



Research Activities



U.S. Department of Health and Human Services • No. 282, February 2004

Highlights

Departments

- 2 Outcomes/
Effectiveness
Research
- 3 Children's Health
- 5 Health Care
Delivery
- 8 Health Care
Disparities/
Minority Health
- 10 Emergency
Medicine
- 11 Prevention and
Screening
- 14 Managed Care/
Market Forces
- 16 Health Care
Quality/Patient
Safety
- 19 HIV/AIDS
Research

Regular Features

- 20 Announcements
- 21 Research Briefs

New study estimates potential savings gained by expanding use of beta-blockers in heart failure patients

Using a decision model, researchers estimate that Medicare costs would decrease if the use of beta-blocker drugs were more widespread, according to a new study sponsored by the Agency for Healthcare Research and Quality (AHRQ grant HS10548) and published in the January 2004 issue of the *American Journal of Medicine*.

Although numerous clinical trials have demonstrated the effectiveness of beta-blockers in reducing hospitalizations and deaths from heart failure, recent studies suggest that beta-blocker use in the heart failure population remains at less-than-optimal levels. Heart failure occurs when the heart loses its ability to pump enough blood through the body. Beta-blockers can improve heart function and prolong survival in patients with heart failure.

Researchers from the AHRQ-sponsored Duke Center for Education and Research on Therapeutics (CERT) estimate that treatment for heart failure without beta-blocker drugs would cost Medicare \$39,739

per patient over a 5-year period. Treatment with beta-blockers, on the other hand, would cost an estimated \$33,675, a per-patient savings of \$6,064. In contrast, beta-blocker therapy would increase expenses to Medicare patients by an estimated \$2,113 over 5 years.

Although at the time of the study Medicare did not cover prescription drugs, researchers estimated that program savings would remain positive even if Medicare reimbursed patients for the cost of beta-blockers.

Estimates in the study were calculated using a Markov decision model. Calculations were based on clinical trial data on rates of hospitalization/death and effectiveness of beta-blockers, Duke University Medical Center estimates of hospital costs and reimbursement, and physician fees from the Medicare fee schedule.

For more details, see "Economic effects of beta-blocker therapy in patients with heart failure," by Patricia A.

continued on page 2



Use of beta-blockers

continued from page 1

Cowper, Ph.D., Elizabeth R. DeLong, Ph.D., David J. Whellan, M.D., and others in the January 15, 2004 *American Journal of Medicine* 116(2), pp. 104-111.

Editor's Note: AHRQ's Centers for Education and Research on

Therapeutics (CERTs) program is a national initiative to increase awareness of the benefits and risks of new, existing, or combined uses of therapeutics, through education and research. The seven CERTs are: Duke University Medical Center, the HMO Research Network, University of Alabama at

Birmingham, University of Arizona Health Sciences Center, University of North Carolina, University of Pennsylvania, and Vanderbilt University Medical Center. More information on the CERTs and their activities is available at www.certs.hhs.gov. ■

Outcomes/Effectiveness Research

Complications from prostate cancer treatment vary according to pretreatment function and choice of treatment

More than 140,000 men in the United States are diagnosed each year with localized prostate cancer. Most men undergo one of four types of therapy, each of which has a distinctive pattern of long-lasting effects on urinary, bowel, and sexual function. Treatments include external beam radiation therapy (EBRT, a radiation beam is targeted at the diseased cells), radical prostatectomy (RP, surgical removal of the prostate), interstitial radioactive seed

implants (radioactive seeds are placed in the tumor and remain in the body, where they give off radiation for about a year), or brachytherapy (BT, also called internal radiation therapy, in which a doctor pushes radioactive seeds through needles into the prostate gland, where they release radiation over a 3-6 month period).

None of these treatments have yet been proven to prolong life; most patients die of something other than prostate cancer. Thus, understanding the quality-of-life differences following these treatments might improve patients' choice of treatment and later help them adjust to its consequences, explains James Talcott, M.D., of Massachusetts General Hospital. In a recent study supported by the Agency for Healthcare Research and Quality (HS08208), Dr. Talcott and his colleagues prospectively studied 417 men with localized prostate cancer. They assessed the men's urinary, bowel, and sexual function from before treatment to 24 months after.

Patients who underwent EBRT, RP, and BT differed significantly in sociodemographic factors, cancer prognostic factors, and pretreatment symptom status, especially sexual function. Average scores for measures of urinary incontinence increased sharply after RP, while bowel problems and urinary irritation/obstruction rose after EBRT and BT. Sexual dysfunction increased in all patient groups, particularly after radical prostatectomy; nerve-sparing surgical technique had little apparent benefit. There was no improvement in urinary function and little change in overall bowel function after 12 months.

Research Activities is a digest of research findings that have been produced with support from the Agency for Healthcare Research and Quality. *Research Activities* is published by AHRQ's Office of Communications and Knowledge Transfer. The information in *Research Activities* is intended to contribute to the policymaking process, not to make policy. The views expressed herein do not necessarily represent the views or policies of the Agency for Healthcare Research and Quality, the Public Health Service, or the Department of Health and Human Services. For further information, contact:

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

continued on page 3

Prostate cancer treatment

continued from page 2

However, the time course of sexual dysfunction varied by treatment and, for bowel function, by symptom.

More details are in “Time course and predictors of symptoms after primary prostate cancer therapy,” by Dr. Talcott, Judith Manola, M.S., Jack A. Clark, Ph.D., and others, in the November 1, 2003 *Journal of Clinical Oncology* 21, pp. 3979-3986. ■

Children's Health

Pneumatic otoscopy may be less costly, easier to use, and just as accurate as other methods for diagnosing middle ear effusion in children

Pneumatic otoscopy can diagnose middle ear effusion (MEE) in children as well as or better than eight other diagnostic methods, concludes a study by the Southern California Evidence-based Practice Center–RAND, which is supported by the Agency for Healthcare Research and Quality (contract 290-97-0001). In MEE, a child's eustachian tube is usually blocked, and air cannot get into the middle ear, leading to an accumulation of fluid behind the eardrum (tympanic membrane).

Using a pneumatic otoscope, an instrument fitted with a light and magnifying lens, a clinician can look directly into the child's middle ear and view the transparency, position, and other qualities of the ear drum. A rubber bulb attached to the head of the otoscope can be squeezed to push air into the ear canal to view tympanic membrane mobility, which is impaired with MEE.

Glenn S. Takata, M.D., and his EPC colleagues assessed the research evidence from 1966 through January 2000 on the accuracy of eight methods for diagnosing MEE in children with otitis media with effusion (OME, ear infections involving fluid in the ear). Using pooled estimates for the studies, they plotted the

performance of each diagnostic test in terms of sensitivity and specificity and identified the best performers among tests included in the comparison.

Among the eight diagnostic methods, including tympanometry and acoustic reflectometry, pneumatic otoscopy had the best apparent performance with a sensitivity of 94 percent and a specificity of 80 percent. For the typical clinician, pneumatic otoscopy should be easier to use than other diagnostic methods. The important question may be what degree of training will be needed for the clinicians to be as effective with pneumatic otoscopy as were the examiners in the studies reviewed. Although pneumatic otoscopy seemed to be more cost effective than other approaches for diagnosing OME, the researchers recommend that future studies include a cost-effectiveness analysis to permit more informed decisions on the best all around diagnostic method for OME.

See “Evidence assessment of the accuracy of methods of diagnosing middle ear effusion in children with otitis media with effusion,” by Dr. Takata, Linda S. Chan, Ph.D., Tricia Morphew, M.S., and others, in the December 2003 *Pediatrics* 112(6), pp. 1379-1387. ■

Also in this issue:

Reducing hospitalizations among children, see page 4

Improving diabetes self-care, see page 5

Followup for rural women with abnormal Pap smears, see page 6

Health care needs of homeless women, see page 7

Sociodemographic disparities in health care use, see page 8

Prescribing of opioids by ER doctors, see page 9

Explaining and managing ER overcrowding, see page 10

Use of tamoxifen to prevent breast cancer, see page 11

Patient-provider partnerships for decisionmaking, see page 12

U.S. mammography rates compared with other countries, see page 13

Effects of changing drug formularies and copayments, see page 14

Impact of hospital mergers on costs, see page 15

Computerized physician order entry to reduce errors, see page 16

Using scientific evidence to improve clinical practice, see page 17

Use of health care services by HIV/AIDS patients, see page 19

Better education for children and parents could eliminate the need for many pediatric hospitalizations

Many pediatric hospitalizations might be avoided if parents and children were better educated about the child's condition, medications, need for followup care, and the importance of avoiding known disease triggers, according to a recent study that was supported in part by the Agency for Healthcare Research and Quality (HS11305). Avoidable hospitalization conditions (AHCs) are hospitalizations that usually can be avoided with timely, effective outpatient care. These range from acute illnesses such as urinary tract infections to chronic diseases such as asthma.

