AHRQ

Research Activities

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Highlights

Departments

Regular Features

Potentially inappropriate medications are prescribed for up to one in five elderly people

A new study from the Agency for Healthcare Research and Quality highlights the problem of inappropriate prescribing for elderly patients in the United States. The study also underscores the importance of safe use of prescription medications as a critical component of quality of care and demonstrates the challenges involved in assessing safe use.

According to findings reported in the *Journal of the American Medical Association*, about one-fifth of the approximately 32 million elderly Americans not living in nursing homes in 1996 used at least 1 of 33 prescription medicines considered potentially inappropriate. Nearly 1 million elderly men and women used at least 1 of 11 medicines that a panel of geriatric medicine and pharmacy experts advising the researchers agreed should always be avoided in the elderly. These 11 medicines include long-acting benzodiazepines, sedative or hypnotic agents, long-acting oral hypoglycemics, analgesics, antiemetics, and gastrointestinal antispasmodics.

The study also suggests that elderly women and older people who are in poor health and consequently use more prescriptions are more likely than others to receive inappropriate drugs. According to lead author, Chunliu Zhan, M.D., Ph.D., the actual extent of inappropriate medication prescribing may be much higher than the estimates because of the conservative criteria the researchers used and because of the rate of introduction of new pharmaceutical agents into the market. Furthermore, inappropriate medication use in the elderly is a component of the even larger problem of suboptimal prescribing, which includes underuse of effective medications, inappropriate dosing, inappropriate use of drugs in combination, and other prescribing errors.

The full list of 33 potentially inappropriate medications reflects the consensus of the expert panel. Not all physicians agree about the appropriateness of specific drugs for the elderly. This lack of consensus stems in part from the limited amount of evidence on risks and benefits for some medications because older patients often are excluded from drug

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Inappropriate prescribing

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clinical trials due to their age and other medical problems.

The estimates are the most recent derived from population-based nationally representative survey data. The study was based on data from AHRQ's Medical Expenditure Panel Survey (MEPS) involving a national sample of 2,455 community-dwelling people aged 65 and older in 1996.

For further details, see "Potentially inappropriate medication use in the community-dwelling elderly: Findings from the 1996 Medical Expenditure Panel Survey," by Dr. Zhan, Judith Sangl, Sc.D., Arlene S. Bierman, M.D., M.Sc., and others in the December 12, 2001 *Journal of the American Medical Association* 286(22), pp. 2823-2829.

Reprints (AHRQ Publication No. 02-R030) are available from AHRQ.** See the back cover of *Research Activities* for ordering information.

Editor's note: AHRQ and the Department of Health and Human Services (HHS) are supporting research and other efforts to reduce inappropriate prescribing. For instance, AHRQ is sponsoring research on new technologies, such as hand-held computers, to reduce prescribing errors as part of its $50 million patient safety research agenda. In addition, AHRQ-supported Centers for Education and Research on Therapeutics (CERTs) are working to increase awareness of the benefits and risks of new uses or combinations of medical products, as well as improving the effectiveness of existing uses. In March 2001, HHS Secretary Tommy G. Thompson created an HHS Patient Safety Task Force to better coordinate efforts to collect and report information about patient safety. More information on HHS' patient safety efforts is available at www.hhs.gov/news/press/2001pres/01fsMedErrors.html. ■

Clinical Decisionmaking

Researchers from the Pneumonia PORT examine triage and management of community-acquired pneumonia

More than 2 million cases of community acquired pneumonia (CAP) are diagnosed each year in the United States, resulting in about 10 million physician visits, 500,000 hospitalizations, and 45,000 deaths. The Pneumonia Patient Outcomes Research Team (PORT) was a multicenter, 5-year project focused on care and outcomes of outpatient and hospitalized patients with CAP. The PORT was led by Wishwa N. Kapoor, M.D., M.P.H., of the University of Pittsburgh, and is supported by the Agency for Healthcare Research and Quality (HS06468).

The researchers used retrospective data from over 14,000 adult inpatients with CAP and 30-day hospital mortality to derive a Pneumonia Severity Index (PSI) to identify which patients were most at risk of dying from CAP. They later validated the PSI in inpatients and outpatients. A study by AHRQ researcher, Eduardo Ortiz, M.D., M.P.H., and other investigators suggests that the PSI has potential for helping doctors triage CAP patients—that is, decide which patients can go home and which patients should be admitted to the hospital. A second study concludes that increased measurement of arterial oxygenation among CAP patients could increase detection of dangerous arterial hypoxemia,

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another means to help doctors decide which CAP patients need to be hospitalized. A third study finds that doctors generally agree on signs which indicate that hospitalized CAP patients can be switched from intravenous to oral antibiotics.

Ortiz, O., Quach, C.H., and Lenert, L.A. (2001, September). "The Pneumonia Severity Index: Assessing its potential as a triage tool." ***Federal Practitioner*****, pp. 11-25.**

Since doctors rely mainly on clinical impressions when triaging CAP patients, it is not surprising that hospital admission rates for CAP vary dramatically among regions, facilities, and providers. Use of the PSI during initial patient assessment may enable doctors to make more appropriate treatment decisions, concludes this study. The researchers compared triage decisions made by doctors at one hospital for 161 CAP patients with PSI recommendations and assessed the potential impact of the PSI on the hospital's admission practices.

The PSI stratifies CAP patients into five risk classes using a cumulative scoring system based on 19 variables in 4 areas: demographic factors, other coexisting (comorbid) illnesses, physical examination findings, and laboratory findings. Patients in risk classes 1 and 2 (with 70 points or less) are at sufficiently low risk to make outpatient management appropriate. Patients in risk class 3 (71 to 90 points) also are potential candidates for outpatient management, but they may benefit from a brief hospitalization. Patients in risk classes 4 and 5 (with more than 90 points) should be hospitalized.

Doctors initially hospitalized 24 percent of class 1 and 2 patients, for whom the PSI would suggest outpatient management. Application of the PSI could improve triage decisions by helping doctors identify the class 1 and 2 patients who could be treated safely as outpatients. On the other hand, use of the PSI would not have greatly improved doctors' management of high-risk patients. For example, doctors initially treated only 11 percent of patients in class 4 and no patients in class 5 as outpatients. Only one of these patients required subsequent hospitalization, and none of them died. The fact that 25 percent of class 3 patients, who were initially treated as outpatients, required subsequent hospitalization reinforces the uncertainty involved in treating this group of patients.

Reprints (AHRQ Publication No. 02-R012) are available from AHRQ.**

Levin, K.P., Hanusa, B.H., Rotondi, A., and others. (2001, September). "Arterial blood gas and pulse oximetry in initial management of patients with community-acquired pneumonia." ***Journal of General Internal Medicine*** **16, pp. 590-598.**

Arterial hypoxemia (deficient arterial oxygen) is a dangerous sign for CAP patients, often prompting doctors to hospitalize them. Hypoxemia can signal impending respiratory failure, need for intensive care, and risk of death. Arterial oxygen should be measured for more CAP patients, especially outpatients, because even patients with no risk factors for this problem can be hypoxemic, according to these authors. They found that use of arterial blood gas (ABG) measurements and pulse oximetry (PO) to measure arterial oxygenation varied widely across five study sites in the United States and Canada.

Six factors increased the risk of hypoxemia by 1.5 to 3 times: age over 30 years, chronic obstructive pulmonary disease, congestive heart failure, respiratory rate more than 24 per minute, altered mental status, and chest radiographic infiltrate involving more than one

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lobe. Although patients with three or more risk factors were more likely to be hypoxemic, 10 percent of patients who had none of these risk factors were hypoxemic when tested. Unfortunately, 70 percent of all outpatients with two or more risk factors for hypoxemia had neither ABG nor PO performed.

In contrast, 90 percent of inpatients received some measure of arterial oxygenation within 48 hours of presentation, with minimal variation across hospitals. Outpatients who had either an ABG or PO performed were more likely to be admitted to the hospital than patients who had neither test performed (17 vs. 5 percent). Inpatients who had either ABG or PO performed and whose supplemental oxygen status was known were more likely to be admitted to an ICU for management of hemodynamic compromise or respiratory failure than patients who received neither test (20 vs. 4 percent).

Halm, E.A., Switzer, G.E., Mittman, B.S., and others. (2001, September). "What factors influence physicians' decisions to switch from intravenous to oral antibiotics for community-acquired pneumonia?" ***Journal of General Internal Medicine*** **16, pp. 599-605.**

A major determinant of how long people with CAP stay in the hospital is how long they remain on intravenous (IV) antibiotics. Although patients usually are discharged 1 day after switching to oral antibiotics, there is considerable variability in the overall duration of IV therapy. Many practice guidelines for hospitalized patients with CAP recommend early conversion to oral antibiotics once patients are clinically stable. This is to minimize risk of IV line infections and sepsis, decrease patient deconditioning, and expedite recovery at home. This study found that doctors generally believed that patients could be switched to oral antibiotics once vital signs and mental health status had stabilized and oral intake was possible.

Doctors cited the following median thresholds for when a typical patient could be converted to oral therapy: temperature of 100º F or less, respiratory rate of 20 breaths or less per minute, heart rate of 100 beats or less per minute, systolic blood pressure of 100 mm Hg or more, and oxygen saturation in room air of 90 percent or more. Over half (58 percent) of the doctors felt that patients should be without a fever for 24 hours before conversion to oral antibiotics.

However, attitudes about the switch to antibiotics varied considerably by age, inpatient care activities, attitudes about guidelines, and personality. For example, pulmonary and infectious diseases doctors were the most predisposed and other medical specialists were the least disposed towards early conversion to oral antibiotics. Doctors who were older, more involved in inpatient care, and worked more clinical hours were more reluctant to convert to oral antibiotics early. Physicians who were based at a university hospital, who spent more time on non-patient care matters such as research and administration, or had more favorable opinions about practice guidelines were more inclined to make the switch or oral antibiotics. These findings are based on survey responses of 345 generalist and specialist physicians who managed pneumonia in seven hospitals. ■

Plain x-rays often do not reveal certain types of cervical spine injuries in victims of blunt trauma

Plain x-rays frequently fail to reveal cervical spine injuries (CSIs) of blunt trauma victims, especially injuries to the vertebral lamina and lateral masses. Most of these missed injuries are secondary injuries in patients whose primary injury has been identified by the x-ray. However, in a minority of injured patients, plain x-rays fail to detect any injury.

When such plain x-rays appear normal, the search for CSI may be terminated, with no further use of other imaging technologies such as magnetic

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Note: Only items marked with a single (*) or double (**) asterisk are available from AHRQ. Items marked with a single asterisk (*) are available from AHRQ's clearinghouse. Items with a double asterisk (**) are also available through AHRQ InstantFAX. Three asterisks (***) indicate NTIS availability. See the back cover of *Research Activities* for ordering information. Consult a reference librarian for information on obtaining copies of articles not marked with an asterisk.

Cervical spine injuries

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resonance imaging. For this reason, clinicians should focus on these two high-risk areas when reviewing plain spinal x-rays of blunt trauma victims, suggest the authors of a recent study supported by the Agency for Healthcare Research and Quality (HS08239).

William R. Mower, M.D., of the University of California, Los Angeles School of Medicine, and his colleagues reviewed all types of x-rays performed on blunt trauma victims at 21 hospitals to compile an exhaustive list of all CSIs sustained by each individual. They then compared these injuries with the injuries detected by plain x-ray alone. Plain x-rays revealed 702 of 1,056 CSIs. Plain films failed to detect 98 injuries (occult) present in 60 patients (10.5 percent) and 256 secondary injuries in 510 patients (89.5 percent) who had a visible (sentinel) injury identified. Plain x-rays failed to reveal 58 percent of lateral mass injuries and 64 percent of lamina injuries, making these the most frequent sites of missed injury.

For more information, see "Occult and secondary injuries missed by plain radiography of the cervical spine in blunt trauma patients," by Dr. Mower, John Y. Oh, B.S., Michael I. Zucker, M.D., and Jerome R. Hoffman, M.D., in *Emergency Radiology* 8, pp. 200-206, 2001. ■

Few doctors take measures to prevent bone loss and related fractures among people on long-term steroid therapy

Medications called glucocorticoids (e.g., prednisone) are used to treat a million or more Americans each year for chronic rheumatic, pulmonary, gastrointestinal, and skin diseases, as well as in organ transplantation. Unfortunately, chronic users of glucocorticoids are at risk for glucocorticoid-induced osteoporosis (GIOP) and have an estimated 50 percent fracture risk. Guidelines recommend that people who require more than 3 months of this therapy take measures to prevent bone loss, such as calcium supplements, vitamin D, estrogen (for postmenopausal women), and antiresorptive medications and undergo periodic measurements of bone mineral density.

