



Research Activities



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Highlights

Departments

- 2 Patient Safety/Quality**
- 6 Minority Health**
- 8 Elderly/Long-Term Care**
- 10 Children's Health/ Women's Health**
- 11 Outcomes/ Effectiveness Research**
- 12 Prevention Research**
- 13 Health Care Costs and Financing**

Regular Features

- 15 Agency News and Notes**
- 16 Announcements**
- 23 Research Briefs**

Prehypertension is a considerable health risk, particularly in people aged 45 and older

Prehypertension—an elevation in blood pressure that is a risk factor for heart attack, heart failure, stroke, and kidney disease—is estimated to be responsible for 9.1 percent of U.S. deaths, 6.5 percent of nursing home stays, and 3.4 percent of hospital stays each year for people ages 25 to 74, according to new research funded by the Agency for Healthcare Research and Quality (HS07002 and HS11477).

Blood pressure is recorded as two numbers—the systolic pressure (as the heart beats) over the diastolic pressure (as the heart relaxes between beats). Hypertension is defined as a systolic pressure of 140 mmHg or higher over a diastolic pressure of 90 mmHg or higher. Both numbers are important, but in May 2003, the *Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure* (JNC 7), from the National Heart, Lung, and Blood Institute recommended systolic pressure, or the top number, as the better indicator

of risk for other health problems. The JNC 7 identified prehypertension as having a systolic blood pressure between 120 mmHg and 139 mmHg, and defined residual hypertension as continuing to have a systolic pressure of 140 mmHg or higher despite treatment.

AHRQ's new study estimates that as many as two-thirds of people between the ages of 45 and 64 and 80 percent of people between the ages of 65 and 74 may have prehypertension or residual hypertension. The researchers found that, per 10,000 adults between the ages of 25 and 74, prehypertension and residual hypertension together account for almost 14 percent of deaths, nearly 10 percent of nursing home admissions, and 4.7 percent of hospital admissions.

The researchers found that women between the ages of 65 and 74 would benefit most if prehypertension and residual hypertension were eliminated. Hospital admission rates among women could drop by almost 150 admissions per 10,000

continued on page 2

Prehypertension

continued from page 1

women in this age group. Men also show substantial reductions in risk. Hospital admission rates could drop by 85 admissions per 10,000 for men ages 45 to 64 and by 62 admissions per 10,000 for men 65 to 74.

Researchers Louise B. Russell, Ph.D., and Elmira Valiyeva, Ph.D., of Rutgers University and Jeffrey L. Carson, M.D., of the University of Medicine and Dentistry of New Jersey Robert Wood Johnson Medical School, used a simulation model based on the National Health and Nutrition Examination Surveys I and III to estimate the impact of prehypertension and residual hypertension on deaths, nursing home admissions, and hospitalizations for adults in the United States between the ages of 25 and 74.

For more information, see “Effects of prehypertension on admissions and deaths: A simulation,” by Drs. Russell, Valiyeva, and Carson, in the October 25, 2004, *Archives of Internal Medicine* 164, pp. 2119-2124.

Editor’s note: For online access to the JNC 7 guidelines and related materials, go to www.nhlbi.nih.gov/guidelines/hypertension/index.htm. Information and materials from AHRQ’s preventive services programs, which include prevention and management of hypertension, can be found at www.ahrq.gov/clinic/prevenix.htm. Information about the President’s HealthierUS initiative can be found at www.healthierus.gov/. ■

Patient Safety/Quality

Limiting medical interns’ work to 16 consecutive hours can substantially reduce serious medical errors in ICUs

The rate of serious medical errors committed by first-year doctors in training (interns) in two intensive care units (ICUs) at a Boston hospital fell significantly when traditional extended work

shifts (30 hours in a row) were eliminated and when interns’ continuous work schedules were limited to 16 hours. These findings are from two complementary studies that were funded by the Agency for

Healthcare Research and Quality (HS12032, K08 HS13333, and F32 HS14130) and the National Institute for Occupational Safety and Health within the Centers for Disease Control and Prevention.

Interns made 36 percent more serious medical errors, including five times as many serious diagnostic errors, on the traditional schedule than on an intervention schedule that limited scheduled work shifts to 16 hours

and reduced scheduled weekly work from approximately 80 hours to 63. The rate of serious medication errors was 21 percent greater on the traditional schedule than on the new schedule. In the first research of its kind on the impact of lack of sleep on the safety of hospital care, researchers at Brigham and Women’s Hospital in Boston eliminated the traditional schedule that required interns to work “extended duration work shifts” of approximately 30 consecutive hours every other shift. Under the traditional schedule, interns in hospital ICUs were scheduled to work approximately 80 hours per week. Under the intervention schedule that was tested in the studies, the “extended duration work shift” was eliminated, and weekly scheduled work hours were decreased by approximately 20 hours. Interns also were encouraged to sleep on their time off and to take naps before night shifts.

continued on page 3

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AHRQ
Office of Communications and Knowledge
Transfer
540 Gaither Road
Rockville, MD 20850
(301) 427-1360
Mary L. Grady, Managing Editor
Gail Makulowich, Contributing Editor
Joel Boches, Design and Production
Karen Migdail, Media Inquiries

Medical errors in ICUs

continued from page 2

In this study, Christopher P. Landrigan, M.D., M.P.H., Director of the Sleep and Patient Safety Program at Brigham and Women's Hospital, and his colleagues randomly assigned 24 interns to work either the traditional schedule in the cardiac care unit and the intervention schedule in the medical intensive care unit or the converse from July 2002 to June 2003. The study covered 624 ICU admissions totaling 2,203 patient days. Interns were directly observed by six physicians while they worked, and their charts were reviewed by two nurse chart reviewers.

The change in work schedule did not diminish interns' role in ICUs or shift the burden of work to more senior staff, according to the study authors. The number of medications ordered and tests interpreted by interns did not differ significantly. In addition, the error rates for more senior residents and other staff did not increase during the study.

The findings from this study suggest that limiting interns' scheduled shifts to 16 consecutive hours in intensive care settings could substantially improve patient safety. Most of the 100,000 doctors-in-training in the United States regularly work 30-hour shifts, which continue to be allowed under the scheduling reforms instituted last year by the Accreditation Council for Graduate Medical Education. Dr. Landrigan notes that further limitation of consecutive work hours could be an important means of preventing medical errors.

In the second study, researchers examined the impact of the new work schedule on interns' sleep patterns and "attentional failures," characterized by nodding off while on duty, even while providing care to patients. Steven W. Lockley, Ph.D., and his colleagues studied 20 interns each in two 3-week ICU

rotations under both the traditional and intervention work schedules.

Interns worked an average of 84.9 hours per week on the traditional schedule and 65.4 hours per week on the new schedule. They completed daily sleep and work logs that were validated through observation by study staff. In addition, interns were monitored using polysomnography, in which a device is used to objectively document sleep and attentional failures.

Under the new schedule, the researchers found that interns worked 19.5 hours per week less, slept 5.8 hours per week more, and had typically slept more in the previous 24 hours when working. The percentage of work hours preceded by more than 8 hours of sleep in the traditional schedule was 17 percent, compared with 33 percent for the new schedule. Overall, the rate of attentional failures was twice as high at night on the traditional schedule than on the intervention schedule.

The study found that interns who worked the intervention schedule were less sleep-deprived at work and were able to sleep longer at home, which resulted in the interns having less cumulative and acute sleep deprivation. Interns on the new schedule were encouraged to take naps in the afternoon before overnight shifts to mitigate the effects of sleep deprivation on their ability to provide care. In conclusion, the researchers note that the findings of this study may apply beyond the ICU to those on other rotations and specialties as well as to more senior residents, attending physicians, nurses, and other hospital staff.

For more information, see "Effect of reducing interns' work hours on serious medical errors in intensive care units," by Dr. Landrigan, Jeffrey M. Rothschild, M.D., M.P.H., John W. Cronin, M.D., and others, in the October 28,

2004 *New England Journal of Medicine* 351(18), pp. 1838-1848; and "Effect of reducing interns' weekly work hours on sleep and attentional failures," by Dr. Lockley, John W. Cronin, M.D., Erin E. Evans, B.S., and others, in the same journal, pp. 1829-1837. ■

Also in this issue:

Effects of shift work on nurses' health and performance, see page 4

Factors affecting voluntary reporting of medical errors, see page 5

Use of health care by blacks with diabetes and depression, see page 6

Role of patient-physician interaction in care satisfaction, see page 7

Benefits of structured health programs for frail elders, see page 8

QI programs to improve pain management in nursing homes, see page 9

Use of specialty care by children, see page 10

Health limitations and lost productivity among cancer survivors, see page 11

Promoting healthier lifestyles by addressing multiple risk factors, see page 12

Increases in intensity and volume of services used by some Medicare enrollees, see page 13

Link between hospital profits and type of insurance, see page 14

Shift work affects the health and work performance of nurses and other health care workers

Among the Nation's full-time health care workers, 30 percent are shift workers, with about 11 percent of them working evening shifts (3 to 11 pm), 9 percent working night shifts (between 11 pm and 7 am), 3 percent working rotating shifts (for example, days to evenings or nights), and the remaining working split shifts and other arranged shifts. Shift work can result in fatigue, irritability, reduced performance, and decreased mental agility, notes Ronda Hughes, Ph.D., M.H.S., R.N., of the Center for Primary Care, Prevention, and Clinical Partnerships, Agency for Healthcare Research and Quality. Dr. Hughes and her colleague Patricia Stone, Ph.D., M.P.H., R.N., at Columbia University, coauthored a recent review of the topic.

