begins to expand outward into bulges.

Computerized tomography (CT) can reliably and accurately depict disk bulging, herniation, calcification, and vertebral endplate sclerosis. However, CT cannot distinguish soft tissue structures and has a limited field of view. Magnetic resonance imaging (MRI) has superior contrast discrimination that facilitates the evaluation of the internal disk structure. One study used MRI to examine the natural history of anatomic changes of the lumbar spine. It showed that common imaging findings—such as disk dehydration, disk narrowing, and disk bulges—were all strongly associated with age and nearly ubiquitous by the fifth and sixth decades of life.

Findings not significantly associated with age but linked to past pain occurred uncommonly in the sample. Such findings include disk extrusions, nerve root compromise, and moderate or severe stenosis. When these less common findings fit with the clinical picture, doctors can be more confident that they are related to the patient's symptoms. The researchers conclude that in isolation an imaging finding of disk degeneration may represent part of the aging process and in the absence of extrusion is of only modest value in diagnosis or treatment decisions.

Joines, J.D., McNutt, R.A., Carey, T.S., and others. (2001, January). "Finding cancer in primary care outpatients with low back pain." *Journal of General Internal Medicine* 16, pp. 14-23.

These researchers recommend a specific imaging strategy for low back pain patients who have a history of cancer or are otherwise at greater risk for spinal cancer. Early diagnosis and treatment of spinal metastasis are needed to prevent complications, which may include pain, pathologic fracture, weakness, sensory loss, paralysis, and bowel or bladder dysfunction.

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Low back pain

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The researchers compared strategies that differed in the use of clinical findings, erythrocyte sedimentation rate (ESR), and plain x-rays prior to imaging and biopsy. They used estimates of disease prevalence and test characteristics taken from the literature. Costs reflected Medicare reimbursement for the tests and procedures employed.

The researchers recommend a strategy using MRI—or bone scan followed by MRI—for patients who have a clinical finding that raises the risk of spinal cancer (history of cancer, age 50 years or older, weight loss, or failure to improve with conservative therapy) in combination with either an elevated ESR (50 mm or more per hour) or a positive x-ray. As an alternative, they recommend imaging directly without additional tests for those patients with a history of cancer.

In the baseline analysis, using MRI as the imaging procedure prior to a single biopsy and an ESR cutoff point of 20 mm/hr, strategies ranged in sensitivity from 0.40 to 0.73, with corresponding diagnostic costs of $14 to $241 per patient and average cost-effectiveness ratios of $5,283 to $49,814 per case of cancer found. Use of a higher ESR cutoff point (50 mm per hour) resulted in lower costs and fewer unnecessary biopsies for strategies that used ESR. Imaging with MRI or bone scan followed by MRI resulted in fewer unnecessary biopsies than imaging with bone scan alone. Cancer prevalence was an important determinant of cost-effectiveness. ■

Training primary care physicians in manual therapy gives them another way to treat back pain patients, but benefits are modest

Controversy continues about the benefit of spinal manual therapy (a sequence of maneuvers that adjust and stretch joints and soft tissues) in the care of low back pain. Continuing medical education in manual therapy is increasingly offered to primary care physicians (PCPs) to give them an additional strategy to improve back pain care.

Apparently, limited training in manual therapy offers only modest benefit compared with high-quality conventional care for acute low back pain. However, in an exploratory analysis, patients who received more intense manual therapy (four or more maneuvers) from their PCPs recovered normal functioning more quickly than those who received less intense therapy, according to a study supported by the Agency for Healthcare Research and Quality (HS08293).

Researchers led by Timothy S. Carey, M.D., M.P.H., of the University of North Carolina, examined the outcomes of 295 patients with acute low back pain receiving care from 31 generalist physicians randomized to either optimal low back care (enhanced care) or enhanced care and a sequence of eight standard manual therapy techniques. Patients were interviewed by phone at 1, 2, 4, and 8 weeks after their initial back pain visit. More patients receiving manual therapy had completely recovered after the first visit compared with the control group (14 vs. 6 percent). However, 2 and 4 weeks later, the proportion of fully recovered patients was nearly identical for the two groups.

During the 8-week followup period, there were no differences in levels of pain, days absent from work, and overall patient satisfaction between the two groups, after controlling for other factors such as functional status at the initial visit, duration of pain prior to randomization, and differences in drug therapy. However, there was some evidence that intensity of manual therapy may affect outcome. Mean time to functional recovery was 11.1 days for patients receiving only enhanced care, 10.4 days for the low-intensity, and 7.8 days for the high-intensity manual therapy groups. Despite some concerns about using manual therapy in practice, physicians were very positive that its use had improved patient care.

See "Training primary care physicians to give limited manual therapy for low back pain," by Peter Curtis, M.D., Dr. Carey, Paul Evans, D.O., and others, in *Spine* 25(22), pp. 2954-2961, 2000. ■

Analyzing near-miss medical errors by graduate medical trainees can identify ways to improve medical education

In professions such as flying, errors are made in a simulator while pilots are learning to fine-tune their skills. But this is not the case for medical interns and residents—they practice on patients. Lack of supervision, excessive work hours leading to sleep deprivation, and inadequate formal education have been cited as contributing to clinical errors by graduate trainees (GTs).

One way to find the source of GT errors is by analyzing the root causes of both human and system errors as documented in teaching hospital near-miss event reports. Causal trees are used to represent chronologically the critical activities and decisions that led to the event and its recovery, if any. Identifying the cause of errors can guide needed changes to systems and to graduate medical education programs, concludes James B. Battles, Ph.D., a senior service fellow for patient safety at the Agency for Healthcare Research and Quality.

Dr. Battles and his colleague, Christine E. Shea, Ph.D., performed a root-cause analysis of three cases of near-miss medical errors involving GTs (interns, residents, and fellows) that were recorded in hospital-based near-miss reporting systems. In one case, a patient was almost sent home with a fractured cheekbone. The emergency department (ED) was understaffed, and several GTs who were inexperienced in reading x-rays missed the fracture; it was caught by an experienced senior charge nurse. In another case, patients were given inadequate drug treatment for acute asthma in the busy and understaffed ED of a large hospital over a 2-month period during which the staff person responsible for lecturing each new rotation of GTs about asthma medication protocols was out of town.

In both these and the third case, lack of knowledge on the part of the trainee contributed to the incident. In fact, inadequate educational preparation had the potential for significantly harming the patient. Organizational causes also contributed to errors in each case. This illustrates the need to examine not only educational issues, but also procedural and management issues related to graduate medical education, explain the authors. They conclude that near-miss reporting systems can be effective error-management tools.

See "A system of analyzing medical errors to improve GME curricula and programs," by Drs. Battles and Shea, in the February 2001 *Academic Medicine* 76(2), pp. 125-133. Reprints (AHRQ Publication No. 01-R045) are available from AHRQ.** ■

Researchers confirm that ongoing doctor-patient relationships based on trust are critical for effective care

Primary care has been the focus of many changes in the health care delivery system over the past decade and a half. Primary care physicians (PCPs) hold a central role in patient care. Ideally, they are responsible for coordinating and integrating all aspects of the care provided to their patients. In some cases, they also share in the financial risk associated with providing care under a capitated payment arrangement.

Even within stable health plans, PCPs have felt pressure to increase productivity (see more patients per hour), decrease costs, and still keep patients satisfied. However, these actions may have eroded trust in the patient-doctor relationship and led some patients to switch doctors, according to two studies supported in part by the Agency for Healthcare Research and Quality (HS08841), which are summarized here.

Murphy, J., Chang, H., Montgomery, J.E. and others. (2001, February). "The quality of physician-patient relationships: Patients' experiences 1996-1999." *Journal of Family Practice* 50(2), pp. 123-129.

In this study, the researchers surveyed nearly 2,400 insured adults employed by the Commonwealth of Massachusetts who remained with one PCP during the 3-year study

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Doctor-patient relationships

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period from 1996-1999. The majority were women and white, ranging in age from 20 to 88 years, and had some college education. The participants completed questionnaires at the study's beginning and end, which included measures of primary care quality from the Primary Care Assessment Survey (PCAS). Four PCAS scales measured doctor-patient relationship quality (communication, interpersonal treatment, physician's knowledge of the patient, and patient trust), and four scales measured organizational features of care (financial access, organizational access, visit-based continuity, and integration of care).

There were significant declines in three of the four relationship scales: communication, interpersonal treatment, and trust. Improved physician's knowledge of the patient was not significant when adjustments were made for increased relationship duration. There was a significant decline in organizational access (patients' ability to reach their doctor's office by phone and to obtain timely appointments when sick), an increase in visit-based continuity (ability of patients to see their regular doctor for routine care and appointments when sick), and no significant changes in financial access and integration of care. Thus, patients felt they had better access to their own doctors, but the quality of the encounters was declining.

The declines in access to care and in three of the four indexes of physician-patient relationship quality are of concern, especially if they signify a trend, conclude the researchers. For example, the observed decline in interpersonal treatment could translate into a measurable decline in patients' attempts to adhere to their physicians' counseling about important lifestyle changes, such as smoking cessation and increased exercise.