According to a recent study supported in part by the Agency for Healthcare Research and Quality (HS10389), few doctors prescribe GIOP prevention therapy for patients taking glucocorticoids. Over the 3-year study period, researchers at the University of Alabama, Birmingham's Center for Education and Research on Therapeutics identified 2,378 members of a large national health maintenance organization who were receiving long-term glucocorticoid therapy to determine whether they underwent bone mass measurements or were prescribed medications to prevent osteoporosis. Internal medicine specialists (39 percent), general/family practitioners (16 percent), and rheumatologists (16 percent) wrote the majority of prescriptions for glucocorticoids.

Only 21 percent of all patients receiving glucocorticoids for a chronic condition received some form of prescription treatment for osteoporosis during the study period. For women age 50 and over, the group at greater risk for fractures, only 41 percent received osteoporosis preventive therapies. However, this was mostly estrogen, and only 6 percent of estrogen prescriptions were made after initiation of glucocorticoid therapy. Only 16 percent of women age 50 and over and less than 10 percent of all patients received a bone mass measurement. Patients of rheumatologists were twice as likely as those of internists to have a bone mass measurement and to receive bisphosphonates, but they were not more likely to receive preventive treatment overall.

Details are in "Variations in glucocorticoid induced osteoporosis prevention in a managed care cohort," by Amy Mudano, M.P.H., Jeroan Allison, M.D., M.Sc., Jerrold Hill, Ph.D., Todd Rothermel, and Kenneth Saag, M.D., M.S., in the June 2001 *Journal of Rheumatology* 28(6), pp. 1298-1305. ■

Availability of a pneumococcal vaccine may change the way physicians manage young children who have high fevers

Doctors typically order blood tests to rule out serious bacterial infections in children 3 years of age and younger who have a high fever with no obvious source of infection (occult infection), even though most of these children have viral or minor bacterial infections and make an uneventful recovery. This is because a small proportion of children are found to harbor occult bacteremia and subsequently develop serious illnesses (e.g., meningitis) despite a benign clinical appearance when first seen in the doctor's office.

Current guidelines recommend that doctors obtain complete blood counts (CBC) and blood cultures and treat children with antibiotics if their white blood cell count (WBC) is equal to or greater than 15x109/L. This is still the most cost-effective approach, despite the recent release of a conjugate pneumococcal vaccine, according to a recent study that was supported by the Agency for Healthcare Research and Quality (National Research Service Award T32 HS00063).

However, if widespread use of the vaccine brings the current rate of occult bacterial infections from 1.5 percent to 0.5 percent, then strategies that use empiric testing and antibiotic treatment should be eliminated, conclude the researchers who are from Children's Hospital in Boston. They performed a cost-effective analysis of six different management strategies for a hypothetical group of 100,000 3- to 36-month-old children, who had a fever of 39º C or higher and no obvious source of infection, at both current and declining rates of occult pneumococcal bacteremia.

They concluded that compared with no work-up, the current recommended strategy prevents 48 cases of meningitis, saves 86 life-years per 100,000 patients, and is less costly at the current rate of bacteremia. Using the strategy of CBC plus selective blood culture (done if WBC count is greater than the cutoff) and treatment with a lower WBC cutoff of 10x109/L costs an additional $72,300 per life-year saved. If the rate of bacteremia declines to 0.5 percent, then the incremental cost-effectiveness (CE) ratio of "clinical judgment" compared with no work-up is $38,000 per life-year saved. However, strategies that include empiric testing or treatment are not cost effective, resulting in CE ratios greater than $300,000 per life-year saved.

For details, see "Management of febrile children in the age of conjugate pneumococcal vaccine: A cost effectiveness analysis," by Grace M. Lee, M.D., Gary R. Fleisher, M.D., and Marvin B. Harper, M.D., in the October 2001 *Pediatrics* 108(4), pp. 835-844. ■

More conservative approach recommended for inpatient treatment of infants with viral lower respiratory infection

In the United States, 1 to 2 percent of all children are hospitalized for a viral lower respiratory illness (VLRI) such as bronchiolitis during their childhood. A recent study, which was supported by the Agency for Healthcare Research and Quality (contract 290-95-0042), indicates that a more conservative approach to treatment of VLRI in hospitalized infants would not affect their recovery but could reduce use of hospital resources and related costs.

Researchers from the University of Virginia Children's Medical Center in Charlottesville and International Severity Information Systems, Inc., used the Pediatric Comprehensive Severity Index and patient charts of 601 infants less than a year old with VLRI (bronchiolitis or respiratory syncytial virus pneumonia) to correlate hospital practice variation with illness severity and resource use at 10 children's medical centers. Overall, infants with similar severity of illness received very different care at different hospitals, yet nearly all had uniformly good outcomes.

Intensity of therapy bore little relationship to infants' severity of illness but was a primary determinant of hospital costs and length of stay. For example, hospital average severity of illness scores correlated negatively with frequency of pediatric intensive care unit admission and either negatively or poorly with frequency of intubation (which varied from 0 to 26 percent of infants at different hospitals) and average costs. These varied practices amidst

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Infants with lower respiratory infection

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uniformly good infant outcomes at each hospital suggest that many therapies were used indiscriminately.

For example, antibiotics were used in 64 percent of infants despite the accepted viral basis of this disease and the rarity of additional bacterial infection. Also, despite a demonstrated lack of efficacy of corticosteroids in VLRI, one hospital used them in 61 percent of infants. The use of inhaled beta agonists in 92 percent of patients was more difficult to assess because the literature is equivocal. Use of other therapies was similarly idiosyncratic. Greater hospital use of each of these interventions was associated with higher costs, and some were associated with longer hospital stays.

See "Effect of practice variation on resource utilization in infants hospitalized for viral lower respiratory illness," by Douglas F. Willson, M.D., Susan D. Horn, Ph.D., Owen Hendley, M.D., and others, in the October 2001 *Pediatrics* 108(4), pp. 851-855. ■

Use of health care services and costs of care are substantial for children with asthma-related illnesses

Asthma is the leading cause of chronic illness among children. Asthma-related deaths and illnesses have increased in recent years among young people with asthma, who miss school three times as often as other youngsters. The economic impact of the disease is substantial, with total U.S. expenditures in 1990 exceeding $6 billion. Costly emergency visits and hospitalizations for children with asthma usually reflect poor primary care of the disease, which allows it to get dangerously out of control.

A study supported by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00034) shows that children with asthma are three times as likely as other children to have coexisting problems, such as sinusitis or middle ear infections, which contribute to their significantly higher use of health care services and related costs. A second study by AHRQ researcher, Alexander N. Ortega, Ph.D., and colleagues suggests that insurance status alone is not sufficient to explain differences in health care use among children with asthma. Both studies are summarized here.

Grupp-Phelan, J., Lozano, P., and Fishman, P. (2001). "Health care utilization and cost in children with asthma and selected comorbidities." ***Journal of Asthma*** **38(4), pp. 363-373.**

These researchers analyzed the records of a large health care group to measure the impact of asthma and specific upper respiratory problems on the use and cost of health care for 71,818 children enrolled in the group plan during 1992. They found that children with asthma were three times more likely than those without asthma to have coexisting problems (comorbidities) such as sinusitis, middle ear infections (otitis media), and allergic rhinitis (26 vs. 9 percent), and that these problems led to higher health care use and costs compared with children who did not have asthma.

For example, children who visited the doctor several times for otitis media, sinusitis, or allergic rhinitis were 1.8, 4, and 12 times more likely, respectively, to have a diagnosis of asthma in the same year. In general, children with either asthma or other comorbidities had higher rates of use and mean costs in outpatient, pharmacy, urgent care, and inpatient care than other children.

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Asthma-related illnesses in children

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Children with asthma had a 47 percent probability of being in the highest total cost quintile, but that declined markedly to 29 percent after accounting for comorbidities, which tend to exacerbate asthma problems. Children who had both asthma and related illnesses incurred costs for urgent care that were 2.6 times higher than urgent-care costs for children in the general population ($208 vs. $79). Compared with the general population of children, mean total health care costs were 1.6 times higher for those with comorbid illnesses but no asthma, 1.6 times higher for those with asthma but no comorbidity, and 2.7 times higher for those with both asthma and comorbidity.

Ortega, A.N., Belanger, K.D., Paltiel, A.D., and others. (2001, October). "Use of health services by insurance status among children with asthma." ***Medical Care*** **39(10), pp. 1065-1074.**

It is well known that Medicaid-insured children with asthma use the emergency department (ED) more frequently than children with other types of insurance. However, it is not clear if this is due to access to primary care, medication use, or other factors. These authors found that insurance status was independently associated with ED use regardless of frequency of primary care visits for asthma (which typically reduce the need for emergency care), medication use, or greater symptom severity. Insurance alone, however, did not account for all the differences in ED use, suggesting the possible influence of psychosocial or personal factors.

The investigators prospectively studied health care use and asthma symptoms over a 1-year period for 804 children with asthma who were recruited from seven New England hospitals. They conducted home interviews on monthly symptoms, health care visits, insurance status, sociodemographic characteristics, and asthma-related risk factors. They used other data to identify providers' characteristics. After adjustment for frequency of asthma-related primary care visits, primary provider practice type, use of asthma specialists, and patient age, sex, medication use, and symptoms, Medicaid children still used the ED almost twice as often for asthma care as privately insured children. Race/ethnicity did not substantially alter the relationship between insurance status and health care use.

These findings suggest that disproportionately less use of primary care and greater use of ED services for asthma care by Medicaid and minority children may be better explained by psychosocial and/or personal factors, such as attitudes and beliefs. It would be helpful to understand the degree to which ED use is viewed as a substitute for urgent primary care among Medicaid enrollees (perhaps convenience of access and operating hours for disadvantaged patients). The researchers suggest that future studies focus on patient-provider communication in primary care settings and other patient/parent factors, such as maternal knowledge, attitudes, and beliefs.

Reprints (AHRQ Publication No. 02-R013) are available from AHRQ.** ■

Children with insulin-dependent diabetes are hospitalized three times more often than other children

Specialists caring for children with insulin-dependent (type 1) diabetes struggle to lower excessively high blood-sugar levels (glycemic control) that can lead to diabetes-related eye, kidney, and other complications, while minimizing the risk of acute problems such as severe hypoglycemia (low blood sugar levels that can lead to convulsions or coma), which often result in hospitalizations and emergency department (ED) visits. Despite improvements in diabetes care, these young people are hospitalized more than three times as often as the general pediatric population. The only factor that reduced these hospitalizations was frequent self-monitoring of blood glucose levels, according to a study supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00063).

Doctors should stress good diabetes management, especially blood glucose monitoring (BGM), which tends to become more lax during the adolescent years. BGM provides information on which to base adjustments in insulin dosages, meal plans, and exercise regimens to ultimately improve glycemic control, explain the researchers from Children's Hospital in Boston and Harvard Medical School. They used questionnaires and medical records to assess how glycemic control affected the incidence of adverse events, hospitalizations, and ED visits of 300

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Insulin-dependent diabetes

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youngsters (7 to 16 years of age) with type 1 diabetes, who were receiving care at a diabetes specialty clinic over a 1-year period. They were prescribed daily insulin injections, diet and exercise education, instruction in BGM, and advice on sick-day management.

Despite multidisciplinary care, glycemic control (measured by glycosylated hemoglobin or HbA1c levels) did not improve over the 1-year study period, from a mean HbA1c of 8.7 percent at baseline to 8.9 percent a year later; good glycemic control is considered 7 percent or less. Poorer control was associated with older age, advanced puberty, and longer duration of diabetes. Patients who performed BGM five or more times per day had HbA1c levels of 8 percent compared with 9.1 percent for those performing BGM once per day or less. Overall, the rate of hospitalization was 13 per 100 person-years, but it was significantly higher (25 per 100 person-years) in the highest HbA1c tertile (HbA1c greater than 9 percent).