Studies show that while some workers prefer the shorter work week offered by 12-hour shifts, they become fatigued and less alert toward the end of the shift. On the positive side, 12-hour shifts reduce the number of nursing "hand-offs" from one shift to another, during which mistakes are known to occur. Compared with nurses working permanent day or evening shifts, night shift workers are not as alert and are more likely to struggle to stay awake during the

second half of the shift. Performance lapses and procedural and medication errors are more likely to occur at night, especially between 4 am and 8 am.

People who work rotating shifts are more likely to suffer from sleep problems and reduced alertness and performance. One study of 635 nurses found that the odds of making or almost making a medication error, as well as the odds of having an accident or a near miss while commuting, doubled among rotating shift workers. Another Nurses' Health Study found that working a rotating night shift at least three nights per month for 15 or more years may increase the risk of colorectal cancer in women.

Permanent evening or night shifts offer the best health and productivity benefits. To avoid fatigue, nurses should take short breaks throughout a shift or take naps, when patients are covered; work the shift they physically tolerate best; establish support networks; and avoid leaving the most tedious tasks to the end of a shift when one is apt to feel most drowsy.

See "The perils of shift work," by Dr. Hughes, in the September 2004 *American Journal of Nursing* 104(9), pp. 60-63. Reprints (AHRQ Publication No. 04-R070) are available from AHRQ.** ■

Falls among hospitalized patients of all ages are a persistent problem

Falls among hospital patients are a persistent problem, with 2.3 to 7 falls occurring in U.S. hospitals every 1,000 patient days. About 30 percent of these falls result in injury, and 4 to 6 percent of them result in serious injury. Hospital falls affect both young and old patients, and many

of them happen when the patient is alone or involved in elimination-related activities (for example, walking to or from the bathroom or bedside commode, reaching for toilet tissue, or exiting a soiled bed), according to a study supported by the Agency for

Healthcare Research and Quality (HS11898).

Researchers at the Washington University School of Medicine in St. Louis interviewed all patients at one hospital who fell over a 13-week period and/or their family members and nurses. They also

continued on page 5

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Falls in hospitals

continued from page 4

reviewed adverse event reports and medical records to identify the circumstances and patient characteristics involved in the first fall of the 183 patients who fell during the study period. The average age of patients who fell was 63.4 years, but ages ranged from 17 to 96 years. Many falls occurred when the patients were not assisted (79 percent), in the patient's room (85 percent), during the evening/overnight (59 percent), and while they were walking (19 percent). Nearly half (44 percent)

of patients were confused or disoriented at the time they fell.

General muscle weakness was very prevalent among the patients who fell (81 percent), and many had diabetes (39 percent), urinary frequency (36 percent), or lower extremity problems (38 percent). Many of the patients who fell were on medications such as sedatives that could have contributed to a fall. Half of the falls were due to elimination-related activities, which increased the risk of fall-related injury more than two-fold. In 19 percent of bathroom falls and 30 percent of falls involving a bedside

commode, the patient was left alone after being assisted to the bathroom or commode. Many patients who fell did not use assistive devices that they regularly used at home. Wet hospital floors and problem furniture or equipment contributed to 16 percent of falls.

For more information, see "Characteristics and circumstances of falls in a hospital setting," by Eileen B. Hitcho, M.S., Melissa J. Krauss, M.P.H., Stanley Birge, M.D., and others, in the July 2004 *Journal of General Internal Medicine* 19, pp. 732-739. ■

Researchers examine factors that affect voluntary reporting of medication errors

An estimated 1 of every 131 outpatient deaths can be attributed to medication errors. The United States Pharmacopeia (USP), in cooperation with the Institute for Safe Medication Practices (ISMP), monitors medication errors through the Medication Errors Reporting (MER) program, which can be used by practitioners in any practice setting to voluntarily report medication errors.

A recent study supported by the Agency for Healthcare Research and Quality (HS13891) surveyed community pharmacists in Vermont to assess their awareness and use of MER. The study found that although 62 percent of the pharmacists surveyed had heard of MER, only 21 percent had ever reported a medication error.

Without error reporting, no mechanism exists to analyze, understand, and eliminate medication errors, according to Amanda G. Kennedy, Pharm.D., B.C.P.S., and Benjamin Littenberg, M.D., of the University of Vermont College of Medicine. They conducted telephone interviews with one community pharmacist from each operating community pharmacy in Vermont during 2002 and 2003. A total of 113 pharmacists responded to the survey.

Significantly more pharmacists employed by independent pharmacies had submitted an error report, compared with pharmacists from other pharmacy types (chain, supermarket, or mass merchandiser). The primary reason cited by pharmacists for not submitting reports directly to USP MER was not lack of time. Instead, they were concerned that reports had to be submitted to corporate superiors or headquarters (37 percent), and they did not know if the reports were forwarded to USP MER.

The researchers suggest that pharmacy managers or corporate offices adopt policies of sending copies of all pharmacist reports to the national program for pooled analyses. If physicians' offices are aware of a medication error, they also should have the management support to complete and submit reports.

See "Medication error reporting by community pharmacists in Vermont," by Drs. Kennedy and Littenberg, in the July 2004 *Journal of the American Pharmacists Association* 44, pp. 434-438. ■

Better consumer education and marketing surveillance are needed for one over-the-counter drug used for urinary tract pain

More than 600 over-the-counter (OTC) drugs now use ingredients and dosages that 20 years ago were available only by prescription. The increasing availability of OTC drugs allows consumers to self-medicate and treat various symptoms. Yet a recent study of OTC phenazopyridine, a drug that relieves urinary tract pain and irritation caused by urinary tract infections, suggests that better patient education and post-OTC marketing surveillance are needed to ensure proper use of OTC medications. This is particularly important as popular prescription drugs, such as statins, head toward the OTC market, cautions Chih-Wen Shi, M.D., M.S.H.S., of the University of California, Los Angeles.

In the study, which was supported in part by the Agency for Healthcare Research and Quality (F32 HS11507), Dr Shi and colleagues surveyed a random sample of 434 purchasers of OTC phenazopyridine (predominantly well-educated white women) in 31 Los Angeles retail pharmacies. Phenazopyridine (Pyridium) is supposed to relieve pain, burning, and irritation due to urinary tract infections while the patient is awaiting medical evaluation and treatment, most likely with an antibiotic for the underlying infection. The survey asked what respondents thought was causing their symptoms and for what phenazopyridine would be effective.

Based on survey responses, the complex chain of self-diagnosis, treatment, and monitoring needed

for effective OTC use of the drug rests upon a shaky foundation. For example, although OTC phenazopyridine has been popularly advertised in the media as an interim pain reliever pending a medical appointment for a urinary tract infection, only 29 percent correctly characterized the likely cause of their symptoms as an infection, and only 57 percent correctly characterized the action of the drug (pain relief).

Details are in "Consumer knowledge of over-the-counter phenazopyridine," by Dr. Shi, Steven M. Asch, M.D., M.P.H., Eve Fielder, Dr.P.H., and others, in the May 2004 *Annals of Family Medicine* 2(3), pp. 240-244. ■

Minority Health

Blacks with diabetes are no more likely to be depressed than other blacks, but those with both problems use more health care

The rate of diabetes among blacks in the United States is twice that of the general population (13 vs. 6.2 percent). Deaths from diabetes and certain types of diabetes complications are more common among blacks than among whites. Previous studies with predominantly white subjects found a positive association between diabetes and depression, but in a recent study involving only black subjects, no such association was found. The researchers did find that blacks who had both diabetes and depression used more acute care health services, such as emergency

room visits and inpatient hospitalizations. This pattern of use may lead to higher health care costs among patients with diabetes who are depressed, regardless of race. The study was supported by the Agency for Healthcare Research and Quality (HS11131).

Researchers led by Baqar A. Husaini, Ph.D., of Tennessee State University, and Robert S. Levine, of Meharry Medical College, interviewed 303 black adults (over one-fourth had diabetes) in a primary care clinic

continued on page 7

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.

Diabetes and depression

continued from page 6

serving low-income patients. Researchers asked the subjects about their levels of health care use. The researchers used a nine-item symptom checklist to determine whether or not patients had symptoms of major depression. Diabetes was not significantly associated with depressive symptoms. Seventeen percent of blacks with diabetes had symptoms of depression, compared with 13 percent of those who did not have diabetes.

The presence of diabetes alone had no significant effect on physician visits or ER visits, but it was associated with 21 percent fewer hospital days than patients who had neither diabetes nor depression.

Depressed patients without diabetes reported 76 percent more physician visits than patients with neither diabetes nor depression. Patients with diabetes and depression reported nearly three times as many ER visits and three times as many hospital days as patients with neither diabetes nor depression. Depression may be hindering these patients from seeking more routine health care, that is, visits to the doctor's office that might prevent ER and hospital visits, conclude the researchers.

