



RESEARCH ACTIVITIES

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AHRQ'S 2007 State Snapshots provide broader portraits of State-by-State health care performance

An annual analysis to help health leaders identify areas of health care delivery that need quality improvement now includes important information such as each State's rate of obesity, health insurance coverage, mental illness, and the number of specialist doctors. These and other measures – called “State contextual factors” – are part of the 2007 *State Snapshots* released by the Agency for Healthcare Research and Quality (AHRQ). The updated *State Snapshots* Web tool also tracks States' progress toward reaching government-set health goals for 2010.

As in previous years, the 51 *State Snapshots* – every State plus Washington, D.C. – summarize health care quality in 3 dimensions: type of care (such as preventive, acute or chronic care), setting of care (such as nursing homes or hospitals), and by clinical areas (such as care for patients with cancer or diabetes). The evaluations are expressed in simple, five-color “performance meter” illustrations that rate performance from “very weak” to “very strong.” Users may explore whether a State has

improved or worsened compared to other States in several areas of health care delivery. Users can get more detailed portraits of each State's performance by exploring the *State Snapshots'* 149 separate measures of quality. Those measures range from preventing pressure sores to screening for diabetes-related foot problems to giving recommended care to pneumonia patients.

Finally, the *State Snapshots* provide State rankings for 15 “selected measures.” These rankings show that no State does well or poorly in all areas. Texas, for example, ranked 4th best at minimizing nursing home patients' pressure sores but 41st on vaccinating older people against pneumonia. Ohio ranked 7th for its high percentage of pregnant women who received prenatal care but 46th for its high rate of breast cancer deaths. New Mexico ranked 4th best on improving the mobility of nursing home residents but 50th for its low number of heart attack patients who received the right medications at hospital discharge.

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State Snapshots

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The data in this year's *State Snapshots* are drawn from the 2007 *National Healthcare Quality Report* (www.ahrq.gov/qual/qdr07.htm) which provides a national portrait of health care quality. It shows the

quality of health care improved by an average 2.3 percent a year between 1994 and 2005, a rate that reflects some important advances but points to an overall slowing in quality gains.

AHRQ's annual *State Snapshots* is based on data drawn from more

than 30 sources, including government surveys, health care facilities, and health care organizations. To access this year's *State Snapshots* tool, go to <http://statesnapshots.ahrq.gov/snaps07/>. ■

Disparities/Minority Health

AHRQ and Ad Council encourage Hispanics to become more involved in their health care

The Agency for Healthcare Research and Quality (AHRQ) joined with The Advertising Council (Ad Council) to launch a Spanish-language national public service campaign designed featuring a "Superhéroes" theme to encourage Hispanics to become more involved in their health care. The campaign urges Hispanics to stay healthy for their loved ones by visiting their doctor for regular screenings.

Hispanics are 38 percent less likely than non-Hispanics to have visited the doctor within the past year, according to the latest data from AHRQ. In addition, more than a quarter of Hispanic adults have never had their cholesterol checked, two-thirds of Hispanics over 50 have never had a colonoscopy, and more than half of Hispanic women over 40 have not had a mammogram within the last year.

The fact that one-third of U.S. Hispanics are uninsured, along with linguistic and cultural barriers, plays a role in these disparities, as shown in AHRQ's recent *2007 National Healthcare Disparities Report*. Studies have found that Hispanics often lag behind the general population in access to preventive care even when they are insured.

The new Spanish-language campaign features everyday mothers and fathers whose children see them as superheroes and encourages Hispanic adults to be more involved in their health care, especially preventive care. Research has shown that people who are more involved in their health care tend to have better health outcomes. The new Superhéroes campaign complements AHRQ's existing efforts that are geared toward helping patients become more

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Ad Council

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involved in decisions regarding their medical treatment. As part of this ongoing effort, AHRQ and the Ad Council launched the “Questions are the Answer” campaign in March 2007.

The Superhéroes campaign highlights the work of the AHRQ-sponsored U.S. Preventive Services Task Force, which is an independent panel of experts in primary care and prevention that systematically reviews the evidence of effectiveness and develops recommendations for clinical preventive services. Created pro bono for the Ad Council by the advertising

agency Casanova Pendrill, the public service advertising campaign includes new television, radio, print, and Web advertising featuring the Superhéroes theme. The ads encourage Hispanics to be heroes for their families by getting the preventive health care they need. The campaign encourages Hispanic adults to visit a comprehensive Web site, www.ahrq.gov/superheroes. The site provides tips on ways to stay healthy, talking with the doctor, recommendations on preventive testing, help in understanding prescriptions, a quiz, and glossary of medical terms as well as links to other resources that provide health information. ■

American Indian health advocates can learn to develop multimedia health projects for rural communities

Health advocates in tribal communities often end up implementing health-related programs designed by people who live and work outside their communities. Yet American Indian health advocates often know best what services their communities need and, with technical training, can develop multimedia health care information projects to address these issues (e.g., teen pregnancy, alcoholism, and diabetes). The Native Telehealth Outreach and Technical Assistance Program equipped and trained nine health advocates from a variety of backgrounds, including an HIV counselor, a registered nurse, and an elementary school teacher.

The participants, who were coached by operational and technical mentors, learned about available health resources and had

access to a state-of-the-art multimedia facility to develop their educational projects. Eighteen months after initial training, eight of the nine participants had developed projects, including an educational video on hepatitis C, an interactive CD-ROM for elementary school students on the effects of alcohol and other drugs on the body, an interactive CD-ROM sharing Native American insights and information on diabetes, and a Web site and brochure campaign on the diverse birth control methods available to the tribal community. These products were disseminated throughout the rural communities.

Although most participants successfully completed projects, a longer program timeframe would have helped them become more familiar with the new technologies,

note Spero M. Manson, Ph.D., and colleagues at the University of Colorado Denver. Their study was supported in part by the Agency for Healthcare Research and Quality (HS10854).

More details are available in “The Native Telehealth Outreach and Technical Assistance Program: A community-based approach to the development of multimedia-focused health care information,” by Rhonda Wiegman Dick, M.A., C.N.E., Dr. Manson, Amy L. Hansen, B.A., and others, in *American Indian and Alaska Native Mental Health Research: The Journal of the National Center*, 14(2), pp. 49-66, 2007. ■

Note: Only items marked with a single (*) asterisk are available from the AHRQ Clearinghouse. Items with a double asterisk (**) are available from the National Technical Information Service. 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.

Medication monitoring advice and feedback to physicians modestly improves outpatient medication safety

Patients taking angiotensin-converting enzyme inhibitors (ACEIs)/angiotensin receptor blockers (ARBs), diuretics, and digoxin—medications commonly prescribed in primary care—must be monitored with regular laboratory tests for creatinine and/or potassium levels to prevent potential kidney, heart, and other damage. A practice called academic detailing modestly improves laboratory monitoring of these medications, according to a new study. Given the many outpatients dispensed medications for which laboratory monitoring is recommended, group academic detailing may be one way to significantly improve outpatient medication safety, suggests the study authors.

The academic detailing was facilitated by local physician peer leaders and clinical pharmacists. It included one-on-one consulting, educational sessions, written information on recommended prescribing and monitoring practices, and individual feedback to

physicians. The researchers randomized 38 primary care practices in three States to group academic detailing or a control group.

In the academic detailing clinics, laboratory monitoring of patients newly dispensed an ACEI/ARB or diuretic, and of patients continually dispensed an ACEI/ARB or diuretic significantly improved. However, after adjusting for other factors, laboratory testing rates between the intervention and control clinics was modest (ranging from 2.5 to 4.9 percent). There were no differences between the two groups in laboratory monitoring of patients dispensed digoxin. The study was supported by the Agency for Healthcare Research and Quality (HS11843).

See “Academic detailing to improve laboratory testing among outpatient medication users,” by Jennifer Elston Lafata, Ph.D., Margaret J. Gunter, Ph.D., John Hsu, M.D., and others, in the October 2007 *Medical Care* 45(10), pp. 966-972. ■

Use of a visual medication schedule and brief physician counseling can reduce time to anticoagulation control

A new study suggests a simple strategy to enhance warfarin medication safety and efficacy for at-risk patients. Use of warfarin and other anticoagulants is the cornerstone of care for patients with atrial fibrillation (rapid, irregular heartbeat) and other conditions associated with complications of blood clots.

However, warfarin use has to be carefully monitored to make sure that patients stay within the therapeutic range. Falling outside this range puts patients at risk of stroke (if blood remains too thick) or bleeding (if blood is thinned too much). Anticoagulant care often requires warfarin dose adjustments and a medication schedule of

varying daily dosages. Miscommunication between physicians and patients about warfarin dosing is common and is a key reason for poor anticoagulant control and adverse medication events.

To enhance patient-physician communication about warfarin

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Visit the AHRQ Patient Safety Network Web Site

AHRQ's national Web site—the AHRQ Patient Safety Network, or AHRQ PSNet—continues to be a valuable gateway to resources for improving patient safety and preventing medical errors and is the first comprehensive effort to help health care providers, administrators, and consumers learn about all aspects of patient safety. The Web site includes summaries of tools and findings related to patient safety research, information on upcoming meetings and conferences, and annotated links to articles, books, and reports. Readers can customize the site around their unique interests and needs through the Web site's unique “My PSNet” feature. To visit the AHRQ PSNet Web site, go to <http://psnet.ahrq.gov/>.

Visual medication schedule

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regimens, a team from the University of California, San Francisco, developed a computer-generated visual medication schedule (VMS). It included digitized color images of one or more warfarin pills, with the exact dosage for each pill, on a chart for each day of the week. The team randomly assigned 147 chronic warfarin users from an anticoagulation clinic either to usual care or to receive a VMS

along with brief counseling at each visit.

At baseline, a similar proportion of patients and clinicians from the VMS and usual care groups had different understandings about the prescribed warfarin regimen (38 vs. 42 percent). Patients who received the visual medication schedule achieved anticoagulation control 2 weeks more quickly than controls (median of 28 vs. 42 days). Those who originally disagreed about the regimen with their doctor, either due to language barriers, inadequate health literacy, or other factors, benefited even more from

the intervention. This group achieved anticoagulation control 3 weeks earlier than controls (median 28 vs. 49 days). The study was supported in part by the Agency for Healthcare Research and Quality (HS10856).

See “A visual medication schedule to improve anticoagulation control: A randomized, controlled trial,” by Edward L. Machtinger, M.D., Frances Wang, M.A., Lay-Leng Chen, M.D., and others, in the October 2007 *Joint Commission Journal on Quality and Patient Safety* 33(10), pp. 625-635. ■

New pill card helps patients take medications on time

Free, online instructions for creating a pill card—an illustrated medication schedule—using only a personal or lap top computer and printer are now available from the Agency for Healthcare Research and Quality.

One in four Americans do not take prescription medicines as prescribed. Adherence to medication instructions is particularly important when people have chronic illnesses such as diabetes or heart failure. Many people who fail to adhere to medication instructions do so because they do not understand how to take their medicines. Medication non-adherence costs an estimated \$100 billion annually in hospital admissions, doctor visits, lab tests, and nursing home admissions.

Research has shown that using a pill card with pictures and simple phrases to show each medicine, its purpose, how much to take, and when to take it reduces misunderstandings. A pill card can serve as a visual aid for confirming that patients understand how to take the medicines properly and as a reminder to take medicines. AHRQ’s *How to Create a Pill Card* provides step-by-step instructions for making a pill card. A person needs a computer with word processing software, a printer, and information on all of their medicines.

How to Create a Pill Card is intended for anyone who takes medicines regularly or who cares for someone who does. More information can be found at www.ahrq.gov/qual/pillcard/pillcard.htm. ■

Women’s Health

Pain varies among women with late-stage breast cancer

Women of races other than white who have advanced breast cancer suffer more pain than white women with the same condition, a recent study finds. Researchers studied 1,124 women with Stage IV, or metastatic, breast cancer over the course of a year. They asked the women to rate their pain on a scale of 0 to 10, with 10 being the worst pain

imaginable. Next, they compared the scores of 991 white women with 133 women from other races to determine which group of women more often scored 7 or higher on the Basic Pain Inventory. This scale was designed to measure the intensity of pain patients experience and how that pain interferes in their lives.

In addition to race, several other factors served as predictors of pain. Women who were inactive and embarking on radiation treatment were likely to score high on the pain scale. The authors suggest that women about to start radiation treatments were likely to have bone cancer, a very painful condition, and probably needed the treatments

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Late-stage breast cancer

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for more severe pain and tumor control. Further, many young women reported that their pain interfered with their daily lives. Demands such as motherhood or work, coupled with their illness, could explain this group's higher pain levels.

This study's findings support other studies that found that women of races other than white are at a high risk for being undertreated for pain. Although physicians rely on patients' candor, they should understand that minority patients may not report pain for fear of being labeled an addict or because of cultural values, the authors state. This study was funded in part by

the Agency for Healthcare Research and Quality (T32 HS00032).