A research team led by Glenn Flores, M.D., of Boston Medical Center, conducted a cross-sectional survey of parents, primary care physicians (PCPs), and inpatient attending physicians (IAPs) for 554 children who were admitted with AHCs to an urban hospital during a 14-month period. Most of the children were poor and members of a minority race and had public health insurance.

The most frequent AHC diagnoses were asthma (43 percent), dehydration/gastroenteritis (16 percent), pneumonia (11 percent), seizure disorder (8 percent), and skin infections (8 percent). Only 25 percent of parents said that their child's admission was avoidable, compared with 29 percent of PCPs and 32 percent of IAPs. All three sources agreed that 13 percent of hospitalizations could have been avoided.

PCPs (71 percent) and IAPs (48 percent) cited parent/patient-related reasons for how hospitalizations could have been avoided significantly more often than parents (35 percent). These included adhering to and

refilling medications, better outpatient followup, and avoiding known disease triggers. Parents (48 percent) significantly more often than PCPs (18 percent) and IAPs (37 percent) cited physician-related reasons for how hospitalizations could have been avoided. These included better education by physicians about the child's condition and better quality of care.

See "Keeping children out of hospitals: Parents' and physicians' perspectives on how pediatric hospitalizations for ambulatory care-sensitive conditions can be avoided," by Dr. Flores, Milagros Abreu, M.D., Christine E. Chaisson, M.P.H., and Donglin Sun, M.S., in the November 2003 *Pediatrics* 112(5), pp. 1021-1030.

Editor's Note: Two additional AHRQ-funded studies on related topics examine parental compliance with after hours telephone triage advice and the opportunity to encourage parents to stop smoking during a child's clinic visit. For details, see Lee, T.J., Baraff, L.J., Wall, S.P., and others. (2003, September). "Parental compliance with after hours telephone triage advice: Nurse advice service versus on-call pediatricians." (AHRQ grant HS10604). *Clinical Pediatrics* 42, pp. 613-619; and Winickoff, J.P., Buckley, V.J., Palfrey, J.S., and others. (2003, November). "Intervention with parental smokers in an outpatient pediatric clinic using counseling and nicotine replacement." (AHRQ training grant T32 HS00063). *Pediatrics* 112(5), pp. 1127-1133. ■

Free and fast—Subscribe to the Agency's electronic newsletter!

If you want the latest information from AHRQ on new RFAs, research findings, conferences, and more, just subscribe to AHRQ's electronic newsletter. All you need is a computer and an e-mail address. Here's how:

1. Send an e-mail message to: listserv@list.ahrq.gov
2. In the subject line type: Subscribe
3. In the body of the message type: sub public_list-L your full name
4. That's it. You will receive an e-mail confirmation.

Questions? Please send an e-mail to Nancy Comfort in AHRQ's public affairs office at ncomfort@ahrq.gov

Asthma symptom days determine annual costs of care for children with mild-to-moderate persistent asthma

The 1998 economic burden of asthma in the United States reached nearly \$13 billion. For the large number of children with mild-to-moderate persistent asthma and normal or near-normal lung function, symptom days are predictive of health care costs, concludes a study supported in part by the Agency for Healthcare Research and Quality (HS08368). Symptom days include days when a child suffers from wheezing, coughing, nighttime awakening, or shortness of breath.

Researchers from the Pediatric Asthma Care PORT-II project (principal investigator Kevin B. Weiss, M.D., M.P.H., of Northwestern University) used medical records and missed parent workdays to determine asthma symptom burden and annual resource use for 638 children with mild-to-moderate persistent asthma in four managed care delivery systems in three U.S. geographic regions. They calculated how closely the percentage of predicted

forced expiratory volume in 1 second (FEV1, force of expiration during spirometry, an indicator of lung function) and number of symptom days in the past 2 weeks were correlated with the costs of illness.

The median total annual asthma-related cost for the group was \$564, with medicines accounting for nearly 53 percent of direct costs. After analyzing several variables, increasing asthma severity, use of peak expiratory flow meters, younger age, low-income status, minority race, and longer duration of asthma were significantly associated with increasing cost. Symptom days predicted annual costs better than percentage of predicted FEV1 in this group of children. This may be because most of the children in the study, despite some asthma symptoms, had normal or near-normal lung function (80 percent or better lung capacity), which is measured by FEV1. These findings support the association shown in

other studies between increased asthma severity and increased asthma-related care costs.

More details are in “Resource costs for asthma-related care among pediatric patients in managed care,” by Karna Gendo, M.D., Sean D. Sullivan, Ph.D., Paula Lozano, M.D., M.P.H., and others, in the September 2003 *Annals of Allergy, Asthma, & Immunology* 91, pp. 251-257.

Editor’s Note: Another AHRQ-supported study (HS09123) on asthma in children reveals that parents evaluate their children’s quality of life based on their emotional response to the family burdens related to the child’s asthma rather than the child’s asthma symptoms. For details, see: Annett, R.D., Bender, B.G., DuHamel, T.R., and Lapidus, J. “Factors influencing parent reports on quality of life for children with asthma.” *Journal of Asthma* 40(5), pp. 577-587, 2003. ■

Health Care Delivery

Better communication of disease-specific and general health information can improve diabetes self-care

Two dimensions of patient-provider communication—diabetes-specific communication and general health communication—are related but distinct facets of the patient-provider relationship, and they both impact the self-care practices of diabetes patients. Although improving both types of communication would be ideal, a recent study has found that diabetes patients enhance their self-care when doctors improve communication of either type. The study was supported in part by the Agency for Healthcare Research and Quality (HS10281) and led by John D.

Piette, Ph.D., of the Veterans Affairs Ann Arbor Health Care System and the University of Michigan.

Dr. Piette and his colleagues conducted telephone interviews with 752 adult diabetes patients, who received diabetes care at one of three Veterans Affairs health care systems, one county care system, or one university-based health care system. They asked patients about the type and frequency of diabetes-specific information (for example, diet, exercise, foot care, and medication adherence) and general health information communicated to them by their primary

continued on page 6

Diabetes self-care

continued from page 5

care provider over the past year. They also asked patients about diabetes self-care within the past 7 days. After controlling for other factors, the predicted probability of daily or almost daily foot checks increased from 63 percent for patients who received both poor general communication and poor diabetes-specific communication to 91 percent for those who received the best communication of both types of information.

The predicted probability of taking hypoglycemic medications improved similarly in relation to improved physician communication of both types of information.

Patients' predicted probability of following their recommended diet daily increased from 3 percent among patients with poor communication on both dimensions to 28 percent among patients with the best possible combination of communication scores. The probability of daily exercise also increased with better physician communication of either type of information.

Details are in "Dimensions of patient-provider communication and diabetes self-care in an ethnically diverse population," by Dr. Piette, Dean Schillinger, M.D., Michael B. Potter, M.D., and Michele Heisler, M.D., M.P.A., in the August 2003 *Journal of General Internal Medicine* 18, pp. 624-633. ■

Rural studies examine satisfaction with and cost-effectiveness of telecolposcopy for women with abnormal Pap smears

Rural women with abnormal Pap smears usually have to travel long distances for further evaluation by traditional colposcopy (examination of vaginal and cervical tissue by means of a magnifying instrument) to detect cervical cancer. Telecolposcopy allows local doctors to confer with distant experts by transmitting the image of a woman's vaginal and cervical tissue obtained with on-site colposcopy to the expert. Some high-speed transmission systems allow synchronous face-to-face communication between distant experts and patients or their local doctors.

Two recent studies supported by the Agency for Healthcare Research and Quality (HS08814) and led by Daron G. Ferris, M.D., of the Medical College of Georgia, examined women's satisfaction with and the cost-effectiveness of telecolposcopy. The first study found that rural women in Georgia

were very satisfied with this approach. However, the second study found that this technology is not yet as cost effective as colposcopy done by local doctors. Both studies are discussed here.

Ferris, D.G., Litaker, M.S., Gilman, P.A., and Lopez A.G. (2003, September). "Patient acceptance and the psychological effects of women experiencing telecolposcopy and colposcopy. *Journal of the American Board of Family Practice* 16, pp. 405-411.

This study found that women in rural Georgia felt that telecolposcopy saved them time and money, and they would recommend it to a friend. To examine attitudes toward this approach to cervical exams, the investigators administered questionnaires to 150 and 263 women living in rural Georgia who were scheduled for colposcopy or telecolposcopy, respectively. The

researchers assessed the women's anxiety, depression, health beliefs and concerns, coping style, and examination acceptance and satisfaction. Both telecolposcopy and colposcopy groups had mean scores indicating mild anxiety and mild depression.