See "Diabetes, depression, and healthcare utilization among African Americans in primary care," by Dr. Husaini, Pamela C. Hull, M.A., Darren E. Sherkat, Ph.D., and others, in the April 2004 *Journal of the National Medical Association* 96(4), pp. 476-484. ■

Differences in white and minority patients' satisfaction with care may hinge on satisfaction with physician interaction

In a recent study, a nine-item questionnaire commonly used to measure patient satisfaction with care, the Visit-Specific Satisfaction Questionnaire (VSQ-9), did not identify differences in satisfaction with care between minority and white patients. However, analysis of responses to four VSQ-9 questions that specifically asked about direct interaction with physicians revealed that minority patients were significantly less satisfied with physician interaction than white patients. Measurements of patient satisfaction that use multi-item, composite indicators should also include focused comparisons of satisfaction with the care provided by the physician, concludes Donald A. Barr, M.D., Ph.D., of Stanford University.

In the study, which was supported by the Agency for Healthcare Research and Quality

(HS09350), Dr. Barr compared responses to the VSQ-9 for overall patient satisfaction with a four-item subset of the VSQ-9 dealing with the quality of the direct physician-patient interaction. Participants were 537 highly educated primary care patients from an affluent area of California who completed the questionnaire during an office visit to one of the study physicians. For all nine questions of the VSQ-9 instrument, patients had to rate their responses from 1 for poor to 5 for excellent.

The first four questions pertained to satisfaction with access to care (waiting time for an appointment, convenience of the office location, getting through to the office by phone, and length of time waiting at the office). Questions 5 to 8 asked about satisfaction with the direct encounter with the physician (time spent with the doctor, explanation

of what was done for them, technical skills of the doctor, and personal manner of the doctor), and question 9 asked about overall visit satisfaction. The total nine-item score did not identify a significant difference between white and minority patients with their overall satisfaction with their visit. However, minority patients rated the quality of their interaction with the same group of physicians significantly lower than white patients when demographic factors and aspects of the visit not involving the physicians were controlled.

See "Race/ethnicity and patient satisfaction: Using the appropriate method to test for perceived differences in care," by Dr. Barr, in the *Journal of General Internal Medicine* 19, pp. 937-943, 2004. ■

Elderly/Long-Term Care

Among elderly patients with dementia, blacks and Latinos are more likely than whites to show dementia-related behaviors

Elderly, community-dwelling blacks and Latinos who have moderate to severe dementia are more likely than similar whites to show dementia-related behaviors such as combativeness, wandering, or hallucinations, according to a study that was supported in part by the Agency for Healthcare Research and Quality (K02 HS00006). These behaviors are perhaps the most troubling aspect of dementia to caregivers, and minority caregivers appear to be affected more than white caregivers. Thus, as the aging minority population grows, it will be especially important to target caregiver education, in-home support, and resources to minority communities, suggests Kenneth E. Covinsky, M.D., M.P.H., of the University of California at San Francisco.

Dr. Covinsky and his colleagues calculated the prevalence of eight dementia-related behaviors as reported by caregivers among 5,090 white, 469 black, and 217 Latino Medicare patients enrolled in the Medicare Alzheimer's Disease Demonstration and Evaluation study at eight U.S. sites during the period 1989 to 1991. The eight behaviors assessed were: constantly restless, constantly talkative, seeing or hearing things that are not there, suspicious and

accusative, episodes of unreasonable anger, combativeness, wandering, and waking the caregiver.

Overall, 92 percent of patients had at least one dementia-related behavior. Also, 61 percent of black and 57 percent of Latino patients were reported to have four or more dementia-related behaviors compared with 46 percent of white patients.

Blacks were 41 percent more likely than whites to be constantly talkative, 89 percent more likely to have hallucinations, 70 percent more likely to have episodes of unreasonable anger, 40 percent more likely to wander, and 33 percent more likely to wake their caregiver. Latinos were 49 percent more likely than whites to have hallucinations, and 59 percent more likely to have episodes of unreasonable anger, combativeness, or wandering. A possible explanation is that white patients with dementia and dementia-related behaviors are more likely to be institutionalized, leaving relatively more black and Latino patients with dementia-related behaviors residing in the community.

See "Ethnic differences in the prevalence and pattern of dementia-related behaviors," by Kaycee M. Sink, M.D., Dr. Covinsky, Robert Newcomer, Ph.D., and Kristine Yaffe, M.D., in the August 2004 *Journal of the American Geriatrics Society* 52, pp. 1277-1283. ■

Structured health programs can greatly help frail older adults and their family caregivers

Both frail older adults and their family caregivers feel better emotionally and physically with use of a structured health education program (HEP) compared with usual care, according to a recent study supported by the Agency for Healthcare Research and Quality (HS08641) and led by Ronald Toseland, Ph.D., of the State University of New York at Albany. Dr. Toseland and his colleagues randomly selected 105 caregivers—in this study, they were caring for

spouses with a chronic illness—to receive the HEP or usual care (UC) offered by one HMO.

HEP focus groups met for 8 weekly sessions, followed by 10 monthly sessions. The major components of the HEP groups included emotion-focused coping strategies, problem-focused coping strategies, education about resources and sources of support for caregiving, and support. The researchers conducted personal interviews with both groups of caregivers and the frail older adults

in their care prior to implementation of the HEP, right after completion of the eight focus group meetings, and 1 year after the HEP.

Although severe depression decreased for HEP caregivers from baseline to 1 year, it significantly increased for UC caregivers. There were no significant differences at baseline between the two caregiver groups on the General Health Questionnaire on somatic symptoms, anxiety/insomnia, or

continued on page 9

Structured health programs

continued from page 8

social dysfunction. However, from baseline to 1 year there was a significantly greater increase in somatic symptoms and anxiety/insomnia for UC compared with HEP care recipients.

HEP caregivers perceived that their effectiveness had increased at

8 weeks, whereas UC caregivers perceived that their effectiveness had decreased, a difference that did not persist at 1 year. HEP caregivers continued to report more effectiveness at addressing pressing problems, more knowledge of community services and how to access them, and an improved relationship with and care of their spouse than UC caregivers.

By 1 year, use of support services increased for both groups.

See "Supporting caregivers of frail older adults in an HMO setting," by Dr. Toseland, Philip McCallion, Ph.D., Tamara Smith, B.A., and Steve Banks, Ph.D., in the *American Journal of Orthopsychiatry* 74(3), pp. 349-364, 2004. ■

Knowledge of pain medication and its management could be improved among nursing home staff

According to a recent study, nursing home staff, particularly unlicensed staff, know little about pain medication and management. Many staff members involved in the study were reluctant to use aggressive pain management strategies, even in the face of reported severe pain and observed pain behaviors. They also underestimated the effectiveness of nonmedication strategies such as massage, positioning, and distraction.

Many staff members were unaware of safe and effective analgesia dosing levels and schedules for different types of analgesics, yet a pain management educational program was only partially successful in improving knowledge, according to the study supported by the Agency for Healthcare Research and Quality (HS11093). However, substantial staff turnover during the study period may have blunted the impact of the program, notes Katherine R. Jones, R.N., Ph.D. F.A.A.N. The study was conducted while Dr. Jones was at the School of Nursing at the University of Colorado; she is currently at the Yale University School of Nursing.

Dr. Jones and her colleagues assessed pain knowledge and attitudes among more than 300 licensed and unlicensed staff members at 12 Colorado nursing homes before and after implementation of a pain management educational program. Six of the homes were urban, and six were rural. They ranged in

size from 65 to 180 beds and were both not for profit and for profit. The program included an educational pain resource binder, four staff development sessions, a staff training video on pain types, factoids posted in visible areas, a short resident educational video and pamphlet, continuing education seminar for physicians, and formation of an internal pain team.

The program did not significantly improve staff knowledge scores in the treatment homes (from 69 to 71 percent) compared with control homes (from 68 to 67 percent). The program was even less effective at changing misguided attitudes about pain (for example, residents exaggerate pain to get attention), which remained similar among staff of program and control homes. In conclusion, the researchers note that constant turnover of nursing home administrators and staff makes implementation of quality improvement interventions difficult and sustainability of improvement over time even more challenging.

See "Improving nursing home staff knowledge and attitudes about pain," by Dr. Jones, Regina Fink, R.N., Ph.D., F.A.A.N., Ginny Pepper, R.N., Ph.D., F.A.A.N., and others, in the August 2004 issue of *The Gerontologist* 44(4), pp. 469-478. ■

Children's Health/Women's Health

About 13 percent of U.S. children and 26 percent of those with disabilities or chronic illness see a specialist in a year

About 13 percent of U.S. children saw a specialist during 1999. The percent of visits to a specialist were twice as high for children with a chronic condition or disability (26 percent). Also, the likelihood of uninsured children seeing a specialist was 59 percent lower relative to the corresponding percent for privately insured children. However, among children who had coverage (private, Medicaid, or other), rates of specialist use were similar. Sociodemographic differences in specialist use were pronounced and followed patterns typically found for use of health services, according to a study that was funded in part by the Agency for Healthcare Research and Quality (HS13757).