See "Racial differences in pain during 1 year among women with metastatic breast cancer: A hazards analysis of interval-censored data," by Liana D. Castel, Ph.D., Benjamin R. Saville, M.S., Venita DePuy, M.Stat., and others in the January 1, 2008 *Cancer* 112(1), pp. 162-170. ■

Antidepressant use during pregnancy is linked to increases in preterm birth and potentially serious infant perinatal problems

From 10 to 20 percent of pregnant women suffer from depression. Since depression's impact on both the mother and developing fetus can be profound, treating moderate to severe depression with antidepressants during pregnancy is generally recommended. However, a new study warns about increases in preterm deliveries and newborn disorders in infants whose mothers took antidepressants. Whether these risks were due to the antidepressants, the underlying depression, or other factors such as smoking could not be determined in this study.

In this study, infants exposed to the newer selective serotonin reuptake inhibitors (SSRIs) or the older tricyclic antidepressants (TCAs) during pregnancy had a significant increase in preterm delivery.

Also, full-term infants exposed to SSRIs during the third trimester had a higher risk of respiratory distress syndrome, endocrine and metabolic disturbances, low blood-sugar levels, temperature regulation disorders, and convulsions. Infants exposed to TCAs during the third trimester also had an increased risk for respiratory distress syndrome, endocrine and metabolic disturbances, and temperature regulation disorders.

Neither SSRIs nor TCAs were associated with an increased risk for congenital anomalies. Six percent of

infants exposed in utero to SSRIs and 8 percent exposed to TCAs had feeding problems; approximately 0.7 percent of infants exposed in utero to either SSRIs or TCAs had convulsions.

Investigators at the HMO Research Network's Center for Education and Research in Therapeutics identified 2,201 women who were prescribed an antidepressant during pregnancy and who delivered an infant within 1 of 5 large managed care organizations. They analyzed the HMO databases to examine the association between use of TCAs and SSRIs by trimester with rates of congenital anomalies or perinatal complications compared with infants of mothers who were not prescribed antidepressants during pregnancy. The study was supported in part by the Agency for Healthcare Research and Quality (HS10391).

More details are in "Risks of congenital malformations and perinatal events among infants exposed to antidepressant medications during pregnancy," by Robert L. Davis, M.D., M.P.H., David Rubanowice, B.S., Heather McPhillips, M.D., M.P.H., and others, in *Pharmacoepidemiology and Drug Safety* 16, pp. 1086-1094, 2007. ■

Noncancerous pelvic problems are linked to poor quality of life and sexual functioning for premenopausal women

Noncancerous pelvic conditions, which typically cause heavy bleeding and pelvic pain and pressure, are associated with problems in sexual functioning and poor health-related quality of life among premenopausal women. In addition,

women who are experiencing these symptoms are not particularly satisfied with the treatments offered them, according to a new study. Miriam Kuppermann, Ph.D., M.P.H., of the University of California, San Francisco, and colleagues examined the treatment

and outcomes of 1,493 women who sought care for noncancerous pelvic problems and who had not undergone hysterectomy. They asked the women about their symptoms, attitudes, quality of life,

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Pelvic conditions

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sexual functioning, and treatment satisfaction.

Most women (83 percent) reported no or only partial symptom resolution from treatment. Also, 42 percent of women said that their pelvic problems interfered with their ability to have and enjoy sex. The women's physical and mental health scores were similar to those that have been reported for women with chronic hepatitis C, and were substantially lower than population norms for women aged 40 to 49 years. Their quality of life was sufficiently diminished, and

they were as willing to trade a similar amount of time in their current health state for less time in perfect health as were primary care patients with depression and rheumatoid arthritis.

Satisfaction with treatment for their pelvic problems ranged from 31 percent for progestin intrauterine devices to 58 percent for opiates. Satisfaction with uterine-preserving surgery ranged from 20 percent for dilation and curettage to 51 percent for surgery to remove uterine fibroids. Over one-fourth (28 percent) of the women who used acupuncture were satisfied. Women with less education, greater

symptom resolution, and who were experiencing less interference of pelvic problems with sex were more likely to be satisfied with the treatment they received. The study was supported in part by the Agency for Healthcare Research and Quality (HS09478, HS11657, and HS07373).

See "Effect of noncancerous pelvic problems on health-related quality of life and sexual functioning," by Dr. Kuppermann, Lee A. Learman, M.D., Ph.D., Michael Schembri, B.S., and others, in the September 2007 *Obstetrics & Gynecology* 110(3), pp. 633-642. ■

Child/Adolescent Health

Studies examine pediatricians' and parents' attitudes toward childhood obesity

Watching television has been shown to be clearly associated with children becoming obese, and pediatricians feel they have little success in treating children's obesity, according to a new study. Overweight children are more likely to live in poverty and suffer from chronic medical and emotional conditions, factors likely to increase parental aggravation. While some have linked negative parental attitudes and behaviors with overeating by children, parental aggravation is not linked to this problem, concludes a second study. Both studies were supported by the Agency for Healthcare Research and Quality (HS13901) and led by Sarah E. Barlow, M.D., M.P.H., of St. Louis University. They are described here.

Barlow, S.E., Richert, M., and Baker, E.A. (2007). "Putting context in the statistics:

Paediatricians' experiences discussing obesity during office visits." *Child: Care, Health and Development* 33(4), pp. 416-423.

Despite following obesity treatment recommendations, pediatricians feel they have little success treating children's obesity. In interviews with eight pediatricians from diverse practices, the researchers asked them how they identify, treat, and might improve office-based treatment for obesity. The pediatricians felt that they identified most overweight children, and primarily with weight and height charts, not the body mass index (BMI). They followed recommendations to emphasize to children and their families the health problems of obesity, advised simple behavior changes for the entire household, and adapted messages to individual families. Sometimes, they also took extra time to discuss obesity.

Despite this, they often considered their efforts futile and found almost no success. The pediatricians cited several family barriers that may have impeded their success in this area. For example, many families had poor home environments, whose pressing needs crowded out time to prepare food and exercise. Other families were not committed to fighting their child's obesity, with some simply accepting that weight problems were intrinsic to the family. The successful patients typically came to the pediatric office already motivated.

Thus, promoting pediatrician compliance with recommendations will not reduce childhood obesity. Instead, improving patient motivation prior to visits and new handouts, such as a list of healthy snacks or exercises that could be done in the house, may be more effective, conclude the authors.

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Childhood obesity

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Barlow, S.E. and Chang, J-J. (2007). "Is parental aggravation associated with childhood overweight? An analysis of the national survey of children's health 2003." *Acta Paediatrica* 96, pp. 1360-1364, 2007.

This study did not link parental aggravation with a child being overweight. The researchers compared parents' aggravation with their child with the child's body mass index (BMI), based on parental responses to the National Health Survey of Children's Health.

Parents were considered aggravated by their child when they responded "usually" or "often" to any of three items during the last month: 1) on average, they felt their child was much harder to care for than other children; 2) they were bothered a lot by their child's behavior; or 3) they felt angry with their child.

About 9 percent of parents reported being aggravated with their child. When parents reported aggravation, the children more often had a BMI of 95th percentile or greater (overweight). Overweight children were also older, more often black, and had lower income and

education status than those who weren't overweight. More overweight than normal weight children also had problem behaviors, socioemotional difficulties, a chronic medical condition, and watched more hours of television per day.

Thus, higher BMI was associated with many characteristics likely to make parenting more demanding and aggravation with children more likely. However, after controlling for these characteristics, parental aggravation was not linked to additional risk of a child's high BMI. ■

Elderly/Long-term Care

Researchers examine the relationship of workarounds to technology implementation and medication safety in nursing homes

As many as 42 percent of adverse drug events in nursing homes are preventable. One way to reduce these errors is through the implementation of technology in the systems of medication administration. This technology, however, sometimes causes blocks in the work flow (e.g., through safety alerts and requests for more documentation). When nursing home staff work around these blocks, new types of medical errors and unintended consequences are introduced. A new study provides practical examples of workarounds in the nursing home and examines the risks to medication safety.

Researchers observed five Midwestern nursing homes that had implemented a fully integrated electronic health record (EHR) and an electronic medication record (eMAR). The medication administration system was mapped before the technology was implemented and then six months after implementation.

The authors identified two distinct root causes for workarounds. First were those introduced by the technology itself. For example, intentional blocks were designed in the system to prevent the ordering of excessive medication, but staff often worked around this block by entering several smaller doses of the same medication to obtain the full order. Unintentional blocks were also evident; for instance, slow wireless connections when viewing multiple screens of a

patient's health record led frustrated staff to consult written notes instead. A second root cause of workarounds was the failure to reengineer related processes for technology. For example, staff bypassed safety features that they perceived to be time consuming, such as a double documentation check at the time when medication was prepared and again when administered.

Nursing home staff most often engaged in first-order problem solving when they bypassed blocks in their work flow. That is, they found the most immediate solution to getting past the block. But a more effective and sophisticated approach is second-order problem solving, which addresses the root causes of the blocks. This strategy can be enhanced by the presence of the medication safety team, as well as by encouraging open communication among the staff so that they can talk openly about the blocks they face. Workarounds, such as overriding alerts, are a particular concern for patient safety. This study was supported in part by the Agency for Healthcare Research and Quality (HS14281).

More details are in "Technology implementation and workarounds in the nursing home," by Amy A. Vogelsmeier, M.S.N., R.N., Jonathon R. B. Halbesleben, Ph.D., Jill R. Scott-Cawiezell, R.N., Ph.D., in the January/February 2008 *Journal of the American Medical Informatics Association* 15(1), pp. 114–119. ■

Staff education and performance feedback only slightly improve fracture prevention among nursing home residents

Most nursing home residents have osteoporosis (loss of bone mass) and are susceptible to falls and fractures. Yet only one-third of these residents receive recommended fracture prevention therapies such as bisphosphonate medication and hip protectors. A new study found that nursing home staff education and performance feedback only slightly improved use of bisphosphonate medication or hip protectors for residents diagnosed with osteoporosis or with a history of hip fracture. However, low staff participation in the quality improvement intervention may have tempered the results, suggest investigators at the University of Alabama Center for Education and Research on Therapeutics.

The researchers randomized 67 nursing homes to receive the intervention immediately or after the study was complete (control group). The intervention included educational modules on osteoporosis evaluation and treatment, staff performance audit and feedback, case-based teleconferences on osteoporosis quality improvement, an osteoporosis toolkit, and detailing of the clinical issues by osteoporosis opinion leaders.

The use of osteoporosis medication or hip protectors improved by 8 percent in the intervention and 0.6 percent in the control group, an insignificant difference. Although 35 percent of the residents fell within 90 days of the start of the study, and 20 percent had suffered a previous fracture, prescription of fracture-

prevention therapies other than calcium and vitamin D remained low. Osteoporosis guidelines themselves may not be optimally suited for frail nursing home residents, note the researchers. For example, nearly 25 percent of study residents had peptic ulcer disease, inflammation of the esophagus, or difficulty swallowing that would preclude their use of oral bisphosphonates. The study was supported in part by the Agency for Healthcare Research and Quality (HS10389).

See "Randomized trial to improve fracture prevention in nursing home residents," by Cathleen S. Colón-Emeric, M.D., Kenneth W. Lyles, M.D., Paul House, and others, in the October 2007 *American Journal of Medicine* 120(10), pp. 886-892. ■

Outcomes/Effectiveness Research

Surgery patients have better outcomes when their surgical team communicates and collaborates

Good communication and collaboration among surgical team members is linked to better patient outcomes 30 days after surgery, according to a new study. Yet organizational climate safety factors (OCSFs), including perception of organizational commitment to patient safety and working conditions and job satisfaction, were not linked to patient outcomes. The researchers administered surveys to staff on general/vascular surgery units of 44 Veterans Affairs and 8 academic medical centers during a year.

They used the Safety Attitudes Questionnaire (SAQ) to measure staff perceptions of teamwork, job satisfaction, management, safety climate (organizational commitment to patient safety), working conditions, and recognition of stress effects on clinical

teams. They also surveyed staff about how they perceived communication and collaboration with attending and resident doctors.

Patients of surgical teams reporting higher levels of communication and collaboration with the attending and resident doctors had fewer postoperative complications up to 30 days after the operation, after adjusting for other factors affecting patient outcomes. However, this team communication and collaboration was not linked to fewer patient postoperative deaths. None of the OCSFs correlated with risk-adjusted patient outcomes. The authors suggest that OCSFs themselves may influence patient outcomes; however, the survey-based scales used to measure them can be inadequate. The study was supported by the Agency for

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Good communication

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Healthcare Research and Quality (HS11913 and HS12029).