Safran, D.G., Montgomery, J.A., Chang, H., and others. (2001, February). "Switching doctors: Predictors of voluntary disenrollment from a primary physician's practice." ***Journal of Family Practice*** **50(2), pp. 130-136.**

This study showed that eight PCAS scales measuring primary care quality significantly predicted voluntary switching of doctors. One-fifth of the patients surveyed voluntarily left their PCP's practice during the study period. All eight scales independently predicted voluntary disenrollment, with the four relationship quality measures (communication, interpersonal treatment, physician's knowledge of the patient, and patient trust in the doctor) having somewhat large effects. A composite relationship quality factor most strongly predicted voluntary disenrollment (odds ratio, OR 1.6), and the two continuity scales (relationship duration and visit-based continuity) also significantly predicted disenrollment (OR 1.1). Organizational access and integration of care did not significantly predict disenrollment in the presence of these other variables.

These results suggest that although the patients put a high priority on being given timely and convenient access to their physician's office, the issue of who they are given access to and the quality of their connection with that clinician mattered more. Clearly, a patients' trust in their physician, assessment of how well the doctor knows them, and the quality of communication and interpersonal treatment were the leading predictors of patients' loyalty to their PCP's practice.

These findings highlight the importance of the doctor-patient relationship in determining patients' loyalty to a physician's practice. The researchers suggest that in the race to the bottom line, medical practices and health plans cannot afford to ignore the fact that the essence of medical care involves the interaction of one human being with another. ■

Patients' postal codes can be used as an indicator of socioeconomic status for adjusting physician profiles

The health outcomes of a doctor's patients often form the basis of the physician performance profile. Physician profiles that fail to adjust for patient socioeconomic status (SES) overstate the performance of physicians who care for more affluent patients (who are more likely to have better physical and mental health) and penalize physicians who work with poorer patients (who are more likely to have worse overall health). Yet managed care and other health organizations cannot easily adjust physician profiles for patient SES because doctors do not routinely collect socioeconomic data on their patients.

An easy way around this is use of patients' ZIP codes to serve as indicators of their SES, according to

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Postal codes as a proxy for SES

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a study supported by the Agency for Healthcare Research and Quality (HS09963). ZIP codes or census blocks typically correlate with income, education, occupation, and wealth, explain Kevin Fiscella, M.D., M.P.H., and Peter Franks, M.D., of the University of Rochester School of Medicine and Dentistry. They compared the effects of adjusting physician performance profiles using three different measures of patient SES: one derived by geocoding patient addresses to the census block group, one using patients' ZIP codes, and the third based on patient-reported education.

The researchers took a random sample of 100 primary care physicians in Western New York and 50 consecutive patients seen by each physician to examine the effects of these SES adjustments on physician profiles for patient satisfaction and physical and mental health, which were based on patient questionnaire responses. The effects on physician rankings for patient satisfaction using the ZIP code SES were greater than those of the other two measures, which had negligible effects.

For the physical and mental health status rankings, both ZIP code and census block measures had similar effects. Individually measured education did not yield a greater effect on physician ranking than either of the other two measures for any of the patient outcomes. These results suggest that SES derived from either patient census block group level or ZIP codes may offer a convenient alternative to individually collected SES data for adjusting physician profiles. In fact, ZIP code-derived SES may be preferable, given the loss of information associated with incomplete matching during geocoding.

Details are in "Impact of patient socioeconomic status on physician profiles: A comparison of census-derived and individual measures," by Drs. Fiscella and Franks, in *Medical Care* 39(1), pp. 8-14, 2001. ■

Smoking Cessation

Young adults often smoke to control their weight, even though most of them want to stop smoking

Adults younger than 30 years are more likely to smoke if they are trying to lose weight, even though many want to stop smoking. Young adults trying to lose weight were almost twice as likely to want to quit smoking as those not concerned about controlling their weight, according to a study supported in part by the Agency for Healthcare Research and Quality (National Research Service Award fellowship F32 HS00137). Thus, a patient's weight control efforts should not discourage doctors from counseling them about smoking cessation, concludes Christina C. Wee, M.D., M.P.H., of Beth Israel Deaconess Medical Center.

Dr. Wee and her colleagues analyzed results from the Year 2000 Supplement of the 1995 National Health Interview Survey. Adult respondents provided sociodemographic and health information, including their smoking history and whether they were trying to lose wight, maintain weight, or gain weight.

Among current smokers who were also trying to control their weight, a striking 74 percent said they wanted to quit smoking. In fact, 81 percent of those trying to lose weight, 73 percent of those trying to maintain weight, and 70 percent of those not trying to control weight said they would like to quit smoking. Among smokers who smoked daily, nearly half (46 percent) had made at least one attempt to quit smoking in the preceding year. Fifty-four percent of adults trying to lose weight and 46 percent of those trying to maintain their weight had tried to quit smoking at least once in the past year, compared with 41 percent of those not trying to control their weight.

Factors such as sex, socioeconomic status, years of smoking, number of cigarettes smoked per day, and chronic illness did not alter the relationship between desire to lose weight and desire to quit smoking. Age, however, did make a difference. While there was no relationship between smoking behavior and attempts to control weight among adults 30 years and older, adults younger than age 30 were much more likely to smoke if they were also trying to lose weight.

These findings raise concerns that public health efforts to increase awareness of the health problems related to being overweight may lead to a rise in

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Young adults and smoking

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smoking initiation among young adults, notes Dr. Wee. Clinicians and public health officials need to educate young adults about the adverse effects of smoking and about healthier methods of weight control, suggest the researchers.

More details are in "Relationship between smoking and weight control efforts among adults in the United States," by Dr. Wee, Nancy A. Rigotti, M.D., Roger B. Davis, Sc.D., and Russell S. Phillips, M.D., in the February 26, 2001 *Archives of Internal Medicine* 161, pp. 546-550. ■

Health Care Costs and Financing

HMOs should adjust their use of inhaled antiinflammatory medicines for asthma patients to meet national guidelines

Asthma is the most common chronic disease among children and the most frequent reason for hospitalization. It is characterized by airway inflammation which, if untreated, may lead to permanent airway damage. Current asthma care guidelines recommend inhaled antiinflammatory medications—such as corticosteroids and cromolyn—as first-line treatment.

Unfortunately, managed care organizations (MCOs) often do not dispense these controller medications, which have been associated with fewer asthma-related hospitalizations, to children who could benefit from them. In a recent study, only 39 percent of patients treated by three MCOs were given these controller medications. The study was conducted by the Pediatric Asthma Care Patient Outcomes Research Team (PORT), which is supported in part by the Agency for Healthcare Research and Quality (HS08368).

Researchers examined the claims and pharmacy databases of three MCOs for 13,352 children (3 to 15 years of age) who had an outpatient or emergency department visit or hospitalization for asthma in the previous year. Medications analyzed included inhaled and oral bronchodilators (that is, beta-agonists and anticholinergics), inhaled corticosteroids, inhaled cromolyn and nedocromil, oral theophylline, and oral steroids.

Less than 40 percent of children were given controllers during the 1-year period, with ranges of 15 to 77 percent by level of bronchodilator use, 31 to 44 percent by age, and 38 to 42 percent by MCO. The dispensing patterns of antiinflammatory agents differed substantially among MCOs. Inhaled corticosteroids were given to 56 percent of patients in one MCO, compared with about 42 percent in the other MCOs. However, the other two MCOs were more likely than the first one to dispense cromolyn inhalers. The youngest children were least likely to receive controller medications. Rates of asthma hospitalizations and emergency department visits also differed among the MCOs, ranging from 21 to 37 per 1,000 person-years and 37 to 142 per 1,000 person-years, respectively.

See "Asthma pharmacotherapy and utilization by children in 3 managed care organizations," by James G. Donahue, Ph.D., Anne L. Fuhlbrigge, M.D., Jonathan A. Finkelstein, M.D., and others, in the December 2000 *Journal of Allergy and Clinical Immunology* 106, pp. 1108-1114. ■

Treating more Medicaid managed care patients in community health centers may reduce care for uninsured patients

Since they began in the 1960s, community health centers (CHCs) have served as a primary care safety net for medically vulnerable groups. However, the findings from a recent study sound a warning note that the ability of CHCs to provide health care for the uninsured might be compromised by managed care. The study, which was supported in part by the Agency for Healthcare Research and Quality (HS09831), found that CHCs involved in managed care served a significantly smaller proportion of uninsured patients (33 to 35 percent) than CHCs not involved in managed care (42 to 45 percent). What's more, as non-managed care centers became involved in managed care, the proportion of

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Treating Medicaid managed care patients

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uninsured patients they treated declined. Even after controlling for CHC location and center-specific indicators, uninsured users declined by more than 5 percent of total users for every 10,000 managed care enrollees treated.

Greater financial pressures from managed care and other factors might force CHCs to use Federal grant funding to cover the full cost of their capitated Medicaid patients, thus reducing funds available to cover costs of care for the uninsured. Yet even with the uninsurance rate at more than 30 percent for centers involved in managed care, that rate is still double the national average (16 percent) and is far greater than the percentage of uninsured patients seen by other providers.