See "Predictors of glycemic control and short-term adverse outcomes in youth with type 1 diabetes," by Bat-Sheva Levine, M.D., Barbara J. Anderson, Ph.D., Deborah A. Butler, M.S.W., and others, in the August 2001 *Journal of Pediatrics* 139, pp. 197-203. ■

Five criteria can identify pediatric blunt trauma victims who are unlikely to need x-rays to exclude cervical spine injury

Even though cervical spine injury (CSI) is rare in children, doctors usually feel compelled to take spinal x-rays of pediatric blunt trauma victims in order to avoid missing CSI, which can produce catastrophic neurologic disability. Applying five criteria for identifying pediatric blunt trauma victims who are at low risk for CSI would reduce unnecessary x-rays by 20 percent without missing any children with CSI, concludes a study supported by the Agency for Healthcare Research and Quality (HS08239).

William R. Mower, M.D., Ph.D., of the University of California, Los Angeles School of Medicine, and his colleagues evaluated the use of National Emergency X-Radiography Utilization Study (NEXUS) criteria for identifying which of over 3,000 children, who were evaluated for blunt trauma at numerous emergency departments around the country, were at low risk for CSI. The criteria identified children at low risk by the absence of all of the following: midline cervical tenderness, altered level of alertness, evidence of intoxication, neurologic abnormality, and presence of a painful distracting injury. Less than 1 percent of the children studied had sustained a CSI. No case of spinal cord injury without x-ray abnormality was reported for any child in the study.

CSI was rare among children 8 years old and younger. Two-thirds of the 30 injured children were teenagers, only four were younger than 9 years, and none was younger than 2 years. The NEXUS criteria correctly identified all pediatric CSI victims (100 percent sensitivity) and correctly designated 603 patients as low risk for CSI (100 percent negative predictive value). However, the researchers caution about the application of NEXUS criteria to evaluate infants and toddlers with blunt trauma, since there were so few of them in this study.

More details are in "A prospective multicenter study of cervical spine injury in children," by Peter Viccellio, M.D., Harold Simon, M.S., Barry D. Pressman, and others, in the August 2001 *Pediatrics* 108(2), electronic pages (access at www.pediatrics.org/cgi/content/full/108/2/e20). ■

Educational materials do not substantially increase parents' knowledge and attitudes about the use of antibiotics

The dramatic rise in antibiotic-resistant bacteria has become an important public health concern. Parents' lack of knowledge, their demand for antibiotics, miscommunication between doctors and parents, doctors' concerns about patient satisfaction and time, and diagnostic uncertainty play a role in the inappropriate use of oral antibiotics in children.

Educating parents about appropriate antibiotic use is considered a key element in any educational campaign on the topic. However, an educational video alone will not accomplish the task, according to a study supported by

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Use of antibiotics

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the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00063).

Researchers led by Howard Bauchner, M.D., of Boston University School of Medicine, randomly assigned 206 parents at an urban primary care clinic and a suburban pediatric practice into two groups. Parents in the educational group were asked to view a 20-minute video about the appropriate use of antibiotics over a 2-month period and were given a brochure on the topic. Parents in the control group received neither.

When interviewed by telephone 2 months later, parents in the educational group fared no better on knowledge, beliefs, or behavior than those in the control group. For example, they scored 8.04 on the knowledge questionnaire (11 true-false questions) compared with 7.82 for parents in the control group. However, parents in the educational group from the primary care urban clinic were more likely to report that there were problems with children receiving too many antibiotics than control parents (67 vs. 34 percent).

These results suggest only a modest effect of the video and brochure on parent knowledge, beliefs, and self-reported behaviors regarding oral antibiotics. To be effective any campaign promoting the judicious use of oral antibiotics for children must use a multifaceted approach and target both parents and physicians, conclude the researchers.

See "Improving parent knowledge about antibiotics: A video intervention," by Dr. Bauchner, Stavroula Osganian, M.D., Kevin Smith, M.S., and Randi Triant, M.F.A., in the October 2001 *Pediatrics* 108(4), pp. 845-850. ■

Violence affects many teenage girls in the United States, most of whom are attacked at home or in the home of a friend

Violence affects many teenage girls in the United States. Adolescent girls (12 to 18 years) with preexisting psychosocial or medical problems appear to be particularly vulnerable to serious injury and are more likely than adolescent boys to be attacked in their own home or a friend's home.

We may need to target adolescent girls and boys with different violence prevention strategies, according to researchers from New England Medical Center. They analyzed assault injury data from pediatric trauma centers in 45 States and national homicide data from 1989 to 1999 to determine if there were differences in victim characteristics, injury severity, and injury mechanisms among adolescent boys and girls.

The researchers found that adolescent girls were nearly twice as likely as adolescent boys to have preexisting cognitive or psychosocial impairments, which have been associated with risk of alcohol and other drug abuse linked to date rape. Adolescent boys were 1.75 times more likely than girls to be injured in school and 2.27 times more likely to be injured in a public place than a home. However, adolescent girls were over twice as likely to have been injured in their home or at another residence than a public place. This suggests that girls are likely to be intentionally injured by a friend, acquaintance, or intimate partner, perhaps reflecting higher rates of domestic and date-associated violence seen in adolescent girls.

Adolescent girls were twice as likely as boys to be stabbed than shot, while boys were twice as likely to be shot than stabbed. Gunshot and stabbing injuries declined much less for girls than boys during the 10-year period (28 vs. 7 percent). A decline in homicide rates from 1990 to 1997 also was less pronounced for adolescent girls than boys. These findings suggest the failure of public health messages that focus mainly on violence risks among adolescent boys. They also underscore the need to refine messages targeted to adolescent girls, especially advice on how to prevent attacks at home or in the home of a friend, conclude the researchers. This study was supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00060).

See "Serious injuries and deaths of adolescent girls resulting from interpersonal violence," by Harry Moskowitz, M.D., John L. Griffith, Ph.D., Carla DiScala, Ph.D., and Robert D. Sege, M.D., Ph.D., in the August 2001 *Archives of Pediatric and Adolescent Medicine* 155, pp. 903-908. ■

Office-based quality improvement programs can substantially improve delivery of pediatric preventive services

Preventive care services such as immunizations and vision screening are the cornerstone of pediatric primary care, yet the rate at which doctors provide preventive care to children falls far below national goals. The good news is that office-based quality improvement (QI) systems can significantly improve the delivery of childhood preventive services, according to a study supported by the Agency for Healthcare Research and Quality (HS08509).

Peter A. Margolis, M.D., Ph.D., and colleagues at the University of North Carolina at Chapel Hill had project teams work with practice QI teams in eight primary care practices caring for children to develop tailored systems to assess and improve the delivery of immunizations and screening for anemia, tuberculosis, and lead exposure. These office-based QI systems typically involved some combination of chart prescreening and tagging of needed preventive care by staff before the patient saw the doctor, risk-assessment forms, flowsheets (for example, indicating age-specific preventive services), reminder/recall systems (usually computerized systems that identified patients who were not up to date on preventive care), and patient education materials. In some offices, parents were provided with laminated cards showing their child's immunization schedule to review before seeing the doctor. This served to remind both parents and doctors about needed immunizations.

Overall, the proportion of children who had complete immunizations improved 7 percent within 1 year after the QI system became operational and 12 percent 2 years later. Anemia screening improved 30 percent and lead screening 36 percent. There was no substantial increase in age-appropriate TB screening. However, the amount of improvement achieved in these areas varied considerably between practices. Those most likely to improve rates of a particular preventive service typically were practices that decided to target that particular service and had the overall ability to develop and implement new systems.

See "Improving preventive service delivery through office systems," by W. Clayton Bordley, M.D., M.P.H., Dr. Margolis, Jayne Stuart, M.P.H., and others, in the September 2001 *Pediatrics* 108(3), electronic pages (access at www.pediatrics.org/cgi/content/full/108/3/e41). ■

Generalists provide the majority of care to Medicaid-insured children with chronic conditions

Medicaid-insured children with chronic diseases receive the majority of their care from generalist physicians, finds a study supported by the Agency for Healthcare Research and Quality (HS09416). Medicaid-insured children who have chronic conditions may find it particularly difficult to gain access to specialists, given their limited resources and barriers to care (for example, lack of transportation and cultural/language differences), as well as the potential unwillingness of specialists to accept Medicaid patients, suggests lead author Karen Kuhlthau, Ph.D., of Massachusetts General Hospital for Children.

Dr. Kuhlthau and colleagues analyzed Medicaid claims data collected from 1989 to 1992 from four States for over 57,000 children and adolescents with 11 chronic conditions to calculate annual rates of generalist, subspecialist, and pediatric subspecialist use. Most children with chronic conditions had visits to generalists: 78 to 90 percent of children with Supplemental Security Income (SSI) and 85 to 94 percent of children without SSI during the year studied. Fewer children visited any relevant subspecialists (24 to 59 percent of children with SSI and 13 to 56 percent of children without SSI) or relevant pediatric subspecialists (10 to 53 percent of children with SSI and 3 to 37 percent of children without SSI).

Among the conditions studied, only children who had spina bifida, seizure disorder, congenital heart disease, or cerebral palsy had more than a 50 percent likelihood of any relevant subspecialty visit in 1 year. Children with asthma, mental retardation, and attention deficit/hyperactivity disorder were least likely to visit a relevant subspecialist, perhaps reflecting primary care doctors' greater comfort with and knowledge about caring for these problems.

More details are in "Who cares for Medicaid-enrolled children with chronic conditions?" by Dr. Kuhlthau, Timothy G. Ferris, M.D., M.P.H., Anne C. Beal, M.D., M.P.H., and others, in the October 2001 *Pediatrics* 108(4), pp. 906-912. ■

Elderly women with the fewest resources to negotiate the health care system have the highest burden of illness

Many older women suffer from chronic illnesses, or have multiple medical problems, functional impairments, or disabilities. Data from the 1999 Medicare Health Outcomes Survey (MHOS) highlight the paradox that elderly women who are least able to negotiate the health care system have the highest burden of illness, according to a recent study by Arlene S. Bierman, M.D., M.S., and Carolyn M. Clancy, M.D., of the Agency for Healthcare Research and Quality's Center for Outcomes and Effectiveness Research. Understanding and targeting the factors that lead to these differences in illness burden may serve to reduce health disparities among older women.

The survey data were collected for a new quality measure in HEDIS (Health Plan Employer Data and Information Set) to assess functional outcomes in Medicare+Choice plans. The Medicare Health Outcomes Survey (MHOS) asks managed care plans that serve Medicare beneficiaries to report their members' ability to function, multiple symptoms, diagnoses, and sociodemographic characteristics.

Researchers presented data from 91,314 community-dwelling women who responded to the survey that illustrate the magnitude of health disparities in this population. For example, one-fifth of elderly women enrolled in Medicare+Choice plans had annual incomes of less than $10,000 and were more than twice as likely to report fair or poor health than women with annual household incomes greater than $50,000. Nearly one-third of women did not graduate from high school (about half of black, Hispanic, and American Indian women), and 12 percent had less than an 8th grade education. The latter group were nearly three times more likely to report fair or poor health than women who were college graduates.

Over half (52 percent) of women surveyed suffered from three or more chronic conditions. However, women with low income, less education, and minority group status were significantly more likely to suffer from chronic diseases and limited ability to function than other women.

The researchers note that although clinicians play a central role in improving care for older women, health system changes will be required. They suggest actions that may be undertaken by practitioners to improve access to and quality of care for older women. These include referring patients to Federal and State programs that provide medication support for low-income elderly people and implementing clinical interventions that reduce the risk of stroke and hip fractures as well as the progressive loss of function due to common chronic conditions. Health system redesign should enhance chronic disease self-management and community support and identify the resources needed to improve the functioning of older women.

More details are in "Health disparities among older women: Identifying opportunities to improve quality of care and optimize functional health outcomes," by Drs. Bierman and Clancy, in the fall 2001 *Journal of the American Medical Women's Association* 56, pp. 155-160. Reprints (AHRQ Publication No. 02-R023) are available from AHRQ.** ■

Women are far more likely than men to have their depression diagnosed by their primary care doctors

Depression affects 5 to 9 percent of primary care patients, and primary care doctors are the sole medical contact for more than half of patients with mental illness in the United States. Yet women with symptoms of depression are 72 percent more likely than symptomatic men to be diagnosed as depressed by their primary care doctor, according to a recent study supported by the Agency for Healthcare Research and Quality (HS06167 and HS08029). Women tended to have more depressive symptoms than men and also visited their doctor more often, which probably increased the likelihood of their depression being diagnosed, suggests Klea D. Bertakis, M.D., M.P.H., of the University of California, Davis, Center for Health Services Research in Primary Care.