More details are in “Risk-adjusted morbidity in teaching hospitals correlates with reported levels of communications and collaboration on surgical teams

but not with scale measures of teamwork climate, safety climate, or working conditions,” by Daniel L. Davenport, Ph.D., William G. Henderson, Ph.D., Cecilia L. Mosca, M.P.H., and others, in the December 2007 *Journal of the American College of Surgeons* 205, pp. 778-784. ■

Delaying repair of an asymptomatic hernia does not adversely affect the patient

Delaying surgical repair of an asymptomatic or minimally symptomatic hernia (cases with no limitation of usual activities by hernia-related pain or discomfort) does not adversely affect the patient, concludes a new study. Hernias are portions of the intestine or abdominal fatty tissue that bulge out of the groin area. They are often painless, but can be tender, painful, and swollen. In this study, watchful waiting for hernias causing minimal symptoms did not make later surgery more difficult. In addition, postoperative complications, hernia recurrence rates, and patient-reported outcomes with delayed surgery were no worse than for surgical repair within 6 months, note the researchers.

They compared 353 similar patients with minimally symptomatic inguinal hernias

from a multicenter randomized clinical trial. Overall, 288 patients had immediate hernia repair within 6 months of study entry, and 65 patients had their surgery delayed for more than 6 months. There was no difference in operative time and rate of complications within 30 days of surgery between the two groups. Recurrence of the hernia occurred in five (1.4 percent) of all the patients, with differences between the two groups insignificant. However, given the small sample size and short follow-up, these recurrence rates should be interpreted with caution, note the researchers.

Pain scores did seem higher before surgery for the delayed-repair group, but there were no significant differences in pain scale dimensions between the two groups after surgery. Nearly all patients indicated satisfaction with

their hernia care (99 percent in the immediate repair group and 98.5 percent in the delayed repair group) as well as the results of that care (97.9 and 93.9 percent, respectively). The researchers previously found a low risk of hernia accident (intestinal obstruction or strangulation) with delayed surgical repair. This further strengthens the argument that watchful waiting is a safe and reasonable strategy for patients with minimal or asymptomatic inguinal hernias. The study was supported in part by the Agency for Healthcare Research and Quality (HS09860).

See “Does delaying repair of an asymptomatic hernia have a penalty?” by Jon S. Thompson, M.D., James O. Gibbs, Ph.D., Domenic J. Reda, Ph.D., and others in the January 2008 *American Journal of Surgery* 195, pp. 89-93. ■

CT angiographic source images detect stroke better than nonenhanced CT scans

When a patient is suspected of having suffered a stroke, clinicians need immediate images of the brain to see which blood vessels are affected and how widespread the damage is. The best views of the brain come from diffusion-weighted magnetic resonance imaging (MRI). However, getting those images takes longer; the common, faster alternative to MRI is computed tomography (CT). CT is also more readily available in hospitals, more

affordable, and, with CT angiography (images that look at the arteries in the brain and neck), doctors can obtain most of the critical data needed for patient selection for acute stroke treatment, just as with MRI.

A recent study suggests that CT angiographic source images (CTA-SI, which use injected contrast dye to enhance arterial images and are used to create the CT

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CT angiographic source images

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angiography images) are superior to nonenhanced CT (i.e., no dye injected) for early stroke detection and damage assessment. Researchers compared nonenhanced CT scans with CT angiographic source images for 51 patients suspected of having a middle cerebral artery stroke. They found that CT angiographic source images are better at evaluating acute strokes. Further, they suggest that CT angiographic source images are nearly as good as MRI in detecting strokes that affect a large part of the brain.

The study upholds the practice of using CT angiographic source images, in lieu of nonenhanced CT scans alone, to improve the detection of early changes in the brain and predict the damage a stroke will cause. This study was funded in part by the Agency for Healthcare Research and Quality (HS11392).

See “Acute brain infarct: Detection and delineation with CT angiographic source images versus nonenhanced CT scans,” by Erica C.S. Camargo, M.D., Ph.D., Karen L. Furie, M.D., M.P.H., Anesh B. Singhal, M.D., and others in the August 2007 *Radiology*, 244(2) pp. 541-548. ■

Leaving hospitals against medical advice puts heart attack patients at substantial risk for rehospitalization or death within 2 years

Patients who have heart attacks and decide to leave the hospital against doctor’s orders have a significant chance of either ending up right back in the hospital or dying within 2 years of their walkouts, according to a recent study. Kevin Fiscella, M.D., M.P.H., and colleagues at the University of Rochester School of Medicine, reviewed California hospital discharge data from 1998 to 2000. They found that 1,079 patients (1.1 percent) who came into the hospital after suffering heart attacks left against their doctor’s advice. These patients were usually young, male, Black, had low incomes, and had either Medicaid or no insurance.

This group only stayed in the hospital an average of 4 days compared with 8 days for patients who had heart attacks but opted to stay put. Early leavers also were unlikely to transfer to another hospital or receive typical cardiac interventions, such as pacemakers, stents, angioplasty, or bypass surgery. Tracking this group’s progress, the team found that nearly 30 percent of the patients were either readmitted with coronary symptoms or died within 90 days of deciding to leave the hospital. Within 2 years, they were nearly 60 percent more likely to be either readmitted to a hospital with similar symptoms or die than those who stayed in the hospital for their full course of treatment.

This study provides clinicians with evidence to persuade patients to remain in the hospital and be fully treated. Further, because these statistics show a real health risk for patients who decide to leave against advice, clinicians can arrange for early followup care if these patients choose to leave the hospital, the authors suggest. This study was funded in part by the Agency for Healthcare Research and Quality (HS10910).

See “Hospital discharge against advice after myocardial infarction: Death and readmissions,” by Dr. Fiscella, Sean Meldrum, M.S., and Steve Barnett, M.D., in the December 2007 *American Journal of Medicine* 120(12), pp. 1047-1053. ■

Hospitalists shorten stays but don’t save much money or more lives

Hospitalists are physicians who spend at least a quarter of their time serving as physicians for inpatients and return the patients to their primary care physicians at discharge. An increasing number of U.S. hospitals have adopted the practice of having these physicians on staff. However, a new study finds that while these hospitalists do reduce patients’ stay lengths, they don’t necessarily save money or reduce death and readmission rates when compared with general internists and family physicians.

Researchers used a database developed to measure health care use and quality to compare the performance of 993 general internists and 971 family physicians with 284 hospitalists. The researchers looked at length of hospital stay, cost, death rates, and readmission rates for adult patients admitted to 45 U.S. hospitals from September 2002 to June 2005 with 7 conditions, including pneumonia, heart failure, and stroke.

Patients seen by hospitalists were likely to have shorter stays (2.9 days) compared with patients of

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Hospitalists

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general internists and family physicians (3.3 days). Costs remained in the same ballpark for all three (hospitalists: \$5,129, internists: \$5,397, and family physicians: \$5,254), as did death rates and 14-day readmission rates. This study contradicts earlier findings that suggest employing hospitalists equals cost savings.

Although stay length was 10 percent shorter when hospitalists were in charge, these doctors may have been able to squeeze in more tests and treatments, as

reflected in care costs, which were similar to the costs for internists and family physicians as the lead, the authors suggest. This study was funded in part by the Agency for Healthcare Research and Quality (HS11416).

See “Outcomes of care by hospitalists, general internists, and family physicians,” by Peter K. Lindenauer, M.D., Michael B. Rothberg, M.D., M.P.H., Penelope S. Pekow, Ph.D., and others in the December 20, 2007 *New England Journal of Medicine* 357(25), pp. 2589-2600. ■

Chronic Disease

Physicians could improve end-of-life communication and decision-making for elderly patients with advanced heart failure

Caring for elderly persons with advanced heart failure (HF) is challenging. HF has a high mortality rate, but prognosis is often difficult to gauge, especially when complicated by the presence of multiple chronic illnesses that affect most elderly patients. Given these challenges, there are substantial opportunities for improving physician skills in patient-centered counseling, palliative care, and care decision-making conclude researchers at the Medical University of South Carolina.

They surveyed 89 internal medicine and geriatric faculty and resident physicians about perceived skills and barriers to HF care, adherence to HF guidelines, and understanding of patient prognosis. Case studies were used to explore their practice approaches. Physicians scored well on clinical knowledge of HF.

They scored lower, however, on population-specific issues, such as median survival for female patients with HF. Among 17 self-assessed skills, physicians reported lowest ratings for addressing cultural and racial differences in end-of-life care and knowledge of how to help patients and families cope with fears, guilt, and grief.

Physicians reported highest on skills related to management of physical symptoms such as shortness of breath or respiratory distress; clinical management (organ evaluation, laboratory tests); initiation and documentation of discussion about the patient's end-of-life issues; and patient instructions concerning sodium and fluid intake and diuretic titration. Physicians rated themselves as “less than moderately prepared” in management of patient anxiety and depression; management of

emotional suffering at the end of life; and patient/family communication related to issues such as prognosis, spiritual and psychosocial needs, and dying of HF; assessment of patients for referral to hospice; and use of a health care-team approach to care. Physicians saw medication noncompliance, lack of patient motivation to make lifestyle changes, and lack of insurance coverage for medications as significant barriers to care. The study was supported by the Agency for Healthcare Research and Quality (HS10871).

See “Advanced heart failure: Prognosis, uncertainty, and decision making,” by Jane Zapka, ScD., William P. Moran, M.D., Sarah J. Goodlin, M.D., and Kelly Knott, M.S., in the September-October 2007 *Chronic Heart Failure* 13, p. 268-274. ■

Studies examine disease self-management and quality of life of individuals with multiple chronic illnesses

Individuals who suffer from multiple chronic illnesses must learn how to manage them with a variety of methods, which range from altered diet and exercise regimens to medication. These individuals are more motivated to learn disease self-management skills and are more flexible about which providers care for them than those who suffer from only one chronic illness, according to a study supported by the Agency for Healthcare Research and Quality (AHRQ, HS13008). Certain psychosocial factors are potential barriers to self-management and quality of life of seniors with multiple chronic diseases, concludes a second AHRQ-supported study (HS15476). Both studies are briefly described here.

Noel, P.H., Parchman, M.L., Williams, J.W., and others. (2007, December). "The challenges of multimorbidity from the patient perspective." *Journal of General Internal Medicine* 22 (Suppl. 3), pp. 419-424.

Skills for managing certain diseases, such as asthma, are specific to that disease. However, skills for managing diseases such as hypertension, heart disease, obesity, and high cholesterol, which involve diet and exercise, may overlap with one another. According to this study, a higher percentage of patients who suffer from several chronic diseases are willing to learn all self-management skills relevant to most chronic diseases than those who suffer from only one. These patients are also more willing than those with a single chronic disease to see 6 of 11 nonphysician health care providers for their care, thus supporting a team-based approach

to primary care for chronically ill patients.

The researchers analyzed survey responses from 422 primary care patients from a Veterans Health Administration health care system. They compared responses from veterans who have multiple illnesses with those who have only one in three areas that are highly prevalent among veterans: metabolic, obesity, and psychiatric diseases. For example, a person with one metabolic illness might have hypertension, hyperlipidemia, diabetes, or ischemic heart disease, while patients with multiple illnesses had at least three of the four diseases. The greatest percentage of patients with multiple chronic illnesses endorsed five skills: correctly using medications, monitoring important symptoms, improving sleep, managing pain, and reducing stress.

Currently, two-thirds of primary care providers work in solo or small group practices with limited support staff or capacity to provide disease management skills training and proactive followup with patients. Failure of third-party payers to reimburse these critical aspects of chronic illness care also contributes to lack of self-management support for these patients. Ultimately, group clinics, automated telephone disease management programs, or home visits by physician extenders may help to expand these services to patients who need them, suggest the researchers.

Bayliss, E.A., Ellis, J.L., and Steiner, J.F. (2007, September). "Barriers to self-management and quality-of-life outcomes in seniors with multimorbidities."

***Annals of Family Medicine* 5(5), pp. 395-402.**

Several factors are potential barriers to disease self-management and quality of life of seniors with multiple chronic illnesses. According to this study, these factors range from greater financial constraints and persistent depressive symptoms to more complex patient-clinician communication. These barriers to self-management are also significantly associated with poorer physical functioning.

The researchers surveyed 352 elderly HMO members who had coexisting diagnoses of diabetes, depression, and osteoarthritis for the prior 2 years. Of those who responded to the survey, 50 percent reported fair or poor health, and on average, had 8.7 chronic diseases. Higher number of illnesses, lower level of physical functioning, less knowledge about medical conditions, less social activity, persistent depressive symptoms, greater financial constraints, and male sex were associated with lower perceived health status among the elderly surveyed.