In general, women in both groups were highly satisfied with their examinations and care. Women in the telecolposcopy group were more satisfied with the time and money saved by that approach compared with women in the colposcopy group. In general, women thought that telecolposcopy improved the quality of their care, they felt better about their health after the exam, and they would recommend it to a friend. Based on these results, initial concerns that rural women would object to an unknown distant expert examining their genital region from afar seems unwarranted, conclude the authors.

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.

Telecolposcopy

continued from page 6

They point out, however, that Federal and private payers have been slow to reimburse for telemedicine examinations.

Bishai, D.M., Ferris, D.G., and Litaker, M.S. (2003, December). "What is the least costly strategy to evaluate cervical abnormalities in rural women? Comparing telemedicine, local practitioners, and expert physicians." *Medical Decision Making* 23, pp. 463-470.

Local practitioners performing colposcopy is the least costly way to evaluate cervical abnormalities in rural patients who would incur substantial time and travel costs to confer with a specialist, according to this study. In the study, women in rural Georgia who needed colposcopy were examined by an expert colposcopist on site, by a

local practitioner, and by a distant expert colposcopist linked by telemedicine to establish the least costly strategy. The investigators calculated average costs in year 2000 dollars from a societal perspective to include medical costs, pain and suffering due to additional biopsies and curettage, telemedicine costs, and costs of potential diagnostic delay for a 1-year period.

The average cost per patient evaluated was \$270 for patients seen by referral experts. The cost was \$38 less (\$232) for patients seen by local practitioners, and \$35 more (\$305) for patients seen by telemedicine. From the societal perspective, local practitioners were less costly than referral experts because of lower travel costs for patients. However, from the medical perspective, their average cost was \$32 higher than referral experts because they

performed more biopsies and curettage procedures than experts.

Telemedicine assistance by distant experts would have lowered the number of biopsies performed by local practitioners, but as of the year 2000, the costs of this technology could not be justified by the savings, explain the researchers. Since rural Georgia has a shortage of local doctors trained in colposcopy, they suggest that investing in developing local expertise among rural practitioners in performing colposcopy is a more promising strategy than investing in telemedicine at current costs. However, the costs of telemedicine are likely to come down, and telecolposcopy merits reevaluation once the incremental cost of establishing a telemedicine colposcopy program (including distant experts) is less than \$10 per patient. ■

Studies demonstrate high rates of assault and unmet health care needs among homeless women

On any given night, over 700,000 people are homeless in the United States, and up to 2 million people experience homelessness during the year. While most of the homeless population are men, women and families are the fastest growing segments of the homeless population. Homeless individuals have higher rates of hypertension, arthritis, mental illness, tuberculosis, substance abuse, and victimization than the rest of the population.

Two recent studies supported by the Agency for Healthcare Research and Quality examined victimization and use of health care among the homeless. The first study concluded that sexual and physical assault are common experiences for homeless and

marginally housed people, and the second study demonstrated significant unmet need for medical care among homeless women. The two studies are summarized here.

Kushel, M.B., Evans, J.L., Perry, S., and others. (2003, November). "Victimization among homeless and marginally housed persons." (AHRQ grant HS11415). *Archives of Internal Medicine* 163, pp. 2492-2499.

These investigators interviewed 2,577 homeless adults (living on the streets or in homeless shelters) and marginally housed adults (living in low-cost hotels) in San Francisco, CA, about their history of recent sexual and physical assault, housing history, sexual practices, substance use, health status, and criminal justice history.

Overall, 32 percent of women, 27 percent of men, and 38 percent of individuals who identified themselves as transgendered reported a history of either sexual or physical assault in the previous year. Overall, 9 percent of women, 1 percent of men, and 12 percent of transgendered individuals reported sexual assault, and 31 percent of women, 27 percent of men, and 33 percent of transgendered individuals reported physical assault.

After adjusting for other factors, being homeless (as opposed to marginally housed) was associated with more than triple the likelihood of sexual assault for women but not for men. Housing status was not associated with physical assault for

continued on page 8

Homelessness

continued from page 7

women or men. Both mental illness and sex work were common. The researchers found a strong association between mental illness, poor health, and sex work, alcohol and drug use, and both sexual and physical victimization. Mental illness may represent the consequence of previous victimization and may be a cause of increased vulnerability to victimization by compromising a person's ability to identify and avoid danger signals.

Lewis, J.H., Andersen, R.M., Gelberg, L. (2003, November). "Health care for homeless women: Unmet needs and barriers to care." (AHRQ grant HS08323). *Journal of General Internal Medicine* 18, pp. 921-928.

Over one-third (37 percent) of the 974 homeless women, aged 15 to 44, interviewed in this study needed medical care, that is, they needed to see a doctor or nurse practitioner in the 2 months before

the interview but did not. The investigators examined the relationship between this unmet need for care and demographic variables, place of stay, source of health care, health insurance, and perceived barriers to care. They found that having a regular source of care was more important than health insurance in lowering the odds of unmet need. Homeless women who had a regular source of care were 65 percent less likely than those who did not to report unmet need for health care.

The odds of unmet need were about twice as high among those who experienced the following barriers to care: not knowing where to go for care, long office waiting times, and being too sick to seek care. Factors associated with increased odds of homeless women not getting needed care included more than a high school education compared with less than 12 years, a history of drug abuse, living in limited housing (for example, an abandoned building or car as compared to living in a shelter), being accompanied by children,

experiencing serious physical health symptoms, and being in fair or poor health.

Women who had been homeless for more than a year or who had a regular source of health care were less likely to have unmet health care needs. More than 65 percent of the homeless women surveyed felt the following factors were very helpful in obtaining care: receiving treatment for all health care problems at the same place, free transportation to health care, health care and social services at the same place, living in a house or apartment, weekend or evening clinic hours, and help from shelters or soup kitchens in finding health care. Also, 81 percent of the women who had children with them felt that obtaining health care at the same time that their children got care would be very helpful. These findings are based on an analysis of data from the University of California, Los Angeles/RAND Homeless Women's Health Project, a study of homeless women of reproductive age in Los Angeles county. ■

Health Care Disparities/Minority Health

Attitude toward risk does not fully explain sociodemographic disparities in health care use

Many studies have documented substantial variations in health care use related to race and sex. However, little is known about how risk attitudes toward health-related decisions that influence use of care vary across important sociodemographic groups.

The first study to examine variations in risk attitude by race and sex reveals that blacks are more risk-seeking relative to whites, even after adjustment for educational status, and that individuals with no college education are more risk-averse than those with some college education. Women tend to be more risk-averse

than men, but age does not appear to be associated with risk attitude.

The underuse of appropriate health care services among blacks could be related to this group's relative risk-prone posture. Blacks may be more willing to live with the risks of their underlying diseases and thus undergo fewer procedures. However, women and those with lower educational attainment, who are more risk-averse, also generally underuse health care. Clearly, risk attitude alone does not explain sociodemographic disparities in health care use. A better understanding of how risk posture varies with demographics and how

continued on page 9

Health care disparities

continued from page 8

these variations affect decisionmaking may facilitate efforts to better understand sociodemographic disparities in health care use, concludes Allison B. Rosen, M.D., M.P.H., of the Harvard School of Public Health.

In the study, which was supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00020), Dr. Rosen and her colleagues examined the relationship between risk attitude and sociodemographics by surveying 65 adult patients from one medical system. They used several

questionnaires to explore patients' attitudes about whether they were willing to risk certain health states for others or certain outcomes versus a riskier, but perhaps better outcome. The adults clustered around moderate risk aversion, with a median risk attitude of 0.70. Although blacks were more risk seeking than whites, both groups were risk averse, with median risk postures of 0.8 for blacks and 0.69 for whites.

More details are in "Variations in risk attitude across race, gender, and education," by Dr. Rosen, Jerry S. Tsai, M.S., and Stephen M. Downs, M.D., M.S., in the November 2003 *Medical Decision Making* 23, pp. 511-517. ■

Study documents racial variations in the prescribing of opioids by ER doctors

A study of 67,487 patients seen in U.S. emergency departments (EDs) between 1997 and 1999 found no differences in the receipt of pain relievers by white, black, and Hispanic ED patients reporting pain. However, blacks and Hispanics were 28 percent less likely than whites reporting similar severity of pain to receive an opioid analgesic, regardless of differences in insurance coverage. The study was supported in part by the Agency for Healthcare Research and Quality (National Research Service Award training grant T32 HS00059).

Physicians must trust patients not to abuse opioids, which are potentially addictive. Problems in patient-provider communication and concerns about credibility and trust may account for at least some of the differences in opioid prescribing seen in this study, notes lead investigator Joshua H.

Tamayo-Sarver, Ph.D., of Case Western Reserve University.