The researchers found, for example, that use of specialist care was 41 percent lower among blacks,

54 percent lower among Hispanics, and 39 percent lower among other ethnic groups compared with whites. Use of specialty care was 45 percent lower among children in families between 100 and 200 percent of the Federal poverty level and in families that had lower parental education levels (35 percent lower for high school graduates and 66 percent lower with no high school diploma). Surprisingly, children with Medicaid did not have significantly different rates of specialist use compared with children who had private insurance.

Children who had a chronic condition or disability were three times as likely as other children to see a specialist during the year. Karen Kuhlthau, Ph.D., of Harvard Medical School, and her colleagues found no difference in rates of

specialist care between rural and urban children, by family status (dual or single-parent family), or by the child's sex. They also found no difference in specialty use for children with Medicaid who did or did not need administrative approval to see a specialist, regardless of the child's condition, disability status, or race/ethnicity. These findings are based on an analysis of data from the 1999 National Health Interview Survey, a nationally representative household survey of health status, insurance, health care use, and demographics.

See "Correlates of use of specialty care," by Dr. Kuhlthau, Rebecca M. Nyman, M.P.H., Timothy G. Ferris, M.D., and others, in the March 2004 *Pediatrics* 113(3), online at www.pediatrics.org/cgi/content/full/113/3/e249. ■

Experts examine quality improvement in children's health care

The current organization and financing system for children's health care can discourage health care organizations from investing in improving the quality of care for children, according to the Child Health Business Case Working Group. Denise Dougherty, Ph.D., Senior Advisor on Child Health at the Agency for Healthcare Research and Quality is a member of the group. To assess the potential impediments to establishing a business case for improving the quality of children's health care and to identify potential solutions, the group relied on analysis of hypothetical cases that they constructed based on their experiences as leaders in State and Federal policy, health economics, and children's health care. They also reviewed the literature and performed structured policy analyses.

In the current health care system, investments in quality—while producing net economic benefit to society—do not routinely translate into improved financial performance for health care organizations. To

make a better business case for improving quality in children's health care, the group recommends taking steps to create a less fragmented system of financing and delivery of health care services, expanding the emphasis on clinical research, and educating the public concerning the importance of high quality health care for children.

This approach may help redefine the scope of what is included in excellent, family-centered care. Members of the working group concluded that, in the end, the health care community may need to fall back on a shared sense of public stewardship for children's lives in order to find the will to do what it takes to improve health care quality for children.

See "Exploring the business case for improving the quality of health care for children," by the Child Health Business Case Working Group, in the July 2004 *Health Affairs* 23(4), pp. 159-166.

Reprints (AHRQ Publication No. 04-R062) are available from AHRQ.** ■

Service coordination for pregnant women in prison can improve their use of health services after release

On any given day in 2002, more than 75,000 women were held in local jails nationwide, primarily for nonviolent, drug-related crimes such as possession, theft, fraud, and prostitution. Most of these women were of reproductive age, and at least 6 percent of them were pregnant upon arrest. Jail settings can become a place of coordination between public health and criminal justice professionals to ensure that pregnant women receive essential services following their release from jail. In addition, such service coordination may increase women's use of health services during future pregnancies, concludes a study supported in part by the Agency for Healthcare Research and Quality (T32 HS13853).

University of Washington researcher, Janice F. Bell, M.N., M.P.H., and her colleagues used public health and jail records for

453 women who had an estimated delivery date from 1994 through 1998 and had at least one prenatal visit while in custody at one jail. They compared use of Medicaid-funded perinatal services for births to women who were in jail during pregnancy (jail-contact births) and births to women who had been in jail but not while they were pregnant (community births). Of the 453 women who had spent time in jail, 320 were in jail for at least part of one pregnancy, and 110 of the women were in jail for two pregnancies.

Being in jail at any time during pregnancy increased nearly six-fold the likelihood that women would receive at least some prenatal care and nearly doubled the likelihood of receiving maternal support services after release, but it also was associated with fewer total prenatal and support visits. Other factors associated with a higher

likelihood of receiving prenatal care were longer Medicaid coverage, longer pregnancies, and medical complications, as well as drug use during pregnancy.

Women were not eligible to receive maternity support services or case management while in jail. However, jail health care providers referred women with a known history of substance abuse to post-release case management. The researchers recommend expanding these referrals to include all pregnant women and offering family planning services to women in jail.

See "Perinatal health service use by women released from jail," by Dr. Bell, Frederick J. Zimmerman, Ph.D., Colleen E. Huebner, Ph.D., M.P.H., and others, in the *Journal of Health Care for the Poor and Underserved* 15, pp. 426-442, 2004. ■

Outcomes/Effectiveness Research

Cancer survivors often have long-term health limitations and lost productivity associated with their disease

Early diagnosis and treatment have led to improved survival of cancer patients. These cancer survivors have worse health, more lost productivity, and poorer quality of life than similar individuals who have not had cancer, according to a new study by K. Robin Yabroff, Ph.D., M.B.A., of the National Cancer Institute (NCI), William F. Lawrence, M.D., M.S., of the Center for Outcomes and Evidence, Agency for Healthcare Research and Quality, and their NCI colleagues.

The researchers identified a total of 1,823 cancer survivors and 5,469 matched controls from the 2000 National Health Interview Survey. They compared multiple measures of disease burden among the two groups and stratified subgroups by tumor site and time since diagnosis.

Cancer survivors had poorer quality of life than matched controls, indicated by lower utility values (0.74 vs. 0.80 with 1.0 representing perfect health) and more lost work days, and they were more likely to report fair or poor health (31 vs. 18 percent). These findings were consistent across tumor site and time since diagnosis. Contrary to expectations, long-term cancer survivors, even 11 or more years after diagnosis, had significantly lower utility values and more health problems than controls across multiple measures.

Some studies have reported few differences in health limitations between long-term disease-free cancer survivors and controls. However, even survivors

continued on page 12

Cancer survivors

continued from page 11

without recurrences may experience lasting effects of initial treatment. For example, several studies have reported that men undergoing surgery for localized prostate cancer may continue to experience incontinence and impotence well beyond the initial treatment period. In the current study, survivors of lung and other short-survival cancers or of cancer at multiple sites reported greater burden than did

survivors of breast, colorectal, prostate, and all other cancers. Other factors, such as systemic treatment, influenced health limitations for survivors.

More details are in "Burden of illness in cancer survivors: Findings from a population-based national sample," by Drs. Yabroff and Lawrence, Steven Clauser, Ph.D., and others, in the September 1, 2004 *Journal of the National Cancer Institute* 96(17), pp. 1322-1330. Reprints (AHRQ Publication No. 04-R068) are available from AHRQ.** ■

Prevention Research

Addressing multiple risk factors for certain diseases rather than just one may promote healthier lifestyles

Heavy alcohol use, smoking, sedentary lifestyle, and an unhealthy diet all increase an individual's risk of developing coronary heart disease, diabetes, and other problems. Authors of a series of papers in a supplement to the *American Journal of Preventive Medicine* suggest that clinicians and researchers adopt a more comprehensive and integrated approach to promoting healthier lifestyles in place of the current practice of addressing individual risk factors one at a time. The authors document the prevalence of multiple risk factors, summarize what is known and what is not known about how to identify and intervene to address risk factors, and suggest an agenda for moving research and policy forward.

The intuitive logic of a more integrated approach is certainly appealing, note David Atkins, M.D., M.P.H., of the Center for Outcomes and Evidence, Agency

for Healthcare Research and Quality, and AHRQ Director Carolyn M. Clancy, M.D., in a commentary in the supplement. Because risk is often multiplied when more than one risk factor is present, reducing several risk factors at once should magnify the health benefits that accrue from small changes in behavior. Changing one behavior often sparks changes in others. For example, adopting a healthier diet may empower a person to become more active and vice versa.

Also, available interactive systems make it easier for clinicians to collect information on a variety of risks and augment clinical interventions. Because the research base on multiple interventions is more limited than it is for single interventions, it is less clear whether, or in which situations, multiple risk factor interventions are more effective or efficient at reducing risk than

targeted single interventions. Also, existing studies do not resolve how well interventions will work in a typical primary care practice. The Prescription for Health Program, funded by AHRQ and the Robert Wood Johnson Foundation, is testing innovative approaches in AHRQ's Practice-Based Research Networks and other real-world settings. For more information about these initiatives, go to www.ahrq.gov and click on "Practice-Based Research."

More details are in "Multiple risk factors interventions: Are we up to the challenge?" by Drs. Atkins and Clancy, in the *American Journal of Preventive Medicine* 27(2S), pp. 102-103, 2004. Reprints (AHRQ Publication No. 04-R063) are available from AHRQ.** ■

Study finds differences between men and women in the effects of social class on behavioral risk factors

A new study of British civil servants explored reasons for the differences in social inequality in cardiovascular disease between men and women by analyzing the associations between their own or their spouses' (or partners') socioeconomic position and a set of risk factors for prevalent chronic diseases. Michael Marmot, M.B.B.S., M.P.H., Ph.D., of the International Centre for Health and Society, and his colleagues measured the socioeconomic position of London civil servants according to their civil service grade and the socioeconomic position of their spouses and partners according to the Registrar General's social class schema. They examined the following cardiovascular risk factors: smoking, diet, exercise, alcohol consumption, and measures of social support.

