Research Activities

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Highlights

Departments

Regular Features

Among elderly stroke victims, blacks are less likely than whites to be alive 3 years after stroke

Over 700,000 Americans, including twice as many blacks as whites, suffer a stroke each year, and blacks are more likely than whites to die from stroke, according to a recent study that was supported by the Agency for Healthcare Research and Quality (Stroke Prevention Patient Outcomes Research Team, contract 290-91-0028).

The researchers found that elderly blacks on average were 6 percent more likely to die than elderly whites within 3 years after a stroke. This difference was strongest among the youngest elderly; black men aged 65 to 74 were 20 percent more likely than same-aged white men to die within the 3-year period. Black women had similarly lower survival rates in the 65-74 age category, but this disparity disappeared and began to reverse as age increased. However, the researchers caution against attributing these survival differences to biological differences between blacks and whites, since they used only Medicare administrative data that did not provide detailed and reliable clinical information on stroke severity, practice patterns (for example, do-not-resuscitate orders), subsequent disability, lifestyle (for example, smoking), or cultural factors.

For this study, the researchers examined 3-year post-stroke survival rates among white and black elderly patients in the United states, selected from a random 20 percent national sample of elderly Medicare patients hospitalized for stroke in 1991. They identified a total of 47,045 stroke victims, including 5,324 blacks. Compared with whites, black stroke patients had a much higher prevalence of hypertension, diabetes, history of stroke prior to hospitalization, and disability.

See "Racial differences in survival post cerebral infarction among the elderly," by J. Bian, M.S., E.Z. Oddone, M.D., M.Sc., Gregory P. Samsa, Ph.D., and others, in the January 2003 *Neurology* 60, pp. 285-290. ■

Lifestyle changes could improve blood pressure control in people who have diabetes

Nearly 60 percent of adults with diabetes have coexisting hypertension, doubling their risk for cardiovascular problems. Adults with diabetes, regardless of sex and race/ethnicity, apparently listen when doctors advise them to lose weight and use medications to reduce their high blood pressure. They are less likely, however, to follow their doctor's advice to get more exercise, according to Leonard E. Egede, M.D., M.S., of the Medical University of South Carolina.

In a recent study that was supported by the Agency for Healthcare Research and Quality (K08 HS11418), Dr. Egede analyzed data from the 1998 National Health Interview Survey, a national household survey of nonmilitary and noninstitutionalized people in the United States. He specifically analyzed data on risk factors for cardiovascular disease (CVD), such as hypertension, high cholesterol, smoking, and obesity among 19,672 people without diabetes and 1,609 people with diabetes. He compared the prevalence of physician advice and patients' reported adherence to it among 989 adults with diabetes and hypertension and 5,030 adults who had hypertension but not diabetes.

Contrary to prevailing physicians' assumptions that most patients are unwilling to change negative health habits and that counseling is ineffective in modifying CVD risk behavior, physician advice seemed effective in modifying some hypertension risk behaviors among people with diabetes. Controlling for other factors, hypertensive patients with diabetes were twice as likely as those without diabetes to receive advice on weight loss, exercise, and antihypertensive medications. People with diabetes were more likely than those who did not have diabetes to follow advice for losing weight and taking antihypertensive medications. However, people with diabetes were no more likely than those without diabetes to heed physicians' advice to increase their physical activity.

See "Lifestyle modification to improve blood pressure control in individuals with diabetes," by Dr. Egede, in the March 2003 *Diabetes Care* 26(3), pp. 602-607. ■

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Use of rapid MRI instead of x-ray to detect rare cancer-related back pain in primary care patients may not be cost effective

Nearly half of primary care patients with low back pain (LBP) receive lumbar x-rays during the acute-care episode. These x-rays are not highly sensitive or specific for detection of spinal malignancies. However, cancer is a rare cause of LBP in these patients. The few back cancer cases detected with rapid magnetic resonance imaging (MRI) over x-ray do not justify the extra costs of routine MRI among LBP primary care patients, according to the authors of a recent study supported in part by the Agency for Healthcare Research and Quality (HS09499).

Doctors should use findings that are red flags for cancer, such as history of cancer, unexplained weight loss, failure of conservative therapy to alleviate back

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Cancer-related back pain

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pain, and elevated erythrocyte (red blood cell) sedimentation rate before referral for rapid MRI. Rapid MRI might also be more valuable in certain subgroups, such as breast cancer patients with nonspecific back pain and known metastasis to the bone, suggests William Hollingworth, Ph.D., of the University of Washington School of Medicine.

Dr. Hollingworth and his colleagues developed a model to calculate the cost per cancer case detected and cost per quality-adjusted life year (QALY) using rapid MRI versus plain x-ray among a hypothetical group of primary care patients with LBP. The rapid MRI strategy was more expensive due to higher initial imaging costs and the additional patients who required conventional MRI (which has better image resolution) and biopsy to confirm rapid MRI findings.

The average cost per patient for rapid MRI was $282 compared with $147 for plain x-ray. The rapid MRI strategy was more sensitive for detecting cancer than the x-ray strategy (62 vs. 55 percent). However, because of low prevalence of cancer-related LBP, this generates less than one extra cancer case detected per 1,000 patients imaged. Thus, the incremental cost per case detected using rapid MRI was high at $213,927. Rapid MRI also resulted in only a small increase in quality survival (0.00043 QALYs) at a cost of $296,176 more per QALY.

See "Rapid magnetic resonance imaging for diagnosing cancer-related low back pain," by Dr. Hollingworth, Darryl T. Gray, M.D., Sc.D., Brook I. Martin, B.S. , and others, in the April 2003 *Journal of General Internal Medicine* 18, pp. 303-312. ■

Recommendations for diagnosing and treating low back pain call for a conservative, step-by-step approach

Although low back pain rarely indicates a serious disorder, it is a major cause of disability and cost. In the workplace, low back pain accounts for one-third of workers' compensation costs, with an average cost of $8,000 per claim. Most patients with acute low back pain improve within a month, but 6 to 10 percent of patients develop chronic or recurrent symptoms.

According to a 1994 guideline on acute low back pain, there were insufficient reliable data on which to base treatment recommendations. National guidelines for chronic low back pain management have been published in other countries, but not in the United States, note Steven J. Atlas, M.D., M.P.H., and Rachel A. Nardin, M.D., of Harvard Medical School, in a recent article.

With support from the Agency for Healthcare Research and Quality (HS06344, HS08194, and HS09804), Drs. Atlas and Nardin incorporated findings from recent studies to develop an evidence-based approach to the evaluation and treatment of low back pain. They point out that a patient's history and physical examination usually provide clues to the uncommon but potentially serious causes of low back pain, such as cancer, and identify patients at risk for prolonged recovery. Diagnostic testing should not be a routine part of the initial evaluation but should be used selectively based on the patient's history, examination, and initial response to treatment.

For patients without significant neurological impairment, initial treatments should include activity modification, nonnarcotic analgesics, and education. Patients whose symptoms do not improve over 2 to 4 weeks, should be

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referred for physical treatments. Several therapeutic options of limited or unproven benefit are available for patients with radicular pain (back-related radiating leg pain, such as the sharp burning pain of sciatica) or chronic low back pain. Patients with radicular pain and little or no neurological symptoms (such as leg weakness, numbness, or tingling) should receive conservative treatment. Elective surgery is appropriate for those with nerve root compression (usually patients with radiating pain below the knee and neurological symptoms) who are unresponsive to conservative therapy.

See "Evaluation and treatment of low back pain: An evidence-based approach to clinical care," by Drs. Atlas and Nardin, in the March 2003 *Muscle & Nerve* 27, pp. 265-284. ■

Physicians exhibit certain practice behaviors when treating patients who are in pain

Patient pain appears to substantially alter a primary care doctors' practice behaviors during the medical visit. With these patients, primary care doctors tend to focus on technical tasks, such as taking the medical history, performing a physical exam or procedures, and discussing diagnostic and therapeutic strategies. They devote less visit time to disease prevention and other activities designed to encourage the patients' active participation in their own health care, according to a study supported by the Agency for Healthcare Research and Quality (HS06167).

As part of a larger study examining physician practice styles and associated patient outcomes, Klea D. Bertakis, M.D., M.P.H., of the University of California, Davis, and her colleagues randomized 509 new adult patients at a university medical center to see primary care physicians. Before the videotaped visits, the researchers measured self-reported patient pain with the Visual Analog Pain Scale (0 for no pain to 70 and higher for high pain) and the pain scale of the Medical Outcomes Study Short Form-36 (MOS SF-36), and they obtained sociodemographic information from the patients. The researchers did not provide this information to the physicians. Observers recorded the occurrence of each of six physician practice behaviors during the medical visit: technical, health behavior, addiction, patient activation, preventive services, and counseling.

Physicians spent nearly 3 percent more of the visit (compared with an average visit) on the technical aspects of medical care for patients in high pain, after controlling for sociodemographic factors that can influence physician practice behavior, such as age and race. Similarly, physicians spent about 0.5 percent less than the time spent in an average visit on patient activation and preventive services. In contrast, in medical encounters with patients having little or no pain, physicians spent 3 percent less time on technical behaviors than the average visit and nearly 1 percent more than the average time on patient activation and preventive services.

See "Patient pain: Its influence on primary care physician-patient interaction," by Dr. Bertakis, Rahman Azari, Ph.D., and Edward J. Callahan, Ph.D., in the February 2003 *Family Medicine* 35(2), pp. 119-123. ■

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Heart attack patients who are not discharged from the hospital on beta-blockers are unlikely to start them as outpatients

Heart attack patients who are not discharged from the hospital on beta-blockers are unlikely to be started on them as outpatients. Even patients who are discharged on beta-blockers following heart attack reduce use of these medications after discharge. Research has shown that heart attack patients not taking beta blockers are at higher risk of hospital readmission and death than those taking the medications. Clearly, improved discharge planning and followup of these patients after discharge are needed, concludes Wayne A. Ray, Ph.D., of the Centers for Education and Research on Therapeutics at Vanderbilt University.

In a study that was supported in part by the Agency for Healthcare Research and Quality (HS10384), Dr. Ray and his colleagues examined Medicaid data on beta-blocker prescriptions filled by 846 Medicaid-insured heart attack patients discharged from Tennessee hospitals. They studied patients who were and were not discharged on beta-blockers and determined the proportion who filled prescriptions for beta-blockers by 30, 180, and 365 days after hospital discharge. Patients with a discharge order for beta-blocker therapy were nearly 16 times more likely to fill a prescription in the first 30 days after hospital discharge than patients discharged without a prescription.

Among patients who were discharged on beta-blockers, 85 percent of survivors had filled prescriptions by 30 days postdischarge, and 63 percent and 61 percent were current users at 180 and 365 days after discharge, respectively. In contrast, only 8 percent of patients with no discharge order for beta-blockers had filled such a prescription by 30 days, and 13 percent and 12 percent of patients were current users at 180 and 365 days after discharge, respectively. Patients older than age 75 years were 37 percent less likely than those younger than 65 years to fill a prescription. Race, sex, and being an ideal candidate for the medication did not affect beta-blocker use.

See "Outpatient adherence to beta-blocker therapy after acute myocardial infarction," by Javed Butler, M.D., M.P.H., F.A.C.C., Patrick G. Arbogast, Ph.D., Rhonda BeLue, Ph.D., and others, in the November 6, 2002 *Journal of the American College of Cardiology* 40(9), pp. 1589-1595. ■

Greater use of guideline-recommended asthma medication in recent years may have helped to stabilize the number of asthma visits

Greater use of guideline-recommended asthma medication in the past decade may have contributed to the leveling off of office-based asthma visits, according to a study supported by the Agency for Healthcare Research and Quality (HS13405). Updated Federal guidelines emphasize the importance of long-term control of underlying airway inflammation in asthma treatment, a significant shift from traditional relief therapies.

Inhaled corticosteroids, either alone or in combination with long-acting beta agonists, are recommended as first-line therapy for persistent asthma. Short-acting inhaled beta-agonists, adrenaline-like medications that quickly open up the airways, are preferred only for intermittent asthma, to relieve acute exacerbations, or to prevent exercise-induced asthma.