Many of these factors are amenable to intervention to improve health outcomes, note the researchers. For example, clinicians can identify and treat depressive symptoms, provide individualized patient education on specific medical conditions, enhance physical functioning through physical therapy, and provide manual aids and other support. They can also help resolve situations in which symptoms and treatments for separate conditions interfere with each other, and strive for collaborative care choices that take into account patients' financial resources. ■

Worries about finances often prompt patients with HIV disease to skimp on their antiretroviral medication

Patients with HIV disease who are worried about their finances are more likely to be noncompliant with antiretroviral therapy (ART) prescriptions, according to a new study. This increases their risk of HIV drug resistance and lessens the ability of ART to slow the progression of their disease. Thus, questions about a patient's concern about financial matters such as paying bills or having enough money to care for themselves with HIV disease may help to identify patients who aren't taking their full dose of ART, suggest the University of Pennsylvania School of Medicine authors.

The researchers studied HIV-infected outpatients taking efavirenz plus two or three nucleoside analogue reverse transcriptase inhibitors and with HIV viral loads of less than 75 copies/mL (undetectable blood levels) for 1 year or until they had detectable HIV loads (signaling disease progression). They looked at high adherence (taking 95 percent of doses or more) versus low adherence (less than 95 percent) for 90 days prior

to the onset of detectable HIV loads in the patient's blood.

Nearly half (48 percent) of the 116 recruited participants had low adherence. Baseline financial worries were greater in those with low versus high adherence, and were the only quality of life factor associated with medication adherence over time. Also, those with low versus high adherence were more likely to use alcohol and other drugs both at study enrollment and currently. Financial worries increased the odds of nonadherence 16 percent and alcohol use increased the odds nearly threefold. The study was supported in part by the Agency for Healthcare Research and Quality (HS10399).

More details are in "HIV/AIDS-specific quality of life and adherence to antiretroviral therapy over time," by William C. Holmes, M.D., M.S.C.E., Warren B. Bilker, Ph.D., Hao Wang, M.S., and others in the November 1, 2007 *Journal of Acquired Immune Deficiency Syndrome* 46(3), pp. 323-327. ■

Health Literacy

Nearly one-third of adults show low literacy on dental health

Individuals with little oral health knowledge and low literacy levels typically do not understand oral health instructions or the importance of oral hygiene and regular dental checkups. As a result, they may wait to visit a dentist until they have a painful cavity or abscess. Dentists can improve dental care by addressing patients' ignorance and confusion about oral health, suggest researchers at the University of North Carolina at Chapel Hill.

The researchers used the 30-item Rapid Estimate of Adult Literacy in Dentistry (REALD) word recognition test (which generally correlates with reading ability and comprehension) among predominantly low-income adults

seeking care at two North Carolina dental practices in 2006. They also interviewed the patients about demographics, health behaviors, and knowledge of dental cavities and periodontal disease (using two questions). Nearly 31 percent of the adults viewed their oral health as fair or poor, and 31 percent had not visited a dentist in the past year. Close to one-third of patients had low literacy, that is, they could correctly pronounce fewer than 22 of the 30 words on the REALD.

After adjusting for other factors, adults who incorrectly answered one or two of the knowledge questions and who reported fair or poor oral health were nearly six times and three times, respectively, more likely to

have low oral health literacy, than their reference group. Not having had a dental care visit in the last year was not associated with literacy, but this result was confounded by other factors. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00032).

More details are in "Oral health literacy among adult patients seeking dental care," by Michaela Jones, Ph.D., M.D., Jessica Y. Lee, D.D.S., M.P.H., Ph.D., and Gary Rozier, D.D.S., M.P.H., in the September 2007 *Journal of the American Dental Association* 138(9), pp. 1199-1208. ■

Limited health literacy is a barrier to patients taking the correct prescribed medications

Patients with low health literacy typically have difficulty understanding the names of prescription medications, their indications for use, and dosing instructions. This confusion can lead to missed doses or wrongly timed doses. Low literacy can also lead to a disconnect between what medications the patient and doctor think the patient is taking, suggests a new study. When doctors and patients agree on what medications the patient is taking (medication reconciliation), there is less likelihood of medication errors or adverse effects. However, the study found that low health literacy among adults with hypertension was linked to a greater number of unreconciled medications.

Northwestern University researchers, led by Stephen D. Persell, M.D., M.P.H., administered the short-form Test of Functional Health Literacy to 119 adults with hypertension from 3 community health centers. They also asked them about the medications they took for their high blood pressure. Nearly one-third (31 percent) of the adults had inadequate health literacy. After

adjusting for age and income, less literate patients were nearly three times less able than their more literate counterparts to name any of their antihypertensive medications.

Agreement between patient-reported medications and those documented in their medical record was low: 64.9 percent of patients with inadequate and 37.8 percent with adequate literacy had no medications common to both lists. Being unable to state which medications they are using by name (and also by dose) could be important, particularly when patients interact with providers other than their usual source of outpatient care (for example, hospitals or emergency departments). The study was supported in part by the Agency for Healthcare Research and Quality (HS15647).

See “Limited health literacy is a barrier to medication reconciliation in ambulatory care,” by Dr. Persell, Chandra Y. Osborn, Ph.D., Robert Richard, M.D., and others, in the November 2007 *Journal of General Internal Medicine* 22(11), pp. 1523-1526. ■

Poor literacy is linked to poor HIV medication adherence among blacks, and may contribute to HIV health disparities

Poor health literacy may play a role in lower antiretroviral medication adherence among black persons with HIV infection, according to a new study. The researchers examined patient demographics, health literacy, and race among 204 patients with HIV infection, whom they interviewed at 2 clinics in 2001. They used the Rapid Estimate of Adult Literacy in Medicine word-recognition test of 66 health-related words to assess health literacy.

Blacks were 2.4 times more likely to be nonadherent to their HIV medication regimen than whites. However, when literacy was included in the model, the effect of race diminished by 25 percent to nonsignificance.

Low literacy, on the other hand, remained significant, doubling the

likelihood of not complying with antiretroviral medication. Older age and a greater number of medications in the patient's regimen were also significantly associated with greater likelihood of missed doses. About one-third of adults studied had either low or marginal literacy skills, that is, they could pronounce 60 words or less of the 66 in the test (8th grade level or lower). Blacks were more likely than whites to have marginal or low literacy skills (52.1 vs. 14.3 percent), and were significantly less likely to have taken all their medications in the past 4 days (60.1 vs. 76.8 percent).

Patients with low literacy were more likely to be nonadherent than those with adequate literacy (52.2 vs. 30 percent). In the context of HIV disease, individuals with low

literacy skills are more likely to have a poor working knowledge of their disease and the rationale for and benefits of treatment. The study underscores the importance of targeting communication strategies concerning HIV medication adherence to patients of all literacy levels to reduce HIV health disparities. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00078).

See “Health literacy: An overlooked factor in understanding HIV health disparities,” by Chandra Y. Osborn, Ph.D., Michael K. Paasche-Orlow, M.D., M.A., M.P.H., Terry C. Davis, Ph.D., and Michael S. Wolf, Ph.D., M.P.H., in the November 2007 *American Journal of Preventive Medicine* 33(5), pp. 374-378. ■

Nurses can facilitate quality improvement in primary care practices with electronic medical records

Nurses can play an important role in facilitating quality improvement in primary care practices with electronic medical record (EMR) systems, concludes a new study. The Practice Partners Research Network (PPRNet), a primary care practice-based research network, disseminated a five-pronged improvement model to its practices through quarterly performance reports for each quality of care indicator, practice site visits, and annual network meetings. The goal of the QI model was to prioritize performance, involve all staff, redesign delivery systems, activate the patient, and use EMR tools.

The PPRNet practices boosted the involvement of staff members to determine approaches to improvement and focused on specific quality indicators each quarter. They also made efforts to redesign the delivery system. For example, they reviewed office processes to streamline and reduce redundancy or inefficiency, established written protocols to guide chronic disease management, and formed care management teams of providers and nurses to help patients with chronic illness. They also made more use of EMR tools. For

example, they used EMR ticklers and recall systems to remind patients of screening services needed. Except for one patient education tool, patient activation strategies were the least commonly adopted improvement strategies.

Practice nursing staff assumed many new roles to enhance communication between patients and providers. Using templates within the EMR system, they reviewed what health maintenance screening tests were due and reconciled medication lists with patients. They increased the accuracy of patients' medication lists. Nurses also alerted providers to elevated blood pressures and other clinical parameters not at goal, and prompted them to administer or schedule interventions. The study was supported by the Agency for Healthcare Research and Quality (HS13716).

See "Strategies to accelerate translation of research into primary care within practices using electronic medical records," by Lynne S. Nemeth, Ph.D., R.N., Andrea M. Wessell, Pharm.D., Ruth G. Jenkins, Ph.D., and others, in the October-December 2007 *Journal of Nursing Care Quality* 22(4), pp. 343-349. ■

Managing knowledge in family practices takes more than technology

The field of knowledge management has bloomed largely because technologies that were supposed to harness information and make it easily available have failed to live up to expectations. The principles of knowledge management—finding, sharing, and developing knowledge—can offer medical practices a way to improve care processes and outcomes when they synthesize and integrate the information they collect. A. John Orzano, M.D., M.P.H., of the Robert Wood Johnson Medical School, and fellow researchers looked at 18 Midwestern family medical practices to determine if they use knowledge management principles and how the principles affect rates of preventive care services.

The researchers pinpointed four practices based on their prevention service rates and innovation culture, and labeled them high performing I and II and low performing I and II. Higher performing practices tend to have manuals to assist staff members in locating

health information, cultivate relationships that permit staff members to work well together, and foster dialogue that creates knowledge.

Though researchers found examples of knowledge management in every practice, differences between high- and low-performing practices were attributable more to motivation and compensation incentives than available resources, such as electronic medical records. However, they suggest that electronic medical records can be tailored to track and improve outcomes to boost the benefits of knowledge management. This study was funded in part by the Agency for Healthcare Research and Quality (HS14018 and HS08776).

See "Family medical practice performance and knowledge management," by Dr. Orzano, Clare R. McInerney, Ph.D., Alfred F. Tallia, M.D., M.P.H., and others in the January–March 2008 *Health Care Management Review* 33(1), pp. 21-28. ■

Patients with diabetes have better glucose control when they receive care at primary care clinics that adhere to the chronic care model

People with type 2 diabetes need to control their blood glucose levels (measured by hemoglobin A1C) in order to avoid increased risk of complications from diabetes. However, there has been no significant improvement of these levels among people suffering from type 2 diabetes in the United States over the last decade. A new study found a relationship between A1C control and the degree to which primary care clinics adhered to the chronic care model (CCM), which is an organizational approach to improving chronic illness care.

Researchers conducted an observational study of 20 primary care clinics with 45 primary care physicians and 617 patients. The

extent to which the clinics delivered care that was consistent with the CCM was measured by the Assessment of Chronic Illness Care (ACIC) survey. The study revealed a significant relationship between the ACIC score and A1C levels, but self-care behaviors, such as exercise, caused some variance. The strongest relationship appeared in those who did not adhere to exercise recommendations; for every increase in the ACIC score there was a decrease in A1C. Causation could not be determined in either direction. No significant relationship was discovered between ACIC score and age, race, sex, diet, or medication adherence.

Since the relationship between ACIC score and A1C was most

significant for those not adhering to exercise guidelines, the authors recommend focusing resources for implementing the CCM on clinics with low ACIC scores that serve a population of sedentary patients, because they may benefit the most from improving glucose control. This study was supported in part by the Agency for Healthcare Research and Quality (HS13008).

More details are in “Glucose control, self-care behaviors, and the presence of the chronic care model in primary care clinics,” by Michael L. Parchman, M.D., M.P.H., Jacqueline A. Pugh, M.D., Chen-Pin Wang, Ph.D., Raquel L. Romero, M.D., M.P.H., in the November 2007 *Diabetes Care* 30(11), pp. 2849–2854. ■

Most health care workers do not intend to receive pertussis vaccination, despite their increased risk of acquiring and transmitting the infection

Pertussis, also known as whooping cough, is a contagious infection of the respiratory tract. Its incidence in the United States has increased significantly in recent years, with a rise from 1.8 to 8.9 cases per 100,000 individuals from 1994 to 2004. Health care workers (HCWs) are particularly at risk of both acquiring pertussis—because of their contact with infected patients and the waning protection of childhood vaccinations—and transmitting the infection to others, especially their patients, coworkers, and family members. Although vaccination can effectively prevent the spread of pertussis in adults, the vast majority of HCWs do not intend to receive it, according to a new study.

Of the HCWs surveyed, 87 percent did not plan to get the pertussis vaccine, while 13 percent either had already received it or intended to receive it. The most common reasons cited by those who did not plan to

receive a vaccination were a perceived lack of recommendations and misconceptions about pertussis vaccination and infection. As for those who intended to get vaccinated, the primary reason was to protect their patients and family from getting whooping cough. The analysis identified four positive predictors of receiving the vaccine: a physician recommendation, awareness of the Centers for Disease Control and Prevention’s recommendations for pertussis vaccination for HCWs, encouragement from a coworker, and the belief that HCWs may spread pertussis to others. Two negative predictors were also identified: the presence of children at home and employment as a nurse.