Dr. Tamayo-Sarver and his colleagues analyzed data from the 1997, 1998, and 1999 National Hospital Ambulatory Medical Care Survey of a national sample of ED patients. The researchers found that blacks were less likely than whites to be prescribed opioids if assessment of their condition and level of pain was primarily dependent on patient report, such as migraines, or partially on patient report, such as back pain.

However, blacks were as likely as whites to be prescribed opioids for long bone fractures, which are known to cause severe pain and whose pain assessment depends on objective findings rather than patient report. There were fewer differences in opioid prescriptions for Hispanics and whites for these three conditions, but the power to detect differences was limited by the few Hispanics in the study with these diagnoses.

The Joint Commission on Accreditation of Healthcare Organizations has recommended routine use of a pain-rating scale at the time that vital signs are taken in the ED. This may help address the widespread problem of inadequate pain control in the ED (between one-sixth and one-third of patients diagnosed with one of the three conditions in this study did not receive or were not recommended for any analgesic). However, it is unclear whether use of a pain-rating scale will achieve greater equity of analgesic prescription across all racial/ethnic groups.

See "Racial and ethnic disparities in emergency department analgesic prescription," by Dr. Tamayo-Sarver, Susan W. Hinze, Ph.D., Rita K. Cydulka, M.D., M.S., and David W. Baker, M.D., M.P.H., in the December 2003 *American Journal of Public Health* 93(12), pp. 2067-2073. ■

Church attendance may serve as an additional health care safety net for impoverished black communities

Church plays a central role in the lives of blacks in the United States, and it often serves as a source of social support. Regular church attendance may also have a positive influence on the health practices of low-income urban blacks, concludes a study by researchers at the Agency for Healthcare Research and Quality and Johns Hopkins University School of Hygiene and Public Health.

Blacks in one low-income, urban community who attended church regularly (at least once a month) were 50 percent more likely to visit the dentist and 60 percent more likely to get their blood pressure checked than community residents who did not attend church. However, the effect of church attendance on having a mammogram or a regular source of care were not significant.

Church attendance appeared to have the greatest health benefit for the most vulnerable individuals. For example, it had no effect on the likelihood of getting a Pap smear for insured women or those with fewer than two medical conditions. However, churchgoing black women who were uninsured and those who suffered from two or more medical conditions were twice as likely as black women who didn't attend church to have had a Pap smear within the past 2 years.

Church attendance may provide social support that facilitates and reinforces positive health-seeking behaviors. Also, the church may serve as a site of health care service delivery and provide information on available services. Community- and faith-based organizations present additional opportunities to improve the health of low-income and minority populations, suggest Kaytura Felix-Aaron, M.D., AHRQ's Senior Advisor on Minority Health, and Helen R. Burstin, M.D., M.P.H., director of AHRQ's Center for Primary Care, Prevention, and Clinical Partnerships. They used a survey of households (2,196 adults) in a black, inner city, low-income neighborhood to examine the relationship between church attendance and receipt of a Pap smear, mammogram, or dental visit within 2 years; blood pressure measurement within 1 year; having a regular source of care; and reporting no perceived delays in care in the prior year.

See "African American church participation and health care practices," by Dr. Felix-Aaron, David Levine, M.D., Sc.D., and Dr. Burstin, in the November 2003 *Journal of General Internal Medicine* 18, pp. 908-913. Reprints (AHRQ Publication No. 04-R022) are available from AHRQ.** ■

Emergency Medicine

Researchers identify measures of workflow that may help to explain and manage emergency department overcrowding

Despite growing concern about emergency department (ED) overcrowding, there are few tools available to help understand, monitor, and measure it. As a first step in addressing the problem, the Agency for Healthcare Research and Quality provided support through the Agency's Integrated Delivery System Research Network (contract 290-00-0015) for developing and refining potential measures of ED overcrowding.

A group of 74 experts from around the Nation identified 113

potential measures of ED and hospital workflow using a model that segmented the measures into three categories describing patient flow through the ED: input, throughput, and output. Ten investigators used group consensus methods to revise and consolidate the measures into a refined set of 30 measures that were then rated by all 74 experts. After further review, eight additional measures were developed and also rated by the reviewers for a total of 38 measures (15 input, 9 throughput, and 14 output).

The research team, which included Robin M. Weinick, Ph.D., of AHRQ's Office of Performance Assessment, Resources, and Technology, grouped the measures according to seven main concepts: patient demand (input), that is, volume of patients presenting to the ED for medical care; patient complexity, such as urgency and potential seriousness of the presenting complaint; ED capacity (output), ability of the ED to provide timely care for the level of patient demand according to the

continued on page 11

Emergency department overcrowding

continued from page 10

adequacy of physical space, equipment, personnel, and organizational system; ED workload (throughput), the demand and complexity of patient care that is undertaken by the ED within a given period; ED efficiency, the ability of the ED to provide timely, high-quality emergency care while limiting waste of equipment, supplies, and effort; hospital capacity (output); and hospital efficiency (output).

Individual measures ranged from ED ambulance patient volume and ambulance diversion episodes to ED occupancy rate, inpatient cycling time, ED boarding burden (mean number of ED patients waiting for an inpatient bed within a defined period relative to the number of staffed treatment areas), and ED volume to hospital capacity ratio. The 38 measures developed in this study show great promise for assisting in the management or prevention of ED crowding, according to lead investigator Brent R. Asplin, M.D., M.P.H., of

HealthPartners Medical Group and Clinics in Minneapolis, MN, and Regions Hospital, St. Paul, MN.

More details are in "Emergency department crowding: Consensus development of potential measures," by Leif I. Solberg, M.D., Dr. Asplin, Dr. Weinick, and David J. Magid M.D., M.P.H., in the December 2003 *Annals of Emergency Medicine* 42(6), pp. 824-834. Reprints (AHRQ Publication No. 04-R021) are available from AHRQ.** ■

Prevention and Screening

Use of tamoxifen to prevent breast cancer should be weighed against an individual woman's potential benefits and risks

Physicians considering use of tamoxifen to reduce a woman's risk of developing breast cancer or recurrence of breast cancer should weigh her breast cancer risk against her risk for developing tamoxifen-related vascular problems or other cancers, according to a study that was supported in part by the Agency for Healthcare Research and Quality (HS09796). Tamoxifen reduces the risk of breast cancer by acting against the effects of the hormone estrogen in breast tissue, but it also acts like estrogen in other tissues, which can create other problems.

This meta-analysis of 32 clinical trials of women averaging 55 years of age and on tamoxifen for 4.3 years showed that tamoxifen was associated with a significantly increased risk of endometrial cancer, gastrointestinal cancers, strokes, and pulmonary emboli. On the other hand, tamoxifen use significantly decreased heart attack deaths and was associated with an insignificant decrease in heart attack incidence. Postmenopausal women taking tamoxifen had greater increases in risk for cancer than other women.

Although some of the increased risks associated with tamoxifen use seem large, the absolute risk for

any of the problems studied occurring after 5 years of tamoxifen treatment is only 0.84 percent, explains Joseph Lau, M.D. of Tufts-New England Medical Center, the study's principal investigator. This corresponds to one adverse outcome for every 118 patients treated. In comparison, 159 women would have to be treated to prevent one occurrence of breast cancer in a woman with the minimum risk for which tamoxifen is indicated (1.66 percent risk of breast cancer after 5 years), assuming a risk reduction of 38 percent. For higher risk women (5 percent 5-year risk of breast cancer), 53 women would have to be treated with tamoxifen to prevent one occurrence of breast cancer.

More details are in "Meta-analysis of vascular and neoplastic events associated with tamoxifen," by R. Scott Braithwaite, M.D., Rowan T. Chlebowski, M.D., Ph.D., Dr. Lau, and others, in the November 2003 *Journal of General Internal Medicine* 19, pp. 937-947. ■

Task Force working group encourages patient-provider partnership in making decisions about preventive care

Clinicians and patients should work together to make decisions about which preventive services are most appropriate for individual patients, according to a new paper on the need for shared decisionmaking. In shared decisionmaking, the patient becomes an active partner with the clinician in clarifying acceptable medical options and choosing a preferred course of clinical care. The article was published by a working group of the U.S. Preventive Services Task Force, which is sponsored by the Agency for Healthcare Research and Quality.

As defined by the working group, shared decisionmaking is a process in which both the patient and clinician share information, participate in the decisionmaking process, and agree on a course of action. Shared decisionmaking also assumes that individual patients have weighed their own values about the potential benefits and harms of receiving or not receiving a medical service, and it allows patients to be as involved in the decisionmaking process as they wish to be. Shared decisionmaking offers a way to individualize preventive services recommendations according to patients' special needs and preferences when some patients may benefit from an intervention but others may not.

