



# RESEARCH ACTIVITIES

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## AHRQ awards \$3 million to help reduce central line-associated bloodstream infections

The Agency for Healthcare Research and Quality (AHRQ) has awarded nearly \$3 million for a contract to help reduce central line-associated bloodstream infections in hospital intensive care units (ICUs) by spreading the knowledge gained from a previous AHRQ-funded project. The Health Research & Educational Trust, an affiliate of the American Hospital Association, has been selected to coordinate the new 3-year project, which is part of an AHRQ initiative to reduce health care-associated infections.

The project will continue work started by the Johns Hopkins University in Baltimore and the Michigan Health & Hospital Association to implement a comprehensive unit-based patient safety program to help prevent infections related to the use of central line catheters. Often referred to as central venous catheters, central line catheters are tubes placed into a large vein in a patient's neck, chest, or groin to administer medication or fluids or to collect blood samples. Each year, an estimated 250,000 cases of central line-associated bloodstream infections occur in hospitals in the United States, and an estimated

30,000 to 62,000 patients who get the infections die as a result, according to the Centers for Disease Control and Prevention.

The comprehensive program, designed to survey and improve an intensive care unit's patient safety culture, was developed by researchers at the Johns Hopkins University and has been used in more than 100 ICUs in Michigan. The program includes tools to help health care professionals identify opportunities to reduce potential health care-associated infections and implement policies to make care safer. Within 3 months of implementation in Michigan, the program helped reduce infection rates to zero in more than 50 percent of participating hospitals.

The project will be funded through AHRQ's Accelerating Change and Transformation in Organizations and Networks initiative, an implementation model of field-based research designed to promote innovation in health care delivery by accelerating the diffusion of research into practice. For more information on AHRQ's patient safety research, visit <http://www.ahrq.gov/qual/errorsix.htm>. ■

## Organizational style influences clinical departmental differences in dealing with patient safety

How physicians deal with patient safety and medical errors depends, in large part, on how their clinical department is organized and the flow of work in it. For example, the hierarchical structure of the surgery department and its emphasis on individual blame for mistakes contrasts with the more collegial environment, available physician downtime, and work predictability of the medical intensive care unit (ICU). The emergency department, though the most egalitarian, suffers from intense workload, excessive disruptions, and high unpredictability of its clinical work. Each of these factors influences the ability of the clinical unit to respond to medical errors effectively.

To determine the differences between the work environments in these clinical units, Timothy J. Hoff, Ph.D., of the University of Albany (State University of New York), observed and interviewed (over three 3-week periods) the attending

and resident physicians in the surgery, medical ICU, and emergency departments at an academic medical center. He looked at permeability (the speed and ease with which both physicians and patients moved in and out of a clinical setting), the complexity and predictability of the clinical work, the extent and quality of time available for physicians to do and reflect on the clinical work, social relations between physicians in each setting, and specifics of the clinical workload.

On the basis of Dr. Hoff's observations, the medical ICU appeared to have the highest potential capacity for dealing with patient safety and quality of care. This was due, in part, to much "downtime" for the ICU physicians to discuss medical errors that happened or were caught before any injury to the patient occurred. In contrast, the physicians on the surgical unit had little time for

group learning or reflection on errors, and its hierarchical structure tended to place the blame for errors on individuals. Although the physicians in the emergency department also had little time for reflection, the department had a nonhierarchical style and accepted that errors sometimes were due to factors beyond the physician's control. For change in patient safety behavior to occur, there must be an understanding of the context of the work environment in a particular clinical setting, and of the interventions most likely to improve patient safety in each setting, suggests Dr. Hoff. His study was funded by the Agency for Healthcare Research and Quality (HS11697).