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Diagnosing depression in primary care

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Dr. Bertakis and her colleagues examined the absence or presence of depression diagnosis a year after the initial visit of 508 patients seeking care at a university medical center from 1990 to 1993. They interviewed the patients to determine sociodemographic characteristics, self-reported depressive symptoms, and general health status. Doctors diagnosed depression in only 28 percent of patients with moderate to severe depression (nine or more symptoms of depression). The average Beck Depression Inventory (BDI) score for the 36 patients recognized as depressed was significantly higher than the score for those not diagnosed as depressed (9.8 vs. 4.9), linking number of symptoms with likelihood of depression diagnosis.

Women had more self-reported symptoms of depression (6.4 vs. 4.3) and a higher mean number of primary care clinical visits (4.0 vs. 3.1) than men and were significantly more likely to be diagnosed as depressed (19 vs. 9 percent). Women with high BDI scores were significantly more likely than men with high BDI scores to be diagnosed as depressed. For both men and women, those with a greater number of primary care clinic visits were much more likely to be identified as depressed. These results suggest that a patient's sex has both a direct and an indirect (through increased clinic use) effect on the likelihood of being diagnosed as depressed.

See "Patient gender differences in the diagnosis of depression in primary care," by Dr. Bertakis, L. Jay Helms, Ph.D., Edward J. Callahan, Ph.D., and others, in the *Journal of Women's Health & Gender-Based Medicine* 10(7), pp. 689-698, 2001. ■

Primary Care

Primary care doctors should be alert to potential chronic kidney disease in diabetic, hypertensive, and minority patients

Many patients seen by primary care doctors have chronic kidney disease (CKD), with over 6 million Americans having as little as 60 percent of their kidney function. Minorities and people with high blood pressure or diabetes are most at risk for developing CKD. Effective treatment during the early stage of CKD, when patients usually have no symptoms, can delay kidney failure among high-risk groups.

Despite widespread availability of clinical practice guidelines, physicians fail to diagnose and treat this condition, according to Joseph A. Coladonato, M.D., and his colleagues from Duke University. Dr. Coladonato's work was supported by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00079).

In a recent journal article, the researchers recommend ways to improve CKD diagnosis and treatment. They suggest that doctors identify and screen at-risk patients by measuring serum creatinine levels, a common measure of kidney function. However, clinicians should not overlook serum creatinine levels that fall within the normal range for patients who are at high risk for CKD. Specifically, physicians should calculate creatinine clearance using a method that takes into account the increase in creatinine produced with increasing weight and the decline in production associated with age and female sex.

After CKD is identified, doctors should focus on maintaining patient blood pressure and glucose at recommended levels and use angiotensin converting enzyme (ACE) inhibitors and/or angiotensin-receptor blockers, which lower blood pressure and modify abnormal protein trafficking, which is angiotensin-dependent. All patients with evidence of renal impairment and/or proteinuria (high levels of serum protein) should be considered for ACE inhibitor therapy and evaluation by a nephrologist. Doctors also should identify urinary outflow obstruction among CKD patients and minimize their exposure to nephrotoxic agents like nonsteroidal antiinflammatory medications, which increase the risk of acute renal failure.

More details are in "Strategies to enhance detection and treatment of unrecognized chronic kidney disease," by Dr. Coladonato, M.D., Lynda A. Szczech, M.D., M.S.C.E., and William F. Owen, Jr., M.D., in the August 2001 *Journal of Clinical Outcomes Management* 8(8), pp. 34-40. ■

Middle-aged adults tend to maintain their alcohol consumption patterns over time

With the exception of certain stressful life events, most middle-aged adults do not change their pattern of alcohol consumption. For example, a new study found that 68 percent of adults did not change their use of alcohol over a 6-year survey period, even though almost 80 percent experienced at least one major stressful life event (most often retirement, hospitalization, or chronic disease diagnosis).

Middle-aged men and women who were hospitalized or developed a chronic condition tended to decrease their drinking levels initially but eventually rebounded to former levels. Those who retired tended to drink more up to 4 years later, and those whose spouses died drank more, but only for a short time. Individuals who got married or divorced tended to either increase or decrease their drinking, with a complex lag time between the event and a change in drinking pattern.

The magnitude of the relationship between stress and alcohol consumption varied by sex and problem drinking history, according to the study which was supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00032). For example, men who became widowed were more likely than widowed women to increase their alcohol consumption. Problem drinkers who got divorced were more likely to drink less alcohol. Also, alcohol consumption decreased on average for newly married men who were not problem drinkers. For men who married and had a history of problem drinking, alcohol use was more likely to remain unchanged. Heavy stress and poor coping skills were positively associated with problem drinking.

Krista M. Perreira, Ph.D., of the University of North Carolina at Chapel Hill and Frank A. Sloan, Ph.D., of Duke University did not analyze the impact of other stressful life events on alcohol consumption, such as death of a loved one other than a spouse, entry into a nursing home, or being the victim of a crime. Their analysis of changes in alcohol consumption occurring with and following a major stressful event was based on responses of nearly 8,000 men and women between 51 and 61 years of age to four waves of the Health and Retirement Study from 1992 to 1998.

See "Life events and alcohol consumption among mature adults: A longitudinal analysis," by Drs. Perreira and Sloan, in the July 2001 *Journal of Studies on Alcohol* 62, pp. 501-508. ■

Even patients with a doctor in the family face challenges in receiving optimal medical care

The complicated American health care system can be difficult to navigate. Patients are faced with complex decisions in a system that is often fragmented, episodic, and disease oriented. Even patients who have a knowledgeable physician in the family to act as their advocate face challenges in receiving optimal medical care, concludes Frederick M. Chen, M.D., M.P.H., of the Agency for Healthcare Research and Quality.

Dr. Chen and his colleagues sent e-mail invitations to chairpersons of U.S. academic departments of family medicine asking them to describe recent personal experiences with the health care system when a parent was seriously ill. They conducted in-depth interviews with eight family physicians, who had been practicing for an average of 19 years, who wanted to talk about their fathers' health care experiences.

These doctors witnessed numerous obstacles to quality care for their fathers, such as poor communication and fragmented care, which in many cases compelled them to intervene to "rescue" their fathers from medical mistakes. They were concerned about the care their fathers received and felt that the system did not operate the way it should. They suggested that patients might receive better treatment if health care systems reinforced the role of an accountable attending physician, encouraged continuity of care, and emphasized the value of knowing the patient as a person.

For the most part, the physicians felt that their fathers benefitted from their personal involvement. That option, however, is unavailable to most patients, a point not missed by these doctors. In fact, many struggled to reconcile their professional pride with the imperfections in their fathers' care, with some doctors even questioning their own involvement in the profession.

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The informed views of these doctors raise serious concerns about how well the health care system is serving patients. The researchers suggest that payment systems and health plan rules not force discontinuity across different care settings and that physicians who have a relationship with a patient be encouraged to remain involved in their care during hospitalizations.

See "Family physicians' personal experiences of their fathers' health care," by Dr. Chen, Lorna A. Rhodes, Ph.D., and Larry A. Green, M.D., in the September 2001 *Journal of Family Practice* 50(9), pp. 762-766. Reprints (AHRQ No. 02-R014) are available from AHRQ.** ■

Journal issue focuses on competing demands, patient encounters, and delivery of preventive care in family practice

Family physicians provide both acute and preventive care to families. The patients they see often have overriding emotional concerns, exert pressure for antibiotics they don't need, and sometimes have needs that take priority over preventive care services such as smoking cessation counseling. They also treat patients who visit them repeatedly and thus present their own set of challenges. Finally, characteristics of the practice organization itself and the family doctor's own personal style have an impact on the treatment provided to patients.

All of these issues were addressed by the landmark Prevention and Competing Demands in Primary Care (P&CD) Study of 18 Nebraska family practices, which was led by Benjamin Crabtree, Ph.D., of the University of Medicine and Dentistry of New Jersey. Six P&CD studies, supported in part by the Agency for Healthcare Research and Quality, were published in the October 2001 *Journal of Family Practice*. These studies, including an overview of the P&CD Study, are briefly described here.

Crabtree, B.F., Miller, W.L., and Stange, K.C. (2001, October). "Understanding practice from the ground up" (HS08776). *Journal of Family Practice* 50(10), pp. 881-887.

The goal of the P&CD Study was to gain a thorough understanding of family practices. The researchers examined 18 practices drawn from a random sample of Nebraska family practices and studied them intensively over a 4- to 12-week period. Field researchers directly observed the practice environment and clinical encounters, conducted formal and informal interviews with clinicians and staff, had patients fill out "exit cards," and reviewed medical records.

They examined the organizational contexts that support preventive care services, identified competing demands imposed by carrying out prevention and illness care during clinical encounters and in practice, compared approaches used by practices with high versus low intensity of preventive services delivered to eligible patients, and analyzed methods used to deliver different types of preventive services. This approach provided insights into a wide range of practice activities, which were later integrated into the data collection protocol. The researchers also initiated practice meetings with participating clinicians to provide feedback, resulting in a more collaborative practice change.

Finally, they examined characteristics of the surrounding community and larger health system, such as expectations of the local hospital systems, by interviewing regional managers and medical directors. This collaborative model of practice-based research provided insights into family care practices from multiple perspectives: clinician, patient, encounter, practice, community, and health system.

Scott, J.G., Cohen, D., DiCicco-Bloom, B., Orzano, A.J., and others. (2001, October). "Antibiotic use in acute respiratory infections and the ways patients pressure physicians for a prescription" (HS08776 and HS09788). *Journal of Family Practice* 50(10), pp. 853-858.

The most common problems seen by family doctors are acute respiratory tract (ART) infections, such as the common cold, bronchitis, pharyngitis, sinusitis, and ear infections. These illnesses usually are caused by viruses that do not respond to antibiotics and not bacteria, which do respond to antibiotic treatment. The inappropriate use of antibiotics for viral illnesses has led to the development of antibiotic-resistant bacteria, which has become a major public health problem. Yet patients still try to persuade doctors to inappropriately prescribe antibiotics. Family doctors

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participating in the P&CD Study were no exception. Their patients clearly used a variety of behaviors to pressure them into prescribing antibiotics for ART infections that did not warrant them.

Doctors should educate patients about the dangers and limited benefits of antibiotic use for most ART infections, and they should consider appropriate responses to patient pressures to prescribe antibiotics, suggest these researchers. They found that antibiotics were prescribed in 68 percent of visits for ART infection studied, and of those, 80 percent were determined to be unnecessary according to Centers for Disease Control and Prevention guidelines.

Patient pressure for antibiotics came in several forms, which the researchers identified as: direct request; candidate diagnosis (diagnosis suggested by the patient, for example, "I think I've got strep throat"), implied candidate diagnosis (recounting a set of symptoms specifically indexing a particular diagnosis), portraying severity of illness (inability to shake the illness); appealing to life-world circumstances (for example, the need to feel well for an upcoming family vacation); and previous successful use of antibiotics for the same problem. In cases in which antibiotics were clearly unnecessary, doctors often rationalized their prescribing practices by finding symptoms or assigning diagnoses to justify antibiotic use in order to satisfy the patient.

Jaen, C.R., McIlvain, H., Pol, L., and others. (2001, October). "Tailoring tobacco counseling to the competing demands in the clinical encounter" (HS08776). *Journal of Family Practice* 50(10), pp. 859-863.

Clinical practice guidelines that recommend smoking cessation counseling at every visit are unrealistic, since one in four visits by patients who smoke have competing priorities that reasonably override such counseling, according to these authors. On the other hand, tobacco cessation counseling occurred in only one-third of visits with patients who smoked, underscoring the need for tobacco cessation counseling to be reliably integrated into visits with smokers when competing demands are not present. Visits for well care and tobacco-related illnesses represent teachable moments that should not be missed, conclude the researchers.

They directly observed 91 outpatient visits by cigarette smokers visiting 20 family doctors in 7 Nebraska family practices as part of the P&CD Study to examine patterns and quality of tobacco counseling. In nearly half of the visits, doctors either followed recommendations, offering brief interventions based on the patient's willingness to quit (21 percent) or had to forego tobacco counseling due to competing patient priorities (for example, relief of acute pain, patient psychological distress, or complex medical concerns).

In the other encounters, tobacco cessation counseling fell short of recommendations, including visits among patients being seen for acute respiratory illnesses or other chronic conditions related to or worsened by smoking (22 percent of visits) and visits for illness unrelated to smoking where competing demands were low (27 percent of visits). This counseling failure often occurred despite the presence of a reminder system that identified the patient as a smoker.