To examine the link between clinical guidelines, asthma medication, and office-based visits, researchers led by Randall S. Stafford, M.D., Ph.D., of Stanford

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Guideline-recommended asthma medication

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University, analyzed data from the National Disease and Therapeutic Index to track 1978-2002 trends in asthma-related office visits and prescribing of asthma medication. Although there was a doubling in the estimated annual number of asthma visits between 1978 and 1990 (from 8.5 to 17.7 million) in the United States, the number of asthma visits stabilized at a mean of 16 million between 1991 and 2002. In other words, asthma visits increased from 4 to 7 per 100 people between 1980 and 1990, but that number has stabilized at 6 per 100 people since then.

Controller medication use increased eight-fold between 1978 and 2002, with inhaled corticosteroids manifesting the biggest increases. The use of reliever medications decreased modestly over this period. Improved appropriateness of asthma medication was also suggested by an increase in the ratio of inhaled steroids to short-acting inhaled beta agonists, which reached 92 percent in 2002. More recent drug entrants have been adopted rapidly. Single-entity long-acting inhaled beta-agonists (salmeterol and formoterol) were used in 9 percent of visits and leukotriene modifiers (montelukast, zafirlukast, and zileuton) were used in 24 percent of visits in 2002.

More details are in "National trends in asthma visits and asthma pharmacotherapy, 1978-2002," by Dr. Stafford, Jun Ma, M.D., Ph.D., R.D., Stan N. Finkelstein, M.D., and others, in the *Journal of Allergy and Clinical Immunology* 111, pp. 729-735, 2003. ■

Many questions remain unanswered about prevention and treatment of glucocorticoid-induced osteoporosis

Patients who suffer from chronic inflammatory conditions such as rheumatoid arthritis, asthma, or inflammatory bowel disease often take prednisone or other glucocorticoids over long periods of time. One of the most serious side effects of this treatment is glucocorticoid-induced osteoporosis (GIOP), with half of chronic glucocorticoid users developing bone loss that leads to fracture.

Despite much that has been written about his issue, much remains unsettled, notes Kenneth G. Saag, M.D., M.Sc., of the University of Alabama at Birmingham, in a recent review of the topic. There is controversy over whether a safe glucocorticoid dose exists and whether the peak or cumulative dose is most strongly associated with bone loss.

Most guidelines suggest a bone mass density test if the patient will receive treatment with greater than 7.5 mg or more of prednisone or its equivalent per day for at least 1 to 6 months. Several specialty societies have released recommendations that advocate an aggressive approach to GIOP based on accumulating evidence of the efficacy of several anti-osteoporosis medications, particularly the amino-bisphosphonates (for example, etidronate and risedronate). Some physicians prescribe a bisphosponate immediately for patients at high risk of bone loss (those on more than 20 mg/day of prednisone or equivalent for 3 months or more, postmenopausal women, and those at high risk for a fall), while others wait.

Vitamin D and calcium also may help prevent GIOP. Thiazide diuretics, which have substantial side effects, may decrease urinary calcium excretion and be particularly helpful during the early phase of glucocorticoid use, when this excretion is profound. Estrogen and testosterone supplements may help offset gonadal deficiency, bisphosphonates and calcitonin may prevent bone resorption, and fluoride and parathyroid hormone could stimulate osteoblastic bone formation.

Dr. Saag's work is supported in part by the Agency for Heathcare Research and Quality Centers for Education and Research on Therapeutics (CERTs) program (HS10389). Ongoing CERTs projects are examining ways to improve care for glucocorticoid-induced osteoporosis.

See "Glucocorticoid-induced osteoporosis," by Dr. Saag, in *Endocrinology and Metabolism Clinics of North America* 32, pp. 135-157, 2003. ■

Patients who receive stem cell transplants at high-volume transplant centers are less likely to die or fail treatment

High-dose chemotherapy with or without radiation therapy followed by hematopoietic stem cell transplantation (HSCT) is widely used to treat a variety of cancers and other diseases. These stem cells can be collected from bone marrow, peripheral blood, or umbilical cord blood. HSCT carries high risks ranging from infection and bleeding to organ toxicity and death. Patients who undergo HSCT at a center that performs a high volume of transplants are less likely to die or fail treatment than similar patients treated at low-volume transplant centers, according to a review that was supported in part by the Agency for Healthcare Research and Quality (HS13046).

Researchers at the Medical College of Wisconsin examined studies on the association between treatment center (especially HSCT center) factors and clinical outcomes in general medicine and surgery. They found an association between survival and HSCT volume at transplant centers. One study found that patients transplanted at centers performing an average of five or fewer transplants per year had a 1.5-fold greater risk of experiencing treatment-related death and a 1.4-fold greater risk of treatment failure than patients treated at centers performing more than five transplants per year.

These relative risks equated to a 10 percent difference in treatment-related deaths and an 8 percent difference in treatment failure at 2 years post-transplant. Other studies found similar results. For instance, an 8-year study found that treatment-related mortality was significantly lower in high-volume centers that performed at least 352 transplants during the 8-year study period (44 per year). Similarly, high-volume centers were found to have a 30 percent lower relative risk of treatment failure. However, high procedure volume was not consistently defined across studies. The researchers also caution that none of the studies examined other center characteristics that might affect outcomes, such as staff experience and workload and transplant unit resources and programs.

More details are in "Transplant center characteristics and clinical outcomes after hematopoietic stem cell transplantation: What do we know?" by F.R. Loberiza Jr., D.S. Serna, M.M. Horowitz, and J.D. Rizzo, in *Bone Marrow Transplantation* 31, pp. 417-421. ■

Common physician medication errors could be prevented by linking laboratory and pharmacy information systems

Many common medication errors that physicians make result from failure to link clinical laboratory and pharmacy information systems. Linking laboratory and pharmacy information systems could be an effective way to prevent potential drug toxicity and more promptly recognize and address it when it does occur, according to the authors of a new study. For example, a patient with renal insufficiency who is to receive the antibiotic gentamycin could have the dose adjusted more easily.

Such linkages can either be retrospective—linking downloaded laboratory or pharmacy files—or real-time—via emerging intelligent order entry systems. Although most hospitals and health systems do not currently have the capability for real-time linkage, virtually all of them could, but do not, retrospectively tap into existing systems to link laboratory and pharmacy data. By not doing this, hospitals miss improvement opportunities in existing data systems, according to Gordon Schiff, M.D., of Rush Medical College, and his colleagues. Their work was supported in part by the Agency for Healthcare Research and Quality (HS11552).

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Dr. Schiff and his colleagues examined opportunities for reducing errors and improving care by linking laboratory and pharmacy information systems. They found that drug therapy could benefit from enhanced laboratory-pharmacy linkage in five areas: one, drug choice (lab-based indications and contraindications); two, drug dosing (dosing or frequency adjustments); three, laboratory monitoring (signals of toxicity, baseline and ongoing monitoring); four, laboratory result interpretation (drug interfering with test), and five, broader quality improvement (surveillance for unrecognized toxicity, monitoring clinician response delays).

See "Linking laboratory and pharmacy: Opportunities for reducing errors and improving care," by Dr. Schiff, David Klass, M.D., Josh Peterson, M.D., and others in the April 28, 2003 *Archives of Internal Medicine* 163, pp. 893-900. ■

Disclosure to patients of in-hospital medical errors has increased, but there is room for improvement

Since July 1, 2001, U.S. hospitals have been required by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) to disclose to patients errors that harm them during the course of treatment. About 70 percent of hospitals increased the number of medical error disclosures in the past 2 years, according to a survey of hospital risk managers.

More than half of those surveyed said they would always disclose a death or serious injury. However, when presented with actual clinical scenarios, hospital risk managers were much less likely to disclose preventable harms than similarly severe nonpreventable harms. Also, hospitals that had major concerns about malpractice implications were twice as likely as other hospitals to be reluctant to disclose preventable harms, according to a study supported in part by the Agency for Healthcare Research and Quality (K02 HS11285).

David M. Studdert, Sc.D., of the Harvard School of Public Health, and his colleagues surveyed risk managers from a nationally representative sample of hospitals on how and what their hospitals were disclosing to patients 6 months after the JCAHO standards took effect. Over half (54 percent) of hospitals routinely told patients or their families when a patient had been harmed by care. Another 44 percent said such disclosures occurred some of the time, leaving 5 hospitals that did not disclose harm.

About 65 percent of hospitals always disclosed death or serious injury; a smaller proportion always disclosed serious, short-term harms. The most common elements of hospital disclosure were explanation, investigation of incident, apology, and acknowledgment of harm. However, relatively few hospitals declared responsibility for the harm. Half of the hospitals reported fewer than 5 disclosures per 10,000 annual admissions, considerably fewer than would be expected from general estimates (290 to 370 potential disclosable harms per 10,000 admissions).

See "Hospital disclosure practices: Results of a national survey," by Rae M. Lamb, Dr. Studdert, Richard M.J. Bohmer, and others, in the March 2003 *Health Affairs* 22(2), pp. 73-83. ■

Women's Health/Children's Health

Researchers examine cost-effectiveness and quality of life following surgery for early breast cancer

Early-stage breast cancer is treated equally effectively by mastectomy (surgical removal of the entire breast), or breast-conserving surgery followed by radiation treatment (BCSRT). Two studies supported by the Agency for Healthcare Research and Quality (HS08395) and led by Jeanne S. Mandelblatt, M.D., of Georgetown University, examined the cost-effectiveness of these treatments and patients' quality of life after either surgery.

In the first study, the researchers concluded that the current practice of giving older women with early stage breast cancer a choice of BCSRT or mastectomy was cost

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effective. The second study demonstrated that, with the exception of surgical removal of armpit lymph nodes to determine cancer spread, how older women were treated during their care, not the therapy itself, was the most important determinant of long-term quality of life. The two studies are discussed here.

Polsky, D., Mandelblatt, J.S., Weeks, J.C., and others. (2003, March). "Economic evaluation of breast cancer treatment: Considering the value of patient choice." *Journal of Clinical Oncology* 21, pp. 1139-1146.

Giving older women a choice of BCSRT or mastectomy for early-stage breast cancer is economically attractive, according to this study. The researchers found that BCSRT cost over $10,000 more than mastectomy in the first year after surgery. But after the first year, costs stabilized for both groups at about $6,000 per year. After adjusting for differences in patient age, stage of cancer, other coexisting medical conditions, and other factors, 5-year costs for BCSRT were $14,054 greater than those of mastectomy.

Using a traditional cost-effectiveness analysis, which used differences in costs and quality-adjusted life years (QALYs) to compare mastectomy and BCSRT, BCSRT cost $219,594 per QALY. In this case, BCSRT would not be considered an economically attractive option relative to mastectomy. However, when patient choice of either option over mastectomy alone was factored into the cost-effectiveness analysis, BCSRT provided a quality-of-life gain of 0.031 QALY at $80,440 per QALY. This indicates that giving women a choice of treatment for early breast cancer, which is the current standard of care, is cost effective.

Choice may also result in improved cost-effectiveness. A $1,289 reduction on top of a 0.03 increase in QALYs would lower the incremental cost-effectiveness ratio of BCSRT to $50,000 per QALY. These findings were based on retrospective evaluation of a random group of 2,517 Medicare beneficiaries treated for newly diagnosed stage I or II breast cancer from 1992 through 1994. The researchers measured QALYs and 5-year medical costs. Overall, 1,813 women underwent mastectomy, and 704 women received BCSRT. The BCSRT women were younger, healthier, and more economically advantaged.

Mandelblatt, J.S., Edge, S.B., Meropol, N.J., and others. (2003, March). "Predictors of long-term outcomes in older breast cancer survivors: Perceptions versus patterns of care." *Journal of Clinical Oncology* 21(5), pp. 855-863.

With the exception of surgical removal of armpit lymph nodes (axillary node dissection), used to detect spread of breast cancer, type of treatment for local breast cancer did not affect outcomes of older women in this study. However, the processes of care, particularly having a choice of treatments and positive perceptions of care delivery, were associated with better long-term quality of life and care satisfaction. For example, women who perceived provider bias against older age or who felt that they had no choice of treatment reported significantly more bodily pain, lower mental health scores, and less general satisfaction than other women. These same factors, as well as perceived provider racial bias (particularly by black women), were also significantly associated with diminished satisfaction with the medical care system.