Managed care did positively affect other vulnerable populations served by CHCs. For example, managed care centers served a significantly greater proportion and number of Medicaid users than non-managed care centers. Nevertheless, given the relatively short history of managed care within CHCs, it is still premature to assess the impact of managed care on CHCs, cautions Leiyu Shi, Dr.P.H., M.B.A., of Johns Hopkins University. Dr. Shi and colleagues analyzed data from the Uniform Data Systems maintained by the Bureau of Primary Health Care, Health Resources and Services Administration, which provides a health center profile, user profile, staffing and use profile, and financing profile. For this study, the researchers used UDS data from 1990-1998, since CHCs became involved in managed care after 1990.

See "The impact of managed care on the mix of vulnerable populations served by community health centers," by Dr. Shi, Robert M. Politzer, Ph.D., Jerri Regan, R.N., M.S., M.P.A., and others, in the January 2001 *Journal of Ambulatory Care Management* 24, pp. 51-66. ■

Health plan choice is associated with increased enrollment in employer-based coverage

When employers offer employees a choice of health plans, more employees purchase health insurance and are satisfied that their family's health care needs are being met, finds a recent study. Health plan choice may allow people to obtain an insurance plan with the characteristics they value. For example, people may be able to optimize their coverage for specific types of benefits or obtain access to particular providers or cost-sharing arrangements. If this is so, then it makes sense that plan choice might improve satisfaction with and access to health care, as well as higher insurance take-up rates, explain Barbara Steinberg Schone, Ph.D., and Philip F. Cooper, Ph.D., of the Center for Cost and Financing Studies, Agency for Healthcare Research and Quality.

Drs. Schone and Cooper analyzed data from the 1996 Medical Expenditure Panel Survey (MEPS), a nationally representative sample of wage earners, to examine whether workers had access to more than one health insurance plan, either through their employer or through a family member's employer. They correlated health plan choice with health insurance coverage, access to care (having a usual source of care), and satisfaction that family health care needs were being met. Overall, 55 percent of workers were offered a choice of health plans in 1996; about 26 percent of these workers had a choice through a family member's employment.

The likelihood of having a usual source of care was highest among workers with a choice of plans (83 percent), lowest for workers without access to employment-based coverage (67 percent), and at 77 percent for those offered one plan. Eighty percent of workers offered a choice of plans were very satisfied that their family's health care needs were being met, compared with 76 percent of those who were offered one plan and 63 percent of those who were not offered insurance. Finally, workers with private insurance coverage and a choice of plans were significantly more likely than workers with access to only one plan to be enrolled in an HMO (69 vs. 47 percent). Insurance purchasing pools or tax incentives to firms that offer multiple plans may be ways to improve plan choice, note Drs. Schone and Cooper.

See "Assessing the impact of health plan choice," by Drs. Schone and Cooper, in the January 2001 *Health Affairs* 20(1), pp. 267-275. Reprints (AHRQ Publication No. 01-R040) are available from AHRQ.** ■

Health insurance enrollment is declining in industries with large minority workforces

Industries with large numbers of minority workers are trailing those dominated by white employees in the percentage of workers enrolling in employer-paid health insurance, and the gap is widening, according to a new study supported by the Agency for Healthcare Research and Quality (HS09521). The study, which was based on Census Bureau data on 197 industries between 1988 and 1997, compared health insurance enrollment across industries and over time.

The study was conducted by Lisa A. Cubbins, Ph.D., of Seattle's Battelle Memorial Research Institute and Penelope Parmer, M.A., of the University of Cincinnati. Their study also revealed that since 1988:

- Workers are less likely to receive health benefits in industries with higher proportions of small firms, a trend that grew during the past decade. In the opinion of the researchers, rising health care costs were a contributing factor.
- Higher levels of full-time employees (35 hours or more a week) in an industry increased the likelihood of health benefits, although the magnitude of this effect declined during the decade.
- Lower unemployment rates and increased demand for labor during the past decade seem to have contributed to an increase in the percentage of workers receiving health benefits in industries with proportionately more part-time labor. According to the researchers, this may be because the high demand for labor in the mid-1990s led employers to use different incentives, such as health benefits, to attract part-time workers.
- The gap in health benefit levels between retail trade and nonprofessional service industries versus other types of industries widened, contributing to the long-term decline in employer-based health insurance.
- There was no change in the impact of union activity on the level of health benefits, but the researchers hypothesize that as the labor movement extends its membership to include groups of workers who lack health benefits, the effect of unions on health benefits may become stronger.

Simulations conducted by the researchers suggest that the decline in employer health benefits may be less dramatic over the next few years than it has been in the last two decades. They project that the average proportion of workers provided health benefits across industries by 2007 will be 47.8 percent compared with 50.3 percent in 1997.

Details are in "Economic change and health benefits: Structural trends in employer-based health insurance," by Dr. Cubbins and Ms. Parmer, in the March 2001 *Journal of Health and Social Behavior* 42, pp. 45-63. ■

Equalizing coverage for mental health and physical health would substantially reduce consumers' share of mental health costs

Equalizing health plan coverage of mental health services with that for physical health care is still being actively debated at both the national and State levels. Full mental health parity would substantially reduce consumers' share of mental health expenditures, with larger savings in outpatient care compared with inpatient care. However, the impact of parity on consumer incentives to use mental health services would vary greatly, depending on individual insurance plans, concludes a study by researchers at the Agency for Healthcare Research and Quality.

Samuel H. Zuvekas, Ph.D., Jessica S. Banthin, Ph.D., and Thomas M. Selden, Ph.D., used detailed information on health plan benefits for a nationally representative sample of the privately insured nonelderly population taken from the 1987 National Medical Expenditure Survey. They aged and reweighted the survey data to represent 1995 population and coverage characteristics. The researchers computed marginal out-of-pocket costs from the cost-sharing benefits described by booklets under current coverage and under parity for various mental health treatment expenditure levels using a microsimulation model.

Results showed that as of 1995, parity coverage would substantially reduce consumer out-of-pocket

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Equalizing coverage for mental health

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costs for mental health care, assuming no change in physical health coverage. For outpatient mental health services, mean marginal out-of-pocket costs would decline from between 40 and 50 percent to 20 percent or less for lower expenditure levels and from between 80 and 90 percent to less than 10 percent for higher expenditure levels. For inpatient care, the mean marginal out-of-pocket costs would decline by about 15 to 20 percent for lower expenditures and between 50 and 60 percent as expenditures rise to $50,000.

Lowering out-of-pocket costs is likely to substantially increase the demand for mental health treatment, especially outpatient treatment, where the savings are more dramatic. However, the researchers caution that parity in benefits does not necessarily mean equal access to treatment, given the supply-side constraints imposed under managed care.

See "How would mental health parity affect the marginal price of care?" by Drs. Zuvekas, Banthin, and Selden, in the February 2001 *Health Services Research* 35(6), pp. 1207-1227. Reprints (AHRQ Publication No. 01-R042) are available from AHRQ.* ■

Long-Term Care

Nursing homes are adding new services to compete with other long-term care providers

The nursing home market has become more competitive in recent years, a trend that will continue. The competition is coming not only from other nursing homes but from home care and assisted living facilities. In response to this competition, nursing homes are no longer providing only long-stay institutional care. They are branching out into other segments of the long-term care (LTC) market—such as assisted living, home care, and adult day care and contracting with managed care organizations for the subacute care patients—according to New York State nursing home administrators, who responded to a 1999 mailed survey.

Subacute care is becoming an important line of business for free-standing nursing homes as they struggle to compete with hospital-based and rehabilitation facilities for these types of patients, although this is more common in for-profit facilities than nonprofit facilities note William D. Spector, Ph.D., of the Agency for Healthcare Research and Quality, and Dana B. Mukamel, Ph.D., of the University of Rochester.

Administrators said they were more likely to diversify into lower levels of long-term care (adult day care, assisted living, or home care) than add new nursing home beds or purchase another nursing home. Nonprofit facilities were much more likely to offer lower levels of care than for-profit facilities.

This diversification complicates the nursing homes' ability to meet consumer preferences, however. Administrators thought that managed care organizations (MCOs) and hospitals view price and range of subacute care services as very important whereas individual purchasers view quality of life and location as more important. The authors caution that if facilities provide services both to the traditional long-term care resident and to subacute care patients in a highly competitive environment it may be difficult to accommodate the price demands of the MCOs and hospitals and meet the quality of life concerns of the long-stay residents.

See "Nursing home administrators' perceptions of competition and strategic responses," by Drs. Spector and Mukamel, in the February 2001 *Long Term Care Interface* pp. 37-41. Reprints (AHRQ Publication No. 01-R055) are available from AHRQ.** ■

Poor black women who lose a mother or sister during pregnancy are more likely to have preterm births

Preterm births, especially those prior to 32 weeks gestation, heavily contribute to infant problems and death. Preterm births are consistently highest among socially disadvantaged women, leading many to wonder whether these women's greater exposure to social stressors may prompt shorter pregnancies.