Smucker, D.R., Zoink, T., Susman, J.L., and Crabtree, B.F. (2001, October). "A framework for understanding visits by frequent attenders in family practice" (HS08776). *Journal of Family Practice* 50(10), pp. 847-852.

Every family doctor has a few patients whom they see often and not necessarily for valid medical complaints. It seems that these "frequent attenders" are always in their office for something. These investigators compared clinical encounters of non-pregnant adults who were in the top 5 percent for visit frequency with age- and sex-matched non-frequent attenders at the 18 Nebraska family practices in the P&CD Study. Overall, visits by non-frequent attenders included less psychosocial complexity and dissonance compared with visits by frequent attenders. The majority of visits by non-frequent attenders (87 percent) were classified as biomedical.

Visits with the 62 frequent-attenders, who had made at least 25 visits in the previous 2 years, fell into the following types: simple medical (for example, simple acute foot injury), ritual visit for ongoing care (for example, injections for chronic low back pain), complicated medical, the tango (doctor and patient negotiate on medical solutions to multiple problems), simple frustration (for example, trying to get an appointment for a procedure scheduled quickly), psychosocial disconnect (the patient simply doesn't get the medical advice the doctor is conveying and doesn't plan to follow it), medical disharmony (patient is confused about the doctor's plan and is not sure it will help the current

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problem), and the "heartsink" visit (patient has multiple problems, but is not satisfied with anything the doctor proposes; the emotionally taxed doctor gets little satisfaction and much grief in return).

Frequent attenders were more likely to be older, divorced or widowed, in lower socioeconomic groups, and to have multiple physical and psychosocial ills and vague physical symptoms with no obvious etiology. Many frequent attenders seemed to have developed an intricate and harmonious relationship with the doctor and the office staff and nurses in the practice. Their visits often included friendly chatting and humor among patients, staff, and doctors.

Miller, W.L., McDaniel, R.B., Crabtree, B.F., and Stange, K.C. (2001, October). "Practice jazz: Understanding variation in family practices using complexity science" (HS08776), ***Journal of Family Practice*** **50(10), pp. 872-878.**

Family physicians are told to implement guidelines, diagnose and treat patients in specific ways, and eliminate inappropriate variation in practice. However, these authors disagree with the conventional view that the best way to improve care is to eliminate variation. They view family practices as systems that self-organize, reveal emergent behavior, and co-evolve. Successful practices are ones that minimize errors, make good sense of what is happening, and effectively improvise to make good "practice jazz."

Inflexible standardization is often poorly responsive to the needs of different practices' diverse agents (clinicians, patients, and office staff) and to the almost constant situations of uncertainty, contextual uniqueness, and surprise that occur in practices, assert these researchers. They encourage all family practice staff members to become knowledgeable about practice guidelines and evidence-based practice and use the core skills they gain to implement flexible, locally meaningful systems to reduce medical errors.

The researchers also suggest that efforts to change and enhance family practice be focused on improving care as a whole and on developing the skills of relationship-centered care. They encourage policymakers to acknowledge the potential benefits of some kinds of practice variation and to supports its healthy evolution. Their conclusions are based on lengthy observations of 18 Nebraska family practices, which demonstrated that some practice variations are appropriate.

Robinson, W.D., Prest, L.A., Susman, J.L., and others. (2001, October). "Technician, friend, detective, and healer: Family physicians' responses to emotional distress" (HS08776). ***Journal of Family Practice*** **50 (10), pp. 864-870.**

With more than two-thirds of mental health disorders treated in primary care, it is not surprising that family doctors find themselves responding to patients' emotional distress on a daily basis. This study of the daily interactions of family doctors at 18 family practices participating in the P&CD Study revealed that doctors tended to respond to patients' emotional problems by using one of four approaches based on their personal philosophy (biomedical vs. holistic) and skill level (basic vs. more advanced). Depending on their approach, the doctors tended to fit four distinct profiles: technician, friend, detective, or healer.

The technician was medically oriented, dispensing medications and direct advice. Encounters were problem-focused, and at times the doctor appeared to be abrupt, ignorant of clear emotional distress, and not patient-centered. The friend was a biopsychosocially oriented doctor with basic skills, who typically explored patients' backgrounds, concerns, and spiritual dimensions of illness in a patient-centered fashion and often gave advice. The detective was usually biomedically focused, but when the occasion warranted, had a range of detective skills that allowed him or her to quickly sense patient cues of emotional distress that shed light on the patient's condition. The healer used a full breadth of biopsychosocial skills, integrated most aspects of care seamlessly, and appeared comfortable with both strictly biomedical and psychosocial dimensions of care.

Family doctors applied a wide range of skills differently with different patients in different situations. Yet most doctors appeared to have a preferred practice philosophy and singular skill-set that they regularly used during patient visits. These findings can help doctors identify their own style and consider ways of meeting particular patient needs that may be better suited to an alternative approach. ■

Missed diagnosis of mood and anxiety disorders is more likely among black than white schizophrenics

Schizophrenia affects nearly 1 percent of the U.S. population, and people with schizophrenia often suffer from depression and anxiety as well. Comorbid depression may increase suffering and risk of suicide, and it has been associated with higher rates of relapse and hospitalization, hopelessness, and poor psychosocial skills.

Mood and anxiety disorders often are underdiagnosed and undertreated among black patients who have a diagnosis of schizophrenia, according to a recent study that was based on data from the Schizophrenia Patient Outcomes Research Team (PORT). The Schizophrenia PORT was supported in part by the Agency for Healthcare Research and Quality (contract 290-92-0054).

The PORT patient survey involved 685 patients receiving treatment for schizophrenia in one of two States (in the South and Midwest) who were interviewed between 1994 and 1996. Using data from the direct client survey of participants in the PORT study, these researchers analyzed the association of race with past and current diagnoses and with current treatment for depression, mania, and anxiety disorders.

White patients with schizophrenia were significantly more likely than black patients to report lifetime diagnosis (56 vs. 41 percent), current diagnosis (37 vs. 32 percent), and current treatment (34 vs. 30 percent) for depression. White patients also were more likely than black patients to report lifetime diagnosis, current diagnosis, and current treatment of manic-depressive disorder or anxiety disorder, despite similar self-reported symptoms of these mood disorders.

Since blacks in this study reported more psychotic symptoms (for example, hallucinations and delusions) than whites, differences in symptom presentation may have caused doctors to more frequently confuse manic-depression with schizophrenia among blacks. This confusion also may be related to use of white patients' presentation of symptoms as the basis for most research and diagnostic tools on mood disorders. Nevertheless, standard care includes assertive treatment of both affective and psychotic symptoms, whether they are coexisting problems or components of the same disorder. Black patients were less likely than white patients in this study to receive such assertive care. The authors call for increased cross-cultural competence at all levels of mental health care.

More details are in "Variables associated with disparities in treatment of patients with schizophrenia and comorbid mood and anxiety disorders," by Lisa Dixon, M.D., M.P.H., Lisa Green-Paden, M.D., Janine Delahanty, M.A., and others, in the September 2001 *Psychiatric Services* 52(9), pp. 1216-1222. ■

Managed care cost-containment policies strengthen continuity of primary care for depressed patients

For depressed patients being treated in managed care settings, cost-containment strategies—such as high copayments or no coverage for mental health specialist visits—increase continuity of care with primary care providers (PCPs), according to a recent study that was supported in part by the Agency for Healthcare Research and Quality (HS08349). Patients in this study were up to 18 percent more likely to remain with their PCPs if they had high copayments for specialty visits and no coverage for counseling visits.

Whether strengthening the alliance between patients and their PCPs is desirable will depend on the depression care patients receive, according to Lisa Meredith, Ph.D., of RAND. PCPs need to improve the care they provide for depression, which currently falls short of care guidelines, notes Dr. Meredith.

The researchers evaluated the effects of cost-containment strategies on continuity of care over a 2-year period among depressed patients at 46 managed care practices. Patients with no out-of-pocket costs for mental health visits were the least likely to remain with their PCPs, and patients with copayments from $11

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to $20 per visit were the most likely to remain with their PCPs across the 2-year study period. Between 41 and 51 percent of patients were still with their PCPs at 24 months.

Patients with at least one mental health visit covered were twice as likely to change PCPs relative to those with no visits covered. Patients whose physicians received a bonus (usually for meeting volume goals, meaning less time per patient) were up to 11 percent more likely to remain with their PCPs over time than patients whose PCPs did not get bonuses. Also, uninsured patients and those on Medicare were most likely to stay with the same provider over time (20 percent more than those with Medicaid or private insurance.

See "Effects of cost-containment strategies within managed care on continuity of the relationship between patients with depression and their primary care providers," by Dr. Meredith, Roland Sturm, Ph.D., Patti Camp, M.S., and Kenneth B. Wells, M.D., M.P.H., in the October 2001 *Medical Care* 39(10), pp. 1075-1085. ■

Researchers weigh benefits and costs of QI programs to enhance treatment of depression in primary care

Effective medications and psychotherapies are available for depressed patients who visit primary care doctors. Most of these patients want to be treated for their depression, but many do not receive adequate treatment. Moreover, patients who are not offered the treatments they prefer are less likely to get treatment of any kind. A new study shows that quality improvement (QI) programs that support treatment choices of depressed patients can improve the likelihood they will be treated and receive preferred treatments. A second study finds that the cost-effectiveness of these QI programs is comparable to that of accepted medical interventions.

Both studies are from Partners in Care, a dissemination trial of two QI interventions for depression. For the studies, 46 primary care clinics in 6 managed care organizations were randomized to a medication QI program (QI-Meds), a psychotherapy QI program (QI-Therapy), or usual depression care (UC). In QI-Meds, nurse specialists were trained to provide monthly followup assessments and support medication adherence for 6 to 12 months. In QI-Therapy, local psychotherapists were trained to provide individual and group cognitive behavior therapy for 12 to 16 sessions; reduced psychotherapy copays matched primary care visit copays. UC clinics were provided with depression care guidelines. The studies, which are described here, were supported in part by the Agency for Healthcare Research and Quality (HS08349, principal investigator Kenneth B. Wells, M.D., M.P.H., of the University of California, Los Angeles).

Dwight-Johnson, M., Unutzer, J., Sherbourne, C., and others. (2001, September). "Can quality improvement programs for depression in primary care address patient preferences for treatment?" ***Medical Care*** **39(9), pp. 934-944.**

In this study, depressed patients were encouraged to express treatment preferences to their primary care providers who, in turn, were encouraged to elicit treatment preferences. Patients and providers were free to select either antidepressant medication, psychotherapy, or no treatment. Clinics were randomly assigned to UC, QI-Meds, or QI-Therapy. Over half of patients in UC clinics who wanted treatment for depression did not get the treatment they preferred. Those who were not receiving their preferred treatment at baseline—either counseling or medication—were especially unlikely to get their preferred treatment in UC. In fact, those who preferred counseling but did not get it were likely to go without treatment.

Overall, 54 percent of patients in the QI-Meds group and 51 percent in the QI-Therapy group compared with 41 percent in the UC group received the depression treatment they preferred. Also, 45 percent of those in the QI-Meds group and 44 percent of those in the QI-Therapy group who preferred counseling received it, compared with 30 percent in UC. Finally, 47 percent of those in the QI-Meds group and 17 percent of those in the QI-Therapy group—who were not in treatment at baseline and who preferred medication—actually received medication, compared with only 9 percent in the UC group.

Schoenbaum, M., Unutzer, J., Sherbourne, C., and others. (2001, September). "Cost-effectiveness of practice-initiated quality improvement for depression." ***Journal of the***

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Treating depression in primary care

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American Medical Association **286(11), pp. 1325-1330.**

Diverse managed primary care practices can implement QI programs to improve treatment of depressed patients that are as cost effective as accepted medical interventions, conclude these researchers. They randomly assigned clinics to UC, QI-Meds, or QI-Therapy and compared the cost-effectiveness of the QI and UC programs and their impact on employment of 1,356 depressed patients. Relative to usual care, average health care costs over the 2-year study period increased $419 (11 percent) in QI-Meds and $485 (13 percent) in QI-Therapy, but neither cost increase was statistically significant.