Women's physical outcomes were most strongly associated with prior health. However, axillary node dissection increased the risk of arm problems (for example, swelling and impaired mobility) four-fold, and had a long-term impact on physical functioning. Overall, breast conservation and mastectomy yielded equal survival in women of all ages with early-stage tumors. Apart from axillary dissection, these two approaches resulted in comparable long-term general physical and mental function. Thus, attempts to improve the quality of care for the growing population of breast cancer survivors should focus on improving the process of care, conclude the researchers.

They conducted telephone surveys with a random sample of 1,812 Medicare-insured women 67 years of age and older, who were 3, 4, and 5 years post-treatment for stage I or II breast cancer. They used regression analysis to estimate the adjusted risk of decreases in physical and mental health functioning by treatment. In a subset of 732 women, they used additional data to examine arm problems, impact of cancer on the women's lives, and care satisfaction, controlling for baseline health, perceptions of ageism and racism, demographic and clinical factors, geographic region, and surgery year. ■

More assertive outreach programs may be needed to link homeless women to case managers and a broader range of services

Over half (56 percent) of nearly 1,000 homeless women interviewed in Los Angeles County in 1997 had case managers to help them find and obtain care. Women with case managers were nearly twice as likely as those without case managers to use food stamps and more than twice as likely to have found shelter without difficulty in the previous month. However, having a case manager did not increase their likelihood of using the Supplemental Nutrition Program for Women, Infants, and Children (WIC) or meeting their needs for medical care, according to a study supported in part by the Agency for Healthcare Research and Quality (HS08323).

This is important, since homeless women and their children typically have inadequate dietary intake and are poor enough to be eligible for these programs. However, applications for WIC are available only at municipal health department clinics and not at shelters, meal programs, or other places that homeless women often visit. Also, there is a 10-page application form for the food stamp program, and both programs require extensive documentation of finances. These are the types of administrative and logistical barriers that case managers have traditionally been charged with reducing, explains Lillian Gelberg, M.D., M.S.P.H., of the University of California, Los Angeles.

Case managers need to step up efforts to help homeless women apply for WIC, refer women to appropriate sources of medical care, and link homeless women to public health insurance programs and a regular source of care. Using shelters and meal programs to enroll women in these programs and more assertive forms of outreach in the streets are ways to boost services to homeless women without case workers, says Dr. Gelberg. Dr. Gelberg and her colleagues measured the association of case management with access to shelter, food stamps, WIC, and medical care for a sample of 974 homeless women of reproductive age whom they interviewed in 1997.

See "Case management and access to services for homeless women," by Kevin C. Heslin, Ph.D., Ronald M. Andersen, Ph.D., and Dr. Gelberg, in the *Journal of Health Care for the Poor and Underserved* 14(1), pp. 34-51, 2003. ■

Physicians have an important role in identifying victims of domestic violence and referring them for appropriate services

Only 8 percent of women abused by their partners ever tell a doctor, and less than 50 percent ever tell anyone. Although primary care doctors frequently provide brief advice for other health risks, such as alcohol use, many do not feel comfortable counseling women about abuse. Nevertheless, physicians should make an effort to identify and refer to community resources patients who have experienced intimate partner violence (IPV), according to Karin V. Rhodes, M.D., of the University of Chicago, and Wendy Levinson, M.D., of the University of Toronto. Their work was supported by the Agency for Healthcare Research and Quality (HS11096). They note that simply identifying abuse can influence the evaluation of patient complaints as well as the outcomes of care.

In a recent article, Drs. Rhodes and Levinson discuss three cases of IPV. In the first case, a 60-year-old white woman from an affluent upper middle-class suburb came to the emergency department (ED) complaining of chest pain. She had been hospitalized several times to rule out heart attack. In this case, the ED physician found the clinical diagnosis confusing and, after more detailed questioning, uncovered a long history of emotional and physical abuse by the spouse. The patient permitted the ED physician to discuss the abuse with her primary care doctor, who was surprised because the woman had been too ashamed to reveal the abuse.

The second case involved a middle-aged Hispanic woman who had been seen by her family physician multiple times in the past half year for asthma and anxiety or panic disorder. Upon questioning, she admitted emotional abuse but denied physical abuse, although that was later confirmed by a social worker. Because she had dependent children and no financial resources, the woman was not willing to leave her husband at that time. Nevertheless, women have reported that a discussion with a doctor who acknowledged the abuse and validated their self-worth was a turning point in the process of extrication from an abusive relationship.

The third case involved a 26-year-old black man who presented

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to an urgent care clinic for the third time with back and neck pain. A chart review revealed a history of depression and difficulty in controlling his temper. The patient was referred to a community mental health program, which included a treatment program for batterers.

See "Interventions for intimate partner violence against women: Clinical applications," by Drs. Rhodes and Levinson, in the February 5, 2003 *Journal of the American Medical Association* 289(5), pp. 601-605. ■

Parental misconceptions about respiratory illnesses, not day care pressure, lead parents to pressure physicians for antibiotics

Physicians often feel pressure from parents to prescribe antibiotics for children with viral upper respiratory tract infections (URIs), sometimes to expedite the parent's return to work and the child to day care. However, day care pressure is a less important factor in parental demand for antibiotics than parents' misconceptions about URIs and antibiotic indications, according to a study supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00063).

Grace M. Lee, M.D., M.P.H., of Harvard Medical School, and her colleagues surveyed 36 day care centers in Massachusetts about their policies for excluding children or requiring physician clearance for clear runny nose, green runny nose, and cough without difficulty breathing (all without fever), and how strictly the policies were enforced. Current medical guidelines do not recommend exclusion or physician clearance for any of these URI symptoms. The researchers also surveyed 398 parents (most of whom were well-educated) of children attending the centers about their knowledge and beliefs about URIs, understanding of their child's day care center policies about URIs, and perceived pressure from day care staff.

About one in five parents surveyed incorrectly believed that most colds and flu illnesses are caused by bacteria and get better faster with antibiotics. Day care centers reported at least sometimes excluding children for green nasal discharge (75 percent) and cough without difficulty breathing (88 percent) and requiring a physician visit for these two symptoms (65 and 73 percent, respectively). Although parental beliefs about day care policies often did not match a center's policies, very few parents felt pressured by day care staff to see a doctor (4 percent) or obtain an antibiotic (2 percent) when their child was ill.

See "Acute care and antibiotic seeking for upper respiratory tract infections for children in day care," by Jennifer F. Friedman, M.D., M.P.H., Dr. Lee, Ken P. Kleinman, Sc.D., and others, in the April 2003 *Archives of Pediatric and Adolescent Medicine* 157, pp. 369-374. ■

Medical treatment of one child for an injury may signal a period of increased injury risk for other children in the family

When one child is treated for a severe injury, the risk of injury to other children in the family is nearly doubled within the first month after the injury, with risk peaking within the first 6 to 10 days, according to a study that was supported in part by the Agency for Healthcare Research and Quality (HS10724). For some undetermined reason, the increased risk does not occur among siblings 4 years or younger, and it is more pronounced in families with two children as opposed to larger families.

The instantaneous elevation in risk may reflect family stress that predates the first child's injury. Alternatively, family disruption resulting from the family's response to the initial injury may increase injury risk for other siblings, explains Brian Johnston, M.D., M.P.H., of the University of Washington.

Dr. Johnston and his colleagues tracked medically treated unintentional injuries among 16,335 children (0 to 15 years of age) enrolled in a health

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Increased injury risk for children

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maintenance organization between 1995 and 1997. They compared the risk of sibling injury after minor and more severe injury of a child (within the prior 6 months) with the injury risk of children without an injured sibling, after adjustment for age, sex, sibling group size, and noninjury health care use.

Overall, 5,851 children had a total of 8,973 injuries. Injury incidence was 44 percent higher among children with a recently injured sibling compared with children who did not have an injured sibling (319 vs. 235 injuries per 1,000 child-years). When only serious injuries were considered, the adjusted relative risk (ARR) of sibling injury was nearly doubled (ARR 1.95). Injury risk peaked 6 to 10 days after exposure (ARR 6.30) and returned to baseline by 30 days after the initial injury. Overall, the difference in injury risk between sibling groups in which one member had been injured in the previous 6 months and those with no recent injury varied from 3.7 percent to 27 percent, depending on the severity of the injuries considered and the size of the sibling group.

More details are in "Transient elevation in risk of injury in siblings following injury encounters," by Dr. Johnston, David C. Grossman, M.D., M.P.H., and Robert S. Thompson, M.D., in the January 2003 *Journal of Pediatrics* 142, pp. 79-83. ■

School-based health centers reduce asthma-related hospitalization and absenteeism among urban children

About 1,400 school-based health centers (SBHCs) provide care to 1.1 million children in the United States. Inner city children who have asthma and attend elementary schools with SBHCs are hospitalized less often and miss fewer days of school than similar children whose schools do not have SBHCs. These SBHCs appear to offer a practical response to the limited access that poor and uninsured children have to health care, concludes Mayris P. Webber, Dr.P.H., of Montefiore Medical Center.

In a study supported by the Agency for Healthcare Research and Quality (HS10136), Dr. Webber and colleagues began a 3-year project in 1999-2000 to evaluate whether the availability of SBHC services measurably affected the health and school performance of 949 children with asthma attending six Bronx elementary schools (four schools with and two without SBHCs). They compared the outcomes of children with asthma at the SBHC and non-SBHC schools, including hospitalizations, emergency department (ED) visits, and school absenteeism.

Based on parent surveys, the prevalence of asthma in the six schools was 20 percent, and asthma symptoms and problems were high. During the previous year, 46 percent of the children had been treated for asthma in the ED, and 13 percent had been hospitalized. ED use was not associated with SBHCs. However, the rate of hospitalization was much higher among children attending schools without an SBHC compared with children whose schools had an SBHC (17 vs. 11 percent). Furthermore, children with asthma attending schools without an SBHC missed an average of 3 more days of school than those enrolled in schools with an SBHC (21 vs. 18 days). Since SBHCs are associated with fewer hospitalizations and fewer missed days of school, SBHCs may reduce asthma-associated costs while increasing access to health care.

See "Burden of asthma in inner-city elementary schoolchildren: Do school-based health centers make a difference?" by Dr. Webber, Kelly E. Carpiniello, M.A., Tosan Oruwariye, M.D., M.P.H., and others, in the February 2003 *Archives of Pediatric and Adolescent Medicine* 157, pp. 125-129. ■

Having more RNs on staff can decrease the odds of pneumonia and associated costs among hospitalized surgery patients

Having more registered nurses (RNs) on staff substantially decreases the likelihood that hospitalized patients will develop pneumonia, according to the findings of a recent study that was supported by the Agency for Healthcare Research and Quality (HS11397). The study was led by Sung-Hyun Cho, Ph.D., M.P.H., R.N., of the Korea Institute for Health and Social Affairs, Seoul, and formerly of the University of Michigan at Ann Arbor.

Dr. Cho and colleagues examined the impact of nurse staffing on adverse events that, according to an expert panel, could be minimized or prevented by adequate nurse staffing: fall/injury, pressure ulcer, problematic drug reaction, pneumonia, wound infection, and sepsis (blood infection). They examined the impact of patient and hospital characteristics and nurse staffing on the incidence of these events among 124,204 surgery patients at 232 acute care California hospitals. Surgeries ranged from coronary artery bypass surgery and rectal resection to hip procedures.

Most surgery patients (93 percent) did not suffer from any adverse events. However, when adverse events did occur, pneumonia occurred most frequently (nearly 3 percent of adverse events), and falls/injuries occurred least often. An increase of 1 hour worked by RNs per patient day was associated with an 8.9 percent decrease in the odds of pneumonia. Similarly, a 10 percent increase in the proportion of RNs to overall nursing staff was associated with a 9.5 percent decrease in the odds of pneumonia.