Wives' social class membership made no difference at all to the likelihood that male participants in the Whitehall II study were smokers or exercised little. In contrast, female participants' level of exercise and smoking status was related to their spouse's social class independently of their own grade of employment. Diet quality was affected equally by the socioeconomic position of both male and female

partners. Unlike the behavioral risk factors, the degree of social support reported by women participants generally was not negatively affected if their husband or partner was in a less advantaged social class.

However, non-employment of the husband or partner was associated with relatively lower levels of positive social support and higher negative social support, while men with non-working wives or partners were unaffected. These findings highlight some of the problems encountered in health inequality research. Investigators must pay closer attention to the different processes behind material power and emotional power within the household when investigating male/female differences in health and risk factors. This research was supported in part by the Agency for Healthcare Research and Quality (HS06516).

See "Gender differences in the relationship of partner's social class to behavioural risk factors and social support in the Whitehall II study," by M. Bartley, P. Martikainen, M. Shipley, and Dr. Marmot, in *Social Science & Medicine* 59, pp. 1925-1936, 2004. ■

Health Care Costs and Financing

Volume and intensity of physicians' services used by FFS Medicare enrollees jumped over 30 percent in the mid-1990s

Increases in the per-beneficiary costs of providing physician services to the Medicare population are driven by changes in medical technology, provider productivity, and the health of Medicare beneficiaries. During the mid-1990s, per capita volume and intensity of physicians' services used by fee-for-service (FFS) Medicare enrollees jumped more than 30 percent, according to a study supported by the Agency for Healthcare Research and Quality (T32 HS00046 and contract 290-97-0001).

At most, half of this increase was due to the aging of the population, changes in the sites where care was delivered, the prevalence of health conditions, or the shift to Medicare managed care by healthier enrollees. The main driver of growth in the volume and intensity of physician services was simply an increase in the use of outpatient care, concludes Melinda J. Beeuwkes Buntin, Ph.D., of RAND.

Dr. Buntin and her colleagues linked data from the 1993 and 1998 Medicare Current Beneficiary

Survey (MCBS) Cost and Use Files with claims data for MCBS FFS beneficiaries. They calculated changes in the volume and intensity of services (measured as number of relative value units [RVUs] that is, physician time and resources used) delivered due to each of these factors: changes in the composition of the Medicare population; changes in sites of care delivery; and increased enrollment in Medicare managed care plans.

In 1993, 88.7 percent of the sample used some physician

continued on page 14

Physician services for Medicare enrollees

continued from page 13

services compared with 89.9 percent in 1998. Also, those who used physician services used more services on average in 1998 than in 1993. Growth in outpatient care was the main driver. The proportion of RVUs associated with inpatient care decreased from 36.7 percent of

total RVU use in 1993 to 29.9 percent in 1998. In contrast, there was a mean increase of more than 10 RVUs for care delivered in outpatient settings. The growth in use of physicians' services was surprisingly uniform across medical conditions. This suggests that technological advances in diagnosis and treatment of particular illnesses only partly explained the rising costs. Growing

Medicare managed care enrollment over the period explained at most a 5.6 percent increase in expenditures.

For more information, see "Increased Medicare expenditures for physicians' services: What are the causes?" by Dr. Buntin, Jose J. Escarce, M.D., Ph.D., Dana Goldman, Ph.D., and others, in the Spring 2004 *Inquiry* 41, pp. 83-94. ■

Hospitals profit less from privately insured patients than from Medicare patients and profit least from Medicaid and self-pay patients

Payments for patient care at U.S. hospitals generally fall into four groups: Medicare, Medicaid, private insurance, and uninsured. The payment rates can be more or less "generous" in relation to the hospital's cost of caring for the patient.

Since 2001, budget pressures and growing hospital costs have forced government at all levels to consider cutting payment rates for the publicly insured (Federal Medicare and State Medicaid programs). In a recent study, researchers examined hospital financial reports—with detailed accounting by the four payer groups—and found that hospitals profit less from privately insured patients than from Medicare patients, and they profit least from Medicaid and self-pay patients.

Bernard Friedman, Ph.D., of the Agency for Healthcare Research and Quality, and his colleagues developed a model to estimate hospital profitability by hospital and payer in four States using data

from hospital accounting reports in FY 2000 and detailed hospital discharge summaries from AHRQ's Healthcare Cost and Utilization Project. They found the profitability of inpatient care for privately insured patients to be about 4 percent less than for Medicare patients but 14 percent higher than for Medicaid and only 9 percent higher than for self-pay patients.

The overall inpatient revenue for the four States was 102.5 percent of costs. After controlling for State and hospital characteristics, the privately insured group was slightly less profitable than the Medicare groups but still significantly more profitable than Medicaid or self-pay and charity patients. Self-pay patients were more profitable than shown in previous reports due to the effects of State and local budget allocations, as well as programs that redistribute payments from insurers and obtain Federal subsidies under the

Disproportionate Share provision of the Medicaid program.

Patients with more generous payers typically received more resource-intensive treatment for problems such as pneumonia and heart attack. There were no spillover effects from the generosity of one payer to the resources used for patients in other payer groups. Differences in hospital profitability appeared to be driven more by hospital payer mix than other hospital characteristics.

For more details, see "New evidence on hospital profitability by payer group and the effects of payer generosity," by Dr. Friedman, Neeraj Sood, Ph.D., Kelly Engstrom, M.B.A., and Diane McKenzie, M.S., in the *International Journal of Health Care Finance and Economics* 4, 231-246, 2004. Reprints (AHRQ Publication No. 04-R069) are available from AHRQ.** ■

Agency News and Notes

AHRQ Director elected to membership in the Institute of Medicine

Carolyn M. Clancy, M.D., Director of the Agency for Healthcare Research and Quality, has been elected to membership in the prestigious Institute of Medicine (IOM). Members are elected through a highly selective process that recognizes people who have made major contributions to the advancement of the medical sciences, health care, and public health. Election to the IOM is considered to be one of the highest honors in the fields of medicine and health.

The IOM is a component of the National Academies, which also includes the National Academy

of Sciences, the National Academy of Engineering, and the National Research Council. The Institute is recognized as a national resource for independent, scientifically informed analysis and recommendations on issues related to health.

Dr. Clancy is one of 65 new members of the Institute, bringing the total active membership to 1,416. With their election to the IOM, Dr. Clancy and the other new members make a commitment to devote a significant amount of volunteer time as members of IOM committees, which engage in a broad range of scientific studies. ■

New AHRQ survey helps hospitals measure and improve patient safety culture

The Agency for Healthcare Research and Quality has released a new tool to help hospitals and larger health systems evaluate employee attitudes about patient safety in their facilities or within specific units. The *Hospital Survey on Patient Safety Culture*, which was released in partnership with Premier, Inc., the Department of Defense (DoD), and the American Hospital Association (AHA), addresses a critical aspect of patient safety improvement: measuring organizational conditions that can lead to adverse events and patient harm.

As noted by AHRQ Director Carolyn M. Clancy, M.D., improving patient safety is not just a function of having the best research findings available. There also has to be an environment or culture that encourages health professionals to share information about patient safety problems and actions that can be taken to make care safer. This culture also must support the organization in making any changes that are needed in how care is delivered.

Assessments of patient safety culture typically include an evaluation of a variety of organizational factors that have an impact on patient safety, including: awareness about safety issues, evaluating specific patient safety interventions, tracking changes in patient safety over time, setting internal and external benchmarks, and fulfilling regulatory requirements or other directives.

The *Hospital Survey on Patient Safety Culture* includes the survey guide, the survey, and a feedback report template in which hospitals can enter their data to produce customized feedback reports for hospital management and staff. These items provide hospitals with the basic knowledge and tools needed to conduct a safety culture assessment, as well as suggestions about how to use the resulting data.

The survey was pilot tested with over 1,400 hospital employees from 21 hospitals in the United States via in-person and telephone interviews to ensure that the items were easily understood and relevant to patient safety in a hospital. To ensure

widespread awareness and use of the survey, AHRQ and its partners will host a toll-free audio conference call to help health professionals adopt and implement this survey. This call-in event will take place in January 2005, and will include a number of principals responsible for the development of the survey who will be able to answer questions about the survey and its implementation.

The survey can be found online at www.ahrq.gov/qual/hospculture. Printed copies are available from AHRQ (AHRQ Publication No. 04-0041). See the back cover of *Research Activities* for ordering information.

Editor's note: More information about the audio conference will be provided in AHRQ's Electronic Newsletter and on the AHRQ Web site in early January. If you currently do not receive the AHRQ EN, please see page 4 of this issue of *Research Activities* for instructions on how you can subscribe to this free online AHRQ newsletter. ■

AHRQ provides many funding opportunities for nursing research

Contributions from nurse researchers to health services research are critically important, note Beth A. Collins Sharp, Ph.D., R.N., Health Scientist Administrator, and Heddy Hubbard, M.P.H., R.N., Senior Advisor for Nursing, Center for Outcomes and Evidence, Agency for Healthcare Research and Quality. In a recent article with Cheryl Bland Jones, formerly at AHRQ, and currently at the University of North Carolina at Chapel Hill, they outline AHRQ funding opportunities for nursing.