Estimated costs per quality-adjusted life year (QALY) gained were between $15,331 and $36,467 for QI-Meds and between $9,478 and $21,478 for QI-Therapy. Finally, compared with UC patients, QI patients from both groups had 25 fewer days with depression burden and QI-Meds and QI-Therapy patients were employed an average of 18 and 21 more days, respectively, during the 2-year study period. The QI programs did not influence the number of sick days for those who were employed.

The researchers conclude that practice-initiated, locally implemented programs that encourage guideline-concordant care for depression can substantially reduce the individual suffering and economic consequences of depression. The incremental costs per QALY of the QI programs relative to usual care were within the range of many accepted medical interventions and substantially below the estimated value of a year of life. The findings suggest that QI-Therapy may be even more cost effective than QI-Meds, underscoring the value of improving access of depressed primary care patients to structured psychotherapy, such as cognitive behavioral therapy. ■

Long-Term Care

New studies focus on lower respiratory infection in nursing home residents

Lower respiratory infection (LRI), including pneumonia, is a leading cause of hospitalization and death among nursing home residents. Unfortunately, pneumonia often is not diagnosed until residents are already quite sick and need to be hospitalized. In the Missouri LRI Study, which was supported in part by the Agency for Healthcare Research and Quality (HS08551), David R. Mehr, M.D., M.S., of the University of Missouri-Columbia School of Medicine and his colleagues developed a simple clinical prediction rule that can identify nursing home residents at very high risk for pneumonia. The researchers also developed a predictive tool that can be used to identify nursing home residents at low risk for death from lower respiratory infection.

The Missouri LRI Study involved more than 1,000 residents of 36 nursing homes in central Missouri and the St. Louis, MO, area between August 15, 1995 and September 30, 1998. Because all facilities involved in this study were in central or eastern Missouri, the researchers point out that their findings should be validated in other States where factors affecting mortality may be different. The two studies are described here.

Mehr, D.R., Binder, E.F., Kruse, R.L., and others. (2001, November). "Clinical findings associated with radiographic pneumonia in nursing home residents." ***Journal of Family Practice*** **50(11), pp. 931-937.**

Since elderly patients show few signs and symptoms of pneumonia (for example, they often do not have a fever), clinicians make few and sporadic visits to nursing homes, and radiology facilities are rarely on the premises, sick nursing home residents may be sent to the hospital emergency department for evaluation. Clinicians who care for nursing home residents clearly could benefit from a simple clinical tool to identify pneumonia.

In the Missouri LRI study, the researchers examined which nursing home residents with signs or symptoms of LRI had evidence of pneumonia on chest x-rays in order to deduce which symptoms suggested high risk of pneumonia. Their findings confirmed that pneumonia in nursing home residents usually is associated with few symptoms. Among 2,334 episodes of illness in 1,474 nursing home residents, 45 percent of chest x-ray reports suggested possible or

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Respiratory infection in nursing home residents

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definite pneumonia. Yet in 80 percent of pneumonia episodes, patients had three or fewer respiratory or general symptoms. However, only 8 percent of patients had no respiratory symptoms. Eight factors independently predicted pneumonia: increased pulse, increased respiratory rate (30 or higher), temperature of 38º C or higher, somnolence or decreased alertness, presence of acute confusion, lung crackles on auscultation, absence of wheezing, and elevated white blood cell count.

The researchers created a simple scoring system based on these factors. The 33 percent of residents scoring three or more points had more than a 50 percent probability of pneumonia, and the 24 percent of residents who had a score of 2 points had a 44 percent probability of pneumonia. The researchers conclude that doctors should consider treating residents at high risk of pneumonia—based on at least two or three points on the scoring system—without obtaining a chest x-ray. For residents with a score of 1 or less, doctors should obtain an x-ray as a guide to treatment.

Mehr, D.R., Binder, E.F., Kruse, R.L., and others. (2001, November 21). "Predicting mortality from lower respiratory infection in nursing home residents: The Missouri LRI Study." ***Journal of the American Medical Association*** **286(19), pp. 2427-2436.**

LRI (pneumonia, bronchitis, and tracheobronchitis) is the leading cause of hospitalization and mortality among nursing home residents. Studies have shown that hospitalization of nursing home residents is sometimes inappropriate and can be associated with complications or discomfort. Because many nursing home residents are chronically ill and near the end of life, clinicians faced with a patient with an LRI should first determine appropriate therapeutic measures (aggressive care, limited curative treatment, or strictly palliative care). Clinicians then need to determine LRI severity to help them decide on specific treatments and whether to transfer the resident to the hospital. These researchers designed a new tool that helps identify nursing home residents who are at relatively low risk of death from LRI and thus may be safely treated in the nursing home without transferring them to a hospital.

Dr. Mehr and colleagues prospectively identified 1,406 episodes of LRI in 36 Missouri nursing homes. Within 30 days of diagnosis, 27 percent of episodes involved hospitalization; mortality was 15 percent. The researchers developed an eight-variable model to predict 30-day mortality, including serum urea nitrogen, white blood cell count, body mass index, pulse rate, activities of daily living status, absolute lymphocyte count of less than 800/µL, male sex, and deterioration in mood over 90 days. In developing this new model, the researchers built on the work of earlier research funded by AHRQ and conducted by the Patient Outcomes Research Team (PORT) on Community-Acquired Pneumonia. The PORT developed and validated the Pneumonia Severity Index (PSI), which is used to identify pneumonia patients living in the community who can be treated safely at home.

Because the PSI assigns higher risk based on age and other variables common to elderly people, it predisposes most nursing home residents with respiratory conditions to hospitalization, whether or not their condition actually warrants it. Focusing on nursing home residents allowed the researchers to identify risk factors that specifically apply to this population. Compared with the PSI, the resulting model gives more weight to variables such as activities of daily living (ADLs, e.g., grooming, using the toilet, eating, locomotion), mood decline, and markers of poor nutritional status. ■

New regulations and industry volatility a decade ago led to high job turnover among nursing home administrators

The 1987 Nursing Home Reform Act as part of the Omnibus Reconciliation Act (OBRA) changed the nursing home administrator's role significantly. It introduced new requirements for quality of care, resident health assessment, care planning, use of medications, and physical restraints. Also adding to the burden of home administrators were the 1988 Medicare Catastrophic Coverage Act, which provided postacute reimbursement incentives; earlier hospital discharge of patients who were sicker; and proliferation of Alzheimer's disease and other specialized units. These changes demanded that nursing homes provide skilled subacute and specialty nursing care, whereas before they had primarily been

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Nursing home administrators

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caretakers of mostly long-stay residents needing custodial and comfort care.

The new regulations and demands sparked a dramatic turnover in nursing home administrators in the late 1980s and early 1990s, according to a study supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00011). Many left their jobs voluntarily or were fired for poor performance, according to the researchers. They examined nursing home administrator turnover from 1970 to 1997 in all New York State nursing facilities, based on an analysis of data from the New York State Department of Health and facility data from 1991 to 1997.

One-half of all administrators hired in years immediately following OBRA 1987 were on the job less than a year. Yet more than half of the administrators on the job at the end of the study period had been on the job for more than 5 years. For example, in 1986, only 5 percent of nursing homes in New York State employed three or more different primary nursing home administrators during the calendar year. By 1990, the percentage of these high-turnover homes had doubled to 10 percent, which finally declined to 4 percent by 1997. The decrease in administrator turnover evident by 1997 suggests that many nursing homes had absorbed the initial shocks of OBRA and the postacute care boom.

See "External threats and nursing home administrator turnover," by Joseph Angelelli, Ph.D., David Gifford, M.D., M.P.H., Ann Shah, Ph.D., and Vincent Mor, Ph.D., in the summer 2001 *Health Care Management Review* 26(3), pp. 52-62. ■

HIV/AIDS Research

Increasing public assistance for HIV-infected patients could lower hospital costs and increase work productivity

In 1996, the average cost of treating an HIV-infected patient was about $20,000 a year, with medications accounting for a large part of the costs. More generous State policies toward HIV-positive patients could improve the economic outcomes associated with HIV, according to a recent study that was supported in part by the Agency for Healthcare Research and Quality (HS08578). For example, some State Medicaid programs have made advanced antiretroviral medications more accessible to HIV patients through medically needy programs. These programs allow people to spend down to Medicaid eligibility by deducting medical-related expenses from reported income. While in the spend-down process, individuals must rely on other sources for health care and prescription drugs such as State-supplemented Federal AIDS Drug Assistance Programs (ADAP).

Each State determines financial and medical eligibility criteria, drugs covered, and other key aspects of the programs, with some States covering as few as 20 HIV-related drugs and others covering more than 100. If States offered more instead of less generous ADAP benefits—for example, few or no limits for drug prescriptions—per patient total monthly costs would fall a significant 30 percent from $1,501 to $1,057. Much of the decline in costs could be attributed to a reduction in average hospitalization costs from $750 to $395.

On the other hand, if all States expanded their ADAP income eligibility threshold to $8,000 instead of $4,000, total costs would be 36 percent higher. However, these costs would be offset from a societal perspective by potential for increased work productivity. Although patient monthly costs increased $241 when ADAP expanded income eligibility, earnings increased by $246 (32 percent), or about the same amount, and the probability of full-time employment grew from 23 to 33 percent.

These findings are based on an analysis of data from AHRQ's HIV Cost and Services Utilization Study (HCSUS), a nationally representative sample of HIV-infected patients. The researchers used the HCSUS data to assess how differences across States in Medicaid and ADAP affected medical expenditures, employment, and earnings of HIV-infected patients.

See "The impact of state policy on the costs of HIV infection," by Dana P. Goldman, Ph.D., Jayanta Bhattacharya, Arleen A. Leibowitz, Ph.D., and others, in the March 2001 *Medical Care Research and Review* 58(1), pp. 31-53. ■

Case management appears to be associated with fewer unmet needs among people with HIV infection

HIV-positive people who have case managers are more likely to be using life-prolonging HIV medications and meeting their needs for income support, health insurance, home health care, and emotional counseling than those without case managers, according to recent findings from the HIV Cost and Services Utilization Study (HCSUS). Because an increasing proportion of HIV-infected people are living in poverty and need both supportive services and medical treatment, case managers may be particularly useful allies to clinicians and their patients, says Martin F. Shapiro, M.D., Ph.D., of the University of California, Los Angeles, HCSUS co-principal investigator, along with Samuel Bozzette, M.D., Ph.D., of the University of California, Los Angeles.

The study, a national probability sample of 2,437 HIV-infected adults, representing 217,081 people receiving HIV care throughout the United States, is supported in part by the Agency for Healthcare Research and Quality (HS08578). The researchers examined the relationship between having a case manager at baseline (1996 and 1997) and unmet needs 6 months later. Case managers included social workers, nurses, and AIDS service organization staff members assigned to help patients obtain and coordinate care. Overall, 57 percent of patients had contact with a case manager in the 6 months before the baseline interview.

This contact reduced patients' unmet need for income assistance and health insurance and substantially reduced unmet need for home health care and emotional counseling at followup. Contact with a case manager was not significantly associated with use of outpatient care, hospitalization, or emergency department visits, but it was associated with higher use of two-drug and three-drug antiretroviral regimens at followup. Case managers may help patients overcome fears about treatment, adhere to medication regimens, and keep medical appointments, and they may even function as patient advocates to doctors to initiate treatment for their patients.

See "Effect of case management on unmet needs and utilization of medical care and medications among HIV-infected persons," by Mitchell H. Katz, M.D., William E. Cunningham, M.D., M.P.H., John A. Fleishman, Ph.D., and others, in the October 16, 2001 *Annals of Internal Medicine* 135(8), pp. 557-565.

Reprints (AHRQ Publication No. 02-R011) are available from AHRQ.** ■

Health Care Costs and Financing

Medicare fee-for-service patients seem to fare better in areas of higher HMO market penetration

Recent State and Federal legislation on patients' rights was sparked by concerns about the quality of care provided by health maintenance organizations (HMOs). Left out of the public debate to date is the potential effect that HMOs may have on the quality of care provided to non-HMO patients, given the dominance of HMOs in many local health care markets.

A recent study supported by the Agency for Healthcare Research and Quality (HS09545) shows that higher HMO market penetration is associated with lower risk-adjusted mortality rates for fee-for-service (FFS) Medicare enrollees. This spill-over effect on quality of care received by those enrolled in FFS plans may be due to a positive effect of HMOs on local practice styles or a preferential selection by HMOs for areas with better hospital care, explains Dana Mukamel, Ph.D., of the University of Rochester School of Medicine and Dentistry.