A new study, supported by the Agency for Healthcare Research and Quality (HS06930), suggests that one social stressor in particular, loss of a mother or sister during pregnancy, does seem to prompt shorter pregnancies among poor black women. Gail A. Barbosa, Sc.D., R.N., of the Medical University of South Carolina, and her colleagues found that low-income pregnant women who lost a mother or sister during pregnancy delivered their babies on average 4.6 weeks earlier than other women in the study. Women who experienced the death of other significant family members or close friends did not have shorter pregnancies.

Other factors related to shorter gestational age included pregnancy complications, inadequate use of prenatal care, smoking, no Medicaid insurance, and use of street drugs. No variation in length of pregnancy was found among women with different levels of emotional support, number of children, age-adjusted education, or alcohol use. Heightened levels of stress or total number of stressful life events were not associated with earlier deliveries.

Stressful life events are thought to initiate preterm labor and birth, either directly through hormonal responses that end in increased uterine irritability and premature contractions or indirectly via unhealthy coping behaviors, such as ignoring prenatal care. Stress also may diminish the capabilities of the immune system in preventing complications associated with early delivery. Yet surprisingly, the women in this study who reported a high number of life stressors did not report more smoking, drug use, or experience more complications of pregnancy. These findings are based on interviews with 472 black women from three public prenatal clinics, which addressed stressful life events, availability of emotional support, and health habits, as well as pregnancy and birth data collected from a clinical database.

See "The association of life events to gestational age at delivery among low-income, urban, African American women," by Dr. Barbosa, in the *Journal of Perinatology* 20, pp. 438-442, 2000. ■

Severity of homelessness predicts low birthweight and preterm births irrespective of risk factors and prenatal care

A study of severely impoverished homeless women in Los Angeles concludes that severity of homelessness leads to more low birthweight (LBW) and preterm babies, who are at increased risk of dying or having long-term neurodevelopmental and respiratory disorders. Severity of homelessness was based on the percentage of their lives during which the women were homeless, whether they were homeless while they were pregnant, and the number of times that they had been homeless. The study was supported in part by the Agency for Healthcare Research and Quality (HS08323) and led by Lillian Gelberg, M.D., M.S.P.H., of the University of California, Los Angeles.

The researchers interviewed 237 homeless women aged 15 through 44 years who had given birth within the last 3 years. Almost 17 percent of the women had low birthweight babies (less than 5.5 pounds), and 19 percent had preterm births (before 37 weeks gestation) compared with the national average of 6 percent and 10 percent, respectively. Birth outcomes were worse for homeless women of color. For example, homeless black women were four times more likely to deliver an LBW baby and nearly three times more likely to deliver a premature baby then homeless white women. About 22 percent of black and 16 percent of Hispanic homeless women had LBW babies compared with 5.4 percent of homeless white women, and 21 percent of black and 14 percent of Hispanic homeless women had preterm births compared with 7.8 percent of homeless white women.

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Severity of homelessness

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Greater severity of homelessness was a powerful predictor of poor birth outcomes for the entire group beyond risk factors that often accompany homelessness such as substance use and psychological distress. Long and frequent periods of chronic homelessness had an even stronger impact on adverse birth outcomes than homelessness during the first trimester of pregnancy. The resulting poor birth outcomes may have been due to inadequate nutrition and general neglect of health during homeless times, as well as chronically stressful and devastating life circumstances, explain the researchers. They conclude that prenatal care alone cannot be expected to reverse the cumulative and weathering effect of chronic homelessness on the reproductive health of homeless women.

More details are in "Severity of homelessness and adverse birth outcomes," by Judith A. Stein, Ph.D., Michael C. Lu, M.D., M.P.H., and Dr. Gelberg, in *Health Psychology* 19(6), pp. 524-534, 2000. ■

Major inequalities in health exist within Pakistan and between Pakistan and the United States

Pakistan, one of the world's poorest countries, bears a double burden. The nutritional deficiencies and infectious diseases that dominated mortality in the past have not yet been conquered, while the chronic diseases associated with development have increased to become leading causes of death. A new study by Peter J. Gergen, M.D., M.P.H., of the Agency for Healthcare Research and Quality, and colleagues shows that there are major inequalities in health both within Pakistan and between Pakistan and the United States.

Pakistani children suffer from a high rate of undernutrition as well as diarrhea. Nutritional problems among Pakistani adults are related to economic status. For instance, the prevalence of anemia ranges from 12 percent among urban young men of high economic status to 28 percent among rural young men of low economic status.

The gap between Pakistan and the United States is dramatic, and can be seen in patterns of diseases, risk factors, and quality of health care. While Pakistanis have a higher rate of undernutrition than Americans, they have a lower rate of high cholesterol and about an equal rate of high blood pressure. Anemia is more than 10 times as prevalent in Pakistani men as in U.S. men and about four times as prevalent in Pakistani women as in U.S. women. In contrast, hypertension was present only slightly more often in U.S. than Pakistani men, and hypertension occurred at the same rate in both Pakistani and U.S. women. Smoking rates for Pakistani and U.S. men were similar; smoking was rare among Pakistani women, but more than one-quarter of U.S. women smoked.

Forty-eight percent of U.S. men and 64 percent of U.S. women with hypertension were being treated compared with 7 percent and 16 percent of Pakistani men and women, respectively. Also, only 16 percent of Pakistanis who could benefit from glasses had them. These findings are based on results from the National Health Survey of Pakistan, the first comprehensive national health examination survey in a less developed country to document a country's health problems, and the Third U.S. National Health and Nutrition Examination Survey.

More details are in "Health status of the Pakistani population: A health profile and comparison with the United States," by Gregory Pappas, M.D., Ph.D., Taslim Akhtar, M.B.B.S., F.R.C.P., Dr. Gergen, and others in the January 2001 *American Journal of Public Health* 91(1), pp. 93-98. Reprints (AHRQ Publication No. 01-R022) are available from AHRQ.** ■

AHRQ to participate in new HHS task force on patient safety

HHS Secretary Tommy G. Thompson recently announced the formal establishment of a new Patient Safety Task Force within the Department of Health and Human Services. The task force will coordinate a joint effort among several HHS agencies to improve existing systems to collect data on patient safety. The Secretary charged the task force with working closely with the States and private sector in this effort.

The Federal agencies leading this effort include the Agency for Healthcare Research and Quality, the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), and the Health Care Financing Administration (HCFA).

The goal of this task force is to identify the data that health care providers, States, and others need to collect to improve patient safety. To start this process, the task force will award a contract to develop a detailed plan on how to integrate the existing reporting systems in a way that minimizes burden, provides those who must submit reports an opportunity to learn, and improves the safety of health care services.

CDC, FDA, and HCFA presently operate a number of systems to collect information that helps to monitor health care safety; compliance with existing regulations on blood products, devices, and drugs; and the safety of patients in Medicare-funded institutions. Secretary Thompson has charged the task force with studying how to implement a user-friendly, Internet-based patient safety reporting format. This will enable faster cross-matching and electronic analysis of data and more rapid responses to patient safety problems.

The task force held an April 23-24 summit, in Reston, VA, on the collection and use of patient safety data. The summit was attended by representatives of medical professional organizations, State health departments and licensure boards, accrediting bodies, patient advocacy groups, and others with an interest in patient safety reporting. These groups will be providing ongoing input to the task force on how to enhance the value of the data collected without creating any new Federal reporting requirements.

HHS' FY 2002 budget proposal includes $72 million, an increase of $15 million over FY 2001, for efforts to improve patient safety and reduce adverse events. ■

AHRQ publishes evidence report summaries on osteoporosis and four other topics

The Agency for Healthcare Research and Quality recently published summaries of five evidence reports, including one on diagnosis and monitoring for osteoporosis in postmenopausal women. The evidence report from which the osteoporosis summary was drawn was developed under contract (290-97-0018) with AHRQ's Oregon Health Sciences University Evidence-based Practice Center (EPC).

The EPC researchers found that bone density measured at the hip by dual energy x-ray absorptiometry (DXA) is the best predictor of hip fracture. However, they also found that the weight of evidence does not recommend repeating bone density tests within the first year of treatment. There was insufficient evidence to determine whether repeating bone density tests 2 years after starting therapy is useful. The researchers also found a lack of evidence to support the use of biochemical markers for risk assessment and treatment monitoring. They suggest that future research efforts focus on the application of data in the clinical setting and on the quality of information provided to patients who undergo bone measurement tests.

The summary of the evidence report, *Osteoporosis in Postmenopausal Women: Diagnosis and Monitoring* (AHRQ Publication No. 01-E031) is available from AHRQ.** The summary is online at http://www.ahrq.gov/clinic/ostesum.htm and from the National Guideline Clearinghouse™ (NGC) at http://www.guideline.gov (select NGC Resources). Copies of the full report (AHRQ Publication No. 01-E032) will be available from AHRQ in late summer 2001.*

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Evidence report summaries

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Other evidence report summaries released recently by AHRQ include:

- *Management of Acne* (AHRQ Publication No. 01-E018), prepared by the Johns Hopkins University EPC (contract 290-97-0006).**
- *Mind-Body Interventions for Gastrointestinal Conditions* (AHRQ Publication No. 01-E027), prepared by the Southern California/Rand Corporation EPC (contract 290-97-0001).**
- *Treatment of Degenerative Lumbar Spinal Stenosis* (AHRQ Publication No. 01-E047), prepared by the ECRI EPC (contract 290-97-0020).**
- *Uses of Epoetin for Anemia in Oncology* (AHRQ Publication No. 01-E008), prepared by the Blue Cross and Blue Shield Association Technology Evaluation Center (contract 290-97-0015).** ■

Announcements

U.S. Preventive Services Task Force calls for chlamydia and lipid screening and issues two other recommendations

In its first set of recommendations, the third U.S. Preventive Services Task Force (USPSTF) has recommended that primary care clinicians screen all sexually active women ages 25 and younger for chlamydia, as well as older women who are at risk for chlamydia, as part of regular health care visits.