This study was conducted at Vanderbilt University Medical Center using a self-administered, Web-based survey sent to 14,893 potentially eligible employees. Only the 1,819 employees who completed the survey

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Pertussis vaccination

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and anticipated direct physical contact with patients in the upcoming year were analyzed. The research was supported in part by the Agency for Healthcare Research and Quality (HS13833).

More details are in “Healthcare workers’ knowledge and attitudes about pertussis and pertussis vaccination,” by William P. Goins, M.D., William Schaffner, M.D., Kathryn M. Edwards, M.D., and Thomas R. Talbot, M.D., M.P.H., in the November 2007 *Infection Control and Hospital Epidemiology* 28(11), pp.1284–1289. ■

Pharmaceutical Research

Physician residents use personal digital assistants most for drug references and medical calculations

When caring for patients, physician residents are more likely to use personal digital assistant (PDA, handheld computer) drug reference and medical calculator programs, for example, to check medication dosages or interactions. Residents are less likely to use PDA clinical prediction rule or diagnostic programs, according to a new study. Researchers at the University of Alabama at Birmingham tracked PDA use by 68 internal medicine residents at an urban teaching hospital. The PDAs used in the study contained a suite of clinical decision support (CDS) programs. These included three programs available on the Web: Epocrates RS (a drug database) and MedMath and MedCalc (medical calculators that aid calculation of formulas often used in the clinical setting). The other two programs included a

proprietary diagnostic program, MedWarrior, and a locally developed CDS suite of clinical prediction rules (MedDecide).

Overall, 94 percent of the residents found the CDS programs clinically useful. They reported using an average of 3.14 and 3.94 CDS programs per typical clinic session and inpatient day, respectively. Residents installed a mean of 1.63 to 1.79 programs in addition to the 5 targeted CDS programs. Based on tracking data, the researchers found that 68 percent of residents used Epocrates Rx, and 39 percent used MedCalc, followed by MedMath (28 percent), MedWarrior (25 percent), and MedDecide (17 percent). In the ambulatory clinic, 64 percent of residents reported using Epocrates Rx and 70 percent reported using MedCalc. In the inpatient setting, 61 percent reported using Epocrates

Rx and 58 percent reported using MedCalc. Handheld computers that are not connected to an electronic health record, which require clinicians to choose to access the clinical decision support program rather than automated decision support tools, may not be the right delivery format for diagnostic and clinical prediction rule systems, suggest the researchers. The study was supported in part by the Agency for Healthcare Research and Quality (HS11820 and HS13852).

See “Patterns of use of handheld clinical decision support tools in the clinical setting,” by Feliciano Yu, M.D., M.S.H.I., M.S.P.H., Thomas K. Houston, M.D., M.P.H., Midge N. Ray, R.N., M.S.N., and others, in the November/December 2007 *Medical Decision Making* 27, pp. 744-753. ■

Physicians generally followed drug treatment guidelines for atrial fibrillation, but only one-third used warfarin

Atrial fibrillation (AF) is a common type of irregular heart rhythm that can cause stroke and other problems. Treatment includes the use of cardiac rate-controlling drugs, such as beta-blockers, antiarrhythmic drugs, and anticoagulants such as warfarin to reduce the risk of stroke. During the study period, trends in the use of digoxin, beta-blockers, and Class Ia antiarrhythmic drugs for patients with AF generally followed the evidence-based recommendations. However, only about one-third (37

percent) of patient visits for AF included use of warfarin, even among patients who were 60 years and older.

The low and unchanging use of warfarin during the 4-year study period may indicate a need for physician education and intervention to improve use of warfarin and reduce patient risk of stroke, note the researchers. They analyzed medications mentioned by U.S. office-based physicians during visits with AF patients between

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1999 and 2003, using data from the IMS Health National Disease and Therapeutic Index™.

Digoxin, considered to be the least effective rate-controlling drug in most AF patients, was the most commonly mentioned rate-controlling drug in 23 percent of patient visits, followed by beta-blockers in 11 percent, and calcium-channel blockers in 8 percent. During the study period, mentions of digoxin significantly decreased, and mentions of beta-blockers significantly increased, a practice change more in line with clinical evidence. Mentions of antiarrhythmic

drugs, most commonly amiodarone, were reported in an average of 12 percent of patient visits throughout the study period. The study was supported in part by the Agency for Healthcare Research and Quality (HS10548).

More details are in “Outpatient use of anticoagulants, rate-controlling drugs, and antiarrhythmic drugs for atrial fibrillation,” by Nancy M. Allen LaPointe, Pharm.D., Laura Governale, Pharm.D., M.B.A., Jerry Watkins, M.S., and others, in the November 2007 *American Heart Journal* 154, pp. 893-898. ■

Coxibs and NSAIDs with gastroprotective agents offer better protection from ulcers than NSAIDs alone

Some patients who regularly take nonsteroidal anti-inflammatory drugs (NSAIDs) for pain relief risk developing peptic ulcers because of those drugs. For high-risk patients, the side effects of these drugs can be offset if an alternate pain reliever or an additional drug that protects the stomach is prescribed.

To find out which drugs or drug combinations best prevent ulcers among NSAID users, Wayne A. Ray, Ph.D., of the Vanderbilt University School of Medicine studied 9 years' worth of Medicaid records in Tennessee. This study of nearly 300,000 records examined NSAID use—alone and with gastroprotective drugs—and coxibs, which relieve pain but also lower the risk of ulcers.

Patients who took NSAIDs with no gastroprotective drugs were hospitalized with peptic ulcers nearly three times more often than patients not using NSAIDs or coxibs. This hospitalization risk was reduced 39 percent for patients who took gastroprotective drugs with their NSAIDs and 40 percent for those who took coxibs alone.

The researchers suggest that, of the gastroprotective drugs available, proton pump inhibitors offer the most benefit for both NSAID and coxib users. These drugs reduce the production of acid in the stomach to prevent ulcers from forming and let existing ulcers heal. The best protection from ulcers came from using a coxib and a proton pump inhibitor.

The researchers also found that patients who took naproxen, but had no gastroprotective therapy, were at the highest risk for being hospitalized with an ulcer. When naproxen and proton pumps were used together, however, this risk was cut in half. Of all the NSAIDs studied, ibuprofen was the least likely to cause ulcers. This study was funded in part by the Agency for Healthcare Research and Quality (HS10384).

See “Risk of peptic ulcer hospitalizations in users of NSAIDs with gastroprotective cotherapy versus coxibs,” by Dr. Ray, Cecilia P. Chung, M.D., Ph.D., C. Michael Stein, M.D., and others in the September 2007 *Gastroenterology* 133(3), pp. 790-798. ■

Access to Care

Trio of factors affects low-income parents' ability to purchase health care for their families

Although U.S. policymakers have been striving for decades to provide health insurance coverage for low-income families, coverage alone may not be the answer to improving U.S. health care, a new study finds. Jennifer E.

DeVoe, M.D., Ph.D., of the Oregon Health and Science University, and her colleagues found that care access and cost, along with insurance coverage, affect care use among lower income families.

The Oregon researchers studied 722 responses to a questionnaire mailed in January 2005 and determined the barriers low-income families face when they try to

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Low-income families

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access care for their families. The team identified a trio of interrelated, anxiety-inducing barriers: insurance coverage, access, and cost. Of families that did not have insurance, 87 percent worried about obtaining it. When families did have coverage, 25 percent of those with public insurance and 20 percent with private insurance said they did not always feel welcome at medical

offices or had to travel to providers who would accept their plans. Of families with insurance, 30 percent private also worried about paying copayments, deductibles, and for services their insurance did not cover.

Policymakers interested in improving the nation's access to health care need to look beyond merely providing health insurance for more people and increasing the number of primary care physicians, the researchers suggest. Though insurance serves as a foundation for

improving care, access and cost also remain important issues to consider. This study was funded in part by the Agency for Healthcare Research and Quality (HS14645 and HS16181).

See "Insurance + access ≠ health care: Typology of barriers to health care access for low-income families," by Dr. DeVoe, Alia Baez, B.A., Heather Angier, B.A., and others in the November/December 2007 *Annals of Family Medicine* 5(6), pp. 511-518. ■

Health improves when previously uninsured adults become eligible for Medicare

When previously uninsured adults with diabetes and cardiovascular disease become eligible for Medicare, their health improves, a recent study finds. Researchers tracked 5,006 (69.2 percent) adults who had health insurance and 2,227 (30.8 percent) who had no insurance, or had it sporadically, from 1992 to 2004 to determine the effect access to care had on health.

Before the uninsured group was eligible for Medicare, their summary health scores were much worse than those who had insurance. After age 65, the uninsured group's scores significantly improved, especially for those who had cardiovascular disease or diabetes. This improvement might be explained by their having better access to

ambulatory care and medications for their conditions.

Previously uninsured adults with cardiovascular disease or diabetes also saw improvements in their general health, mobility, and agility once they were covered. Further, when compared with previously insured adults, those who were previously uninsured suffered less frequent heart attacks, had fewer cases of severe angina, and had fewer hospitalizations for heart failure once they had Medicare coverage.

This study provides evidence of how Medicare coverage positively affects health outcomes for previously uninsured adults, especially those with cardiovascular disease or diabetes, the authors conclude. Health improvements such as these have led to the idea of providing early

access to Medicare being introduced in the U.S. Congress and recommended by the American College of Physicians as a way to improve health outcomes in the United States. (For a related article by the same author, see the November 2007 *Research Activities*, p. 23.) This study was funded in part by the Agency for Healthcare Research and Quality (T32 HS000020).

See "Health of previously uninsured adults after acquiring Medicare coverage," by J. Michael McWilliams, M.D., Ellen Meara, Ph.D., Alan M. Zaslavsky, Ph.D., and John Z. Ayanian, M.D., M.P.P., in the December 26, 2007 *Journal of the American Medical Association* 298(24), pp. 2886-2894. ■

Telepsychiatry can help veterans with combat-related posttraumatic stress disorder

Telepsychiatry (therapy with a psychiatrist via videoconferencing) is one way to improve access to therapy for veterans suffering from combat-related posttraumatic stress disorder (PTSD), who live in rural or underserved areas, concludes a new study. Veterans who had 14 weekly 90-minute treatment sessions by telepsychiatry or in a room with a psychiatrist had similar outcomes and satisfaction with treatment 3 months later.

Christopher Frueh, of the University of Hawaii, and colleagues randomized 38 veterans with combat-related PTSD to telepsychiatry (17) or same-room therapy (21). They interviewed the veterans before treatment and 3 months later, including measures of PTSD, overall psychiatric functioning, depression, and the quality of social relationships. All veterans received cognitive-behavioral group therapy for veterans with PTSD, which focused on social and emotional rehabilitation. In this type of therapy, the psychiatrist helps the person identify thoughts (such as traumatic flashbacks) causing distress, in order to change their emotional state or behavior.

In this study, the sessions also targeted social skills training (for example, assertion, social communication, and anger management) and activities to increase social participation. Clinical changes in both groups were minimal, but with no significant differences between the two groups. The exception was that veterans who talked to a therapist in the same room felt more comfortable talking with that therapist at post-treatment followup than those in the telepsychiatry group, and were more likely to practice behaviors suggested by the therapist. Dropout and satisfaction rates were similar for both groups. Even though the study sample was small, its findings are consistent with those of other studies demonstrating the efficacy of telepsychiatry for depression and PTSD. The study was supported in part by the Agency for Healthcare Research and Quality (HS11642).

See “A randomized trial of telepsychiatry for post-traumatic stress disorder,” by Dr. Frueh, Jeannine Monnier, Ph.D., Eunsil Yim, M.S., and others in the *Journal of Telemedicine and Telecare* 13, pp. 142-147, 2007. ■

Nursing home residents likely to receive diagnosis and pills for depression but not psychotherapy

Diagnosis and treatment of depression in nursing homes occurs much more frequently than past studies have suggested, according to a new study. Using government datasets commonly kept by nursing homes, researchers looked at both diagnosis and treatment of depression in 76,735 residents of 921 Ohio nursing homes in 2000.

In the diagnosis arena, researchers found several disparities. Educated females in nursing homes who had ever been married were more likely than other residents to be diagnosed with depression. On the other hand, black residents were half as likely

as white residents to be diagnosed with depression. Residents older than 75 were a third less likely than those aged 65 to 75 to be diagnosed. Residents with severe cognitive impairment were a third less likely to be diagnosed than residents with normal cognitive functioning. Finally, government-owned nursing homes and facilities with a high number of deficiencies (more than eight) also tended to not diagnose depression as readily. The authors did not speculate on why these disparities exist but suggested they deserve exploration.