Although AHRQ's grant review and funding generally follows the same peer review process as that of the National Institutes of Health, the AHRQ process is distinctive in several ways. For example, research applications submitted to AHRQ should reflect the Agency's focus on health services, patient outcomes, and translation of research into practice and policy. There is a new emphasis on research translation activities that applies to all applications submitted to AHRQ. Examples of translation products include publications that assist patients, policymakers, and/or clinicians with decisions about a health service, and services that enhance the implementation of the results in other settings.

The authors strongly encourage nurse investigators to communicate with an AHRQ project officer before submitting a grant application to ensure the relevance of the proposed study to AHRQ programs and priority areas. After the Initial Review Group study section review process, the AHRQ project officer assigned to the application and the project's principal investigator may communicate to discuss minor revisions or clarify issues raised during the review process. Nurses can also request dual funding for proposals of interest to other federal entities such as the National Institutes of Health. Applications for AHRQ extramural research funding must include a description of plans for recruiting and retaining priority populations such as low-income, elderly, minority, or disabled groups, as well as women and children.

For more information, see "Evidence-based resources for nurses: Agency for Healthcare Research and Quality," by Drs. Collins Sharp, Hubbard, and Jones, in the July 2004 *Nursing Outlook* 52(4), p. 215-217. Reprints (AHRQ Publication No. 05-R008) are available from AHRQ.** ■

Announcements

New booklet helps women weigh surgery options for early-stage breast cancer

The Agency for Healthcare Research and Quality has partnered with the National Cancer Institute, other HHS components, and the non-Federal National Research Center for Women and Families to produce a resource for women newly diagnosed with early-stage breast cancer. Early-stage breast cancer includes stages I through IIIA breast cancer and Stage 0, which includes ductal carcinoma in situ (DCIS, very early breast cancer that is often too small to form a lump) and lobular carcinoma in situ (LCIS, not cancer but may increase the chance that a person will get breast cancer).

Treatment for early-stage breast cancer usually includes either breast-conserving surgery (lumpectomy) along with radiation therapy or mastectomy (complete removal of the affected breast or breasts). Many women do not understand the repercussions of these surgeries and may not be aware that survival rates are virtually equal for both types of surgery. Perhaps that's why more than one-third of these women do not decide and instead defer to their physicians to choose the surgical procedure they will have. Nearly half of affected women ultimately have a mastectomy—complete breast

removal—rather than breast-conserving surgery—lumpectomy—in which only the cancerous tissue is removed from within the affected breast.

The new booklet, *Surgery Choices for Women with Early-Stage Breast Cancer*, will help women weigh the pros and cons of their surgical options and take a more active role in their breast cancer treatment. A unique feature of the booklet is the "Compare Your Choices" chart, which helps patients compare surgery options. The chart includes information on surgery side effects, additional treatments, and the chance of

continued on page 17

Breast cancer surgery

continued from page 16

cancer recurrence for each surgery type. The booklet also provides a list of government and non-government sources of more information on breast cancer and its treatment.

Print copies of *Surgery Choices for Women with Early-Stage Breast Cancer* (AHRQ Publication No. PHS 04-M053) are available from AHRQ.* See the back cover of

Research Activities for ordering information. The booklet is also available electronically from the AHRQ Web site. Go to www.ahrq.gov and click on "Women's Health" to access the booklet online.

Editor's note: The 24-page booklet was developed over the course of 2 years, beginning with a technical report from an AHRQ-sponsored scientific meeting on early-stage breast cancer treatment. The final product, which is written

in easy-to-understand language, was reviewed and edited by the Food and Drug Administration and pilot tested with women in Denver, Baltimore, and selected rural areas of the country. In addition to AHRQ, the National Cancer Institute, and the National Research Center for Women & Families, other partners included NCI's Office of Women's Health and the Office of Women's Health at the Department of Health and Human Services. ■

Subscribe to AHRQ's Patient Safety E-Newsletter

The Agency for Healthcare Research and Quality has launched the AHRQ Patient Safety E-Newsletter. This new online resource will be issued periodically to ensure that subscribers receive important patient safety news and information as quickly as possible. The e-newsletter will feature concise descriptions of recent findings from AHRQ-supported research and information about new initiatives, upcoming meetings, and other important patient safety activities. Web links will be provided for those who want to followup or get more detailed information. All you need to sign up for this free service is a computer and an e-mail address. To subscribe, follow these simple steps:

Send an e-mail message to listserv@list.ahrq.gov

In the subject line, type: Subscribe

In the body of the message type: sub patientsafetynewsletter and your full name

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You will receive an e-mail confirmation of your subscription. For questions, e-mail Salina Prasad in AHRQ's public affairs office at sprasad@ahrq.gov. ■

Newly developed cultural competence research agenda now available online

In recent years the notion of cultural competence has come to encompass both interpersonal and organizational interventions, as well as strategies designed to facilitate the achievement of clinical and public health goals when racial, ethnic, cultural, and linguistic differences come into play. *Setting the Agenda for Research on Cultural Competence in Health Care*, sponsored by the Department of Health and Human Services (HHS) Office of Minority Health and the Agency for

Healthcare Research and Quality, systematically reviews and abstracts the results of published and ongoing research on cultural competence interventions and identifies research questions to form an agenda for future study. By establishing the evidence base for action and identifying gaps in knowledge, *Setting the Agenda* supports implementation of the national standards for culturally and linguistically appropriate services in health care that were published by HHS in 2000.

The research agenda—developed in consultation with an expert committee of key researchers, policymakers, and health care providers—is organized around three groups of cultural competence interventions, as follows:

- Culturally sensitive interventions. Topics focus on cultural competence education and training, including impact on both providers and patients;

continued on page 18

Cultural competence research agenda

continued from page 17

- racial, ethnic, and linguistic concordance; community health workers; culturally competent health promotion; family and community involvement in health care delivery; and coordination of conventional medicine and traditional practices.
- Language assistance. Potential research topics in this group focus on interventions for language barriers, bilingual services, oral interpretation, and translation of written materials.

- Organizational supports. These research questions focus on management, policy, and implementation strategies to institutionalize cultural competence activities; community involvement in cultural competence program planning, design, implementation, governance, training, and research; design and use of surveys and profile instruments to plan for services and measure satisfaction and quality; and cultural competence self-assessments, ethnic data collection, and development of community profiles.

In addition to the comprehensive research agendas for the three

groups of interventions, the final report identifies methodological challenges to conducting research on cultural competence and includes detailed matrices of the extensive literature review. It also includes questions addressed in the studies, study methodologies, and major findings.

Go to www.ahrq.gov/research/cultural.htm for a summary of the report and to www.omhrc.gov/cultural/cultural18.htm to access PDF files of the full report. Print copies of the report (Publication No. 474) can be ordered from the Office of Minority Health Resource Center by calling 1-800-444-6471 or sending an e-mail to info@omhrc.gov. ■

New publications now available from AHRQ

The following publications and data products were released recently by the Agency for Healthcare Research and Quality. Print copies of most items are now available from AHRQ; others are available online only, as noted. Please see the back cover of *Research Activities* for ordering information for print materials.

CERTs Annual Report, Year 4 (AHRQ Publication No. 04-0090).

The Centers for Education & Research on Therapeutics (CERTs) were established in 1999 by AHRQ in consultation with the U.S. Food and Drug Administration. The CERTs consist of a network of seven research centers and a coordinating center. The CERTs conduct research and provide education to advance the optimal use of drugs, medical devices, and biological products. Projects are aimed at advancing knowledge; informing health care providers, patients, and policymakers about that knowledge; and improving

aspects of the health care system related to therapeutics. In their fourth annual report, the CERTs report on research in such areas as the safety of treatments for rheumatoid arthritis and examining better ways to monitor blood glucose levels in children with diabetes. Information dissemination continues in the areas of preventing antibiotic resistance and finding gaps in osteoporosis treatment. Researchers also examined health care delivery changes, such as effects of changing delivery of mental health care and using surveillance systems to improve safety. The report also discusses CERTs partnerships and collaborations, as well as resources produced by the program.*

Diabetes Care Quality Improvement. Resource Guide for State Action (AHRQ Publication No. 04-0072) and Workbook for State Action (AHRQ Publication No. 04-0073).

States can champion changes in health care delivery and best practices that can transform health care systems, reduce costs, and improve public health. For specific diseases, like diabetes, a number of States already have substantial programs underway that can shape and inform the development of new initiatives. AHRQ has released two new products to help State leaders implement or enhance quality improvement (QI) plans for diabetes for their States. These products were developed in consultation with diabetes control and prevention experts at all levels. The *Resource Guide for State Action* offers information for a range of participants—from elected leaders to local health care officials—in a State's QI efforts. It includes background information, analysis of State and national data, and guidance for developing a State QI plan, as well as an extensive listing of many ongoing national, State,

continued on page 19

New publications

continued from page 18

and local programs to enhance diabetes care. The Workbook for State Action is an interactive companion to the Resource Guide. It presents exercises for State leaders to help them acquire the information and skills they need to implement health care QI programs in their State. Users will be able to compare plans and ongoing activities in their States with the Nation as a whole and with other States.*

Employer-Sponsored Health Insurance: Trends in Cost and Access. Research in Action Issue 17. M.W. Stanton and M.K. Rutherford. AHRQ Publication No. 04-0085.