Chlamydia is the most common bacterial sexually transmitted disease in the United States, with an estimated 3 million new cases each year. Most women have no symptoms when initially infected, but if they go untreated, they can develop pelvic inflammatory disease, infertility, and other serious health problems, including increased risk of HIV infection. Although chlamydia is most common in women 25 and younger, older women also can be at risk for chlamydia if they have a new or multiple sexual partners, have had a sexually transmitted disease in the past, or do not use condoms consistently and correctly. Treatment with antibiotics is easy and effective.

The USPSTF recommendation is particularly important because data indicate that many women are not being screened. According to a survey of 546 doctors reported in the March 2001 *Journal of Adolescent Health*, only 32 percent said they would screen an asymptomatic sexually active teenage girl for chlamydia as part of a routine gynecologic examination. A 1997 study of four major U.S. health plans indicated that only 2 percent to 42 percent of sexually active females aged 15 to 25 years had been screened for chlamydia.

The USPSTF, a panel of independent, private-sector experts in prevention and primary care, made its recommendation after concluding that there is good scientific evidence that routine screening and treatment could reduce serious consequences of chlamydia in women. The Agency for Healthcare Research and Quality sponsors the USPSTF, which is led by Alfred O. Berg, M.D., M.P.H., Chair of the Department of Family Medicine, University of Washington, Seattle.

In a broadening of its 1996 recommendations, the USPSTF has recommended that regular screening for high blood cholesterol and other lipid abnormalities, which can lead to coronary heart disease, should not have an upper age limit (previously set by the panel at age 65). The USPSTF also issued a new recommendation calling for the screening of younger adults for lipid abnormalities beginning at age 20 if they have risk factors for coronary heart disease such as diabetes, family history of heart disease, tobacco use, or high blood pressure. In addition, the panel revised its 1996 statement to recommend that for initial screening purposes, clinicians measure high density lipoprotein (HDL) cholesterol along with total cholesterol.

In addition, the USPSTF also released recommendations on skin cancer and bacterial vaginosis. They stated that:

- There is still insufficient scientific evidence to determine whether regular total body skin examination for skin cancer is effective in reducing illness and death, the same conclusion the Task Force reached in 1996.

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Task Force recommendations

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- Despite research showing that pregnant women with bacterial vaginosis have a higher risk of preterm delivery, evidence does not merit regular screening to reduce the incidence of preterm delivery. For women at high risk due to a previous preterm delivery, however, the USPSTF found conflicting results regarding the benefit of screening and treatment, and concluded that these options be left to the discretion of clinicians. Bacterial vaginosis is a common condition among women of childbearing age that results in a vaginal discharge caused by an imbalance in vaginal bacteria.

The USPSTF conducts impartial assessments of scientific evidence for a broad range of clinical conditions to produce recommendations for the regular provision of clinical preventive services. The Task Force grades the strength of evidence from A (strongly recommends) to D (recommends against) and I (insufficient evidence to recommend for or against).

As the panel updates the 70 chapters in its 1996 report, it is issuing individual updates as they are completed. Releasing the recommendations as they are finished rather than all at once, as in the past, will get them into the hands of clinicians more quickly.

The recommendations on these four topics and summaries of the evidence on which they are based are published in a supplement to the April 2001 edition of the *American Journal of Preventive Medicine*. A limited number of free copies of the supplement (AHRQ Publication No. OM 01-0009) are available from AHRQ.*

USPSTF recommendations, summaries of the evidence, easy-to-read fact sheets explaining the recommendations, and related materials are available from the AHRQ Publications Clearinghouse, on the AHRQ Web site at www.ahrq.gov/clinic/prevenix.htm, and through the National Guideline Clearinghouse™ at http://www.guideline.gov.

AHRQ is planning to compile all of the USPSTF chapters and summaries of evidence in a semiannual incremental release notebook that will include an annual cumulative index. For more information on how you can subscribe to this notebook, contact the AHRQ Publications Clearinghouse.

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

Contact the Clearinghouse to obtain a brochure (AHRQ Publication No. APPIP 01-0006) that lists all of the USPSTF and PPIP products that are available from AHRQ.* ■

Correction: Page 3 of the February 2001 issue of *Research Activities* presents a summary of an article on lowering elevated homocystine levels. The authors discuss the use of folic acid and vitamin B12 supplements for this condition. The dosages for these supplements are mistakenly given in milligrams instead of micrograms. The correct dosages should be 400 µg of folic acid and 500 µg of vitamin B12. We apologize for this error and any confusion it may have caused. ■

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, his or her affiliation, grant number, and project period and provides a description of the project. See the back cover of *Research Activities* for ordering information.

California Multicultural Health Information Institute. **Carmen R. Nevarez, M.D., Public Health Institute, Berkeley, CA. AHRQ grant HS10071, project period 5/24/99-9/30/99.**

The Public Health Institute convened the first California Multicultural Health Information Institute (MCHII) Symposium held May 26-28, 1999 at Preservation Park, Oakland, CA. The Symposium helped launch the MCHII, developed the concept for a Multicultural Health Information Institute Resource Center and its technical assistance capacity, and contributed ideas to the design and implementation of an Institute Web site to improve multicultural health statistics, data, and information accessibility. The symposium and the Multicultural Health Information Institute was developed through a collaborative effort between government, community, research, and academia. (Abstract, executive summary, final report, and attachments, NTIS accession no. PB2001-101628; 44 pp, $25.50 paper, $12.00 microfiche)***

Competition and Voluntary Disclosure of Quality Information: Theory and Empirical Evidence from HMO Markets. **Zhe Jin, University of California, Los Angeles. AHRQ grant HS10168, project period 7/1/99 to 6/30/00.**

This researcher investigated how market mechanisms affect the flow of information between sellers and buyers about the quality of health care services. The researcher examined which factors motivate health maintenance organizations (HMOs) to voluntarily disclose private information about their own service quality through the National Committee of Quality Assurance (NCQA) and found that competition plays a prominent role in encouraging disclosures. In comparison, disclosure costs and local demand factors explain some cross-sectional variations in disclosure decisions but contribute little to explaining changes in disclosures over time. The researcher also investigated how Medicare beneficiaries respond to the NCQA information in their actual choices of health plans and found mixed evidence. After controlling for contract-county fixed effects, one set of the information, i.e. whether a plan participates in the NCQA HEDIS report, has a positive and significant impact on consumer choice of health plan. This is consistent with the theoretical predication that disclosing HMOs are likely to be high quality firms. But the effect of another set of information, i.e. whether a plan has sought accreditation via the NCQA, is sensitive to competitive environments and the extent to which an HMO provides services to Medicare patients. (Abstract and executive summary of dissertation, NTIS accession no. PB2001-101798; 12 pp, $23.00 paper, $12.00 microfiche)***

Depression Care Using Computerized Decision Support. **Bruce L. Rollman, M.D., M.P.H., University of Pittsburgh, Pittsburgh, PA. AHRQ grant HS09421, project period 9/30/96-3/31/00.**

This report describes the first large-scale clinical trial to analyze the clinical outcomes resulting from providing primary care physicians with electronic feedback and ongoing treatment advice for patients with major depression or any other psychiatric condition. It describes the study goals, summarizes findings, and presents detailed information on the methodology employed during the study. The conceptual considerations and practical barriers to electronic guideline dissemination encountered by the researchers have implications for others considering EMR-based strategies to improve the quality of primary care for depression and other chronic conditions. (Abstract, executive summary, and final report, NTIS accession no. PB2001-101677; 130 pp, $36.00 paper, $17.00 microfiche)***

Dissemination of a Quit Smoking Program: 1-Year Followup. **Clara Manfredi, Ph.D., University of Illinois, Chicago. AHRQ grant HS09837, project period 9/30/98-9/29/00.**

This study assessed the implementation of a smoking cessation program in 17 agencies providing case management visits to women in maternal and child health (MCH) programs over a 2-year period after the program was disseminated to case managers through a training workshop. The researchers interviewed 22 administrators and 63 case managers in the 17 agencies to assess agency-level implementation processes and degree of program implementation by case managers. They found that identification and