Disparities were also found in the treatment realm. Residents who were aged 75 and older, black, had

severe mental illness, were entirely dependent on assistance with activities of daily living, and had severe cognitive impairment were all less likely to receive treatment for their depression than patients with higher education levels, who were or had been married, and had one or more physical ailments. When patients were diagnosed with depression, 77 percent received either an antidepressant or psychotherapy. Most often, antidepressants were the treatment of choice, perhaps because they are cheaper than psychotherapy, the authors suggest. However, in some cases clinicians might avoid

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Depression

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prescribing antidepressants to preclude drug interactions with other medications. This study was funded in part by the Agency for

Healthcare Research and Quality (HS11825).

See “Prevalence and treatment of diagnosed depression among elderly nursing home residents in Ohio,” by Carrie A. Levin, Ph.D., Wenhui Wei, Ph.D., Ayse Akincigil,

Ph.D., and others in the November 2007 *Journal of the American Medical Directors Association* 8(9), pp. 585-594. ■

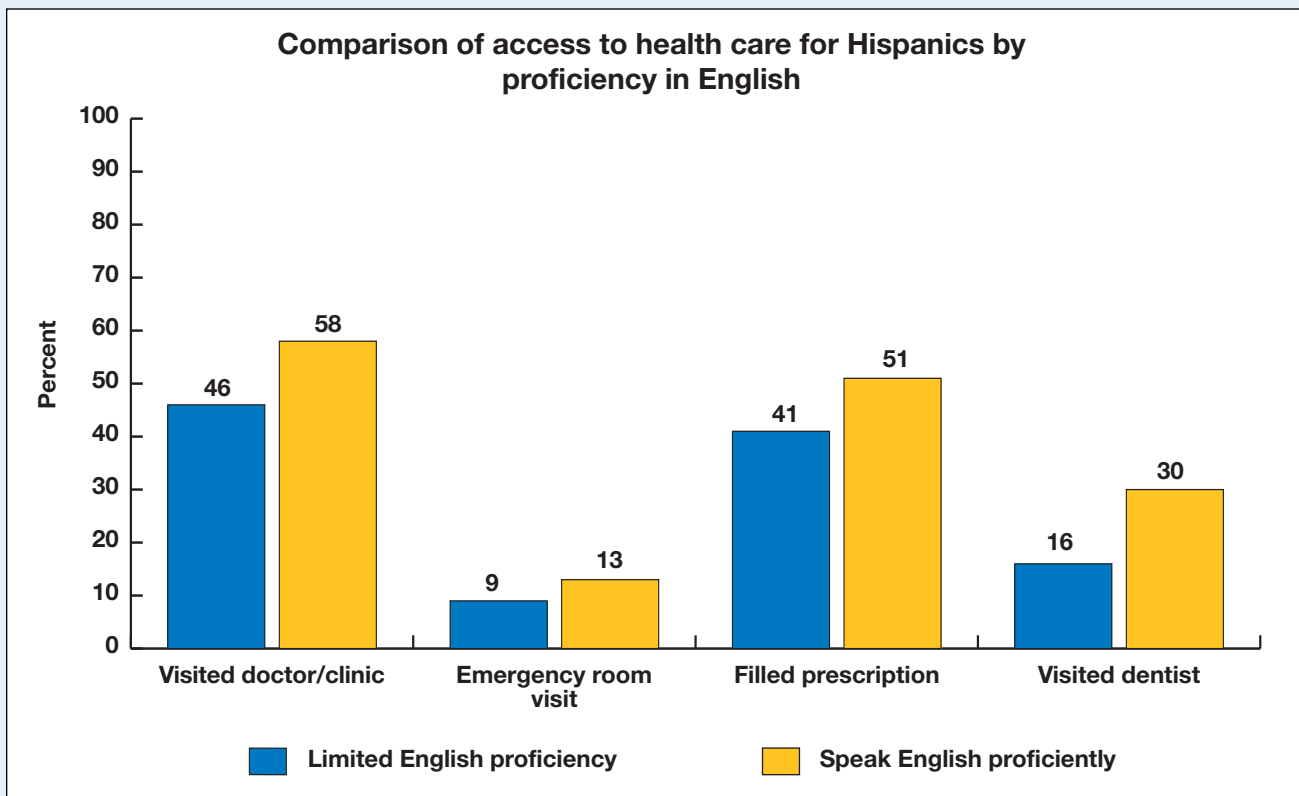
Agency News and Notes

Hispanics with limited proficiency in English access health care less often

Only about 49 percent of Hispanics who are not comfortable speaking English have a regular source of medical care, such as a family doctor or community health clinic, compared to 63 percent of Hispanics who speak English proficiently. About 6 of every 10 Hispanics with limited English proficiency are also uninsured compared with 3 of every 10

Hispanics who speak English proficiently. This analysis, based on 2004 statistics, also found that Hispanics with limited English proficiency were less likely to visit a doctor or clinic, go to an emergency room, have their prescriptions filled, or visit a dentist compared to those who spoke English proficiently (see chart).

For more information, see *Demographics and Health Care Access of Limited-English-Proficient and English-Proficient Hispanics*, MEPS Research Findings #28, at www.meps.ahrq.gov/mepsweb. To learn about AHRQ’s new public service campaign to encourage adult Hispanics to visit their doctor for preventive care go to www.ahrq.gov/superheroes. ■



Diabetes-related amputations increase for Hispanics

Hospitalizations of adult Hispanics for diabetes-related foot or leg amputations rose sharply between 2001 and 2004 according to data from the 2007 *National Healthcare Disparities Report*. Leg or foot amputations among people with diabetes typically occur because the disease diminishes blood circulation. Nerve damage resulting from diabetes can also impair the ability of a patient to sense a blister or other sore and increase the likelihood that it will become infected. About 86,000 Americans underwent diabetes-related amputations in 2004. Although diabetes is the leading cause of foot or leg amputations, those complications and others can be minimized or avoided completely, through proper care by medical providers and patients.

Updated data from the Disparities Report show:

- The hospitalization rate for diabetes-related amputations among Hispanics' increased from 63

admissions per 100,000 people in 2001 to nearly 80 admissions per 100,000 people in 2004.

- During the same period, the rate for whites remained steady at roughly 28 to 31 admissions per 100,000 people.
- The diabetes-related amputation rate among blacks decreased slightly from 113 per 100,000 people to about 104 admissions per 100,000 people. That rate remains more than three times the rate for whites.
- In 2004, only 38 percent of adult Hispanics age 40 and over with diabetes received three recommended annual screenings – foot exams, eye exams and blood sugar level checks (hemoglobin A1c test). The percentage was 47 for whites and 47 for blacks.

For additional information on Hispanic health care disparities, see the 2007 *National Health Disparities Report* at www.ahrq.gov/qual/qdr07.htm. ■

Hospital treatment costs for violence top \$2 billion annually

U.S. hospitals treated 308,200 people for attempted suicide, assault, rape, abuse, and other violence-related trauma in 2005 at a cost of \$2.3 billion. Although the U.S. Surgeon General has identified violence reduction as a public health priority, the number of violence-related hospitalizations increased by 24,000 between 2002 and 2005. Significant costs for violence-related admissions are passed on to hospitals and taxpayers. In 2005, 23 percent of hospitalizations involved uninsured patients and 27 percent were for Medicaid enrollees.

The analysis of violence victims also found:

- About 66 percent of all violence-related hospital patients had

attempted suicide or injured themselves on purpose; about 31 percent were victims of attempted murder, fights, rape, or other assaults; about 4 percent were victims of sexual or other abuse.

- More than half the patients admitted for self-inflicted injuries had overdosed or mixed drugs.
- Crushing and internal injuries, skull and facial fractures, and head injuries were the main reasons for admitting nearly half the assault victims.
- Children accounted for nearly 52 percent of abuse cases. About one-third of those patients suffered from child neglect,

physical and psychological abuse, or physical battery such as shaken child syndrome.

For more information, see *Violence-Related Stays in U.S. Hospitals, 2005, HCUP Statistical Brief #48*, at www.hcup-us.ahrq.gov/. The report uses statistics from the 2005 Nationwide Inpatient Sample, a database of hospital inpatient stays that is nationally representative of inpatient stays in all short-term, non-Federal hospitals. The data are drawn from hospitals that comprise 90 percent of all discharges in the United States and include all patients, regardless of insurance type, as well as the uninsured. ■

New tool to help reduce unnecessary hospitalizations

The Agency for Healthcare Research and Quality (AHRQ) has released a free, new software program that maps AHRQ's Prevention Quality and Pediatric Quality indicators for a State or county and estimates the expected cost savings that could be achieved by reducing potentially avoidable hospitalizations. The Prevention Quality Indicators screen hospital data for conditions which good primary care can usually prevent from requiring hospitalization. The Pediatric Quality Indicators screen for quality of care problems in hospitalized children.

The tool was designed to help State and local health officials use hospital inpatient discharge data in order to assess whether they have a problem with potentially preventable hospitalizations and medical errors and identify interventions to resolve the issue. The program can also be useful to employers, employer coalitions, Medicaid programs, health departments, hospitals, health systems, health plans, and researchers interested in improving health care quality in the community. For more information, go to Preventable Hospitalization Costs at <http://qualityindicators.ahrq.gov/mappingtool.htm>. ■

Implantation of cardiac devices has increased 145 percent since 1997

Patients with irregular heart rhythms are receiving cardiac devices to regulate their hearts more often than in the past, a new study finds. Researchers from the Agency for Healthcare Research and Quality found a 145 percent increase from 1997 to 2004 in implantations of traditional pacemakers and automatic internal cardioverter defibrillators (AICD), along with the newer cardiac resynchronization therapy pacemakers (CRT-P) and defibrillators (CRT-D) that were approved by the U.S. Food and Drug Administration in 2001. All of these devices provide their recipients a more coordinated and effective heartbeat.

Using Healthcare Cost and Utilization (HCUP) data, Chunliu

Zhan, M.D., Ph.D., William B. Baine, M.D., Artyom Sedrakyan, M.D., Ph.D., and Claudia Steiner, M.P.H., M.D., found that in 2004, about 33,000 CRT-Ds, 7,000 CRT-Ps, 67,000 AICDs, and 179,000 pacemakers were implanted in the United States. Most patients were elderly and white and had multiple chronic conditions. Most CRT and AICD implantations were performed at large teaching hospitals, while nonteaching, low-volume hospitals (fewer than 100 implantations a year) tended to choose pacemakers for their patients.

While hospital stays declined from 9.19 days to 5 days for AICD implantation from 1997 to 2004, the average cost for the procedure jumped from nearly \$67,000 to

almost \$115,000. The authors suggest the profitability and widespread use of implantation calls for more research into the devices' proper application. The research team also showed that HCUP data were an efficient, reliable source to track cardiac device use, patient and hospital characteristics, and risks and outcomes.

See "Cardiac device implantation in the United States from 1997 through 2004: A population-based analysis," by Drs. Zhan, Baine, Sedrakyan, and Steiner in the *Journal of General Internal Medicine* 23(Supplement 1), pp. 13-19, 2007. Reprints (AHRQ publication no. 08-R037) are available from AHRQ.* ■

Announcements

AHRQ awards \$5 million to help integrate clinical decision support technologies into health care delivery

The Agency for Healthcare Research and Quality has awarded \$5 million for two new health information technology (health IT) contracts that will focus on the development, adoption,

implementation, and evaluation of best practices using clinical decision support. Clinical decision support helps health professionals make informed patient care decisions.

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Clinical decision support

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The Brigham and Women's Hospital in Boston and Yale University School of Medicine in New Haven, Connecticut, have been selected to incorporate clinical decision support into widely used health IT products, demonstrate cross-platform utility, and establish lessons learned for clinical decision support implementation across the health IT vendor community. The projects will focus on translation of clinical guidelines and outcomes related to preventive health care and treatment of patients with multiple chronic illnesses. Clinicians' use of clinical decision support also will be evaluated.

Researchers will build on rapidly evolving knowledge from development and implementation activities to define effective clinical decision support tools and identify preferred methods and processes for

incorporating these tools into electronic medical records and in busy practice settings. The projects will implement clinical decision support tools in products certified by the Certification Commission for Healthcare Information Technology and will apply guidelines set by the American National Standards Institute's Healthcare Information Technology Standards Panel.

The research will assess potential benefits and drawbacks of clinical decision support services, including effects on patient satisfaction, measures of efficiency, cost, and risk. Researchers also will evaluate methods of creating, storing and replicating clinical decision support elements across multiple clinical sites and ambulatory practices.

For more information on AHRQ's health information technology program, visit <http://healthit.ahrq.gov/>. ■

New members appointed to AHRQ National Advisory Council

Seven new members have been appointed to serve on the National Advisory Council for the Agency for Healthcare Research and Quality. The council provides advice to the Secretary and the Director of the Agency. The council consists of 21 members from the private sector and seven ex-officio members from other Federal health agencies.