The U.S. employer-based health insurance market provides insurance coverage to nearly two-thirds of the population under 65. This AHRQ report, which is based on Medical Expenditure Panel Survey (MEPS) data, provides information that decisionmakers can use in their efforts to make health insurance more affordable. The percent of employees who work in a place where insurance is offered has risen in recent years. However, many employers require that employees work full time or go through a waiting period in order to be eligible for coverage, and the percent of employees eligible to enroll where insurance is offered has gone down. Similarly, the percent of employees who work where insurance is offered and actually enroll has declined. The cost of the employee contribution is a major reason for declining enrollment, and low-wage workers are more sensitive to the size of the employee premium contribution. Hispanics, young adults, and near-elderly working women with health problems are the groups most likely to be uninsured.*

Preventable Hospitalizations: A Window into Primary and Preventive Care, 2000. HCUP Fact Book 5 (AHRQ Publication No. 04-0056).

This new fact book examines a critical area of health care quality—potentially avoidable hospitalizations (i.e., hospitalizations that might be preventable with high quality primary and preventive care)—that may not be necessary if clinicians effectively diagnose, treat, and educate their patients and if patients actively participate in their care and adopt healthy lifestyle behaviors. The fact book presents information on preventable hospitalizations for 10 selected chronic conditions (e.g., hypertension), 5 acute conditions (e.g., dehydration), and 1 birth outcome (low-weight births). Information on variations across U.S. regions and hospitalizations among priority populations (including children, women, low-income, and rural residents) is presented in an overall context, and detailed statistics for each condition are also presented. Results are based on AHRQ's Prevention Quality Indicators applied to the Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS) database. HCUP includes hospital discharge data drawn from 36 States representing 90 percent all hospital stays in the United States.

Medical Expenditure Panel Survey. MEPS is the third in a series of nationally representative surveys of medical care use and expenditures sponsored by AHRQ. MEPS, which is cosponsored by the National Center for Health Statistics, collects detailed information on health care use and expenses, sources of payment and insurance coverage of individuals and families in the United States. MEPS comprises four component

surveys: the Household Component (HC), the Medical Provider Component (MPC), the Insurance Component (IC), and the Nursing Home Component (NHC). The following new MEPS data products and publications are now available from the AHRQ Website at www.meps.ahrq.gov.

Data Products

Household Component Quality of Care Tables (2000, 2001). These tables are derived from MEPS-HC data on the following indicators of quality health care: medical care associated with diabetes, preventive health care services, barriers to health care services, access to health care services, and experiences during the delivery of health care services. The estimates provided in these tables may differ from estimates found in MEPS Statistical Briefs, the AHRQ National Quality Report, and other quality-related AHRQ publications. Any differences are due to a variety of factors, such as the use of different weights or data files from different points in time.

MEPS HC-067D: 2002 Hospital Inpatient Stays File (released October 2004). This public use file is drawn from the 2002 MEPS-HC and MEPS-MPC. It was released as an ASCII file with SAS format statements and in SAS transport format. The Hospital Inpatient Stays File provides detailed information on hospital inpatient stays. Data can be used to make estimates of inpatient hospital stay use and expenditures for calendar year 2002. This is an event-level data file containing characteristics associated with the hospital inpatient stay event such as: the date of the hospital inpatient stay, reason for the stay, types of services received, condition(s) and procedure(s) associated with the hospital stay,

continued on page 20

New publications

continued from page 19

whether or not medicines were prescribed, and imputed expenditure data.

MEPS HC-067E: 2002 Emergency Room Visits File (released October 2004). This public use file is drawn from the 2002 MEPS-HC and MEPS-MPC. Released as an ASCII file with SAS (and SPSS) program statements and in SAS transport format, the Emergency Room Visits File provides detailed information on emergency room (ER) visits. Data can be used to make estimates of emergency room use and expenditures for calendar year 2002. The file contains characteristics associated with the ER visit such as: the date of the visit, types of care and services received, types of medicine prescribed during the visit, condition codes, expenditures, source of payment associated with the visit, and imputed expenditure variables.

MEPS HC-067F: 2002 Outpatient Department Visits (released October 2004). This public use file is drawn from the 2001 MEPS-HC and MEPS-MPC. It was released as an ASCII file with SAS (and SPSS) program statements and in SAS transport format. The Outpatient Visits File provides detailed information and can be used to make estimates of outpatient use and expenditures for calendar year 2001. It contains characteristics associated with the outpatient visit and imputed expenditure data such as the date of the visit, whether or not a doctor was seen, type of care received, type of services provided, expenditures and sources of payment, and imputed sources of payment.

MEPS HC-067G: 2002 Office-Based Medical Provider Visits File (release date October 2004). This public use data file is drawn from the 2002 MEPS-HC. Released as an ASCII file with SAS (and SPSS) program statements and in SAS transport format, the Medical Provider Visits File provides detailed information on office-based medical provider visits. Data are gathered from a nationally representative sample of the civilian, noninstitutionalized population of the United States and can be used to make estimates of office-based medical provider use and expenditures for calendar year 2002. This file contains characteristics associated with the office-based visit, such as: date of the visit, time spent with the provider, types of treatment and services received, types of medicine prescribed, condition codes, expenditures, source of payment associated with the visit, and imputed expenditure variables.

MEPS HC-065: MEPS Panel 5 (2000) Longitudinal Weight File (release date October 2004). This is a 2-year longitudinal file derived from the respondents to the MEPS Panel 5 2000 sample. The individuals in this data set represent those who were in the MEPS population for all or part of the 2000-2001 period. The file contains a weight variable (LONGWTP5) that, when applied to the people who participated in both 2000 and 2001, will enable the user to make national estimates of person-level changes in selected variables (e.g., health insurance, health status, use, and expenditures). In addition, LONGWTP5 can be used to develop cross-sectional type estimates for the civilian noninstitutionalized population in each year based on only the Panel 5 sample. To obtain analytic variables, the records on

this file must be linked to the 2000 and 2001 MEPS public use data files using the sample person identifier (DUPERSID).

Data Update for MEPS HC-058: MEPS Panel 4 (1999) Longitudinal Weight File (Update Number 1, 10/29/04). The HC-058 data file has been updated to make stratum (VARSTRP4) and PSU (VARPSUP4) variables consistent with other longitudinal weight files, enabling the user to combine files for analytic purposes.

Projected MEPS Data and Related Documentation (2002-2008). These newly released files on the MEPS Web site provide projected health expenditures for each year between 2002 and 2008 by type of service and payment source for the civilian, noninstitutionalized household population and subgroups therein defined by selected demographic characteristics. The data have been projected from the 1996 MEPS data by reweighting the population using Vital Statistics data on demographic, mortality, and fertility changes in the U.S. population and Census predictions for changes into the future. Projected household health expenditures have been aligned to adjusted national health expenditures for each year from the National Health Accounts provided by the Centers for Medicare & Medicaid Services.

Publications

Statistical Brief #56: National Health Care Expenses in the U.S. Community Population, 2001. Using data from the MEPS-HC 2001, this Statistical Brief presents estimates on the health care expenses of the U.S. civilian noninstitutionalized (community) population in calendar year 2001. Health care expenses represent payments to hospitals,

continued on page 21

New publications

continued from page 20

physicians, and other health care providers for services reported by respondents in the MEPS-HC.

Statistical Brief #55: Employee Contributions to Employer-Sponsored Health Insurance Coverage, 1997 versus 2002. This report, based on estimates from the

MEPS-IC, shows the changes in employee contributions for both single and family (family of four) coverage from 1997 to 2002 in the private sector of the economy. Changes for employees working for small (fewer than 50 employees) and large (50 employees or more) firms are analyzed.

Statistical Brief #53: Employee Copays and Deductibles for

Employer-Sponsored Health Insurance in 1999 and 2002. Using data from the 1999 and 2002 MEPS-IC, this report examines the values of copays and deductibles for employer-sponsored health insurance. Private-sector and public-sector (State and local government) employers are examined separately and within each sector by size of employer. ■

Grant final reports now available from NTIS

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

Records of all 750,000 documents archived at NTIS—including many AHRQ documents and final reports from all completed AHRQ-supported grants—can now be searched on the new NTIS Web site. For information about findings from the projects described here, please access the relevant final reports at the NTIS Web site. Also, all items in the database from 1997 to the present can be downloaded from the Web site. Go to www.ntis.gov for more information.

Editor's note: In addition to these final reports, you can access information about these projects from several other sources. Most of these researchers have published interim findings in the professional literature, and many have been summarized in *Research Activities* during the course of the project.

To find information presented in back issues of *Research Activities*, go to the AHRQ Web site at www.ahrq.gov and click on

"Research Activities Online Newsletter" and then "Search Research Activities." To search for information, enter either the grant or contract number or the principal investigator's last name in the query line. A reference librarian can help you find related journal articles through the National Library of Medicine's PubMed.