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recording of smoking status occurred for all case management clients. This component was institutionalized through the availability of a computerized instrument and specific protocols and contractual requirements for its use. Implementation of the other program components varied. Counseling of smokers was common and supported by agency and MCH policies but probably limited to minimal advice to quit. Status updates and repeated counseling at subsequent visits and referral of smokers to other services were less common. Booklets about quitting and client-provider "agreement" forms were not easily available and hardly ever used. These other components were not supported by agency-level implementation processes, such as having specific protocols and documentation requirements, or ensuring supplies of intervention materials. In contrast, program implementation by case managers was best predicted by agency-level factors, including perceived priority of counseling to the agency, documentation requirements, having protocols that required counseling, and a smaller client caseload. Perceived client interest, program effectiveness, and positive feedback from smokers also improved implementation. (Abstract, executive summary, and final report, NTIS accession no. PB2001-102565; 60 pp, $27.00 paper, $12.00 microfiche)***

Evaluation of a Model of Managed Care for Sickle Cell Disease. **Thomas R. Konrad, Ph.D., University of North Carolina, Chapel Hill. AHRQ grant HS09553, project period 9/30/97-9/29/99.**

Relationships between hospital resource use by sickle cell patients, their clinical profiles, and hospital characteristics were examined for 6,362 patients with a primary diagnosis of sickle cell disease using International Classification of Clinical Services (ICCS) and American Hospital Association (AHA) survey data. Random effects least squares regression analyses explored relationships between patient and hospital characteristics and hospital charges and length of stay, including controls for disease severity. Results indicated that disease severity and age related significantly to total hospital charges, length of stay, and average daily charges. Payment source was unrelated to charges or resource use. Hospitals without trauma centers had daily charges 22 percent lower than hospitals with such centers. An algorithm developed to predict lengths of stay and charges can be used to estimate potential cost savings from intensive outpatient management of painful sickle cell episodes. Charges for hospitalization for painful episodes with no major or minor comorbidities are about $1,400 per day or $4,000 per hospitalization. If hospitalizations could be prevented, some accrued savings could be invested in improved clinical management through outpatient admissions or ambulatory care programs. (Abstract, executive summary, and final report, NTIS accession no. PB2001-101436; 22 pp, $23.00 paper, $12.00 microfiche)***

First Rocky Mountain Workshop on How to Practice Evidence-Based Health Care. **Phoebe L. Barton, Ph.D., University of Colorado, Denver. AHRQ grant HS10073, project period 7/1/99-6/30/00.**

Over the past 25 years, clinicians, epidemiologists, biostatisticians, health economists, and others have been working together to combine basic scientific principles with common sense in order to arm clinicians and other decisionmakers with the skills necessary to practice evidence-based health care. Although local efforts to introduce and teach the concepts of evidence-based medicine have been developing in many programs and practices around the country, larger efforts aimed at state-of-the-art training by nationally and internationally recognized experts have been limited or nonexistent in the United States. The goal of this workshop was to introduce and teach the concepts of evidence-based medicine to clinicians and other decisionmakers. Using a problem-based, small-group format, participants at this August 1999 workshop developed questions, identified and synthesized relevant evidence, critically appraised the evidence, and learned to apply these skills in a clinical setting. (Abstract, executive summary, and final report, NTIS accession no. PB2001-101799; 24 pp, $23.00 paper, $12.00 microfiche)***

Health Insurance and Use of Medical Care by the Disabled. **Virginia Wilcox-Gok, Ph.D., Northern Illinois University, Dekalb. AHRQ grant HS07687, project period 7/1/96-7/31/97.**

These investigators examined public and private health insurance coverage and use of medical care by disabled Medicare enrollees using the National Medical Expenditure Survey (1987) data. Supplemental health insurance was analyzed jointly with three measures of medical care use: probability of a doctor visit, number of visits, and probability of a hospital stay. They found that Medicare enrollees are much more likely than disabled enrollees to

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have private health insurance. Disabled Medicare enrollees are more likely than aged enrollees to have Medicaid coverage or to have no coverage beyond Medicare. Among Medicare enrollees with private health insurance, the aged are twice as likely as the disabled to have individual insurance policies. Disabled Medicare enrollees are more likely than the aged to have Medicaid, while aged Medicare enrollees are more likely to have private health insurance. Private health insurance has a direct negative effect on having at least one visit to an emergency room and having at least one hospital admission. (Abstract, executive summary, and final report, NTIS accession no. PB2001-101762; 78 pp, $29.50 paper, $12.00 microfiche)***

Managed Care, Physician Referral, and Medical Outcomes. **David E. Grembowski, Ph.D., University of Washington, Seattle. AHRQ grant HS06833, project period 5/1/95-11/30/99.**

The goal of this project was to determine whether managed care controls are associated with reduced access to specialists and worse outcomes of care among primary care patients with pain and depressive symptoms. In a prospective cohort design, 17,187 patients were screened in the waiting rooms of 261 primary physicians in the Seattle area to identify 2,850 English-speaking adult patients with pain and/or depressive symptoms. Patients were followed for 6 months to measure referrals, specialist care, and outcomes. The intensity of managed care was measured for health insurance plans, offices, and physicians. The researchers looked for associations between managed care variables, access to specialists, and outcomes. They found that referrals and use of specialty care were common and similar in less versus more managed plans and offices. However, for pain patients and low-income depression patients, a financial penalty for referral was associated with fewer referrals. Depression patients who were referred for specialty care had fewer referrals to psychiatrists. Health outcomes were similar in less versus more managed settings, but patient dissatisfaction with their primary physicians was greater in more managed plans and offices. Managed care generally was not associated with reduced access to specialists and adverse health outcomes, but reductions in patient satisfaction with primary physicians were detected. (Abstract, executive summary, and final report, NTIS accession no. PB2001-102024; 26 pp, $23.00 paper, $12.00 microfiche)***

Managed Care, University Research, and Training Partnerships. **Alfred A. Rimm, Ph.D., Case Western Reserve University, Cleveland, OH. AHRQ grant HS09797, project period 8/1/98-7/31/00.**

The objective of this project was to strengthen linkages between health services researchers at Case Western Research University medical school and affiliated hospitals and Henry Ford Health System, which has a strong managed care component; develop health services research (HSR) curricula; and build HSR capacity. This was accomplished through a survey of health care professionals in the two institutions regarding their interests in and need for training in HSR methods and techniques. The survey results can be used to inform the design of HSR training programs for health care professionals working in academic medical centers and managed care organizations. The researchers also developed an annotated syllabus that summarizes key concepts and publications on conducting HSR in managed care settings. It can be used for self-study by researchers who are beginning research in managed care settings and in planning traditional HSR courses, short courses, and training modules. (Abstract, executive summary, and final report, NTIS accession no. PB2001-101629; 66 pp, $27.00 paper, $12.00 microfiche)***

Multisited Ethnography of the Emergence of Hospitalist Medicine. **Philippa Strelitz, M.P., University of California, San Francisco. AHRQ grant HS10169, project period 8/1/99-7/31/00.**

Today, when patients need hospital care, primary care physicians often "hand off" their patients to hospitalists, who work full-time in inpatient settings and specialize in caring for acutely ill patients. The hospitalist model is rapidly becoming the pervasive model of inpatient health services delivery, but its impact on and consequences for patients and physicians have yet to be examined. This researcher tracked the emergence of hospitalist medicine and explored its impact and consequences for patients and physicians from a cultural perspective at the local level–in a community hospital and a teaching hospital in Northern California—and at the national level, by investigating the academic, professional, and political activities geared towards legitimizing hospitalists. (Abstract, executive summary, and final report, NTIS accession no. PB2001-101437; 16 pp, $23.00 paper, $12.00 microfiche)***

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Predictors of Health Insurance Coverage After Welfare Exit. **Julie A. Hudman, Ph.D., Johns Hopkins University, Baltimore, MD. AHRQ grant HS10162, project period 7/1/99-6/30/00.**

This author examined how welfare reform affects health insurance for low-income families. Primary data were collected in three cities from 30 in-depth interviews with caseworkers and local welfare office administrators. Also, data from the National Survey of America's Families (NSAF), supplemented with State-level policy variables, were analyzed. The study found that welfare reform has had unintended and negative effects on health coverage for families. Generosity of a State's Medicaid does not, by itself, explain health coverage provided to former welfare recipients. Welfare policies, especially diversion policies such as mandatory job search, and time-limit policies play a significant and negative role in the ability of families who have left welfare to maintain Medicaid coverage. Furthermore, administration of Medicaid and welfare were found to make a difference in health coverage; welfare messages spill over to Medicaid. Finally, the author found that the front-line personnel implementing welfare reform play a very important role in families' health coverage. Welfare reform has given Medicaid the opportunity to operate as a stand-alone health insurance program for low-income working families and to reduce its image as a welfare program. However, it will only work if States take full advantage of this opportunity. (Abstract and executive summary, NTIS accession no. PB2001-101796; 16 pp, $23.00 paper, $12.00 microfiche)***

Public Mental Health Outcomes Risk-Adjustment. **Michael S. Hendryx, Ph.D., Washington Institute for Mental Illness Research and Training, Spokane. AHRQ grant HS09851, project period 7/1/99-6/30/00.**

"Mental Health Outcomes Risk Adjustment: A National Research Development Conference" took place in Spokane, WA, August 16-18, 1999. The conference included research presentations on issues and methods of mental health outcomes risk-adjustment and workgroup discussions to identify specific next steps that participants could undertake to advance the field. (Abstract and final conference report, NTIS accession no. PB2001-101797; 14 pp, $23.00 paper, $12.00 microfiche)***