The working group's paper was written because Task Force recommendations are made for average-risk populations and are not designed to be a one-size-fits-all prescription for preventive care. Individuals may weigh the benefits and harms of various preventive services differently, and shared

decisionmaking may be useful in a variety of situations, including the following:

- Shared decisionmaking helps patients and clinicians decide whether to use a preventive service that has a net benefit but also has potential for harm. An example is aspirin therapy, which helps prevent heart disease but can also cause stomach bleeding in some patients.
- Shared decisionmaking is valuable in deciding which of several equally acceptable screening options are appropriate for a patient. An example is colorectal cancer screening, in which five screening choices are available, including flexible sigmoidoscopy and colonoscopy.
- Shared decisionmaking is also valuable when new scientific evidence has caused a reversal of previous recommendations, such as the recent recommendation against use of hormone replacement therapy. In light of this, doctors and their patients may want to discuss whether patients should use hormone replacement therapy to relieve symptoms of menopause on a short-term basis.

Neither the working group nor the Task Force followed their customary process of conducting a systematic review of the scientific evidence, and no formal recommendation was made. The working group found few systematic studies that evaluated shared decisionmaking and noted

that many areas require further research. The report does, however, include commentary on the current thinking and evidence regarding shared decisionmaking.

While there is no evidence that shared decisionmaking improves health outcomes, it is supported by a combination of ethical and practical arguments. Some patients may not want to participate in shared decisionmaking because they are confused about medical terminology and uncomfortable with taking an active role in making medical decisions. Other patients who don't read well or who have poor math skills may also hesitate to participate in shared decisionmaking. Encouragement by clinicians and their assistants is essential in helping these patients understand the value of participating in decisionmaking about their medical care.

For clinicians, shorter office visits, lack of reimbursement, and lack of interest and training in interviewing techniques may be barriers to shared decisionmaking. To address some of these concerns, the working group encourages clinicians and health plans to adopt a systematic approach that is likely to improve the quality of their interactions with patients. Decision aids such as pamphlets, computer programs, audio-guided workbooks, videotapes, videodiscs, decision boards, and Web-based tools that health plans and delivery systems share with patients and clinicians may be helpful, according to the working group.

Informed decisionmaking, in which an individual obtains and considers information about preventive services from any

continued on page 13

Shared decisionmaking

continued from page 12

source (such as the Internet) without benefit of consultation with a clinician, is addressed in a separate paper by the Centers for Disease Control and Prevention's Task Force on Community Preventive Services. This paper appears in the same journal with the Task Force paper.

The working group paper on shared decisionmaking was developed in conjunction with

members of CDC's Community Task Force. The authors of shared decisionmaking, researchers at RTI International and the University of North Carolina at Chapel Hill, and several members of the U.S. Preventive Services Task Force also met with other experts and clinicians to discuss the issue.

For more information, see "Shared decision-making about screening and chemoprevention: A suggested approach from the U.S. Preventive Services Task Force," by

Stacey L. Sheridan, M.D., M.P.H., Russell P. Harris, M.D., M.P.H., Steven H. Woolf, M.D., M.P.H., and others in the January 2004 *American Journal of Preventive Medicine* 26(1), pp. 56-66. See also "Promoting informed decisions about cancer screening in communities and healthcare systems," by Briss, P., Rimer, B., Reilly, B., and others, in the same journal, pp. 67-80. ■

North American screening programs identify more mammograms as abnormal but do not detect more breast cancers than programs in other countries

Compared with community-based mammogram screening programs around the world, North American screening programs appear to interpret a higher percentage of mammograms as abnormal. However, this approach does not appear to detect more cancers per 1,000 screens, according to a recent study supported in part by the Agency for Healthcare Research and Quality (HS10591). The study did show more cases of ductal carcinoma in situ (DCIS) found by North American screening programs.

Joann G. Elmore, M.D., M.P.H., of the University of Washington, Seattle and Harborview Medical Center, and her colleagues reviewed published reports to identify international screening mammography programs. They identified the population screened, examination technique, and clinical outcomes. The researchers examined the percentage of mammograms judged to be abnormal, positive predictive value of an abnormal mammogram (PPV_A), positive predictive value of a biopsy performed (PPV_B), and percentages of breast cancer patients with DCIS and minimal disease (DCIS and/or tumor size 10 mm or less).

The percentage of mammograms judged to be abnormal were 2-4 percentage points higher in North American screening programs than they were in programs from other countries, after adjusting for factors such as women's age. The percentage of mammograms judged to be abnormal had a negative association with PPV_A (cancer detected) and PPV_B (biopsies conducted), but there was a positive association with the frequency of DCIS cases diagnosed and number of DCIS cases diagnosed per 1,000 screens. The wide variation in mammography interpretation noted in the studies reviewed for this article was likely due to multiple factors. These ranged from the characteristics of the population screened and features of the mammography exam to physicians interpreting the mammogram and features of a country's health care system.

See "International variation in screening mammography interpretations in community-based programs," by Dr. Elmore, Connie Y. Nakano, Thomas D. Koepsell, M.D., M.P.H., and others, in the September 17, 2003 *Journal of the National Cancer Institute* 95(18), pp. 1384-1393. ■

Being a salaried physician in a large office may be the chief source of physician dissatisfaction with managed care

As managed care and market competition grew in the 1990s, many primary care physicians shifted, sometimes reluctantly, from solo to group practice and from being owners to being salaried employees. Compared with solo practice, large medical groups are more likely to be bureaucratic and to impose controls on the clinic and workload autonomy of their physician employees.

According to a recent study, physician dissatisfaction with managed care may originate from the loss of autonomy associated with being an employed physician in a large medical group with other physicians. The study was supported by the Agency for Healthcare Research and Quality (HS11712) and led by David Grembowski, Ph.D., of the University of Washington.

Dr. Grembowski and colleagues surveyed 495 primary care physicians in the Seattle area in 1997, which at the time had a relatively balanced mix of health maintenance organization, point-of-service, preferred provider organization, and fee-for-service health plans. They examined the impact of physician characteristics; medical office and physician practice characteristics (for example, solo or multispecialty group practice, number of physicians in the office, and physician workload); physician compensation (salary or fee-for-service); financial incentives (for example, productivity bonus and financial withhold for referrals); and care management tools (for example, clinical guidelines or required approval for specialist referrals) on physician job and referral satisfaction.

After controlling for all of these factors, being a salaried employee was significantly associated with physician dissatisfaction, while fewer administrative hours, fewer physicians in the office, and ease of referral were associated with greater job satisfaction. Practices in offices with more physicians had the strongest association with physician job dissatisfaction. Only two characteristics, ease of referral and greater tolerance for uncertainty, were associated consistently with greater referral satisfaction.

See "Managed care and primary physician satisfaction," by Dr. Grembowski, Cornelia M. Ulrich, Ph.D., David Paschane, M.S. and others, in the September 2003 *Journal of the American Board of Family Practice* 16, pp. 383-393. ■

Different changes in drug formulary administration and copayments can have very different effects on drug use and spending

A new study shows that when employers switch from a one-tier prescription drug plan that has the same copayment for all drugs to a three-tier plan that has a much higher copayment for nonpreferred brand-name prescription drugs, a substantial number of enrollees may stop taking their medication instead of switching to less expensive medications. In three-tiered drug benefit plans, copayments increasingly escalate for generic (tier-1), preferred brand name (tier-2), and nonpreferred brand name (tier-3) drugs.

Haiden A. Huskamp, Ph.D., of Harvard Medical School, and her colleagues compared use of and spending on three types of drugs (cholesterol-lowering statins, ACE inhibitors for heart disease, and proton-pump inhibitors that treat acid reflux disease) by members of two employer-sponsored health plans with

comparison groups covered by the same insurers. Employer 1 simultaneously switched from a one-tier to a three-tier formulary and increased all enrollee copayments for medications. Employer 2 switched from a two-tier to a three-tier-formulary, changing only the copayments for tier-3 drugs.

More members of the Employer 1 plan who were initially taking tier-3 statins than those in the comparison group switched to lower-cost tier-1 or tier-2 medications (49 percent vs. 17 percent), but more of them also stopped taking statins entirely (21 vs. 11 percent). Patterns were similar for ACE inhibitors and proton-pump inhibitors. Plan members of Employer 2, who implemented more moderate drug formulary changes, were more likely than the comparison group to switch to tier-1 or tier-2 medications, but they were

continued on page 15

Prescription drug expense

continued from page 14

not more likely to stop taking a given class of medications altogether. Dr. Huskamp, whose work is supported by the Agency for Healthcare Research and Quality (HS10803), suggests that employers may consider implementing drug formulary changes more gradually to lessen the likelihood that people will simply stop using prescribed drugs to avoid the large increase in out-of-pocket costs.