***Development of the New England Clinicians Forum.* Jennifer E. Granger, M.P.H., Connecticut Primary Care Association, Hartford. AHRQ grant HS13568, project period 9/30/02-9/29/03.**

This project provided support for the New England Clinicians Forum to expand its capacity to conduct and link research to community care sites. As a result, this practice-based research network is now a sustainable entity with the potential for significant contributions to the literature on primary care in culturally diverse and medically underserved populations. (Abstract and final report, PB2004-105594; 22 pp, \$26.50 paper, \$14.00 microfiche)***

***Development and Testing of an Instrument to Assess Pain.* Kandyce Richards, Ph.D., R.N., University of Miami School of Nursing, Miami, FL. AHRQ grant HS10788, project period 9/30/00-11/30/01.**

This project provided support for the refinement and testing of a tool for assessing pain in hospitalized patients. The project involved four South Florida hospitals that served as recruitment sites for data collection. Both focus groups and individual interviews were used during data collection. Content analysis led to a preliminary 40-item instrument, which was scored by 200 subjects during piloting and testing. A 30-item questionnaire was finalized. (Abstract and final report, NTIS accession no. PB2004-106401; 18 pp, \$26.50 paper, \$14.00 microfiche)***

***Disease Management for Asthmatics in Medicaid HMOs.* Alan Hillman, M.D., University of Pennsylvania, Philadelphia. AHRQ grant HS10044, project period 4/1/99-6/15/00.**

The goals of this project were to implement and test a 2-year quality improvement intervention for asthma care in 43 pediatric practices in Boston and Detroit. Twenty-two practices received the intervention in the first year and the remainder in the second year. The proportion of children who received appropriate medication therapy did not differ based on intervention status. (Abstract and final report, NTIS accession no. PB2004-

continued on page 22

Grant final reports

continued from page 21

106782; 22 pp, \$26.50 paper, \$14.00 microfiche)***

***For-Profit Hospital Ownership and Medicare Spending.* Elaine M. Silverman, M.D., Dartmouth-Hitchcock Medical Center, Hanover, NH. AHRQ grant HS11012, project period 9/1/00-8/31/03.**

The goal of this project was to confirm previous findings that showed an association between for-profit hospital ownership and increased Medicare spending between 1989 and 1995. The researchers examined whether this association continued through 1999. They used data from the continuous Medicare History Sample to calculate adjusted spending rates in each area. They found that annual per capita spending was higher in areas served by for-profit hospitals than in areas served by not-for-profit hospitals through 1999. For-profit hospitals were associated with higher proportions of discharges coded for complex (and thus more highly reimbursed) diagnoses among admissions for respiratory illness. The researchers conclude that areas served by for-profit hospitals continued to be associated with higher per capita Medicare spending through 1999. Spending on hospital services accounted for a large part of these differences and may be related to coding practices. (Abstract, executive summary, and final report, NTIS accession no. PB2004-106402; 32 pp, \$29.50 paper, \$14.00 microfiche)***

***Geographic Accessibility of Health Care in Rural America.* Wilbert M. Gesler, Ph.D., University of North Carolina at Chapel Hill. AHRQ grant HS09624, project period 9/30/98-2/29/04.**

This study was conducted in 12 rural counties in the western region of North Carolina to measure the effects of geographic factors on the use of health care services and to assess the extent to which sociodemographic, cultural, and health status characteristics reduce these effects. The researchers used a dataset based on 1,059 personal survey interviews. They found that geographic and spatial behavior variables had limited association with use of health care in this rural region, after demographic, social, cultural, and health status factors were controlled. More geographic and other variables were associated with discretionary use (check-ups, chronic care) than with nondiscretionary care (illness and other acute care visits). (Abstract and final report, NTIS accession no. PB2004-106425; 20 pp, \$26.50 paper, \$14.00 microfiche)***

***Optimal Antithrombotic Therapy in Atrial Fibrillation.* Brian F. Gage, M.D., Barnes-Jewish Hospital, St. Louis, MO. AHRQ grant HS10133, project period 7/1/99-6/30/03.**

The goals of this project were to determine the real-world outcomes of antithrombotic therapy in Medicare beneficiaries who have atrial fibrillation (AF) and to increase the appropriate use of antithrombotic therapy in this population. The researchers used data from medical chart reviews representing seven States with 3 years of Medicare Part A claims data to form a National Registry of AF. They used the dataset to quantify the risks of stroke and hemorrhage and to form clinical prediction rules for these adverse events. They carried out two randomized controlled trials to evaluate the optimal method of managing warfarin therapy and two

decision analyses to evaluate the cost-effectiveness of antithrombotic therapy. By combining stroke risk factors and risk factors for hemorrhage, they were able to accurately predict future stroke or major hemorrhage in AF patients. Using the two schemes, the researchers were able to determine the cost-effectiveness of aspirin and warfarin for AF patients. (Abstract and final report, NTIS accession no. PB2004-105593; 16 pp, \$26.50 paper, \$14.00 microfiche)***

***Policy Implications of Primary Care Practice Patterns.* David Blumenthal, M.D., Massachusetts General Hospital, Boston. AHRQ grant HS07892, project period 5/1/95-10/31/97.**

This project consisted of a series of substudies that examined what primary care practitioners do, how what they do is changing, influences on such changes, and the implications for policy. Examples of findings include: primary care physicians should be exposed during training to health problems of underserved populations; internists may face the greatest pressure to reduce intensity of their practice styles; and combining primary care physicians from multiple specialties in the same practice may result in an optimal balance of skill and experience. Other findings include: physicians who want to shorten visits will be tempted to avoid complex older patients and to provide fewer preventive, diagnostic, and therapeutic services; increasing ethnic diversity and provision of preventive services are associated with longer primary care visits; and these trends may conflict with managed care emphasis on physician productivity. (Abstract and final report, NTIS accession no. PB2004-106427; 16 pp, \$26.50 paper, \$14.00 microfiche)*** ■

Research Briefs

Bhutani, V.K., Johnson, L.H., Maisels, M.J., and others. (2004, October). "Kernicterus: Epidemiological strategies for its prevention through systems-based approaches," (AHRQ grant HD/HS36914). *Journal of Perinatology* 24(10), pp. 650-662.

In newborn infants with jaundice, blood levels of bilirubin can become high enough to result in neurotoxicity, a condition of severe jaundice called kernicterus, which if untreated, can result in cerebral palsy, mental retardation, hearing loss, and difficulty moving the eyes. Rates of hospital readmission for jaundice among newborns ranged from 1.7 to 30.2 per live births reported from 1988 to 1998, with near-term infants being readmitted two to three times as often as term infants. Attendees at a recent conference noted that early identification, prevention, and treatment of severe jaundice should make kernicterus a preventable disease. Their recommendations include: using standardized definitions to obtain prospective data on the prevalence and incidence of severe jaundice and its sequelae, exploring the clinical characteristics and root cause of kernicterus in children identified in the Kernicterus Pilot Registry, identifying and testing an indicator for population surveillance, validating systems-based approaches to the management of newborn jaundice, and exploring the feasibility of using biologic or genetic markers to identify infants at risk for hyperbilirubinemia.

Morimoto, T., Gandhi, T.K., Seger, A.C., and others. (2004). "Adverse drug events and medication errors: Detection and classification methods." (AHRQ grant HS11169). *Quality and Safety in Health Care* 13, pp. 306-314.

These authors describe a method of adverse drug event (ADE) and medication error detection and classification that is feasible, reliable, and appropriate for use in various clinical settings to measure and improve medication safety. ADEs, potential ADEs, and medication errors are collected by identifying signals from practice data (medical charts, laboratory data, prescription data, and administrative databases). Research nurses, pharmacists, or research assistants review these signals and present those likely to represent an ADE or medication error to reviewers who independently categorize them into ADEs, potential ADEs, medication errors, or exclusions. They also classify the incidents according to preventability, ameliorability, disability, severity, stage, and responsible person.

Richman, D.D., Morton, S.C., Wrin, T., and others. (2004). "The prevalence of antiretroviral drug resistance in the United States." (AHRQ grant HS08578). *AIDS* 18, pp. 1393-1401.

Antiretroviral therapy has dramatically reduced the morbidity and mortality associated with HIV, but the emergence of drug-resistant virus has limited the usefulness of many drugs. To assess the extent of drug-resistant virus, the researchers examined viral load and drug

resistance (using HIV drug susceptibility assays on plasma virus) among 1,797 U.S. adults receiving HIV care in early 1996 who survived to late 1998. Three-fourths (76 percent) of viremic patients had resistance to one or more antiretroviral drugs, and nearly half of people in this group were resistant to more than one drug. The researchers note that these findings have significant implications for HIV treatment and transmission.

Zivin, J.G., and Pfaff, A.S. (2004). "To err on humans is not benign: Incentives for adoption of medical error-reporting systems." (AHRQ grant HS11905). *Journal of Health Economics* 23, pp. 935-949.

Concerns about frequent and harmful medical errors have led policymakers to advocate the creation of a system for medical error reporting. Health providers, fearing that reported information about errors might be used against them under the current medical malpractice system, have been reluctant to participate in such reporting systems. The authors propose a redesign of the malpractice system to overcome this incentive problem. The authors also consider some alternatives to this approach, since physicians' reporting efforts may not always be observable. For example, hospitals may have interests distinct from individual physicians and may not be able to observe their reporting efforts. Second, a regulatory agency or a court may not be able to adequately observe reporting efforts by a provider. ■

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