Race, Socioeconomic Status, and Family Structure: Determinants of Long-Term Care Arrangements. **Kathleen Cagney, Ph.D., Johns Hopkins University, Baltimore, MD. AHRQ grant HS09334, project period 9/30/96-9/29/97.**

This author explored whether the use of skilled nursing facility (SNF) care and Medicare home health (HH) differs by race and investigated the extent to which family structure and socioeconomic status (SES) explain any differences observed. Linking the 1989 National Long-term Care Survey to Medicare claims data, the author used a Cox proportional hazards modeling approach to examine SNF care and HH, both individually and as competing risks, over a 5-year period. Age at first use is the outcome measure, consistent with the analysis of long-term care as a life-course transition. Results indicate that blacks postpone both HH and SNF care until a later age than whites, and that both children and grandchildren play a part in deferring this use until they are even older. When formal assistance is needed, blacks are more apt than whites to use HH over SNF care. The racial difference in SNF use is even greater than that previously reported for all types of nursing home use combined. SES has little influence on the risk differential. Results suggest that there are differences in need, preference, or access that are yet to be identified. Closer examination of factors determined at earlier stages of the life course may provide additional insights. (Abstract, executive summary, and final report, NTIS accession no. PB2001-101778; 256 pp, $54.00 paper, $23.00 microfiche)***

Racial Differences in Medical Care Satisfaction. **Jennifer Malat, Ph.D., University of Michigan, Ann Arbor. AHRQ grant HS09894, project period 8/1/98-4/30/00.**

Blacks are less likely than whites to be satisfied with their health care. The author tested three potential sources of the gap in satisfaction: one, racial differences in health status, two, differences at the structural level in access to and source of care, and three, differences at the individual level in how health care providers treat patients. The author analyzed original focus group data and secondary quantitative data from the 1995 Detroit Area Study and found that blacks' worse average health status does not account for lower satisfaction with health care providers. Also, the quantitative data did not indicate that access to or source of care can explain much of the racial gap in satisfaction with care. However, in nearly every focus group participants explained that patients with Blue Cross/Blue Shield receive better care than those covered by health

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maintenance organizations or public insurance. Finally, whites' reduced social distance from their health care provider–i.e., their greater likelihood of having a same-race health care provider and of having a higher income like their health care provider—explains much of the racial variation in satisfaction. Focus group data support the importance of having a health care provider with whom there is a personal connection. (Abstract and executive summary, NTIS accession no. PB2001-102023; 22 pp, $23.00 paper, $12.00 microfiche)***

Required Request: Determinants of Family Consent. **Laura A. Siminoff, Ph.D., Case Western Reserve University, Cleveland, OH. AHRQ grant HS08209, project period 9/1/96-12/31/99.**

The goal of this project was to examine the factors affecting decisions about the donation of organs, tissues, and corneas. The authors recruited 420 organ-eligible families from nine acute care general hospitals in two metropolitan areas. This 4-year study involved collection of analogous data from donor-eligible patients' families and the HCPs (health care providers) and relevant OPO (organ procurement organization) staff directly involved in requesting donation. The family interview was an in-depth, taped interview designed to document potential donor families' experiences and the factors affecting their decisions about donation. The HCP interview was a briefer, structured interview designed to elicit information about discussions with the family. Cases were identified through prospective review of all deaths at study hospitals. Almost 80 percent of all eligible families were asked to donate organs, but only 46.2 percent actually agreed to donate. Major factors associated with lack of consent were older age of patients, ethnicity (black race), spending less time discussing donor-related issues, spending less time with OPO staff person, and the family holding less positive beliefs about organ donation and transplantation prior to entering the hospital setting. The authors identified areas that are potentially amenable to public education and in-hospital interventions. (Abstract, executive summary, and final report, NTIS accession no. PB2000-105180; 40 pp, $25.50 paper, $12.00 microfiche)***

Risk Adjustment Methods for Hysterectomy Complications. **Evan R. Myers, M.D., M.P.H., Duke University Medical Center, Durham, NC. AHRQ grant HS09760, project period 5/1/98-4/30/00.**

Risk adjustment methods based on administrative data may not accurately predict adverse outcomes for conditions or procedures that are performed in younger, healthier populations. The researchers used hospital discharge data from North Carolina from 1988-1994 to assess the ability of logistic regression models to predict surgical and medical complications after hysterectomy, a commonly performed procedure in younger women. Models for medical complications had better discrimination then models for surgical complications. To determine if uncoded factors explained some of the surgical complication risk, the researchers examined records of all women undergoing hysterectomy for uterine fibroids, the most frequent single indication for hysterectomy and one with substantial racial differences in incidence and outcome, at a single institution from 1992-1998. Although black women had a significantly higher crude risk for complications, the majority of this risk was attributable to differences in baseline characteristics—specifically obesity, anemia, increasing uterine size, and adhesions. Oophorectomy (removal of an ovary) and other concurrent procedures also were significant independent predictors of complications. Given the high incidence of fibroids, a risk-adjustment model based on these factors could have substantial public health impact by allowing comparison of outcomes between providers if validated in prospective studies in different settings. (Abstract, executive summary, and final report, NTIS accession no. PB2001-101763; 86 pp, $29.50 paper, $12.00 microfiche)***

Trial of Two Decision Aids for Colon Cancer Screening. **James G. Dolan, M.D., Unity Health System, Rochester, NY. AHRQ grant HS10728, project period 9/30/99-9/29/00.**

This randomized controlled trial compared the effects of a patient decision aid based on multi-criteria decisionmaking theory with those of a simple education intervention on the process and outcome of decisions about colorectal cancer screening for 96 average-risk patients seen in a primary care office in Rochester, NY. Patients who used the decision aid had lower conflict regarding colorectal cancer screening decisions. This improvement in patients' decisionmaking process was due to increased knowledge, better clarity of values, and higher patient ratings of the quality of the decisions they made. There was no difference between the groups in decision outcomes: 52 percent of patients in the control group and 49 percent of

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patients in the experimental group completed planned screening tests. The decision aid had no effect on follow-through with screening decisions. (Abstract, executive summary, and final report, NTIS accession no. PB2001-102564; 68 pp, $27.00 paper, $12.00 microfiche)***

Validation of Quality Measures for Hip Replacement. **Jeffrey N. Katz, M.D., Brigham and Women's Hospital, Boston, MA. AHRQ grant HS09775, project period 7/1/98-6/30/00.**

A panel of clinical and quality improvement experts recommended potential indicators of the quality of replacement (THR). The researchers validated these indicators empirically in a population-based sample of 5,211 Medicare beneficiaries who had primary THR in 171 randomly selected hospitals in three States. Urban, private, and teaching hospitals and hospitals with laminar airflow in the operating room and dedicated orthopedic units had lower rates of dislocation or infection within 90 days of surgery. These preliminary findings suggest that hospital characteristics are associated with outcomes and have a cumulative effect, but they do not fully explain the strong influence on outcome of hospital and surgeon case volume. (Abstract, executive summary, and final report, NTIS accession no. PB2001-101438; 40 pp, $25.50 paper, $12.00 microfiche)***

Value of Medical Testing Prior to Cataract Surgery. **Oliver D. Schein, M.D., M.P.H., Johns Hopkins University, Baltimore, MD. AHRQ grant HS08331, project period 9/1/94-8/31/00.**

For this study, 18,189 patients undergoing 19,557 cataract surgeries at nine centers were randomized on a per operation basis to receive or not receive a standard battery of preoperative medical tests (electrocardiogram and complete blood count, and measurement of serum electrolytes, urea nitrogen, creatinine, and glucose) in addition to history and physical examination. Medical adverse events and interventions that occurred on the day of surgery through 7 days postoperatively were recorded. The medical outcomes of 9,408 patients undergoing 9,626 cataract surgeries in the no-routine-testing group and 9,441 patients undergoing 9,624 surgeries in the routine-testing group were assessed. The most frequent medical events during the study period were treatment for hypertension and arrhythmia (principally bradycardia). The overall rate of intra- and postoperative medical events was the same (31.3 events per 1,000 surgeries) in both groups. Further analysis revealed no benefit of routine testing by age, sex, race, American Society of Anesthesiologists (ASA) risk score, or medical history. The researchers conclude that routine medical testing before cataract surgery provides no measurable value in increasing the safety of cataract surgery. (Abstract, executive summary, and final report, NTIS accession no. PB2001-102025; 56 pp, $27.00 paper, $12.00 microfiche)***

West Virginia Rural Managed Care Demonstration Center. **Hilda R. Heady, M.S.W., West Virginia University, Morgantown. AHRQ grant HS08627, project period 9/30/94-9/29/00.**

The West Virginia Rural Managed Care Demonstration Center supported activities that promote the delivery of cost-effective, quality care in rural areas. The primary objectives were to develop regional management information systems, develop leadership skills in rural primary care physicians, promote continuing education of rural providers in concepts of managed care, and educate policymakers and State health administrators regarding rural network formation and the development of locally owned, rural managed care products. The researchers assisted in network infrastructure development, helped the networks purchase software and hardware for their management information systems, and sponsored educational and leadership seminars for West Virginia providers. (Abstract, executive summary, and final report, NTIS accession no. PB2001-102562; 30 pp, $23.00 paper, $12.00 microfiche)*** ■

Cummings, S.M., Savitz, L.A., and Konrad, T.R. (2001, February). "Reported response rates to mailed physician questionnaires." (AHRQ grant HS06745). *Health Services Research* 35(6), pp. 1347-1355.