The seven new council members are:

Robert S. Galvin, M.D., M.B.A., Director, Global Health Care, General Electric, Fairfield, CT

Wishwa N. Kapoor, M.D., M.P.H., Director, Institute for Clinical Research Education, University of Pittsburgh School of Medicine, Pittsburgh, PA

Kathleen N. Lohr, Ph.D., M.A., Distinguished Fellow, Health Services Research, RTI International, Research Triangle Park, NC

Michael K. Raymond, M.D., Chief Medical Officer, Rush North Shore Medical Center, Skokie, IL

David Len Shern, Ph.D., President and CEO, National Mental Health Association, Alexandria, VA

William E. Smith, Pharm.D., M.P.H., Ph.D., Executive Associate Dean, School of Pharmacy, Virginia Commonwealth University, Medical College of Virginia, Richmond, VA

Myrl Weinberg, President, National Health Council, Washington, DC ■

Research Briefs

Akincigil, A., Bowblis, J.R., Levin, C., and others. (2007, April). "Adherence to antidepressant treatment among privately insured patients diagnosed with depression." (AHRQ grants HS16097 and HS01182). *Medical Care* 45(4), pp. 363-369.

According to this study, only half of patients with depression adhered to antidepressant therapy for the first 4 months of treatment, and

only 42 percent of patients kept taking their antidepressants from 17 to 33 weeks after starting treatment. Patients who received followup care from a psychiatrist (28 percent of patients) were more likely to continue taking their antidepressant medication. Those who took the newer antidepressants (selective serotonin reuptake inhibitors), which have fewer side effects and are easier to tolerate than older drugs, were also more likely to do

so. Younger age, alcohol or other substance abuse, coexisting cardiovascular or metabolic conditions, use of older generation antidepressants (tricyclics and monoamine oxidase inhibitors), and residence in lower-income neighborhoods were associated with lower medication adherence during the first 4 months. Members of HMO plans were less likely than those in non-HMO plans to keep

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taking their medication as long as 5 to 8 months.

Ballit, J.L. and Love, T.E. (2008). “The role of race in cesarean delivery rate case mix adjustment.” (AHRQ HS14352). *American Journal of Obstetrics and Gynecology* 69, pp. e1-e5.

Perinatal outcomes such as infant and maternal death, prematurity, and cesarean delivery are used as a measure of the quality of obstetric care. These poorer perinatal outcomes are also known to be higher in the black population than in the white population. Risk-adjusted primary cesarean delivery rates can now be used to identify hospitals with poorer perinatal outcomes. Building on previous studies that had found a lower rate of primary cesarean delivery to be correlated with higher rates of poor maternal and neonatal outcomes, the researchers decided to test two risk-adjustment models for primary cesarean rates. Their objective was to see if adding race and ethnicity to an otherwise identical model would help to determine whether race and ethnicity improved the predictive impact of the model. The study found that the two models did not differ substantially in predictive discrimination or in model calibration. This suggests that race and ethnicity can be safely left out of cesarean rate risk-adjustment models.

Buckley, J., Coffin, S. E., Lautenbach, E., and others. (2007). “Outcome of *Escherichia coli* and/or *Klebsiella* bloodstream infection in children with central venous catheters.” (AHRQ grant HS10399). *Infection Control and Hospital Epidemiology* 28(11), pp. 1308-1310.

The purpose of this study was to identify risk factors for poor outcome in children with catheter-associated bloodstream infections (BSI) due to *Escherichia coli* and/or *Klebsiella*. Of the 118 eligible patients (ages 0-9) with this type of BSI who were identified from a hospital clinical microbiology database, 16 (14 percent) had a poor outcome. Poor outcomes were defined as either recurrences of infection (8 cases) or death (8 cases). Receiving mechanical ventilation and receiving total parenteral nutrition were independently associated with death or recurrence of infection. Sixty-four of the children had their catheters removed with a median removal time of 2 days following the initial positive blood culture result. However, catheter removal did not affect either the infection recurrence rate or the death rate. A significant proportion of children with catheter-associated BSI were treated successfully without catheter removal.

Carroll, J., Epstein, R., Fiscella, K., and others. (2007, June). “Caring for Somali women: Implications for clinician-patient communication.” (AHRQ grant HS14105). *Patient Education and Counseling* 66, pp. 337-345.

Between 1991 and 2000, up to 100,000 Somali refugees arrived in the United States due to civil war in Somalia. In-depth interviews with resettled Somali women in Rochester, New York, who had diverse spoken languages, stages of acculturation, and literacy level revealed elements of U.S. preventive care that are important for them to feel respected and cared for. These included ease and familiarity of accessing the health care system; availability of interpreters; a trusting relationship with clinicians; preference for

female interpreters and female clinicians, especially for gynecologic concerns; and Somali-organized community-based health education programs.

Somali women wanted clinicians to show kindness and patience and to recognize and value their life experience. They also expected clinicians to be sensitive to cultural practices such as female circumcision. They wanted clinicians to understand that female circumcision was common and recommended that clinicians respectfully inquire about it in medical history-taking when appropriate. Because gender roles and responsibilities are distinct in traditional Somali culture, cross-gender interactions can be more awkward. This is one reason Somali women prefer female clinicians. Interpreters may not only improve communication, but may also work to reduce disparities by serving as cultural liaisons and advocates.

Carroll, K.N., Gebretsadik, T., Griffin, M.R., and others. (2007, June). “Maternal asthma and maternal smoking are associated with increased risk of bronchiolitis during infancy.” (AHRQ grant HS10384). *Pediatrics* 119(6), pp. 1104-1112.

Researchers at the Vanderbilt Center for Education and Research on Therapeutics and colleagues studied hospitalizations for bronchiolitis among infants of 100,000 women enrolled in the Tennessee Medicaid program during 1995-2003. Infants of mothers who smoked and had asthma were twice as likely to end up in the ED with bronchiolitis as infants whose mothers had neither problem. Infants whose mothers had only one of these risk factors had a lower, but still significantly elevated risk for ED visits, clinics,

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and/or hospitalizations than infants whose mothers had neither risk factor. However, maternal asthma was the more important of these two risk factors. Similarly, infants were 50 percent, 23 percent, and 19 percent, respectively, more likely to be hospitalized longer than 3 days if their mothers had asthma, also smoked, or just smoked.

Chi, C., Street, W.N., and Ward, M.M. (2007). “Building a hospital referral expert system with a prediction and optimization-based decision support system algorithm.” (AHRQ grant HS15009). *Journal of Biomedical Informatics*, available at sciencedirect.com.

The researchers aim to develop a tool that patients can use to help them in selecting a hospital that is most likely to yield the desired outcome for their condition. To this end, they are proposing a new method, the Prediction and Optimization-Based Decision Support System (PODSS) algorithm. This algorithm is a decision tool that can provide suggestions by utilizing captured knowledge and optimizing the effectiveness of the chosen action. The algorithm incorporates both institutional characteristics of the hospital and patient characteristics such as age, admission type, comorbidities, and the maximum tolerated distance that the patient is willing to travel to get to the hospital. The article discusses how to capture knowledge, transform it into an objective function, apply the captured knowledge, and use the algorithm in a hospital referral problem. Experimental results of both single and multiobjective optimization examples are discussed and an indirect evaluation

method for determining the effectiveness of the method is introduced. The proposed process can also be adapted to recommendations of treatment in clinical care as well as recommendations of healthy lifestyle choices.

Clancy, C.M. (2008). “Designing for safety: Evidence-based design and hospitals.” *American Journal of Medical Quality* 23(1), pp.66-69.

A growing body of literature on evidence-based design describes the links between a hospital’s physical design and its quality and safety outcomes. The current boom in hospital construction provides an unusual opportunity to make design decisions that will impact the quality of care over the next 20 to 40 years. Design principles in the areas of noise control, lighting and visual performance, falls, and infection control can lead to higher quality care, according to Carolyn M. Clancy, M.D., director of the Agency for Healthcare Research and Quality (AHRQ). For example, the use of sound-absorbing materials in ceiling tiles and carpeting and single-patient rooms are effective strategies for reducing noise. High illumination of work surfaces reduces medication error rates among pharmacists. Locating bathrooms behind headwalls and providing handrails in patient rooms reduces the likelihood of falls. High-efficiency air particulate filtration systems reduce the spread of airborne pathogens. An AHRQ-produced DVD on “Transforming Hospitals: Designing for Safety and Quality” highlights the achievements of three hospitals in using evidence-based design principles in the construction of new environments of care that contribute to patient safety and the

healing process. Reprints (ARHQ publication no. 08-R035) are available from AHRQ.*

Cohn, F., Goodman-Crews, P., Rudman, W., and others. (2007, Summer). “Proactive ethics consultation in the ICU: A comparison of value perceived by healthcare professionals and recipients.” (AHRQ grant HS10251). *Journal of Clinical Ethics* 18(2), pp. 140-147.

Calling in an ethics consultant can help resolve end-of-life care discussions and improve family and clinician satisfaction, suggests a study of 122 adult patients in an intensive care unit (ICU). Consultations were offered to the families of these patients in response to latent or manifest conflicts, rather than specific requests for ethics consultations. The majority of clinicians and family members found the ethics consultations helpful (92 and 87 percent), informative (81 and 88 percent), fair (93 and 84 percent), and respectful of personal values (92 and 85 percent). In addition, nearly three-fourths of families and clinicians did not find the consultations to be stressful. Both clinicians and family members found the ethics consultation helped identify (88 and 87 percent), analyze (88 and 87 percent), and resolve (74 and 71 percent) ethical issues. Also, the majority of clinicians and family members agreed with the decision reached in the ethics consultation (81 and 72 percent) and would seek out further ethics consultations in similar situations (95 and 80 percent).

Colmenero, F., Sullivan, S.D., Palmer, J.A., and others. (2007, July). “Quality of clinical and economic evidence in dossier formulary submissions.” (AHRQ

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contract 290-05-0006). *American Journal of Managed Care* 13(7), pp. 401-407.

The Academy of Managed Care Pharmacy (AMCP) recommends a format for drug companies to submit a dossier of data on drugs that they want health plans to consider including in their drug formularies. Researchers reviewed the quality of dossiers submitted to a large health plan, a leader in dossier review, between 2002 and 2005, and found that the information provided in these dossiers could be improved, especially data on off-label drug indications and economic analysis. Only 46 percent of drug dossiers submitted to a large health plan included analyses of the drug's economic value relative to alternative therapies. Also, proportionately more studies supporting on-label claims (medical indications approved by the U.S. Food and Drug Administration) than off-label claims had random treatment allocation (50 vs. 33 percent), were double-blinded (43 vs. 27 percent), or were meta-analyses (8 vs. 1 percent).

Adherence to analytic standards was generally higher in economic analysis of high-cost medications (30-day treatment cost over \$1,000) and for "innovative" instead of "me-too" products (no clear-cut advantage over competitors).

Coopey, M., James, M.D., Lawrence, W., and Clancy, C.M. (2008). "The challenge of comparative effectiveness: Getting the right information to the right people at the right time." *Journal of Nursing Care Quality* 23(1), pp. 1-5.

The need to develop better evidence about the benefits and risks of different treatments is

paramount. The Agency for Healthcare Research and Quality's (AHRQ) Effective Health Care Program is dedicated to fulfilling this need by performing research and getting results to those who make health care decisions. This program, created by the Medicare Modernization Act of 2003, conducts and supports evidence syntheses and research on topics of highest priority to Federal and State health care programs. It builds on prior investment in outcomes research that has shown, for example, that many patients who could benefit are not receiving treatments known to be effective. Under the Effective Health Care Program, reports on choosing medications for osteoarthritis have already been issued. More reports are forthcoming on treatments for conditions such as low bone density and type 2 diabetes. This type of information is especially important to nurses and other front-line caregivers who have a great stake in the collection and timely dissemination of clinical knowledge. Reprints (AHRQ publication no. 08-R031) are available from AHRQ.*

Dansinger, M.L., Tatsioni, A., Wong, J.B., and others. (2007, July). "Meta-analysis: The effect of dietary counseling for weight loss." (AHRQ contract 290-02-0022). *Annals of Internal Medicine* 147, pp. 41-50.

A meta-analysis of dietary counseling studies found that, when compared with usual care, dietary counseling can produce a modest 6 percent weight loss within a year among overweight adults. However, about half of the initial weight loss is typically regained after 3 years, and the weight difference narrows considerably over 4 years. Dietary advice was conveyed primarily by group meetings in 18 studies,

individual meetings in 13 studies, and group and individual meetings in 11 studies. Three trials used the Internet and three trials did not specify how they conveyed advice. The active phase of the behavioral weight loss programs (more intensive and more frequent interactions with participants) ranged from 2.5 to 48 months. The maximum effect of dietary counseling was a loss of 1.9 body mass index (BMI) units, that is, 6 percent of body weight.

Edwards, R.R., Klick, B., Buenaver, L., and others. (2007, July). "Symptoms of distress as prospective predictors of pain-related sciatica treatment outcomes." (AHRQ grants HS06344, HS08194 and HS09804). *Pain* 130, pp. 47-55.