Overall, the occurrence of pneumonia was associated with an increase of 5.1-5.4 days in hospital length of stay, an increase of 4.67 to 5.55 percent in the probability of death, and a jump of $22,390-$28,505 in costs. Postoperative patients are at particularly high risk of pneumonia due to collapsed lung, retained secretions, and pain. Attentive lung care provided by RNs may allow these patients to avoid postoperative pulmonary infections, note the researchers. Patient characteristics had a great impact on the occurrence of adverse events, while hospital characteristics had minimal influence.

See "The effects of nurse staffing on adverse events, morbidity, mortality, and medical costs," by Dr. Cho, Shake Ketefian, Ed.D., R.N., F.A.A.N., Violet H. Barkauskas, Ph.D., R.N., F.A.A.N., and Dean G. Smith, Ph.D., in the March 2003 *Nursing Research* 52(2), pp. 71-79. ■

Some 911 callers may be safely referred to alternative services to save ambulances for true emergencies

About 4,000 emergency dispatch centers in the United States assign 334,000 ambulances to transport 25 million people to emergency departments (EDs) each year. Currently, after the ambulance arrives, as many as 30 percent of patients are not transported, suggesting that it might be safe to triage some patients to other resources.

Terri Schmidt, M.D., M.S., of Oregon Health & Science University, and colleagues worked to develop a decision rule that could allow 911/emergency medical services (EMS) dispatchers to identify callers with an immediate need for an emergency medical technician (EMT)-paramedic response versus those who could receive alternative services.

The researchers, who were supported in part by the Agency for Healthcare Research and Quality (HS09835), listened to recordings of calls to an urban EMS dispatch center that were assigned the lowest severity level according to dispatch criteria. These were callers with complaints of back pain, fall, bleeding or laceration, sickness, or trauma. The researchers reviewed related EMS patient care forms and ED patient care records to determine what factors could help identify which of the 656 EMS callers could potentially be referred to alternative resources, such as non-911 access numbers, non-ambulance transport, and medically appropriate treat-and-release programs.

Overall, 24 percent of 911 callers in this already low-risk group had a problem warranting an EMT response. Nineteen percent of callers had an EMS

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Referral of 911 callers

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finding suggesting an emergency when administration of any medication in the ambulance was included, but this number decreased to 7 percent when comfort medications, such as morphine for pain or droperidol for nausea, were excluded. Another 7 percent had an important ED finding suggesting an emergency, such as administration of blood products in the ED or admission to an intensive care unit. Using age less than 12 as a threshold predicted a subset of patients with the five complaints studied who did not need an EMS response. This rule would have allowed 10 percent of patients studied to be safely triaged to an alternative resource. However, this finding is preliminary, and it requires further validation, caution the researchers.

See "Is it possible to safely triage callers to EMS dispatch centers to alternative resources?" by Dr. Schmidt, Keith W. Neely, Ph.D., Annette L. Adams, M.A., M.P.H., and others, in the July 2003 *Prehospital Emergency Care* 7(3), pp. 368-374. ■

Elderly Health/Long-Term Care

Expanding Medicare to include a drug benefit would reduce the financial burden on elders but might not greatly increase drug access

According to a recent study by researchers at the University of Wisconsin-Madison, each year from 1996 to 1999 less than 3 percent of elderly Medicare beneficiaries reported not getting the medications prescribed for them. Usually, this was due to economic reasons, but some elders simply didn't like the idea of taking medicines, according to the study, which was supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00083).

Less than 4 percent of seniors most at risk of not getting needed drugs (those who had no drug coverage, were poor, and had at least one chronic health problem) did not get medicines prescribed for them. Among all seniors, less than 0.5 percent in any year reported not getting a medicine because prescriptions were not covered by Medicaid or other insurance.

These findings suggest that expanding Medicare to include a drug benefit may not greatly enhance seniors' access to prescribed medicines. However, according to the authors, the evidence does not suggest that seniors' burden and access to prescription drugs is optimal at present. They note that expansion of Medicare to include a drug benefit would likely reduce the financial burden of prescription drugs, promote quality of care by lessening the role of cost in physicians' prescribing behavior, and possibly reduce the use of informal mechanisms of distribution (such as drug samples, trips across international borders, and subsidies from charitable organizations and manufacturers).

For this study, the researchers used the 1996-1999 Medicare Current Beneficiary Survey (MCBS) to examine trends in nonacquisition of prescribed medicines among seniors. The MCBS highlights prescription drug coverage, use, and cost among noninstitutionalized Medicare beneficiaries.

More details are in "Do seniors get the medicines prescribed for them? Evidence from the 1996-1999 Medicare Current Beneficiary Survey," by Mr. Craig, David H. Kreling, and David A. Mott, in the May 2003 *Health Affairs* 22(3), pp. 175-182. ■

Physician recommendations and patient concerns about vaccine safety are associated with elderly influenza vaccination rates

Influenza causes about 20,000 deaths each year, with elderly and chronically ill people at greatest risk. It is estimated that the influenza vaccine can prevent thousands of deaths each year; yet in 1999, only 67 percent of elderly people received the vaccine. To improve rates of influenza vaccination among the elderly, doctors need to specifically recommend the vaccine to elderly patients, and educational campaigns should focus on myths about adverse reactions to the

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Influenza vaccination rates

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vaccine, according to Richard Kent Zimmerman, M.D., M.P.H., of the University of Pittsburgh.

In a recent study supported by the Agency for Healthcare Research and Quality (HS09874), Dr. Zimmerman and his colleagues conducted a telephone survey of elderly patients who had visited an inner city health center, Veterans Affairs (VA) clinic, or rural or suburban practice after September 30, 1998, about their ease of getting to a place to be vaccinated, beliefs about and motivation for vaccination, and receipt of vaccination.

Overall, 1,007 men and women completed interviews. Influenza vaccination rates were 91 percent (over the 90 percent Healthy People 2010 goal) for VA clinics, 79 percent at both rural and suburban practices, and 67 percent at inner city health centers. Nearly all elderly people who were vaccinated said that their doctors recommended influenza vaccinations, compared with 63 percent of those who were not vaccinated.

Nearly all of those surveyed were aware of recommendations that they get yearly influenza vaccinations and found it easy to get to a place to be vaccinated. The most common concerns cited by those who were not vaccinated were fear of contracting influenza from the vaccine and adverse effects. For instance, 38 percent of people who were not vaccinated were concerned that they would get influenza from the vaccine, compared with only 6 percent of those who were vaccinated. The researchers recommend that doctors use patient reminders, standing orders to vaccinate, and other methods used by the VA clinics in this study to boost elderly vaccination rates.

More details are in "What affects influenza vaccination rates among older patients?" An analysis from inner-city, suburban, rural, and Veterans Affairs practices," by Dr. Zimmerman, Tammy A. Santibanez, Ph.D., Janine E. Janosky, Ph.D., and others in the January 2003 *American Journal of Medicine* 114, pp. 31-38. ■

Infections are a serious problem in nursing homes

Acute infections account for 27 percent of transfers of nursing home residents to hospitals. In turn, complications of infections and their treatment can contribute to functional decline among the residents. Three studies supported by the Agency for Healthcare Research and Quality (HS08551) and led by David Mehr, M.D., M.S., of the University of Missouri-Columbia School of Medicine, examined acute infections in nursing homes.

In the first study, researchers concluded that inadequate communication between nursing staff and physicians is a major barrier to rapid identification and treatment of acute infections among nursing home residents. The second study revealed that many nursing home residents who survive to 30 days following a lower respiratory infection develop new functional limitations and are more likely to decline in daily functioning within 3 months. According to the third study, most of the variation in the cost of treating pneumonia in nursing home residents is not explained by severity of illness. All three studies are summarized here.

Longo, D.R., Young, J., Mehr, D., and others. (2002, November). "Barriers to timely care of acute infections in nursing homes: A preliminary qualitative study." ***Journal of the American Medical Directors Association*** **3, pp. 360-365.**

Communication problems between nursing staff and physicians, who are usually offsite, constitute a major barrier to rapid identification and treatment of acute infections among nursing home residents, according to these researchers. They used focus groups and interviews with four residents, seven nurses, and six physicians to identify factors promoting or acting as barriers to prompt identification and treatment of six episodes of acute illness among residents from four nursing homes participating in a longitudinal study of lower respiratory infection.

The researchers identified four distinct stages in the process of managing acute infections in nursing home residents: sign and symptom recognition, illness identification, physician notification, and treatment. Content analysis of interview transcripts revealed 22 factors that influenced the timeliness of effective care. Six communication-related barriers to timely effective care stood out: failure of the physician to receive the message; evening or weekend illness onset that hampered contact with the on-call physician; reliance on an intermediary (for example, an office nurse) to convey orders from the physician; the communication of inappropriate or

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Infections in nursing homes

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inaccurate information; inadequate information transfer at shift changes; and a nurse's reluctance to talk with a physician who was perceived as "difficult."

As evidenced by nurses' notes and interviews with staff, nurses or nurses aides promptly recognized symptoms of infection in the six cases considered. However, timely intervention (diagnostic or treatment orders received from the notified clinician within the same working day or within 8 hours outside usual office hours) occurred in only three instances. For one resident, 4 days elapsed between symptom recognition by the nursing staff and initiation of treatment, including more than 24 hours after the first physician contact. Three of the six residents, including this one, were ultimately hospitalized. The researchers recommend staff training in better communication both within facilities and with off-site clinicians to improve care of acute infections and avoid unnecessary transfer of residents to the hospital for treatment.

Binder, E.F., Kruse, R.L., Sherman, A.K., and others. (2003). "Predictors of short-term functional decline in survivors of nursing home-acquired lower respiratory tract infection." ***Journal of Gerontology: Medical Sciences*** **58A(1), pp. 60-67.**

Among nursing home residents who developed new functional dependencies 1 month after an episode of acute lower respiratory infection (LRI), two-thirds had not regained their pre-infection ability to carry out activities of daily living (ADLs, for example, dressing, feeding, or bathing oneself) at 3 months, according to this study. Initial hospitalization for acute treatment of LRI was associated with nearly twice the decline in the patient's ability to perform ADLs. Either initial hospitalization may indicate greater illness severity, or the more restricted mobility of hospitalized individuals, with associated muscle atrophy and loss of strength, could directly contribute to ADL impairments, suggest the investigators.

They prospectively studied 781 episodes of LRI in 1,044 residents in 36 nursing homes to examine what clinical factors predicted short- and long-term ADL decline following an acute episode of LRI. They defined functional decline as a 3-point worsening on the Minimum Data Set (MDS) activities of daily living long form scale (0 to 28, where 28 indicates complete dependence). Of the 781 LRI patients who survived to 30 days, nearly 29 percent had a decline in ADLs. After adjustment for other factors, chronic feeding tube use more than quadrupled the likelihood of ADL decline. Also increasing the likelihood of ADL decline were decubitus ulcers, shortness of breath, short-term memory problems, decline in self-toileting in the 24 hours prior to evaluation, age, and baseline ADL score.

Addition of treatment variables to the model showed that initial hospitalization was associated with nearly twice the ADL decline. Residents with ADL decline at 30 days were less likely to recover to their baseline ADL status at 90 days. The results of this study suggest that measures of chronic illness severity or related disability may have a greater role in predicting short-term ADL decline than clinical measures of acute LRI illness severity at the time of symptom onset. Similar to studies performed in the hospital setting, the nursing home residents in this study with moderate baseline ADL impairments, cognitive impairment, and poor nutritional status were at high risk for functional decline.

Kruse, R.L., Boles, K.E., Mehr, D.R., and others. (2003, March). "The cost of treating pneumonia in the nursing home setting." ***Journal of the American Medical Directors Association*** **4, pp. 81-89.**

The cost of treating pneumonia and treatment of residents with similar clinical presentations varies substantially among nursing homes, according to this study. As part of a larger study of lower respiratory infection (LRI) in nursing home residents, these investigators examined the costs of caring for 502 residents with pneumonia who were not hospitalized, including residents who were evaluated in the emergency department (ED) and returned to the nursing home without hospital admission. The researchers abstracted from the medical records the examination findings, diagnostic testing, and treatment information for 30 days following evaluation by study nurses, and they obtained copies of bills for individuals evaluated in the ED.