The mailed questionnaire is probably the most frequently used method used by health services researchers to survey physicians. Mailed surveys are less costly than other alternatives, such as telephone surveys and face-to-face interviews. However, they tend to result in lower response rates. These investigators examined a random sample of studies from 1986 through 1995 on physician responses to written questionnaires. They found that the average response rate was 61 percent (52 percent for large sample surveys). Only 44 percent of the abstracted articles reported a discussion of survey response bias, and only 54 percent reported any type of followup. The researchers conclude that physician response rates to mailed questionnaires have remained somewhat constant over time, and that researchers need to document efforts to increase response rates to mailed questionnaires.

Dalton, K., Norton, E.C., and Kilpatrick, K. (2001, February). "A longitudinal study of the effects of graduate medical education on hospital operating costs." (AHRQ National Research Service Award training grant T32 HS00032). *Health Services Research* 35(6), pp. 1267-1291.

These researchers used Medicare cost and payment data from FY 1989 through FY 1995 for all short-stay hospitals receiving case payments from Medicare based on diagnosis-related groups (DRGs) to examine the effect of graduate medical education sponsorship on hospital operating costs over a 7-year period. They wanted to test for a longitudinal association between teaching intensity and cost and to determine whether the indirect medical education (IME) payment adjustments made under Medicare's Prospective Payment System were appropriate. They found no evidence of a significant within-hospital association between increased sponsorship of medical residents and increased cost per case. Operating costs were positively related to teaching activity, but the association showed a decline in strength over time. The researchers conclude that longitudinal models do not provide evidence to support a payment adjustment formula that allows individual hospitals to recompute their IME adjustment rates as their teaching ratios rise or fall from year to year. Re-estimations of the teaching effect may be appropriate after significant improvements in Medicare case-mix measurement.

Ostrove, J.M., Adler, N.E., Kuppermann, M., and Washington, A.E. (2000). "Objective and subjective assessments of socioeconomic status and their relationship to self-rated health in an ethnically diverse sample of pregnant women." (AHRQ grant HS07373). *Health Psychology* 19(6), pp. 613-618.

The relationship between socioeconomic status (SES) and health is strong and well-established. However, very few studies have explored the relationship between subjective SES (how individuals perceive their SES) and health. In this study, the investigators examine a new measure of subjective SES in relation to self-rated physical health among an ethnically diverse group of pregnant women. Except among blacks, subjective SES was significantly related to education, household income, and occupation. Subjective SES was significantly related to self-rated health among all groups. After accounting for the effects of subjective SES on health, objective indicators made no additional contribution to explaining health among white and Chinese-American women. However, household income continued to predict health after accounting for subjective SES among Hispanic and black women.

Stewart, M.G., Friedman, E.M., Sulek, M., and others. (2001, January). "Validation of an outcomes instrument for tonsil and adenoid disease." (AHRQ grant HS09829). *Archives of Otolaryngology and Head and Neck Surgery* 127, pp. 29-35.

The benefits of adenotonsillectomy, a frequently performed pediatric surgery that removes both the tonsils and adenoids, are still much debated. Further research is needed to better define the effects of this surgery on the health status and quality of life (QOL) of affected children. There are few validated instruments available that measure global QOL in children, and there are no instruments that measure disease-specific health status in children with tonsil and adenoid disease.

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These researchers designed and validated a disease-specific health status instrument, the Tonsil and Adenoid Health Status Instrument, in 224 children with the disease.

Factor analysis confirmed six distinct subscales measuring different constructs of disease-specific health status that are affected by tonsil and adenoid disease: eating and swallowing, airway and breathing, infections, health care use, cost of care, and behavior. For each subscale, the instrument demonstrated excellent test-retest reliability and internal consistency. Construct validity and criterion validity were satisfactory, and the instrument was appropriately sensitive. ■

From the Agency for Healthcare Research and Quality

Procedures in U.S. Hospitals, 1997

...a new resource on hospital care

The Agency for Healthcare Research and Quality (AHRQ) has just published the second in a series of Fact Books from AHRQ's powerful Healthcare Cost and Utilization Project (HCUP).*

Procedures in U.S. Hospitals, 1997 provides a readable and comprehensive look at diagnostic and therapeutic procedures performed during a patient's hospital stay—which procedures are most common, who receives them, who is billed for them, and which are performed in "high-volume" hospitals. The facts and charts in this Fact Book reveal that:

- One in four hospital stays includes cardiovascular procedures.
- Over a third of patients undergo two or more procedures during their hospital stay.
- Appendectomy is the most common procedure for children ages 1 to 17.
- Women are more likely than men to receive a colonoscopy.
- Hospital charges for stays involving heart, liver, or other organ transplantation are among the most costly.
- Medicare is billed for about three-fourths of all hospital stays that involve a cardiac pacemaker or defibrillator procedure.
- Seven of the top 10 procedures billed to Medicaid are related to pregnancy, childbirth, and newborn infant care.
- One in six hospital stays for alcohol and drug rehabilitation or detoxification is uninsured.
- Three in 10 stays involving heart surgery on children are in low-volume hospitals.

Copies of *Procedures in U.S. Hospitals, 1997* (AHRQ Publication No. 01-0016) are available without charge from the AHRQ Publications Clearinghouse, P.O. Box 8547, Silver Spring, MD 20907 (phone 800-358-9295).

**Procedures in U. S. Hospitals, 1997* is based on data from HCUP's Nationwide Inpatient Sample, a database of over 7 million records that approximates a 20-percent sample of U.S. community hospitals. The sample itself is drawn from HCUP's State Inpatient Databases, which cover inpatient care in community hospitals in 22 States, or about 60 percent of all hospital discharges for 1997.

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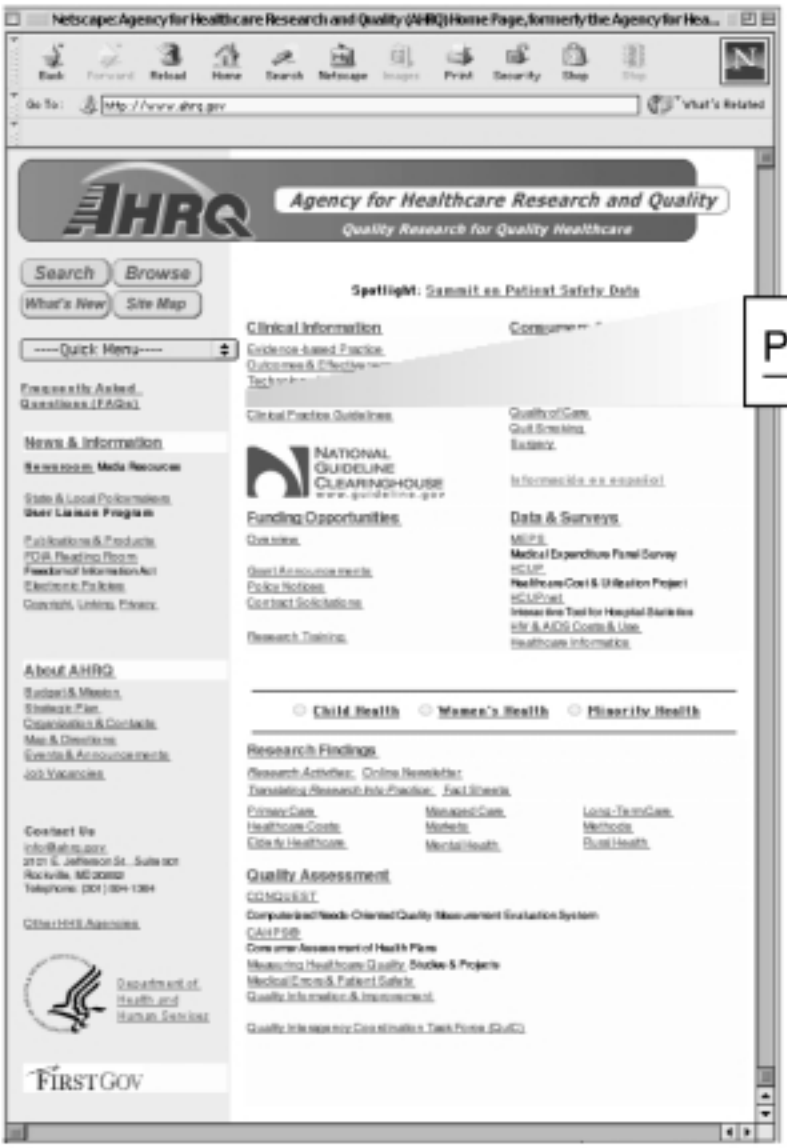

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