This study found that patients with sciatica, whether they are treated with surgery or nonsurgical methods, have worse pain and function following treatment if they also suffer from anxiety and depression. Patients with sciatica completed a baseline assessment (including mood prior to the start of treatment) and followup questionnaires about pain and disability at 3, 6, 12, 24, and 36 months after starting treatment. The questionnaires asked about sciatica symptoms such as leg pain, leg or foot weakness, leg numbness, and pain in the back or leg while sitting. Disability questions addressed physical impairment due to several low back conditions, as well as general pain and physical functioning. Symptoms of depression and anxiety, both at baseline and during the period prior to each assessment, were significant independent predictors of worse pain and function, after controlling for other factors. The

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patient's mental health score at the 2-year followup assessment improved by 40 percent the predictive accuracy of pain and functioning compared with their score on the sciatica symptom frequency index at that time.

Feifer, C., Nemeth, L., Nietert, P.J., and others. (2007, May/June). "Different paths to high-quality care: Three archetypes of top-performing practice sites." (AHRQ grant HS13716). *Annals of Family Medicine* 5(3), pp. 233-241.

Researchers studied the top 10 practices (out of 101) that opted to participate in a demonstration project to advance adherence to clinical practice guidelines. Primary care practices that want to deliver high-quality care can adopt one of three archetypes, or a combination of three, to achieve their goal. "Technophiles" champion health information technology, while "Motivated Teams" enable their staff to play key roles in improving the practice and reward them for success. The "Care Enterprise" archetype uses a business approach that focuses on customer service and risk management.

Technophile practices relied heavily on electronic medical records (EMR) to guide staff and clinicians to perform and document routine tasks consistently, such as recording blood pressure and assessing alcohol use. Key to the Technophiles' success was an innovative physician who was computer savvy and a champion of change. Practices that fit the Motivated Team archetype met quarterly for half-day workshops to focus on quality improvements. They let staff members choose which quality indicators they wanted to improve and rewarded

them financially when they met their goals. The Care Enterprise archetype, a subset of the Motivated Team, let customer needs drive practice change.

Glance, L.G., Osler, T.M., Mukamel, D.B., and Dick, A.W. (2007, June). "Estimating the potential impact of regionalizing health care delivery based on volume standards versus risk-adjusted mortality rate." (AHRQ grant HS13617). *International Journal for Quality in Health Care* 19(4), pp. 195-202.

Researchers conducting a retrospective study of California hospitals found that selective referral of patients to high-volume hospitals to undergo either abdominal aortic aneurysm surgery (more than 50 cases/year), coronary artery bypass surgery (more than 450 cases/year), or coronary angioplasty (more than 400 cases/year) would result, at best, in only modest improvement in patient outcomes. Selective referral to high-volume centers would only moderately reduce in-hospital mortality by 2 to 20 percent and would be extremely disruptive by reducing by 70 to 99 percent the number of hospitals treating these conditions. Selective referral to high quality centers was estimated to dramatically reduce in-hospital mortality by 50 percent. However, this would not be a realistic policy option given the need to redirect more than 80 percent of the patients to a small number of centers of excellence. Selective avoidance of low-volume hospitals (lowest quartile of procedure volume) would not improve mortality. Yet selective avoidance of low quality hospitals was estimated to result in a small 2 to 6 percent improvement in overall mortality, while causing relatively minor disruptions in patient referral patterns.

Hanmer, J., Hays, R.D., and Fryback, D.G. (2007). "Mode of administration is important in US national estimates of health-related quality of life." (AHRQ grant HS16574). *Medical Care* 45 (12), pp. 1171-1179.

The researchers investigated whether different modes of survey administration affected the national averages for health-related quality of life (HRQoL). They used data from two surveys administered by telephone (the Joint Canada/United States Survey of Health and the National Health Measurement Study); one by mail (the 2002 Medical Expenditure Panel Survey); and one self-administered with the interviewer present (the US Valuation of the EuroQol EQ-5D Health States Survey). In their comparison of the HRQoL summary scores from each of the four surveys, the researchers found that when the mode of administration was the same, the age- and gender-stratified mean estimates for HRQoL measures were similar. When the mode of administration differed, respondents aged 70 and over reported better health with a telephone-administered questionnaire than with a self-administered questionnaire. Also, older age groups and females reported worse HRQoL generally, regardless of mode of survey administration.

Harrold, L.R., Patterson, M.K., Andrade, S.E., and others. (2007, June). "Asthma drug use and the development of Churg-Strauss syndrome (CSS)." (AHRQ grant HS10391). *Pharmacoepidemiology and Drug Safety* 16, p. 620-626.

Case reports suggest that use of leukotriene modifiers, the newest anti-inflammatory drugs for asthma, may be linked to the onset of Churg-Strauss syndrome (CSS).

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This study did not find an association between the two; however, it is not possible to rule out modest associations between the use of leukotriene modifiers and CSS, given that CSS is so rare and so highly correlated with asthma severity. Researchers analyzed pharmacy and other data on nearly 14 million people enrolled in a U.S. national health plan and 3 U.S. managed care organizations. They identified 47 cases of possible or definite CSS and 4,700 controls who used asthma drugs between 1995 and 2002. Overall, 6 CSS cases and 202 controls used leukotriene modifiers in the 2 to 6 months prior to the onset of CSS. Those who used leukotriene modifiers had four times the likelihood of developing CSS. However, this association disappeared when use of other asthma drugs was taken into account. Those who took leukotriene modifiers were also significantly more likely to use a greater number of other asthma drugs and to use oral steroids.

Kane, R.L., Wilt, T., Suarez-Almazor, M.E., and Fu, S.S. (2007, May). “Disparities in total knee replacements: A review.” (AHRQ contract 290-02-0009). *Arthritis & Rheumatism* 57(4), pp. 562-567.

This systematic review of studies found that women were nearly twice as likely to undergo total knee replacement (TKR) as men. This was primarily because women were more likely than men to be referred by their primary care doctor for the procedure. It is possible that the severity or type of arthritis varied among men and women. Lower rates of TKR among blacks than whites occurred despite a higher prevalence of knee

osteoarthritis (KO) among blacks, suggesting that the prevalence of KO was not a mitigating factor. Several studies of primary care doctors, orthopedic surgeons, rheumatologists, and other physicians found varied clinical consensus about indications for TKR or for referring patients for TKR. Race and sex were not listed as either indicators or nonindicators for surgery.

Kent, D.M., Ruthazer, R., Griffith, J.L., and others. (2007, May). “Comparison of mortality benefit of immediate thrombolytic therapy versus delayed primary angioplasty for acute myocardial infarction.” (AHRQ grant HS10280). *American Journal of Cardiology* 99, pp. 1384-1388.

This study used patient-level data to develop a model that examined the influence of baseline mortality risk on the degree of primary percutaneous coronary intervention (PPCI) benefit and the risk of treatment delay in heart attack patients. The model showed that as baseline risk rose, the relative benefit of PPCI compared with thrombolytic therapy significantly increased, with high-risk patients benefiting greatly. As baseline risk increased, the risk associated with longer surgery delay also increased. Based on the model, a surgery delay of about 100 minutes would nullify its benefit over immediate thrombolytic therapy for patients who had at least a moderate degree of mortality risk (greater than 4 percent). In contrast, patients at relatively low risk of dying gained little or no incremental mortality benefit from PPCI compared with immediate clot-busting therapy. For this group, consideration of other outcomes such as risks for stroke or reinfarction and logistical concerns

should guide treatment decisions more than consideration of mortality trade-offs. Yet studies have shown that thrombolytic medication reestablishes blood flow (reperfusion) in only about 50 percent of patients even 60 minutes after “needle time,” whereas over 90 percent of PPCI-treated patients will achieve reperfusion immediately after the balloon inserted into the artery is inflated.

Kroll, T.L., Richardson, M., Sharf, B.F., and Suarez-Almazor, M.E. (2007). “‘Keep on trucking’ or ‘It’s got you in this little vacuum’: Race-based perceptions in decision-making for total knee arthroplasty.” (AHRQ grant HS10876). *The Journal of Rheumatology* 34, pp. 1069-1075.

Ethnic differences in attitudes and beliefs about total knee replacement (TKR) may contribute to the disparities in use of TKR, according to this study. Differences were most obvious in explanations of illness, perceived changes in lifestyle, physician and health care system trust, and attitudes about paying for surgery. The researchers conducted 6 focus groups of 37 patients with knee osteoarthritis (KO) being treated at the same facility: 2 black groups, 2 Hispanic groups, and 2 white groups. Blacks described internal causes (aging or “bone on bone”) for their condition. Hispanics and whites attributed their condition to external causes, or blamed the medical profession for not fully understanding the condition. Blacks and Hispanics described KO as being more debilitating than whites did. Hispanics talked about the way in which their KO limited how they could spend their time. Although whites talked about how osteoarthritis limited their lifestyle, they were more likely to describe

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ways in which they overcame those limits.

Trust in their doctor was critical for the surgery decision among Hispanics. In contrast, blacks and whites were more likely to have their trust based on the reputation of the physician or affiliated hospital. Blacks were willing to pay for the surgery, even if it meant borrowing money, to alleviate their pain. Whites only talked about the out-of-pocket expenses for a highly regarded surgeon. Hispanics were more likely to speak of having the operation and then paying for it over time, after the fact.

Lakshminarayan, K., Anderson, D.C., Borbas, C., and others. (2007, June), “Blood pressure management in acute ischemic stroke.” (AHRQ grant HS11073). *Journal of Clinical Hypertension* 9(6), pp. 444-453.

This study found that blood pressure management of patients hospitalized for acute stroke varied substantially. Of 1,118 acute stroke patients in 19 Minnesota hospitals, 129 received as-needed antihypertensive medication in direct response to elevated blood pressure in the first 24 hours of admission. Of these 129, 56 percent were overtreated according to American Stroke Association (ASA) guidelines and 24 percent were overtreated according to less stringent European Stroke Initiative (EUSI) guidelines. Of the 1,052 patients not treated, 16 percent were undertreated by ASA guidelines and 3 percent by EUSI guidelines. In contrast, nearly all patients (93 percent) were likely to have their chronic hypertension appropriately treated with medication at discharge. The study authors point out that ongoing clinical trials are

trying to resolve some of the differences in current guidelines for managing blood pressure in acute stroke. For example, concern that antihypertensives may further reduce blood flow to the brain during acute stroke prompts some guidelines to caution clinicians about their use. Also, recommended blood pressure levels for initiating antihypertensive medication in acute stroke patients differ. Finally, no guidelines recommend when antihypertensive regimens should be initiated after stroke or whether prestroke regimens should be stopped during an acute phase.

Langfitt, J.T., Westerveld, M., Hamberger, M.J., and others. (2007, June). “Worsening quality of life after epilepsy surgery: Effects of seizures and memory decline.” (AHRQ grant HS09986). *Neurology* 68, pp. 1988-1994.

A study of 138 patients who underwent temporal lobe surgery for intractable epileptic seizures found that patients who were seizure-free 2 and 5 years after surgery reported improved quality of life, regardless of memory outcome. Among the 18 percent who still endured persistent seizures after surgery, quality of life remained stable only when memory did not decline (10 percent). Quality of life diminished when memory declined (8 percent). The patients with continued seizures and memory decline had characteristics that predicted poor seizure or memory outcome. They were more likely to have had a dominant hemisphere resection (73 vs. 38 percent), lower baseline IQ (85 vs. 93), later age at epilepsy onset (23.6 vs. 14.1 years), and shorter duration of epilepsy (17.3 vs. 25.3 years). They also tended to be less likely to have hippocampal

atrophy on magnetic resonance imaging (45 vs. 72 percent).

Lobach, D.F., Kawamoto, K., Anstrom, K.J., and others. (2007). “Development, deployment and usability of a point-of-care decision support system for chronic disease management using the recently-approved HL7 decision support service standard.” (AHRQ grant HS15057). *MEDINFO 12(Pt 2)*, pp. 861-865.

Clinical decision support (CDS) systems relying on computers are a very effective way to improve clinician compliance with evidence-based care standards. However, their use has remained limited due to the lack of an efficient method of encapsulating, processing, and delivering medical knowledge for use in clinical software applications. The authors describe the first implementation of a decision support system based on the recently approved HL7 Decision Support Service draft standard that facilitates the implementation of CDS systems using software services. The new CDS system is known as the SEBASTIAN (System for Evidence-Based Advice through Simultaneous Transaction with an Intelligent Agent across a Network) Decision Support Service (DSS). The SEBASTIAN DSS was used to implement a point-of-care chronic disease management system within a health system handling over 60,000 hospitalizations and 1.2 million outpatient encounters a year. A survey of 20 users found that responses for content, accuracy, format, and ease of use were significantly favorable. The authors believe that implementation of this DSS validates the usefulness of the new HL7 draft standard in the context of a large health system. ■

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