Dr. Mukamel and colleagues analyzed 1990 data for 1,927 hospitals in 134 metropolitan areas to identify the associations between HMO market penetration, competition, and risk-adjusted mortality, controlling for other hospital characteristics and region. Among the market areas studied, HMO penetration ranged from a low of 0.2 percent to a high of 50 percent, with an average of 18 percent. Competition also varied substantially across areas. On a scale of 0 (most competitive) to 1 (least competitive), competition ranged between 0.07 and 0.80 for hospitals and between 0.09 and 1.00 for HMOs.

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HMO market penetration

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HMO competition had only a marginal effect on risk-adjusted mortality rates. The effect of HMO penetration was significant. Areas at the top quartile for HMO penetration (25 percent or more) had a mortality rate of 9.16 compared with 9.31 for areas at the lowest quartile (penetration of 11 percent or less). This effect was small compared with the impact of hospital region on mortality rates. However, when compared with hospital and other market factors included in this analysis, HMO penetration exhibited one of the largest associations with outcomes. This suggests that HMOs have a positive effect on the quality of care in areas in which they have substantial presence. However, the authors caution that selection of HMOs into healthier markets as well as other factors may explain this association.

Details are in "HMO penetration, competition, and risk-adjusted hospital mortality," by Dr. Mukamel, Jack Zwanziger, Ph.D., and Kenneth J. Tomaszewski, M.S., in the December 2001 *Health Services Research* 36(6), pp. 1019-1036. ■

Late middle-aged adults are more likely to decline in overall health when they have no health insurance

About 16 percent of adults in late middle age (early 50s to early 60s) have no health insurance, and this number is increasing. This group may be particularly vulnerable to the ill effects of being uninsured, suggests a study supported by the Agency for Healthcare Research and Quality (HS10283).

The researchers found that 717 continuously uninsured people and 825 intermittently uninsured people were more likely than the 6,035 continuously insured late middle-aged adults to have a major decline in overall health between 1992 and 1996 (22 percent, 16 percent, and 8 percent, respectively). After adjusting for other factors besides insurance, continuously uninsured adults were nearly twice as likely to have a major decline in overall health as adults who continued to have insurance during that time. Intermittently uninsured adults were 1.41 times more likely to experience a major health decline.

People who either had no insurance or were only intermittently insured also were more likely to develop a new difficulty in walking or climbing stairs compared with continuously insured adults (29 percent, 26 percent, and 17 percent, respectively). After adjustment for baseline differences, the continuously uninsured adults were 23 percent more likely to develop a new physical difficulty that affected walking or climbing stairs.

These findings are consistent with recent studies reporting that uninsured individuals are less likely than others to have a primary care provider and more likely to delay seeking care or go without needed care. Renewed efforts at comprehensive reform of the U.S. system of health insurance may be needed to increase coverage among adults in late middle age, concludes David Baker, M.D., M.P.H., of Case Western Reserve University. The study findings are based on a prospective analysis of files from the Health and Retirement Study, a national survey of adults who were 51 to 61 years of age in 1992.

See "Lack of health insurance and decline in overall health in late middle age," by Dr. Baker, Joseph J. Sudano, Ph.D., Jeffrey M. Albert, Ph.D., and others, in the October 11, 2001 *New England Journal of Medicine* 345(15), pp. 1106-1112. ■

Evidence-Based Medicine

Cognitive behavioral therapy and graded exercise therapy show promise for managing chronic fatigue syndrome

People with chronic fatigue syndrome (CFS) typically suffer from debilitating fatigue, headaches, disturbed sleep, difficulty concentrating, and muscle pain that often impair their ability to function. The cause of CFS remains unknown, but immunological, virological, psychological, and neuroendocrine factors have been suggested as possible causes. Health care professionals continue to debate

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Chronic fatigue syndrome

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appropriate ways to treat this problem.

A recent review of studies on CFS treatment concluded that cognitive behavioral therapy and graded exercise therapy had promising results. However, most of the studies had methodological problems that made it difficult to gauge the true impact of various treatments on patient outcomes.

More research is needed to better understand which treatments improve the health of CFS patients, suggests Cynthia D. Mulrow, M.D., M.Sc. Dr. Mulrow and colleagues at the San Antonio Evidence-based Practice Center (EPC) at the University of Texas Health Sciences Center conducted a systematic review of the evidence on managing CFS in adults. The EPC is supported by the Agency for Healthcare Research and Quality (contract 290-97-0012).

The researchers analyzed results of 36 randomized controlled trials and 8 controlled trials evaluating interventions to treat CFS in nearly 3,000 patients. All three trials evaluating graded exercise therapy found an overall beneficial effect compared with controls. Three of the four studies comparing cognitive behavioral therapy with controls also found an improvement in physical, psychological, or quality of life outcomes of CFS patients. All seven trials were considered quite valid. Treatment with either immunoglobulin or hydrocortisone showed some limited effects, but overall, the evidence was inconclusive. There was insufficient evidence to assess the effectiveness of medications ranging from antidepressants to ancyclovir; supplements (for example, essential fatty acids and magnesium); and complementary/alternative methods ranging from massage to homeopathic remedies.

See "Interventions for the treatment and management of chronic fatigue syndrome: A systematic review," by Penny Whiting, M.Sc., Anne-Marie Bagnall, Ph.D., Amanda J. Sowden, Ph.D., and others, in the September 2001 *Journal of the American Medical Association* 286(11), pp. 1360-1368.

Editor's note: Copies of the Evidence Report from which this article was drawn are available from AHRQ. Request Evidence Report/Technology Assessment No. 42, *Defining and Managing Chronic Fatigue Syndrome* (AHRQ Publication No. 02-E001).* A summary of the report (AHRQ Publication No. 01-E061) is also available.** See the back cover of *Research Activities* for ordering information. ■

Public Health

Three out of ten people misidentify themselves as overweight, underweight, or normal weight

Despite public health campaigns urging Americans to reach and maintain a healthy weight, over half of American adults are overweight or obese, and many normal weight women have eating disorders or diet excessively to lose weight unnecessarily. Three out of ten adults mistakenly identify themselves as overweight, underweight, or normal weight, concludes a study supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant HS00084).

About 28 percent of overweight people judged their weight to be "just about right," while 24 percent of people who thought they were overweight were in fact normal weight or underweight according to their body mass index (BMI, weight in kg divided by the square of height in meters). Overall, 17 percent of people underassessed their weight category, and 12 percent overassessed their weight category, based on their BMI.

Men were more likely than women to fail to recognize that they were overweight—40 percent of overweight men considered their weight to be "just about right" compared with 15 percent of overweight women. On the other hand, 29 percent of normal weight women thought they were overweight compared with 8 percent of normal weight men.

Adults who were white, younger, more educated, or more affluent were more likely than others to consider themselves heavier than their actual BMI. This suggests that there are norms of acceptable range for body size that depend on one's age, race, and socioeconomic status, which may differ from an externally imposed clinical standard, explain

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Self-assessment of weight

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University of Chicago researchers, Virginia W. Chang, M.D., M.A., and Nicholas A. Christakis, M.D., Ph.D., M.P.H. Their findings are based on an analysis of how adults classified their weight in response to the 1991 Health Promotion and Disease Prevention Supplement of the National Health Interview Survey.

See "Extent and determinants of discrepancy between self-evaluations of weight status and clinical standards," by Drs. Chang and Christakis, in the August 2001 *Journal of General Internal Medicine* 16, pp. 538-543. ■

Placing automated external defibrillators on most U.S. commercial airplanes would be as cost effective as car air bags

Cardiac arrest onboard an airplane is almost always fatal due to delays in emergency medical care. That's one reason why some airlines began installing automated external defibrillators (AEDs) on aircraft in the early 1990s. When trained laypersons in commercial aircraft use AEDs to revive cardiac arrest victims, victim survival rates are even higher than those achieved by emergency personnel. Placing AEDs on most U.S. commercial airplanes would be as cost effective as car air bags, according to a recent study supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00028).

Stanford University researchers, led by Peter W. Groeneveld, M.D., analyzed the cost-effectiveness of various strategies of aircraft deployment of AEDs for a hypothetical group of persons experiencing cardiac arrest aboard U.S. commercial aircraft. They evaluated the impact of full deployment of AEDs on all aircraft and several strategies of partial deployment only on larger aircraft compared with no AEDs on aircraft (only training flight attendants in basic life support). They calculated that adding AEDs on passenger aircraft with more than 200 passengers would cost $35,300 per quality-adjusted life year (QALY) gained.

This compares favorably with other safety and health interventions. For example, installing driver-side airbags on cars costs $30,000 per QALY compared with no airbags, and installation of passenger-side airbags costs an additional $76,500 per QALY compared with driver-side airbags alone.

Adding AEDs on aircraft with capacities between 100 and 200 passengers would cost an additional $40,800 per added QALY compared with deployment on large-capacity aircraft only. Full deployment on all passenger aircraft would cost an additional $94,700 per QALY gained compared with limited deployment on aircraft with capacity to carry more than 100 passengers. In 85 percent of simulations, AED placement on large-capacity aircraft produced cost-effectiveness ratios of less than $50,000 per QALY.

More details are in "Cost-effectiveness of automated external defibrillators on airlines," by Dr. Groeneveld, Jeanne L. Kwong, M.B.A., Yueyi Liu, M.S., and others, in the September 26, 2001 *Journal of the American Medical Association* 286(12), pp. 1482-1489. ■

Agency News and Notes

AHRQ's new prevention quality indicators spot potentially avoidable hospitalizations for diabetes and other conditions

The Agency for Healthcare Research and Quality has made available AHRQ's new Prevention Quality Indicators—a free tool for detecting inappropriate hospital admissions for diabetes and other illnesses that can be effectively treated with high-quality, community-based primary care. The AHRQ Prevention Quality Indicators will allow users to measure and track hospital admissions for uncontrolled diabetes and 15 other conditions using their own hospital discharge data, and they will provide the information needed to improve the quality

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Prevention quality indicators

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of primary care for these illnesses in a community or State.

For example, research shows that 7.2 hospital admissions per every 10,000 people aged 18 to 64 in the United States are for uncontrolled diabetes. A goal of Healthy People 2010, the Department of Health and Human Services' roadmap for improving Americans' health, is to reduce hospitalization rates for uncontrolled diabetes for people in this age bracket to 5.4 per 10,000 people. Health experts agree that this goal can be met by improving the quality of outpatient diabetes care and access to such services.

The Prevention Quality Indicators represent hospital admission rates for common conditions that also include bacterial pneumonia; pediatric gastroenteritis; urinary infections; congestive heart failure, and chronic obstructive pulmonary disease, which if adequately treated by primary care providers, generally do not require hospital inpatient care. The rates are population-based and adjusted for age and sex.

AHRQ's Prevention Quality Indicators can be used to answer a wide array of questions regarding the quality of primary care in a community or region. For example, if a State health department or hospital association wants to know the quality of primary care provided to people in their State for a condition such as diabetes, they would select the AHRQ Prevention Quality Indicators for that illness and use them to measure their State's hospital discharge data on admissions for diabetes. They would then compare the admission rates for communities within their State with benchmarks such as their State average or national and regional averages soon to be available through AHRQ's HCUPnet (http://www.ahrq.gov/data/hcup/hcupnet.htm).

The AHRQ Prevention Quality Indicators are part of the new AHRQ Quality Indicator modules developed by the University of California, San Francisco-Stanford Evidence-based Practice Center, which is supported by AHRQ. These indicators represent a refinement and further development of the HCUP Quality Indicators, which were developed in the early 1990s as a starting point for hospitals and health care systems to begin quality assessments using hospital discharge data.

Upcoming additions to the AHRQ Quality Indicators include the Inpatient Quality Indicators—a set of 29 provider- and area-level indicators relating to use, mortality, and volume—and the Patient Safety Indicators, a set of indicators that provides information on potential in-hospital complications and patient safety concerns following surgeries, other procedures, and childbirth. The Patient Safety Indicators are expected later in 2002. Send an e-mail to listserv@list.ahrq.gov to be notified when these are available.

To download the Prevention Quality Indicators and accompanying software, go to www.ahrq.gov/data/hcup/prevqi.htm. Users must access the SAS statistical software package to run the programs, which will then have to be applied to users' own databases that contain information on hospital discharges. ■

New resource helps clinicians "Put Prevention Into Practice"

The Agency for Healthcare Research and Quality has released the publication, *A Step-by-Step Guide to Delivering Clinical Preventive Services: A Systems Approach*. This new resource from AHRQ's Put Prevention Into Practice (PPIP) program will help guide clinicians in the development of a system for delivering clinical preventive services in their own primary care setting.