More details are in “The effect of incentive-based formularies on prescription-drug utilization and spending,” by Dr. Huskamp, Patricia A. Deverka, M.D., Arnold M. Epstein, M.D., and others, in the December 4, 2003 *New England Journal of Medicine* 349, pp. 2224-2232.

Editors note: A related study of tiered drug formularies and psychotropic use by Dr. Huskamp was summarized on page 13 of the December 2003, issue of *Research Activities*. ■

Some managed care strategies to improve drug use appear to be effective, but little is known about long term clinical outcomes

Medication expenses account for as much as 15 percent of the total medical costs of some health plans. Many managed care organizations (MCOs) have used both financial and educational strategies to improve the quality of medication use and reduce costs. However, few well-designed, published studies have assessed the efficacy of these approaches, according to a study by the HMO Research Network Center for Education and Research on Therapeutics (CERT), which is supported by the Agency for Healthcare Research and Quality (HS10391).

Researchers at Harvard Medical School and Harvard Pilgrim Health Care systematically reviewed published studies of intervention

strategies to improve the quality and efficiency of medication use in MCOs. Based on the 48 studies that met criteria for inclusion, consistently effective interventions for reducing medication costs included dissemination of educational materials with drug samples, participatory clinical guideline development, group or one-to-one educational outreach, and enhanced patient-specific feedback.

Disease management (primarily for depression and diabetes) showed promise in improving short-term outcomes, while dissemination of educational materials and aggregated feedback alone were ineffective. Interventions in staff-model health maintenance organizations (HMOs)

were more effective than those conducted in group-model HMOs.

See “Changing medication use in managed care: A critical review of the available evidence,” by Sallie-Anne Pearson, Ph.D., Dennis Ross-Degnan, Sc.D., Ann Payson, M.A., and Stephen B. Soumerai, Sc.D., in the November 2003 *American Journal of Managed Care* 9(11), pp. 715-731.

Editor’s note: Additional details about intervention strategies and actual tools/educational materials are also available online. Go to www.qualitytools.ahrq.gov and select “List all Tools” and then the “American Association of Health Plans” to access the “Tools and Techniques of Improved Medication Use.” ■

Hospital mergers, not consolidation of local hospitals into systems, result in cost savings

Hospitals have been consolidating with local competitors at an unprecedented pace over the last decade. On the one hand, consolidation may be associated with gains in efficiency and reduced costs. On the other hand, consolidation may also lead to higher hospital prices.

Although consolidation of local hospitals into systems does not generate significant cost savings, even after 4 years, there are significant and persistent savings for mergers of two independent hospitals 2, 3, and 4 years after merger, according to a study by

David Dranove, Ph.D., of Northwestern University, and Richard Lindrooth, Ph.D., of the Medical University of South Carolina. The study was supported by the Agency for Healthcare Research and Quality (HS10730).

In local multi-hospital systems, two or more hospitals in the same geographic market have common ownership but maintain separate physical facilities, do business under separate licenses, and keep separate

continued on page 16

Hospital mergers

continued from page 15

financial records. In local mergers, two or more hospitals in the same market have common ownership, do business under a single license, report unified financial records, and may or may not consolidate some physical facilities.

In this study, the investigators compared 81 hospitals that merged with 810 similar hospitals that did not merge, and 41 hospitals that consolidated into systems with 410 similar hospitals that did not consolidate between 1989 and 1996. They based their analysis on data from the American Hospital Association's Annual Survey of Hospitals, the Medicare Cost Report, and the Area Resource File.

The median system acquisition was associated with an insignificant cost reduction of 2.2 percent after 2 years, 0 percent after 3 years, and 3 percent after 4 years. The median merger averaged cost savings of about 14 percent, 2, 3, and 4 years after merger. These findings confirm what many hospital executives involved in system consolidations have already expressed. System consolidation does not yield synergistic cost savings, perhaps reflecting the difficulty of achieving efficiencies without combining operations.

More details are in "Hospital consolidation and costs: Another look at the evidence," by Drs. Dranove and Lindrooth, in the November 2003 *Journal of Health Economics* 22, pp. 983-997. ■

Health Care Quality/Patient Safety

Computerized physician order entry needs further refinement to substantially reduce medication errors in primary care

When doctors use a computer to enter prescriptions for medications for hospital patients, so-called computerized physician order entry (CPOE), it prevents a substantial number of medication errors. However, the development of a more sophisticated CPOE system is needed to achieve this in outpatient primary care, concludes a study supported in part by the Agency for Healthcare Research and Quality (K08 HS11644).

When physicians at five adult primary care practices used a common CPOE system, they overrode 91 percent of drug allergy alerts and 89 percent of high-severity drug interaction alerts. Yet there were no adverse drug events (ADEs, injuries due to medication) in cases where the physicians observed the alert, and there were three ADEs among patients with

alert overrides, a nonsignificant difference.

Two independent physician reviewers agreed with prescribers' decisions in 98 percent of the override cases, judging 36.5 percent of the 189 alerts invalid. In most cases, the reviewers found that physician overrides were because the patient was no longer taking the medication cited in the alert, the drug interaction was not clinically significant, the patient tolerated the drug(s), or the benefits of treatment outweighed the disadvantages. Physicians were nearly 18 times more likely to override alerts for renewals compared with new prescriptions.

These results suggest that CPOE designers need to identify and eliminate inappropriate alerts that physicians don't find credible, and they should change the threshold for generating alerts on renewals of medications that patients currently

tolerate in combination, suggests Saul N. Weingart M.D., Ph.D., of Beth Israel Deaconess Medical Center. Dr. Weingart and colleagues calculated the override rate among 3,481 consecutive alerts generated by the CPOE system used by the five primary care practices. They selected a random sample of 67 alerts in which physicians did not prescribe an alerted medication and 122 alerts that resulted in a written prescription in order to identify factors associated with physicians' decisions to override a medication alert and whether the override resulted in an ADE.

See "Physicians' decisions to override computerized drug alerts in primary care," by Dr. Weingart, Maria Toth, M.D., Ph.D., Daniel Z. Sands, M.D., M.P.H., and others, in the November 24, 2003 *Archives of Internal Medicine* 163, pp. 2625-2631. ■

Researchers examine ways to improve translation of scientific evidence into improved clinical practice

Numerous evidence-based clinical practice guidelines recommend specific approaches to clinical care, but we do not know how many doctors and other clinicians follow these guidelines. We do know that passive guideline dissemination has rarely been effective in changing clinician behavior. Methods that have been shown to be effective in specific settings include use of peer-opinion leaders, clinical practice audit and feedback, educational interventions, small group consensus processes, more intensive academic detailing, prospective reminder systems, and computer-based guideline implementation.

Three recent studies, described here and supported in part by the Agency for Healthcare Research and Quality, examined the impact of various approaches to integrate guidelines and other evidence into clinical practice.

Fine, M.J., Stone, R.A., Lave, J.R., and others. (2003, October). "Implementation of an evidence-based guideline to reduce duration of intravenous antibiotic therapy and length of stay for patients hospitalized with community-acquired pneumonia: A randomized controlled trial." (AHRQ grant HS08282). *American Journal of Medicine* 115, pp. 343-351.

Hospitals can reduce the duration of intravenous antibiotic therapy and length of hospital stay for patients hospitalized with community acquired pneumonia without affecting patient outcomes. They can accomplish this by following a guideline that sets forth criteria for converting these

patients from intravenous to oral antibiotic therapy as well as criteria that determine when the patient is sufficiently stable for hospital discharge, concludes this study. The investigators randomly enrolled 325 control and 283 intervention patients who were admitted to one of seven Pittsburgh medical centers by one of 116 physician groups.

At each site, they randomly assigned physician groups to receive a practice guideline alone (controls) or a practice guideline that was implemented using a multifaceted strategy (including real-time physician reminders and site-specific detail sheets promoting recommended actions placed in the physician progress notes section of each patient's chart, followed by a call from the research nurse about followup actions). The researchers measured the effectiveness of guideline implementation by the duration of intravenous antibiotic therapy and length of hospital stay.

The median duration of intravenous antibiotic therapy was 3 days for patients in the intervention group and 4 days for patients in the control group, with intravenous antibiotic therapy discontinued 23 percent more rapidly (borderline significance) for patients in the intervention group. Intervention patients were also discharged at a slightly (but not significantly) more rapid rate (16 percent). These effects varied by study site but not by patient risk class. Fewer intervention than control patients (55 vs. 63 percent) suffered medical complications during their hospitalization, and there were no differences between the two groups in other medical outcomes, including mortality,

rehospitalization, and return to usual activities.

Schechtman, J.M., Schroth, W.S., Verme, D., and Voss, J.D. (2003, October). "Randomized controlled trial of education and feedback for implementation of guidelines for acute low back pain." (AHRQ grant HS07069). *Journal of General Internal Medicine* 18, pp. 773-780.