Most of the residents who suffered pneumonia were fairly old and frail, and many had coexisting conditions such as congestive heart failure. About one-fifth were dependent on others for help with grooming, walking, toileting, and eating. The average cost for treating an episode of pneumonia in the nursing home, over and above usual care, was $458. For residents who received some ED treatment, the average cost of care was $1,486 compared with $425 for residents with no ED treatment.

Most residents received both x-ray and other diagnostic testing in the nursing home. X-rays

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accounted for nearly half (47 percent) of the total nursing home costs, followed by provider visits (20 percent) and medications (20 percent), with a mean cost per resident ranging from $0 to $739. The mean antibiotic cost was not significantly related to illness severity. Pneumonia episode costs were higher for residents seen in a hospital ED, residents with decubitus ulcers, black residents, and those in larger facilities. Although total episode costs were related to illness severity, most of the variation in cost was not explained by resident or illness characteristics. ■

Symposium highlights the important role of nurses in managing urinary incontinence

The prevalence of urinary incontinence (UI) is rising. Half of older adults in nursing homes and 13 to 56 percent of homebound elders suffer from UI. Yet, progress in the clinical management of UI has stalled. For instance, nursing research provides ample evidence that noninvasive toileting programs, such as bladder retraining or prompted voiding, can be effective in nursing homes and other long-term care settings. Yet, clinicians in these settings remain unfamiliar with the research and, for the most part, don't use innovative techniques.

A July 2002 symposium sponsored in part by the Agency for Healthcare Research and Quality (HS12088), "State of the Science on Urinary Incontinence," challenged nurses to lead the way in managing UI and promoting continence. The goal of the symposium was to analyze UI research and current UI management practices and to develop recommendations for research, practice, education, and public policy. The symposium brought together leading nurse researchers, clinicians, educators, administrators, and industry stakeholders.

The following papers highlight symposium issues and are published, along with an executive summary, a concluding discussion, and recommendations, in the March 2003 *American Journal of Nursing* 3 (supplement), pp. 1-58 (available online at www.NursingCenter.com/ui or from AJN Reprints at 215-521-8560; "The state of the science on urinary incontinence," by D.K. Newman, M.H. Palmer (Eds.). Individual papers are as follows:

- Mason, D.J., Newman, D.K., and Palmer, M.H., "Changing UI practice," pp. 2-3.
- Sampselle, C.M., "Behavioral interventions in young and middle-age women," pp. 9-19.
- Gray, M.L., "Gender, race, and culture in research on UI," pp. 20-25.
- Wyman, J.F., "Treatment of urinary incontinence in men and older women," pp. 26-35.
- Lekan-Rutledge, D., and Colling, J., "Urinary incontinence in the frail elderly," pp. 36-46. ■

Mental Health Research

Medicaid shifts to widely used mental health carve-out programs may interrupt therapy among the most needy patients

People who have schizophrenia and other serious mental illnesses who do not continue to take their antipsychotic medication run the risk of having acute psychotic episodes and being hospitalized. Once lost, medication adherence may be difficult to reestablish, and the ensuing clinical deterioration may not be reversible, explains Wayne A. Ray, Ph.D., of the Nashville Veterans Affairs Medical Center.

A July 1, 1996 shift in Tennessee's Medicaid program, TennCare, to provide mental health services through a specialized behavioral health "carve-out" program greatly bolstered the likelihood that seriously mentally ill patients would miss taking their antipsychotic medication for more than 2 months. These patients

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Mental health carve-out programs

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decreased their use of antipsychotic drugs immediately after the transition to the carve-out program, and the lower level of drug use persisted throughout the 12 months of followup, according to the study which was supported in part by the Agency for Healthcare Research and Quality (HS10384).

Dr. Ray and his colleagues observed adherence to antipsychotic therapy after this TennCare shift among patients 21 to 64 years of age who had adhered to antipsychotic therapy during a 6-month baseline period that preceded the 12 months of study followup. The researchers examined lack of adherence to antipsychotic therapy (missed treatment for more than 60 days) among 4,507 patients followed for 1 year after the shift (post-transition group) and 3,644 patients whose followup began 1 year earlier (pre-transition group).

Among high-risk patients (those requiring the administration of extended-release injections of antipsychotic medications and those who had been hospitalized for psychosis), for whom continued medication was most important, 29 percent in the post-transition cohort missed more than 60 days of antipsychotic therapy compared with 20 percent in the pre-transition group. They also had 14.4 fewer mean days of antipsychotic therapy than the pre-transition group. Continuity of outpatient care also decreased after the shift to the carve-out program.

More details are in "Effect of a mental health "carve-out" program on the continuity of antipsychotic therapy," by Dr. Ray, James R. Daugherty, M.S., and Keith G. Meador, M.D., M.P.H., in the May 8, 2003 *New England Journal of Medicine* 348(19), pp. 1885-1894. ■

One-third of adult survivors of childhood cancer suffer from psychological problems

One-third of adult survivors of childhood cancer attending a specialized clinic suffered from psychological problems many years after treatment for their cancer, according to a brief psychological screening used at the clinic. Among adult survivors who had been treated for cancer from 6 to 50 years ago (median of 18 years ago), those who had physical limitations were 10 times more likely than other survivors to have psychological problems.

Survivors who had appearance concerns and those who had undergone cranial radiation (which has been associated with significant neuropsychological problems) for their childhood cancer were five times more likely to have psychological problems than other survivors. The screening also identified a higher than expected rate of survivors who had thoughts of suicide (14 percent compared with 3-6 percent in the general population), notes Christopher Recklitis, Ph.D., of the Dana-Farber Cancer Institute.

In a study supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00063), Dr. Recklitis and colleagues asked 101 adults at a clinic for adult survivors of childhood cancer to complete several questionnaires. These included the Symptom Checklist 90 Revised (SCL-90), a 90-item checklist of psychological symptoms ranging from lack of impulse control to phobias; the Short Form 36 (SF- 36), which assesses physical and emotional functioning; the Beck Depression Inventory (BDI); and one additional suicide question.

Thirty-two percent of adult cancer survivors showed significant psychological distress on the SCL-90, similar to the SCL-90 finding of 37 percent of recently diagnosed adult cancer patients. This suggests that adult survivors of childhood cancer may have continuing psychologic problems, even many years after their cancers have been successfully treated. Most (80 percent) of the adults completed the screening in less than 30 minutes, and 64 percent believed the screening would help "very much" or "moderately" in getting to know them.

More details are in "Utility of routine psychological screening in the childhood cancer survivor clinic," by Dr. Recklitis, Tara O'Leary, and Lisa Diller, in the March 1, 2003 *Journal of Clinical Oncology* 21(5), pp. 787-792. ■

Among people with HIV/AIDS, whites are much more likley than blacks to use medication to treat psychological problems

In 1996, 29 percent of people with HIV disease suffered from at least one psychological disorder such as depression, anxiety or panic disorder, or posttraumatic stress disorder (PTSD). About 27 percent of all HIV-positive patients in medical care in the United States in 1996 received at least one psychotropic drug, such as antidepressants and anxiolytics (anti-anxiety drugs) in the 6 months preceding assessment.

Use of antidepressants was most common (21 percent of patients), followed by anxiolytics (17 percent), antipsychotics (5 percent), and psychostimulants (3 percent). About 43 percent of patients reporting major depression or dysthymia (depressed mood for more than 2 years, but not severe enough to be considered major depression) reported receiving antidepressants, and 34 percent reported receiving anxiolytics.

Patients with both major depression and dysthymia were more likely to have taken antidepressants (72 percent) than patients with only major depression or dysthymia (41 and 38 percent, respectively). The presence of more than one anxiety disorder increased the rate of anxiolytic use but not antidepressant use.

More than half of the patients suffering from major depression were not treated with antidepressants. On the other hand, 17 percent of those without a diagnosed disorder received psychotropic medication.

Overall psychotropic use among HIV/AIDS patients was 27 percent for whites, 23 percent for Hispanics, and 11 percent for blacks. There was no significant difference in use of psychotropic drugs among patients with asymptomatic HIV infection, symptomatic HIV infection, or AIDS.

These findings are based on an analysis of data from the HIV Cost and Services Utilization Study (HCSUS), which was conducted under a cooperative agreement between RAND and the Agency for Healthcare Research and Quality (HS08578). HCSUS was led by Martin F. Shapiro, M.D., Ph.D., of RAND, and Samuel A. Bozzette, M.D., of the University of California, San Diego. HCSUS included data on 2,864 HIV-positive patients in medical care in the United States. This study was based on 1,489 patients who completed an interview form and questionnaire on psychotropic medications used during the previous 6 months. The majority of these patients had previously screened positive for depression or anxiety disorder.

See "Use of psychotropic medications among HIV-infected patients in the United States," by Benedetto Vitiello, M.D., M. Audrey Burnam, Ph.D, Eric G. Bing, M.D., Ph.D., M.P.H., and others, in the March 2003 *American Journal of Psychiatry* 160, pp. 547-554. ■

Health Care Costs and Financing

Half of hospital costs for diabetes patients are linked to the subset of patients with multiple hospitalizations

Among diabetes patients examined in a new study by H. Joanna Jiang, Ph.D., Daniel Stryer, M.D., Bernard Friedman, Ph.D., and Roxanne Andrews, Ph.D., of the Agency for Healthcare Research and Quality, 30 percent had two or more hospital stays that contributed to more than 50 percent of total hospitalizations and total hospital costs. For example, the hospital cost per patient (for all patient stays) was nearly three times as high ($23,119 vs. $8,508) for patients with multiple versus single hospital stays.

The researchers used 1999 Healthcare Cost and Utilization Project (HCUP) discharge data for five States to identify 648,748 patients aged 1 or older who had one or more hospitalizations listing diabetes and unrelated to childbirth (total of 993,074 hospitalizations). These hospitalizations varied by age, race/ethnicity, payer, and income.

The most vulnerable groups are most likely to have multiple hospital stays, according to the study. After controlling for patient age, sex, and clinical characteristics, the likelihood of having multiple hospitalizations was higher for elderly Hispanics (37 percent) and blacks (34 percent) compared with whites

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Costs for diabetes patients

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(31 percent), as well as for patients covered by Medicare or Medicaid and those living in low-income areas. Nonelderly whites were less likely than blacks and Hispanics to have multiple hospitalizations.

The presence and type of diabetes complications among patients with multiple hospitalizations varied by age group, race/ethnicity, and insurance status. Acute complications of diabetes was the primary or coexisting condition for the more than 60 percent of children with diabetes who had multiple hospitalizations, compared with only 10 percent for nonelderly adults and less than 5 percent for the elderly. In contrast, adults were more likely to be hospitalized for chronic complications of diabetes. Among adults, the acute complication rate was much higher for blacks than for other racial/ethnic groups, and it was more than twice as high for uninsured as for insured patients.

Many of these complications and related hospitalizations might be prevented with quality outpatient care. The authors conclude that clinical and policy interventions should be developed to target particular groups of patients who would have a higher probability of preventable readmissions.

See "Multiple hospitalizations for patients with diabetes," by Drs. Jiang, Stryer, Friedman, and Andrews, in the May 2003 *Diabetes Care* 26(5), pp. 1421-1426. Reprints (AHRQ Publication No. 03-

Children in U.S. managed care plans are far more likely to be referred to specialists than children in the United Kingdom

Children in U.S. managed care plans are two to three times as likely to be referred to specialists as their counterparts in the United Kingdom, according to a study supported in part by the Agency for Healthcare Research and Quality (K02 HS00003). The greater supply of specialists and higher expectations for direct access to specialty care in the United States compared with the United Kingdom are likely explanations for these differences in referral rates, explains Christopher Forrest, M.D., Ph.D., of Johns Hopkins University. Dr. Forrest and his colleagues point out that U.S. pediatricians function as both primary care physicians (PCPs) and specialists. Yet, in the United Kingdom, patients must obtain general practitioner (GP) approval for specialty referral, and pediatricians are considered specialists.

The researchers retrospectively compared specialist referrals among 135,092 children in five U.S. managed health plans that used PCPs as gatekeepers (a referral is required from the PCPs to see a specialist) with 221,312 U.K. children who visited GPs. Across the five U.S. plans, 19 to 29 percent of children per year were referred to specialists versus 9 percent of U.K. children. Compared with U.K. children, those in the U.S. plans were about twice as likely to be referred to medical specialists, three times as likely to be referred to surgical specialists, and nearly three times as likely to be referred to psychiatrists.