Research shows that the most effective and accepted preventive services are not delivered regularly in primary care practices. For example, in 1997 pneumococcal disease caused 10,000-14,000 deaths, but only 43 percent of people aged 65 and older received the pneumococcal vaccine.

The new guide guide describes easy-to-follow, logical steps for establishing preventive care protocols; defines staff roles for delivering and monitoring preventive care, determines patient and material flow, and readjusts delivery and system standards. The guide breaks the process of delivering clinical preventive services into small, manageable tasks and provides practical tools such as worksheets, health risk profiles, and preventive care flow sheets that can be customized for use in various clinical settings.

The guide was adapted from materials produced by the Texas Department of Health and is based on scientific and empirical evidence. It is designed to be effective in many settings. Physicians, nurses, health educators, and office staff have successfully implemented this systematic approach to delivering prevention in public health clinics,

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Put Prevention Into Practice

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community health centers, and private practices.

In addition to the guide, the PPIP program offers other patient and provider materials that support the delivery of clinical preventive services in primary care settings. The PPIP program, based on the recommendations of the U.S. Preventive Services Task Force, helps clinicians deliver appropriate preventive services in clinical practice and tells patients which preventive services they should expect their health care professionals to provide.

The guide can be accessed on AHRQ's Web site at www.ahrq.gov/ppip/manual/manual.htm. Copies of this publication and all other PPIP resources are available from the AHRQ Publications Clearinghouse. See the back cover of *Research Activities* for ordering information. For more information on AHRQ's prevention programs, please visit the AHRQ Web site at www.ahrq.gov/clinic/prevenix.htm. ■

Announcements

AHRQ to cosponsor the fourth child health services researchers meeting in June 2002

The fourth annual Child Health Services Research (CHSR) meeting, "At the Cutting Edge of Research and Policy," will be held on Saturday, June 22, 2002, from 10:00 a.m. to 6:00 p.m. at the Washington Hilton Hotel in Washington, DC. The meeting will spotlight plenary sessions and four "cutting-edge tracks" – skill-building, cutting-edge research, cutting-edge policies, and presentations from CHSR investigators on priority topics in child health research. Each track will include three breakout sessions.

Online registration will be available in February 2002. For more information about the meeting, please call 202-292-6700; send an e-mail to childhealth@ ahsrhp.org; or visit www.academyhealth.org/childhealth.

The HSC Foundation Child Health Services Research Award recognizes the scientific work of emerging scholars to the field of CHSR, particularly research on access-to-care issues related to health, race, or services for low-income, urban children with special needs. The due date for award nominations is March 29, 2002. For more information, visit www.academyhealth.org/childhealth/nominations.htm.

The meeting is being cosponsored by AHRQ, the Academy for Health Services Research and Health Policy, the American Academy of Pediatrics, the HSC Foundation (Health Services for Children), the Maternal and Child Health Bureau, and the National Association of Children's Hospitals and Related Institutions. The meeting is being held in conjunction with the Academy for Health Services Research and Health Policy's 2002 annual research meeting. ■

Plan now to attend the first national conference on medical care for victims of domestic violence

Mark your calendar now for the first national conference on medical care in domestic violence (MCDV2002) to be held April 18-20, 2002, at the Le Meridien Hotel, Dallas, TX. The Agency for Healthcare Research and Quality will cosponsor the conference with the Parkland Foundation of Dallas and the University of Texas Southwestern Medical Center. The focus of the conference will be on the current state of research and clinical experience in providing medical and psychiatric care to survivors of domestic violence.

The conference will provide an opportunity for medical and psychiatric care providers to present research findings and share treatment strategies for victims of domestic violence. The program is designed for physicians, nurses, nurse practitioners, physicians assistants, psychologists, social workers, and other allied health care professionals interested in domestic violence.

For more information, please visit the conference Web site at www.MCDV2001.org or call the University of Texas Southwestern Medical Center's continuing education office at 214-648-2166 (fax 214-648-4804). ■

Next set of MEPS workshops scheduled for spring 2002

The Agency for Healthcare Research and Quality will offer two Medical Expenditure Panel Survey (MEPS) data users' workshops this spring in San Francisco. The first workshop is scheduled for March 4, 2002. This 1-day lecture will offer practical information about the MEPS Household Component survey design, file content, and the construction of analytic files. The cost to attend this workshop is $50, and attendance is limited to 50 participants.

The second workshop, also in San Francisco, will be held March 6-7. This is a 2-day, hands-on workshop. Participants will be provided with an opportunity to construct analytic files with the assistance of AHRQ staff. A PC will be available for each participant. The cost is $100, and a maximum of 40 participants can be accommodated.

For detailed workshop descriptions, registration forms, and logistics sheets, visit the MEPS Web site at www.meps.ahrq.gov/workshop/WSSchedule02.htm. ■

Research Briefs

Chewning, B., Boh, L., Wiederholt, J., and others. (2001, June). "Does the concordance concept serve patient medication management?" (AHRQ grant HS07773). ***International Journal of Pharmacy Practice*** **9, pp. 71-79.**

For patients with chronic medical conditions, selecting and managing treatment regimens can be as challenging as the chronic condition itself. To assess how people with arthritis evaluate and calibrate their complex medication regimens, these researchers used questionnaires and telephone interviews every 6 months for 2 years with 689 patients diagnosed with arthritis. About half of the patients had complex regimens with eight or more medications at any one time. The majority of doctors altered patients' medication orders every 6 months. Most patients said they evaluated the effectiveness and side effects of individual medicines based largely on symptoms. There were 248 reported deviations in the scheduled medications at baseline, and 61 percent were intentional, largely based on symptoms. The researchers conclude that providers and patients each had unique expertise and were engaged in a dynamic partnership to calibrate patients' ever-changing regimens to manage chronic illness.

Kirby, J.B. (2001). "Exposure, resistance, and recovery: A three-dimensional framework for the study of mortality from infectious disease." ***Social Science & Medicine*** **53, pp. 1205-1215.**

Current debate surrounding the study of mortality could benefit from a framework that integrates social and economic variables with the biological mechanisms of illness and death, suggest several scholars. This AHRQ researcher outlines such a framework for infectious disease mortality. The framework is built around three processes: exposure to potentially lethal pathogens, resistance to disease pathogens after exposure (including nutritional status and availability of curative services), and recovery from disease episodes after contraction (related to literacy). He then applies the framework to morbidity and mortality from cholera across 41 less-developed nations. He suggests that women's literacy could reduce the cholera case fatality rate, since treated cholera is fatal for less than 1 percent of people compared with the 50 percent fatality rate of untreated cholera. On the other hand, maternal literacy cannot prevent exposure, given the overwhelming exposure to infectious agents in the most affected countries. Reprints (AHRQ Publication No. 02-R003) are available from AHRQ.**

Livingston, D.H., Lavery, R.F., Passannante, M.R., and others. (2001). "Free fluid on abdominal computed tomography without solid organ injury after blunt abdominal injury does not mandate celiotomy." American ***Journal of Surgery*** **182, pp. 6-9.**

A continuing diagnostic conundrum for the surgeon is the presence of free fluid without solid organ injury on abdominal computed tomography (CT) scan in patients with blunt abdominal injury. Recommendations on care of these patients include mandatory celiotomy in order to not miss blunt intestinal injury, which is associated with increased

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Research briefs

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morbidity and mortality. However, this study does not follow this approach but instead recommends serial observation with the possible use of other adjunctive tests. The multicenter study examined all patients with blunt abdominal trauma admitted to four level I trauma centers over 22 months. Of 2,299 patients evaluated, free fluid was present in 265. Of these, 90 patients had isolated free fluid with only 7 having a blunt intestinal injury. Conversely, 91 percent of patients with free fluid had no injury. All patients with free fluid were observed for a mean of 8 days. There were no missed injuries.

Rebok, G., Riley, A., Forrest, C., and others. (2001). "Elementary school-aged children's reports of their health: A cognitive interviewing study." ***Quality of Life Research*** **10, pp. 59-70.**

Children have a unique perspective on their own health, and may be able to provide invaluable information to health care professionals, planners, and policymakers. However, there are no standard methods for assessing the quality of young children's perceptions of their health and well-being and their ability to comprehend the tasks involved in reporting their health. These researchers used three cross-sectional studies involving cognitive interviews of children aged 5 to 11 to determine their ability to respond to various presentations of pictorially illustrated questions about their health. They concluded that children as young as 8 are able to report on all aspects of their health experiences and can use a 5-point response format. Children aged 6-7 had difficulty with some health-related terms and tended to use extreme responses, but they understood the basic task requirements and were able to report on their health experiences. These results provide the guidance needed to develop and test a pediatric health status questionnaire for children 6 to 11 years old.

Wells, K.B., Kataoka, S.H., and Asarnow, J.R. (2001, June). "Affective disorders in children and adolescents: Addressing unmet need in primary care settings." (AHRQ grant HS09908). ***Biological Psychiatry*** **49(12), pp. 1111-1120.**

About one in five young people in the United States will suffer from a depressive episode by the age of 18. Also, bipolar (manic-depressive) disorder commonly begins in adolescence or early adulthood. These disorders are major risk factors for suicide among adolescents and lead to dysfunctional behavior that persists through adulthood. Despite the prevalence of affective disorders among young people, less than half of them receive any mental health services. For this study, the researchers examined how primary care practices treat affective disorders in children and adolescents and found that pediatricians identified mental health needs in only 1 to 16 percent of children, even though 17 to 27 percent of pediatric primary care patients may need care. Also, only 56 percent of young people diagnosed with a mental health problem received any treatment, and only half of those referred to a specialist received specialty care. Besides short medical visits that don't allow enough time for detection or treatment of affective disorders, other factors—such as lack of insurance or limited coverage, separation of physical and mental health services, limited practice infrastructure to integrate primary with mental health care, and a relative lack of child mental health specialists—also play a role. ■

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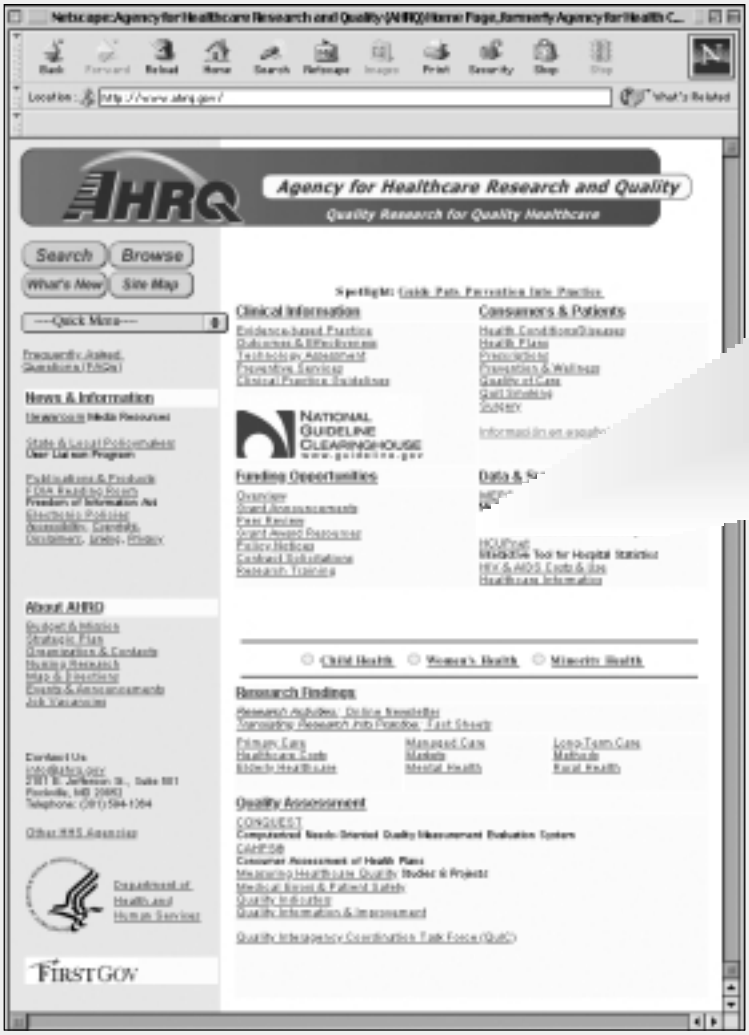

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