This study found that an intervention based on accepted strategies of physician education, practice audit and performance feedback, and use of peer opinion leaders produced a modest but significant increase in physician practices consistent with clinical guideline recommendations for the care of patients with acute low back pain. The investigators randomized 14 physician groups with 120 primary care physicians and associate practitioners from two group model HMO practices into four groups.

The first physician education and feedback group received guideline education from recognized clinical leaders (optimal strategies for initial evaluation, testing, and treatment of acute low back pain), individual feedback about their care of acute low back pain during the past year, and feedback 6 months after the beginning of the 1-year study. The second group received copies of a videotape and pamphlet that translated guideline information into lay terms, along with two written reminders to use the materials during the study period. A third group received both interventions, and a fourth group received none. The investigators compared guideline adherence and

continued on page 18

Translating evidence into practice

continued from page 17

resource use for all groups during the 12-month period before and after implementation of the acute low back pain care guideline.

Since the poorly adopted education materials had no effect, the four intervention groups were collapsed into two: clinician intervention versus no clinician intervention (control group). The clinician intervention was associated with an increase in guideline-consistent behaviors of 5.4 percent compared with a 2.7 percent decline in the control group. This was paralleled by an overall decline in raw use of services (without respect for guideline consistency) such as x-rays, magnetic resonance imaging, and subspecialty referrals of 8.5 percent in the intervention group versus 0.6 percent in the control group.

Majumdar, S.R., McAlister, F.A., and Soumerai, S.B. (2003). "Synergy between publication and promotion: Comparing adoption of new evidence in Canada and the United States." (AHRQ grant HS10391). *American Journal of Medicine* 115, pp. 467-472.

Promoting new evidence of a medication's effectiveness boosts physician use of that medication more than mere publication of the evidence in peer-reviewed journals. Indeed, rather than relying on the publication of articles and creation of guidelines, those wishing to accelerate the adoption of new

evidence may need to undertake more active promotion, conclude the authors of this study, which was funded by AHRQ as part of the Agency's Centers for Education and Research on Therapeutics (CERTs) initiative. The researchers compared use of ramipril, an angiotensin-converting enzyme (ACE) inhibitor, by U.S. and Canadian physicians. New evidence for the drug's effectiveness was promoted in Canada by the parent company that makes ramipril, but the evidence was, for the most part, published only in peer-reviewed journals in the United States.

The Heart Outcomes Prevention and Evaluation (HOPE) study was a large trial that compared the ACE inhibitor ramipril with placebo in patients at high risk for cardiovascular events such as stroke or heart attack. It demonstrated a 22 percent reduction in cardiovascular morbidity and mortality and provided a new indication for ramipril. After adjusting for preexisting prescribing trends in both countries, ramipril prescribing increased by 12 percent per month in Canada versus 5 percent per month in the United States after the study results were presented and published. After 1 year, ramipril accounted for 30 percent of the ACE inhibitor market in Canada versus 6 percent in the United States. In Canada, promotional spending started to increase before the study's results were published; the year after publication, spending increased to \$27 per physician in Canada versus \$23 per physician in the United States.

In contrast, there was no promotional activity for spironolactone in either country following publication of results of a large-scale study that showed that spironolactone reduced mortality by 30 percent compared with placebo in patients with heart failure. These study results were prereleased and published in the same year and same journal as the HOPE study. In the absence of any promotional activity, publication of the spironolactone study results was associated with more modest but similar increases of 2 percent per month in spironolactone use in both countries.

Editor's Note: A related study shows that physician nonadherence to asthma medication guidelines is not uncommon during outpatient asthma visits in the United States. Another study reviews efforts to improve clinical performance in three countries via practice guidelines and other strategies. For more details, see: Ma, J. (2003, September). "U.S. physician adherence to standards in asthma pharmacotherapy varies by patient and physician characteristics." (AHRQ grant HS11313). *Journal of Allergy & Clinical Immunology* 112(3), pp. 633-635; and Lanier, D.C., Roland, M., Burstin, H., and Knottnerus, J.A. (2003, October). "Doctor performance and public accountability." *Lancet* 362, pp. 1401-1408. Reprints of this staff-authored study (AHRQ Publication No. 04-R012) are available from AHRQ.** ■

AHRQ researchers examine use of hospital, emergency, and outpatient care among patients with HIV disease

The advent of highly active antiretroviral therapy (HAART) in 1996 has transformed infection with the human immunodeficiency virus (HIV) from a fatal illness to a chronic disease. It also allowed many HIV-infected people to be treated on an outpatient basis.

HIV-related hospitalizations declined during the early years of HAART. However, the rate of hospitalizations has leveled off in more recent years, according to a study by John A. Fleishman, Ph.D., of the Center for Financing, Access, and Cost Trends, Agency for Healthcare Research and Quality, and Fred H. Hellinger, Ph.D., of AHRQ's Center for Delivery, Organization, and Markets. A second study by Dr. Fleishman and Liliana Pezzin, Ph.D., formerly of AHRQ and now with the Medical College of Wisconsin, suggests that more outpatient care may reduce use of inpatient and emergency department (ED) services for patients with more advanced stages of HIV disease. The studies are summarized here.

Fleishman, J.A., and Hellinger, F.H. (2003, September). "Recent trends in HIV-related inpatient admissions, 1996-2000: A 7-State study." *Journal of Acquired Immunodeficiency Syndrome* 34, pp. 102-110.

These researchers used comprehensive hospital discharge data from seven States to examine trends in HIV-related hospital admissions and length of stay from 1996, when HAART was first introduced, through 2000. They

used data from the State Inpatient Database (SID), a component of AHRQ's Healthcare Cost and Utilization Project (HCUP). HCUP represents a Federal-State-industry partnership that is building a standardized, multi-State health data system.

The researchers assessed differential patterns of change over time, depending on State, patient sex, race/ethnicity, and insurance status. They found that HIV-related hospital admissions declined by 22 percent between 1996 and 1997, but they declined only 4 percent between 1999 and 2000.

Admissions for white male patients and patients with private insurance showed the greatest decreases and the least leveling of the trend. For white men, the annual number of admissions dropped by 45 percent between 1996 and 2000. For black and Hispanic men, the proportional decline was not as great (28 percent and 38 percent, respectively). Among women, blacks showed the smallest decline (17 percent) in HIV-related hospital admissions. A similar pattern held for trends in hospital length of stay.

Presumably, the diffusion of HAART in 1996 and 1997 led to improved clinical status and reduced need for hospitalization among HIV patients. The trends toward fewer HIV-related hospitalizations and shorter lengths of stay in recent years are welcome, but the possible bottoming out of the trend raises serious questions, note the researchers. For example, the possible effects of increased rates of treatment failure and complications of HAART on

hospitalizations need further scrutiny.

Reprints (AHRQ Publication No. 04-R008) are available from AHRQ.**

Pezzin, L.E., and Fleishman, J.A. (2003, November). "Is outpatient care associated with lower use of inpatient and emergency care? An analysis of persons with HIV disease." *Academic Emergency Medicine* 10, pp. 1228-1238.

To a limited extent, outpatient care may offset inpatient and emergency department (ED) services during more advanced HIV disease, concludes this study. The investigators used data from the AIDS Costs and Service Utilization Survey (ACSUS) of HIV-infected individuals to estimate how the probability and number of HIV-related hospital admissions and ED visits varied with the number of outpatient visits, controlling for several individual and illness-specific factors. ACSUS provides detailed information on a wide range of demographic, health (including HIV disease stage), and economic characteristics for a nationally diverse sample of HIV-infected people at 26 care sites. ACSUS data were collected in 1991-1992, prior to the introduction of HAART.

Analysis of ACSUS data revealed that higher use of outpatient medical services was not significantly associated with lower probability of inpatient admissions or ED visits. However, for the subgroup of patients who were diagnosed with AIDS during the study period, more frequent

continued on page 20

HIV patient care

continued from page 19

outpatient visits were significantly associated with fewer hospital admissions and a lower probability of an ED visit. Despite controls for outpatient care use, disease stage, and sociodemographic factors, blacks still were more likely to use inpatient care than whites. Also,

those with less education had significantly more ED use than their better-educated counterparts.

The findings of limited substitution of outpatient for inpatient and ED care does not necessarily imply that initiatives designed to expand community-based programs for people with HIV disease, such as the Ryan

White Act, are not valuable. The better access to care and maintenance of quality of life provided by community-based care are important in their own right, note the researchers.

Reprints (AHRQ Publication No. 04-R018) are available from AHRQ.** ■

Announcements

AHRQ releases new evidence reports

The Agency for Healthcare Research and Quality has published two new evidence reports that were developed by AHRQ-supported Evidence-based Practice Centers (EPCs). There are 13 AHRQ-supported EPCs. They systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments.