Although children in the United Kingdom were less likely than U.S. children to be referred for specialty care, the U.K. children suffered from a higher disease burden than their U.S. counterparts, indicating a greater need for health care resources. In a few cases, referrals for U.S. and U.K. children were similar, for example, for dermatitis or eczema or congenital anomalies of the limbs. Referrals for chronic tonsillitis, hearing loss, depression, and attention-deficit disorder were significantly higher in the United Kingdom than in the United States. It still is not clear whether the United States overuses specialists or the United Kingdom underuses them, conclude the researchers.

See "Referral of children to specialists in the United States and the United Kingdom," by Dr. Forrest, Azeem Majeed, M.D., M.R.C.G.P., Jonathan P. Weiner, Dr.P.H., and others, in the March 2003 *Archives of Pediatric and Adolescent Medicine* 157, pp. 279-285. ■

Financial consequences for doctor referrals to specialists affect patient satisfaction but not outcomes

Adults whose primary care physicians (PCPs) were subject to a financial withhold for referrals to specialists were less likely to be referred to a physician specialist, more likely to see a specialist without a referral, and more likely to rate their PCP's care less favorably than patients of PCPs who did not have a financial withhold. However, the presence of a financial withhold generally was not associated with overall reduced access to specialists for these patients, since many of them apparently self-referred, and both groups of patients had similar outcomes, concludes a study supported by the Agency for Healthcare Research and Quality (HS06833).

David E. Grembowski, Ph.D., of the University of Washington, and his colleagues administered a questionnaire to 2,275 adults (most were middle-class whites) prior to an initial visit for pain to one of 261 PCPs in 72 offices in Seattle; followup questionnaires were administered 1 and 6 months later to study the patients' access to specialists, care satisfaction, and health outcomes (for example, severity of pain and functional status). The researchers also administered questionnaires to the PCPs and their office managers to compile an office managed care index (0 for least to 100 for most managed). The index included referral preauthorization requirements, financial incentives, and use of referral or clinical guidelines for specific conditions.

If a PCP had a financial withhold, a patient was 29 percent less likely to be referred to a specialist physician for pain (odds ratio, OR 0.71) and 38 percent more likely to see a specialist without referral (OR 1.38) than patients whose physicians did not have a financial withhold. However, after controlling for both patient factors and other managed care factors, the two odds ratios were similar and no longer significant. Controlling for patient and managed care factors, a financial withhold for referral was associated with a .20 decrease in patient ratings of the care provided by their primary physicians. On average, most patients improved, with less bothersome pain and less restricted activity days, but the managed care factors were not associated with these outcomes.

More details are in "Managed care, access to specialists, and outcomes among primary care patients with pain," by Dr. Grembowski, Diane Martin, Ph.D., Paula Diehr, Ph.D., and others, in the February 2003 *Health Services Research* 38(1), pp. 1-19. ■

Changes in Medicare's PPS have led to a moderate drop in rehabilitation days at skilled nursing facilities

Shorter hospital stays have led to an expanded role for skilled nursing facilities (SNFs). The goal at SNFs is to restore recently hospitalized people—commonly those who are recovering from hip fracture, stroke, pneumonia, or heart failure—to their prior level of functioning. Under the old Medicare Prospective Payment System (PPS), SNFs were reimbursed for the cost of providing therapy without regard to the minutes per week provided to each resident.

Under the revised (1998) PPS, SNFs receive fairly generous payments for rehabilitation therapy. However, beyond a certain point (12 hours a week), additional therapy generates no additional payments. As a result, the percentage of residents of freestanding SNFs receiving extremely high levels of rehabilitation therapy dropped significantly, and the percentage receiving moderate levels increased.

Payment for rehabilitation therapy should be tied not just to the amount of therapy provided but also to clinical appropriateness, according to Chapin White, of the National Bureau of Economic Research in Cambridge. In a study supported by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00020), he used Medicare administrative data to determine average SNF charges (for physical, occupational, and speech therapy) per hospital stay.

The average SNF rehabilitation charges per hospital stay dropped by 45 percent between 1997 and 2000, declining from $421 to $233. The most striking change occurred at for-profit freestanding SNFs. In 1997, 19 percent of residents at such facilities were receiving more than $200 per day in rehabilitation therapy; by 2000, this group had dropped to 1.6 percent. The timing of the drop corresponded precisely with the phasing in of the new PPS in 1998; the drop was not explained by a change in SNF length of stay, which was relatively stable during this period.

See "Rehabilitation therapy in skilled nursing facilities: Effects of Medicare's new prospective payment system," by Mr. White, in the May/June 2003 *Health Affairs* 22(3), pp. 214-223. ■

Declining payments for emergency care compromise the ability of EDs to provide emergency care to the uninsured

For impoverished and uninsured Americans, the emergency departments (EDs) of U.S. hospitals are a health safety net. However, their ability to provide emergency care to all patients, regardless of their ability to pay, is being threatened by declining overall payment rates, according to a recent study. As a result, cost shifting to private payers to fund care for the uninsured is becoming an increasingly untenable financing strategy, conclude Alexander C. Tsai, M.A., and Joshua H. Tamayo-Sarver, A.B., of Case Western Reserve University. In the study, which was supported by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00059), the researchers analyzed charges, payments, and payer for ED visits based on Medical Expenditure Panel Survey (MEPS) data from 1996 and 1998.

Total paid ED charges declined by 7 percent from 60 percent in 1996 to 53 percent in 1998. Although the percentage of total charges paid by Medicaid, Medicare, and the uninsured remained constant, the percentage of total charges paid by the privately insured declined 12 percent, from 75 percent to 63 percent. At the same time, overall adjusted mean ED charges increased from $695 to $798. Adjusted mean charges increased 32 percent for the uninsured (from $544 to $740) and 23 percent for the privately insured (from $658 to $813). Charges did not increase significantly for those insured by Medicare and Medicaid. These increased charges, if they reflect increases in the true resource costs of use, along with declining overall payments, suggests that EDs are struggling financially.

On the other hand, the declining payment rate might be partly explained by unjustified ED charge inflation, or it could be due to unmeasured confounding factors. Assuming that the increases in the efficiency of ED care have not outstripped increases in the severity of illness of ED patients, a reasonable implication is that the actual costs of care truly are increasing.

See "Declining payments for emergency department care, 1996-1998," by Mr. Tsai, Mr. Tamayo-Sarver, A.B., Rita K. Cydulka, M.D., M.S., and David W. Baker, M.D., M.P.H., in the March 2003 *Annals of Emergency Medicine* 41(3), pp. 299-308. ■

Job satisfaction for most physicians hinges on good staff relationships, control of time off, and clinical autonomy

A growing number of physicians are joining group practices, which in turn, have relationships with other groups and health care organizations. This has created more potential for a clash of work values between physicians and their practice organizations.

Health organizations can maximize physician satisfaction by improving factors that U.S. physicians consider key to the "ideal job." These include: good relationships with staff and colleagues, control of time off, adequate resources, and clinical autonomy. This is the conclusion of a recent study that involved a nationally representative survey of physicians in outpatient practice in the United States. The study was supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00032).

Lead author, Eric S. Williams, Ph.D., of the University of Alabama, and his colleagues asked physicians about the importance of 10 work values. More than 90 percent of physicians rated the factors cited above as very important, regardless of race/ethnicity, age, sex, and practice setting. About 85 percent of doctors surveyed said that recognition that their work is important and long-term relationships with patients are critical to an ideal job. Having substantial income and a connection to the community were rated as very important by about 75 percent of physicians. The last work value, being spared administrative work, was rated as very important by only 56 percent of doctors.

The value put on relationships with staff and colleagues reflects the critical importance of the relational aspects of the physician-medical group fit, note the researchers. They recommend that practices assess the personal values of their physicians and the practice organization, use realistic job previews in the recruitment process, adopt socialization tactics with new hires, and create a human resources information system to improve organization-physician fit.

See "What do physicians want in their ideal job?" by Eric S. Williams, Ph.D., Mark Linzer, M.D., Donald E. Pathman, M.D., M.P.H., and others, in the January 2003 *Journal of Medical Practice Management*, pp. 179-183. ■

Task Force finds little evidence to support use of vitamin supplements to prevent cancer or heart disease

The U.S. Preventive Services Task Force has concluded that there is insufficient scientific evidence to recommend vitamin supplements as a way to prevent cancer or heart disease. In addition, the Task Force has recommended against the use of beta carotene supplements in smokers because of a possible increased risk of lung cancer and death. The Task Force conclusions are based on a review of studies on the use of vitamins A, C, or E, multivitamins with folic acid, or antioxidant combinations to reduce the risk for cancer or cardiovascular disease in adults.

These findings are published in the July 1 issue of the *Annals of Internal Medicine*.

The Task Force, which is the leading independent panel of private-sector experts in prevention and primary care, is sponsored by the Agency for Healthcare Research and Quality. This marks the first time the Task Force has reviewed studies on the effect of vitamins to reduce cancer and cardiovascular disease.

The Task Force reviewed the results of four clinical trials which found that taking beta carotene did not decrease the risk for lung, prostate, colon, breast, or non-melanoma skin cancer in middle-aged and older adults. Two of these clinical trials found that individuals who take beta carotene and smoke have an increased risk of lung cancer and death.

The Task Force also reviewed both randomized trials and observational studies to determine whether taking vitamins A, C, or E, multivitamins with folic acid, or antioxidant combinations reduced risk of heart disease, stroke, or various cancers. The best studies suggested no clear benefit of taking vitamins, but the number and length of the studies were insufficient to rule out possible benefits of long-term vitamin use. Although some of the observational studies suggested possible benefits for some cancers, the Task Force could not determine whether these benefits were due to vitamins or to healthier lifestyles in people who take vitamins.

The Task Force did not review evidence on the use of vitamins for patients with known nutritional deficiencies, pregnant and lactating women, children, the elderly, and people with chronic illness. Vitamins may be more appropriate for people in these groups, and the Task Force urges patients in these groups to talk with their clinicians about the potential benefits and harms of using vitamins.

Although most studies reviewed by the Task Force showed that taking vitamins according to the Recommended Daily Allowance does not cause harm, several adverse effects can be caused by taking moderate doses and/or excessive doses of certain vitamins. For example, moderate doses of vitamin A may reduce bone mineral density, and high doses may cause liver damage or, in pregnant women, harm to a fetus. The Task Force recommends that patients who take vitamins not take more than the Recommended Daily Allowance and that the patients talk with their clinicians about the effects vitamins may have on their health.

The Task Force conducts rigorous, impartial assessments of all the scientific evidence for a broad range of preventive services. Task Force recommendations are considered the gold standard for clinical preventive services. The Task Force based its conclusions on a report from a team led by Cynthia Morris, Ph.D., M.P.H., and Cheryl Ritenbaugh, Ph.D, M.P.H., from AHRQ's Evidence-based Practice Center at Oregon Health & Science University in Portland.

The Task Force grades the strength of the evidence from "A" (strongly recommends), "B" (recommends), "C" (no recommendation for or against), "D" (recommends against) or "I" (insufficient evidence to recommend for or against screening). The Task Force recommends against the use of beta carotene supplements, either alone or in combination, for the prevention of cancer or cardiovascular disease (a "D" recommendation). The Task Force found insufficient evidence to recommend for or against the use of supplements of vitamins A, C, or E, multivitamins with folic acid, or antioxidant combinations for the prevention of cancer or cardiovascular disease (an "I" recommendation).

The vitamin supplementation recommendations and materials for clinicians are available on the AHRQ Web site at www.ahrq.gov/clinic/3rduspstf/vitamins/vitaminsrr.htm. The findings also are published in "Routine vitamin supplementation to prevent cancer and cardiovascular disease: Recommendations and rationale," in the July 1, 2003 *Annals of Internal Medicine* 139(1), pp. 51-55.

Previous Task Force recommendations, summaries of the evidence, easy-to-read fact sheets explaining the recommendations, and related materials are available from the AHRQ Publications Clearinghouse. See the back cover of *Research Activities* for ordering information. Clinical information is also available from the National Guideline Clearinghouse™ at www.guideline.gov. ■

New model helps hospitals and health systems better respond to potential bioterrorism

The U.S. Department of Health and Human Services and the Agency for Healthcare Research and Quality recently announced the availability of a new computer model to help hospitals and health systems plan antibiotic dispensing and vaccination campaigns to respond to bioterrorism or large-scale natural disease outbreaks.

Funded by AHRQ, this new resource is the Nation's first computerized staffing model that can be downloaded as a spreadsheet and used to calculate the specific needs of local health care systems based on the number of staff they have and the number of patients they would need to treat quickly in the event of a bioterrorism event. Go to www.ahrq.gov/research/biomodel.htm for the downloadable software program.

Researchers at Weill Medical College of Cornell University in New York developed the model after testing a variety of patient triage and drug dispensing plans. Specifically, they evaluated the 2001 New York City and Washington, DC, anthrax responses, subsequent large-scale live disaster drills in New York City and Arizona in which thousands of volunteers were given fake drugs in response to a hypothetical anthrax attack, and planning models for bioterrorism response developed by California, Florida, Illinois, and other States. Taking elements from these plans, the research team, led by Nathaniel Hupert, M.D., M.P.H., developed two "best practice" dispensing clinic designs that could be used in the event of a bioterrorism attack, including attacks involving anthrax and smallpox, or in the setting of natural outbreaks requiring antibiotics or vaccinations.

The newly released computer model allows health care systems' planners to estimate the number and type of staff required to operate these clinics in order to provide an entire community with critical medical supplies in an efficient and timely fashion. The model can be downloaded to run on common spreadsheet software and can be customized for use by health officials at all levels of government, hospital administration, and emergency medical planning.

The new tool is part of a growing portfolio of bioterrorism preparedness response and research sponsored by AHRQ, with funding from the HHS Office of Public Health Emergency Preparedness and the Health Resources and Services Administration. This year, AHRQ is using approximately $10 million in FY 2003 funds to start several new projects and expand several others begun under the Agency's October 2000 bioterrorism initiative.

Collectively, the 28 AHRQ projects cover a wide spectrum of research on bioterrorism preparedness and response, including medication/vaccine dispensing; State and regional models; surge capacity; pediatric care; use of information technology; clinician training; clinical/public health linkages; and translating/disseminating bioterrorism research into practice.

Additional grantees include Emory University, Columbia University, Johns Hopkins University, the Joint Commission on Accreditation of Healthcare Organizations, AHRQ's Evidence-based Practice Center at Stanford University/University of California San Francisco, and the University of Alabama at Birmingham.

In addition, the University of Alabama at Birmingham recently updated its AHRQ-sponsored Web site to include reference sections on anthrax and smallpox and added new continuing education modules for internal medicine and pediatrics at www.bioterrorism-uab.ahrq.gov.

The newest funding brings the Agency's current investment in bioterorrism-related research to over $20 million. Select www.ahrq.gov/research/bioterport.htm for general information on AHRQ's bioterrorism portfolio.

Additionally, the Agency recently released a program announcement stating the availability of 1- to 2-year research grants for work that examines and promotes the public health care system's readiness for a bioterrorist event and other public health emergencies through the development of new evidence, tools, and models. Information on this new funding announcement is available at http://grants1.nih.gov/grants/guide/pa-files/PAR-03-130.html. ■

HCUP 2001 Nationwide Inpatient Sample data now available

AHRQ's Healthcare Cost and Utilization Project Nationwide Inpatient Sample (NIS) data from 2001 are now available to the public. The NIS is a unique and powerful database of hopsital inpatient stays. Researchers and policymakers use the NIS to identify, track, and analyze national trends in health care use, access, charges, quality, and outcomes. Visit www.ahrq.gov/data/hcup/hcupnis.htm for more information about the NIS and how to order the data. Selected data from the 2001 NIS also are available on HCUPnet at www.ahrq.gov/data/hcup/hcupnet.htm. ■

Research Briefs

Beach, C., Croskerry, P., and Shapiro, M. (2003, April). "Profiles in patient safety: Emergency care transitions." (AHRQ grant HS11592). ***Academic Emergency Medicine*** **10, pp. 364-367.**

Medical errors during transitions in care from one doctor or nurse to another are common in emergency departments (EDs) and can jeopardize patient safety, concludes this study. Transition errors are likely to increase as ED attempts to limit failures due to staff fatigue require more frequent shift changes. These transitions at shift changes have long been thought to be sources of error in emergency care, and this study documents one such case. The investigators retrospectively tracked each clinical step and transition in care of a 59-year-old man who arrived at the ED with a chief complaint of panic attacks. In total, the man was evaluated by 14 faculty physicians, two fellows, and 16 residents from emergency medicine, cardiology, neurology, psychiatry, and internal medicine. Multiple transitions in care were responsible, in part, for the continued failure to accurately diagnose an underlying heart problem. The authors recommend ways to improve transitions to reduce such errors.

Cook, A.F., Hoas, H., and Guttmannova, K. (2003, March). "Project seeks to assess and aid patient safety in rural areas." (AHRQ grant HS11930). ***Biomedical Instrumentation & Technology*****, pp. 128-130.**

The ability to recognize and respond to potentially unsafe situations may be compromised by factors that technology alone cannot solve. These factors include staffing patterns, workplace communication, and the overall lack of resources and training, claim these researchers. They base these claims on data from nine studies conducted in rural communities in a 14-State area, as well as data from an ongoing patient safety research project. For instance, their studies indicate that 67 percent of rural nurses have not attained baccalaureate level training and typically work in three departments on a daily basis. Opportunities for direct communication are limited, even during shift changes, and there are few opportunities for training or continuing education, all factors that affect patient safety. A survey of physicians, nurses, pharmacists, and administrators from 30 rural hospitals underscored the need for education and training, staffing and scheduling changes, and better communication to reduce errors.

Fitzgibbons, R.J., Jonasson, O., Gibbs, J., and others. (2003, May). "The development of a clinical trial to determine if watchful waiting is an acceptable alternative to routine herniorrhaphy for patients with minimal or no hernia symptoms." (AHRQ grant HS09860). ***Journal of the American College of Surgeons*** **196, pp. 737-742.**

An estimated 700,000 operations to repair inguinal hernias were performed in the United States in 2001. Surgeons are taught that all inguinal hernias should be repaired at diagnosis, even if asymptomatic, to prevent a later complication of strangulation, which requires emergency surgery that might increase mortality ten-fold compared with elective surgery. These authors describe the development of a clinical trial to determine if watchful waiting is an acceptable alternative to routine hernia repair for adult men with minimally symptomatic or asymptomatic inguinal hernias. Men are randomized to watchful waiting or a standard open operation and are followed for a minimum of 2 years. The primary outcomes to be measured at 2 years are pain or discomfort interfering

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with normal activities and the physical component summary score of the SF-36 health-related quality-of-life survey. As of November 1, 2002, 637 patients from five centers had been randomized, 85 percent of the target enrollment (753 patients).

Fries, B.E., Norris, J.N., Aliaga, P., and Jones, R. (2003, March). "Risk adjusting outcome measures for post-acute care." (AHRQ grant HS09455). ***American Journal of Medical Quality*** **18(2), p. 66-72.**

This paper examines whether different risk adjusters are needed for home care outcome measures for postacute care clients. The researchers tested multiple risk adjusters that met clinical and policy criteria on a sample of 4,403 postacute home care clients from Michigan. Two of the six outcome measures—activities of daily living (ADLs) and bladder incontinence—had substantially different risk adjusters for the postacute care population versus the general home care population. The researchers conclude that there may be subpopulations within a home care program whose care quality is not measured accurately by home care quality indicators or their related outcome measures when these are derived from the total home care population. Although some outcome measures can be applied consistently to both postacute and other home care populations, others need completely different risk adjustments.

Hennessy, S., Bilker, W.B., Weber, A., and Strom, B.L. (2003). "Descriptive analyses of the integrity of a U.S. Medicaid claims database." (AHRQ grant HS10399 and National Research Service Award fellowship F32 HS00066). ***Pharmacoepidemiology and Drug Safety*** **12, pp. 103-111.**

To examine the integrity of six Medicaid databases for use in pharmacoepidemiology research, the researchers performed a descriptive analysis of four types of potential data errors: incomplete claims for certain time periods, absence of an accurate indicator of inpatient hospitalizations, missing hospitalizations for those aged 65 years and over (since Medicare is usually the primary payer for this group), and diagnostic codes in demographic groups in which those conditions should be rare. Prescription claims appeared to be missing intermittently in some States, and no valid marker of inpatient hospitalizations could be found for three of six States. Hospitalizations appeared to be missing to varying degrees for those aged 65 and over. Gross errors in diagnostic codes and demographic data did not appear to be widespread.

Loeppke, R., Hymel, P.A., Lofland, J.H., and others. (2003, April). "Health-related workplace productivity measurement: General and migraine-specific recommendations from the ACOEM expert panel." (AHRQ grant K08 HS00005). ***Journal of Occupational and Environmental Medicine*** **45, pp. 349-359.**

Productivity costs to employers due to migraine headaches and other employee ailments are typically two to three times the medical costs paid by employers. In this article, members of an expert panel conducted a literature search to identify health-related productivity measurement tools. The panel recommended absenteeism, presence at work, and employee turnover/replacement costs as key elements of workplace health-related productivity measurement. They also recommended that productivity measurement tools should have supporting scientific evidence, be applicable to the particular work setting, be supportive of effective business decisionmaking, and be practical. The panel reviewed six productivity measurement tools based on these and other criteria. The goal is to help employers and other stakeholders develop strategies to measure the impact of employee health problems on workplace productivity loss.

Lynch, A., McDuffie, Jr., R., Stephens, J., and others. (2003, April). "The contribution of assisted conception, chorionicity and other risk factors to very low birthweight in a twin cohort." AHRQ grant HS10700). ***British Journal of Obstetrics and Gynecology*** **110, pp. 405-410.**

The recent increase in multiple births in the United States, due primarily to a variety of infertility treatments, has contributed to an upward trend in the number of low birthweight (LBW, less than 5 pounds) or very low birthweight (VLBW, less than 3 pounds) babies. Twins born to women who have received ovulation induction medication or assisted reproductive technology are no more likely to be of VLBW than spontaneously conceived twins. However, a history of preterm birth and one placenta for both twins are leading risk factors for VLBW, according to these authors. They examined the birthweight of 562 sets of twins delivered after 20 weeks of gestation, between January 1994 and December 2001, to women insured by the same HMO. They studied the impact on twin birthweight of assisted conception with either assisted reproductive technology (procedures that

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involved handling human oocytes or embryos) or ovulation induction medicine (clomiphene citrate or human menopausal gonadotropins). They also obtained data on other risk factors for VLBW, such as smoking and preterm delivery. Two-thirds (66 percent) of the sets of twins were unassisted pregnancies, but one-third (34 percent) were assisted and most often involved older women who had not previously given birth. There was no difference in the distribution of LBW and VLBW, discordant growth, or preterm delivery between assisted and unassisted twin gestations.

McDonald, C.J., Huff, S.M., Suico, J.G., and others. "LOINC, a universal standard for identifying laboratory observations: A 5-year update." (AHRQ grant HS07719). *Clinical Chemistry* 49(4), pp. 624-633.

This paper presents a 5-year update of the Logical Observation Identifier Names and Codes (LOINC) database, a universal standard for identifying laboratory observations. Most laboratory and diagnostic systems in the United States deliver their results electronically via Health Level Seven (HL7) messages to their hospital, office practice, HMO, or other clients. The HL7 message carries one record for each separate test observation, for example, blood sugar level. The LOINC database provides a universal code system for reporting laboratory and other clinical observations. Its purpose is to identify observations in electronic messages, so that when hospitals, HMOs, and others receive such messages from multiple sources, they can automatically file the results in the right slots of their medical records, research, and/or public health systems. LOINC codes are being used by large reference laboratories and Federal agencies.

Mehr, D.R., van der Steen, J.T., Kruse, R.L., and others. (2003). "Lower respiratory infections in nursing home residents with dementia: A tale of two countries." (AHRQ grant HS08551). *Gerontologist* 43(II), pp. 85-93.