The goal is to inform health plans, providers, purchasers, and the health care system as a whole by providing essential information to improve health care quality. EPC reports and summaries are published by AHRQ and are available online and through the

AHRQ clearinghouse. Visit the AHRQ Web site at www.ahrq.gov and click on "Clinical Information" or see the back cover of *Research Activities* for ordering information.

Use of Glycated Hemoglobin and Microalbuminuria in the Monitoring of Diabetes Mellitus. Evidence Report/Technology Assessment No. 84. Summary (AHRQ Publication No. 03-E048)** and full report (AHRQ Publication No. 04-E001).*

Hyperbaric Oxygen Therapy for Brain Injury, Cerebral Palsy, and Stroke. Evidence Report/Technology Assessment No. 85. Summary (AHRQ Publication No. 03-E049)** and full report (AHRQ Publication No. 04-E050).* ■

New health care safety net publication now available

The Agency for Healthcare Research and Quality and the Health Resources and Services Administration (HRSA) are leading a joint safety net monitoring initiative. The third and last product from the initiative, *Monitoring the Health Care Safety Net—Book III: Tools for Monitoring the Health Care Safety Net* (AHRQ Publication No. 03-0027), offers strategies and concrete tools for assessing local health care safety nets.

The information presented in this book can assist State and local health officials, planners, and analysts in assessing the capacity

and viability of their existing safety net providers, and it can help them understand the characteristics and health outcomes for the populations served.

The previous two books from this initiative bring together 118 measures, largely from 1999, at the city, county, metropolitan, and State levels. The first book, *Monitoring the Health Care Safety Net—Book I: A Data Book for Metropolitan Areas* (AHRQ Publication No. 03-0025), presents data from 90 metropolitan areas in 30 States and the District of Columbia, including 354 counties and 171 cities. The second volume, *Monitoring the*

Health Care Safety Net—Book II: A Data Book for States and Counties (AHRQ Publication No. 03-0026), presents data from all 1,818 counties in these States, including both metropolitan and non-metropolitan counties. A Web-based Safety Net Profile Tool (go to www.ahrq.gov and click on "Data") provides electronic access to the data and can be used to generate easy-to-use reports on the geographic areas covered in the two data books.

All three books are available from AHRQ.* See the back cover of *Research Activities* for ordering information. ■

New MEPS publications now available from AHRQ

The Agency for Healthcare Research and Quality has released two new publications from the Agency's Medical Expenditure Panel Survey (MEPS). MEPS is the third in a series of nationally representative surveys of medical care use and expenditures sponsored by AHRQ. MEPS is cosponsored by the National Center for Health Statistics. The first survey, the National Medical Care Expenditure Survey (NMCES) was conducted in 1977, and the second survey, the National Medical Expenditure Survey (NMES) was carried out in 1987. MEPS began in 1996 and is ongoing.

MEPS 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, the Medical Provider Component, the Insurance Component, and the Nursing Home Component.

The following two MEPS publications are now available from AHRQ. See the back cover of *Research Activities* for ordering information.

Health Care Expenses for Injuries: Estimates from the 1997 MEPS. MEPS Research Findings No. 19. Krauss, N.A., Machlin, S.R., and Adams, G.A. AHRQ Publication No. 04-0005.*

Using data from the 1997 MEPS Household Component, the authors of this report examined the health care costs of injury-related conditions. An estimated \$57.9 billion was spent in 1997 on injury-related conditions for the U.S. civilian noninstitutionalized population. Approximately 62 million people were reported to have had an injury-related condition. Seventy percent of the people with an injury-related condition (43 million people) had a medical expense related to that condition. This report gives estimates of injury-related expenses for inpatient hospital services and ambulatory medical care services by age, sex, race, health insurance, and poverty level. Injury-related expenses as a proportion of total medical expenses and mean and median expenses are also discussed. The proportion of expenses for injury and noninjury medical care paid by various sources, including out-of-pocket,

Medicare, Medicaid, private insurance, and Workers' Compensation, are also compared.

Dental Services: Use, Expenses, and Sources of Payment, 1996-2000. MEPS Research Findings No. 20. Brown, E., and Manski, R. AHRQ Publication No. 04-0018.

The authors of this report used MEPS data to characterize how the civilian noninstitutionalized population used and paid for dental care from 1996 through 2000. The report emphasizes changes over time. Information is presented on the percent of people with any use of dental services each year as well as the average number of visits per year. Estimates include annual expenses and sources of payment (including out-of-pocket amounts) for the total population as well as for specific population groups categorized in terms of insurance coverage, income, employment, and Census region.

Editor's note: To find out about other recently released MEPS products, including MEPS data, statistical briefs, and other MEPS products, visit the MEPS Web site at www.meps.ahrq.gov and click on "What's New?" ■

Research Briefs

Interdisciplinary teamwork is a key to patient safety in the operating room, ICU, and ER

Finkler, S.A., and Ward, D.M. (2003, October). "The case of the use of evidence-based management research for the control of hospital costs." (AHRQ grant HS12081). *Health Care Management Review* 28(4), pp. 348-365.

Hospital managers generally don't use findings from evidence-based management research when making decisions designed to help control hospital costs. According to these researchers, the problem is two-fold: one, hospital managers do not seek out available evidence, and

two, there is insufficient research to generate evidence for managers to use. They argue that the key to assessing cost containment is a framework that uses evidence to link three basic components: cost

continued on page 22

Research briefs

continued from page 21

measurement, cost control, and assessment of value. However, there has been relatively little research on actual evidence-based decisionmaking for cost reduction in hospitals. The authors call for management research in the areas of cost containment that can provide hospital managers with practical information they can put to immediate use and that is designed and conducted in a way that allows for the assessment of effectiveness with respect to both cost containment and quality.

Washington, D.L., Bernstein, S.J., Kahan, J.P., and others. (2003). "Reliability of clinical guideline development using mail-only versus in-person expert panels." (AHRQ grant HS07185). *Medical Care* 41(12), pp. 1374-1381.

Clinical practice guidelines quickly become outdated. One reason they might not be updated as often as needed is the expense of collecting expert judgment regarding the evidence. These investigators tested whether a less expensive, mail-only process could substitute for the standard in-person process normally used. To accomplish this, they performed a four-way replication of the

appropriateness panel process for coronary revascularization and hysterectomy, conducting three panels using the conventional in-person method and one panel entirely by mail. All indications for the surgeries were classified as inappropriate or not (to evaluate overuse) and coronary revascularization indications were classified as necessary or not (to evaluate underuse). Similar results from the mail-only and in-person approach suggest a potential role for using an expert judgment process conducted entirely by mail to update guidelines. ■

Don't Forget— Visit AHRQ's Web Site

AHRQ's Web site—<http://www.ahrq.gov/>—makes practical, science-based health care information available in one convenient location. You can tap into the latest information about the Agency and its research findings and other initiatives, including funding opportunities and job vacancies. Research Activities is also available and can be downloaded from our Web site. Do you have comments or suggestions about the site? Send them to info@ahrq.gov.



Check out
what's new
this month in...

QUALITY TOOLS™

<http://www.ahrq.gov/>

Ordering Information

AHRQ makes documents available free of charge through its publications clearinghouse and AHRQ InstantFAX. Other AHRQ documents are available from the National Technical Information Service (NTIS) or the Government Printing Office (GPO). To order AHRQ documents:

(*) Available from the AHRQ Clearinghouse:

Call or write:

AHRQ Publications Clearinghouse
Attn: (publication number)
P.O. Box 8547
Silver Spring, MD 20907
800-358-9295
703-437-2078 (callers outside the
United States only)
888-586-6340 (toll-free TDD service;
hearing impaired only)

To order online, send an e-mail to:
ahrqpubs@ahrq.gov

() Available from the AHRQ Clearinghouse and from AHRQ InstantFAX:**

For instructions on using InstantFAX, call 301-594-2800. Use the key pad on your telephone or fax machine when responding to prompts. AHRQ InstantFAX operates 24 hours a day, 7 days a week.

(*) Available from NTIS:**

Some documents can be downloaded from the NTIS Web site free or for a nominal charge. Go to www.ntis.gov for more information.

To purchase documents from NTIS, call or write:

National Technical Information Service
(NTIS)
Springfield, VA 22161
703-605-6000, local calls
800-553-6847

Available from GPO:

Call the GPO order desk for prices and ordering information 202-512-1800.

Note: Please use publication numbers when ordering

U.S. Department of Health and Human Services

Public Health Service
Agency for Healthcare Research and Quality
P.O. Box 8547
Silver Spring, MD 20907-8547



AHRQ Pub. No. 04-0031
February 2004

ISSN 1537-0224