Patients with advanced Alzheimer's disease and other types of dementia often develop immobility and swallowing disorders that predispose them to pneumonia and other lower respiratory infections (LRIs), which frequently lead to death. These patients are more likely to receive palliative care (focused on resident comfort rather than maximizing survival) in Dutch nursing homes than in U.S. nursing homes. The researchers compared treatment and deaths among 706 patients with pneumonia in 61 Dutch psychogeriatric nursing homes and 701 patients with LRI and likely dementia in 36 nursing homes in Missouri. Nursing home residents with dementia and LRI were more often treated without antibiotics in the Netherlands (23 percent) than in Missouri (15 percent). The Dutch tended to treat the less severely ill residents with antibiotics. Among the 23 percent of Dutch residents not treated with antibiotics, 90 percent died within 30 days, and 30 percent of those treated with antibiotics died within 30 days. In contrast, 85 percent of U.S. residents with dementia and LRI received antibiotics, but 30-day mortality was virtually identical for both those treated with and without antibiotics (16.7 percent and 17.5 percent, respectively). Also, hospitalization was quite rate in Dutch residents (0.6 percent), but 26 percent of U.S. residents were hospitalized within 30 days. Cultural differences may underlie some of these practices. For example, the Dutch are more accepting of physician-assisted death, and on-site nursing home physicians (rare in U.S. nursing homes) have a chance to know their patients, their families, and their wishes.

Mukamel, D.B., Watson, N.M., Meng, H., and Spector, W.D. "Development of a risk-adjusted urinary incontinence outcome measure of quality for nursing homes." (AHRQ grant HS08491). *Medical Care* 41(4), pp. 467-468.

Quality of nursing home care is of ongoing concern. The availability of uniform, patient-level information—the Minimum Data Set (MDS)—offers the opportunity to assess quality based on risk-adjusted health outcomes. The goal of this study was to develop a risk-adjusted measure of quality based on urinary incontinence (UI) outcomes for nursing homes, derived from the MDS. The researchers performed a retrospective statistical analysis of individual resident-level data for 46,453 residents of 671 nursing homes in New York State during 1995-1997. Improvement in UI status was defined based on the resident's UI status at 3 months post-admission relative to status at admission. Individual risk factors were also defined at admission. Facility level quality indicators were developed and showed substantial variation. An average facility, providing average quality care to a population of average risk would experience improvement in UI outcomes for 11 of its 25 admissions in a year. According to the authors, this study demonstrated the feasibility of measuring quality of UI care based

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on nationally available MDS data. The measures presented in this paper can be used to support internal quality improvement efforts, but before such measures can be used externally—either in the survey process or in quality report cards—they should be further validated. Reprints (AHRQ Publication No. 03-R035) are available from AHRQ.**

Mukamel, D.B., and Spector, W.D. (2003). "Quality report cards and nursing home quality." ***Gerontologist*** **43 (II), pp. 58-66.**

This study examined the potential role that publicly disseminated quality report cards can play in improving quality of care in nursing homes. The authors reviewed the literature and the experience gained over the last two decades with report cards from hospitals, physicians, and health plans, and considered the issues that were of particular importance in the context of nursing home care. Experience with report cards in other areas of the health care system suggests that nursing home quality reports may have a role to play in informing consumers' choices and providing incentives for quality improvement. Their impact may, however, not be large. The researchers discuss the methodological issues that may limit the accuracy of quality indicators and issues related to the design and comprehension of the information by consumers. The implications are that quality report cards should be viewed as one of several options to ensure higher quality nursing home care. Reprints (AHRQ Publication No. 03-R036) are available from AHRQ.**

Page, S. (2003). "Virtual health care organizations and the challenges of improving quality." (AHRQ National Research Service Award training grant T32 HS00086). ***Health Care Management Review*** **28(1), pp. 79-92.**

This article examines the challenges of improving health care quality continuously within and across "virtual" provider organizations, such as independent practice associations and physician-hospital organizations (PHOs). The author draws on recent research and theory about interorganizational networks in other fields to develop recommendations for securing physicians' commitment to quality improvement strategies in today's health care environment. Strategies proven to be successful in other work settings that may improve quality control include demonstration projects and informal teamwork, dividing activities into "bitable chunks," using "just-in-time" training, and having skilled facilitators and physician leaders use participative or nondirective leadership styles to transfer learning across projects and teams.

Radwin, L., Alster, K., and Rubin, K.M. (2003, March). "Development and testing of the oncology patients' perceptions of the quality of nursing care scale." (AHRQ grant K08 HS11625). ***Oncology Nursing Forum*** **30(2), pp. 283-290.**

This article describes the development of the Oncology Patients' Perceptions of the Quality of Nursing Care Scale (OPPQNCS), which measures the quality of nursing care from the cancer patient's perspective. The researchers initially developed eight subscales and 112 items from a survey of 436 patients in active treatment for cancer. The final scale included 40 items in four care subscales: responsiveness (22 items), individualization (10 items), coordination (3), and proficiency (5). They created a short form (18 items). Psychometric properties indicated that both OPPQNCS forms adequately measured quality of cancer nursing care from the patient's perspective. This tool holds promise for nurses who wish to monitor and improve the quality of patient-centered nursing care for cancer patients and those who wish to investigate relations among care quality and health care system characteristics, patient characteristics, and nurse-sensitive patient outcomes.

Rajotte, E., Fuchs, C., and Zatzick, D. (2003, April). "Engaging and following trauma survivors in real world clinical investigations." (AHRQ grant HS11372). ***Journal of Nervous and Mental Disease*** **191(4), pp. 265-268.**

Within 48 hours of the September 11, 2001 attacks on the World Trade Center in New York City, 1,103 physically injured survivors were seen at five Manhattan hospitals and trauma centers. From a public health perspective, injured patients triaged through trauma care systems may be at risk for mental health problems. Previous reports suggest that trauma survivors followed in real world settings may miss mental health screening and intervention procedures, and they can prove challenging to track and follow in longitudinal investigations. Situations such as homelessness, injury-related disability, and cultural and linguistic issues can impede followup. These authors suggest specific tracking and followup approaches to improve the

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Research briefs

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retention of trauma survivors in clinical research, based on a review of studies and the research team's unique experiences with prospectively followed physically injured trauma survivors.

Satava, R.M., and Fried, M.P. (2002). "A methodology for objective assessment of errors: An example using an endoscopic sinus surgery simulator." (AHRQ grant HS11866). *Otolaryngologic Clinics of North America* 35, pp. 1289-1301.

To date, no scientific publication has published a classification of errors in endoscopic sinus surgery, a method for identifying how an error occurs, how to measure an error, or what outcomes should be reported. These authors used a well-proven methodology (the modified Delphi method) to generate a first-order approximation of errors that should be measured in a virtual reality surgical simulator (the ES3). Although some of the error measures are specific for sinus surgery, the same type of methodology can be used for other otolaryngologic, general, and subspecialty surgical procedures. The value of this process is that it can provide a uniform framework for investigators in surgical education and training to establish error measurements in their particular procedures or disciplines, and to generate data and outcomes that are comparable, interoperable, and capable of being shared with other investigators.

Seid, M., Castaneda, D., Mize, R., and others. (2003, May). "Crossing the border for health care: Access and primary care characteristics for young children of Latino farm workers along the U.S.-Mexico border." (AHRQ grant HS10317). *Ambulatory Pediatrics* 3(3), pp. 121-130.

Young children of Latino farm workers who work along the U.S.-Mexico border may obtain more than half of their care in Mexico, regardless of their insurance status. These authors surveyed 297 parents at Head Start preschool centers primarily serving migrant farm workers in Southern California, near the Mexican border. Nearly 70 percent of parents surveyed had health insurance. Yet, more than half of the health care their children received was in Mexico, and half of those surveyed said their children received 75 percent or more of their health care in Mexico. Parents who traveled for work and earned more than $20,000 per year reported more care in Mexico. Children with chronic health conditions were as likely to receive care in Mexico as the United States. Parents of insured children reported slightly more U.S. care, yet even this group reported about half of their health care in Mexico. Among uninsured children, those who received most of their care in Mexico were less likely than those who received most of their care in the United States to have had a routine health care visit. This suggests that uninsured families may be using the Mexican health system primarily for sick care. Uninsured children reporting the most care in Mexico fared better in some aspects of primary care than uninsured children reporting most of their care in the United States. They also fared as well as insured children receiving care in the United States or Mexico.

Swan, J.S., Sainfort, F., Lawrence, W.F., and others. (2003, March). "Process utility for imaging in cerebrovascular disease." (AHRQ grant HS10277) *Academic Radiology* 10(3), pp. 266-274.

Magnetic resonance (MR) angiography, which emphasizes vascular anatomy, is replacing conventional x-ray angiography in a number of diagnostic applications. Conventional angiography carries a small risk of stroke, as well as hemorrhage and renal toxic effects. MR angiography has less serious safety risks, given reasonable screening for infrequent contraindications. These authors modified a time-tradeoff technique variant, the "waiting trade-off" (WTO), in which a patient trades off waiting with symptoms for an "ideal" test result rather than undergoing a traumatic test followed by immediate treatment for cerebrovascular disease. Since stroke is a distinct possibility in these patients, they may be less willing to wait for an ideal test result from MR angiography. However, results from 90 patients with cerebrovascular disease confirmed that, on average, the more negative the patients' rating of conventional angiography, the more days they were willing to wait to avoid the traumatic test experience. ■

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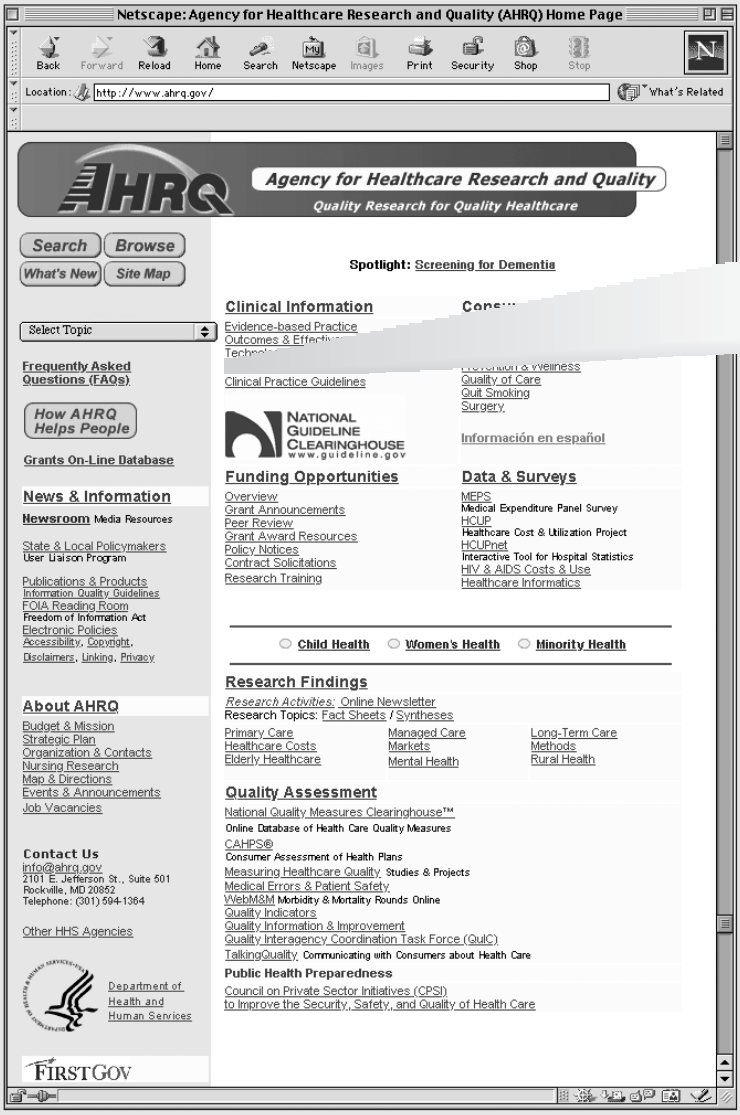

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