More details are in "How work context shapes physician approach to safety and error," by Dr. Hoff, in the April–June 2007 *Quality Management in Health Care* 17(2), pp. 140–153. ■

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**Prostate removal among elderly men with prostate cancer, see page 10**

**Depression and screening for alcohol misuse, see page 13**

**Prescription medication differences between women and men, see page 17**

## The rate of care quality improvement has slowed, but nurses are well-positioned to advocate for quality, equitable care

The rate of quality improvement in care has slowed. Nurses, in particular, are well-positioned to advocate on behalf of all patients for higher quality, more equitable care. Agency for Healthcare Research and Quality (AHRQ) researchers, Karen Ho, M.H.S., and Jeffrey Brady, M.D., M.P.H., along with AHRQ director Carolyn M. Clancy, M.D., summarize findings from the fifth annual *National Healthcare Quality Report* and *National Healthcare Disparities Report* to underscore the slow progress in quality improvement in a recent commentary. The reports showed that while some areas of health care made important gains, overall quality improved by an average of only 1.5 percent per year between 2000 and 2005. This took place despite ongoing efforts around the country to improve care quality and reduce disparities.

The 2007 reports showed some notable gains, such as the portion of heart attack patients who received recommended tests, medications, or counseling to quit smoking, and the reduction in disparities in childhood vaccines among blacks, Asians, and Hispanics. Measures of patient safety, however, showed an average annual improvement of only 1 percent. These areas

included how many Medicare surgery patients had not received timely antibiotics to prevent infection, the portion of elderly patients who had been given potentially harmful prescription drugs, or how many patients developed post-surgery complications.

There were notable opportunities for improvement such as the lack of improvement in communication between hospital patients and their physicians and nurses about new medications and discharge information, which even worsened for some age groups between 2005 and 2007. Also troubling was the lack of diversity among the nursing workforce; nearly 82 percent of registered nurses (RNs) in 2004 were white. However, the number of racial/ethnic minority RNs increased threefold from 1980 to 2004 from 119,512 to 311,177.

More details are in “Improving quality and reducing disparities: The role of nurses,” by Ms. Ho, Dr. Brady, and Dr. Clancy, in the July-September *Journal of Nursing Care Quality* 23(3), pp. 185-188. Reprints (AHRQ Publication No. 08-R085) are available from AHRQ.\* ■

### Child/Adolescent Health

## Infant health determines parental satisfaction with neonatal intensive care

Parental satisfaction with the care their newborn infant receives in the neonatal intensive care unit (NICU) is primarily due to the infant’s health 3 months after hospital discharge rather than to NICU treatments or neonatal complications, according to a new study. In contrast to what many clinicians might think, the infant’s severity of illness and medical care received had far less impact, notes Marie C. McCormick, M.D., Sc.D., of the Harvard School of Public Health. She and colleagues examined factors influencing parental satisfaction with NICU care for 677 moderately premature infants in 10 hospitals in Massachusetts and

California. The infants had no major anomalies or chromosomal disorders and were born between 30 and 34 weeks of gestation.

The parents were asked about care satisfaction 3 months after the infant’s discharge and about issues such as the NICU staff’s emotional support, information, or education. They were also asked to rate their child’s health, subsequent care use, sociodemographic characteristics, and mother’s history of infertility treatment. The researchers used medical charts to identify NICU interventions.

Of the 621 predominantly white, well-educated older mothers who completed the satisfaction survey,

most were satisfied with the NICU care. However, satisfaction with care varied significantly by hospital. Neither infertility treatments, cesarean delivery, or other delivery-related treatments affected parental satisfaction. Most of the infants did not experience neonatal complications. Thus, there was little need for NICU interventions such as mechanical ventilation, which nevertheless were not associated with parental satisfaction. All of the factors studied explained only a modest 19 percent of varied satisfaction rates among the 10 NICUs studied. This suggests the need for more studies

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## Infant health

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to better understand factors affecting parental satisfaction with NICU care. The study was supported by the Agency for

Healthcare Research and Quality (HS10131).

See “Factors influencing parental satisfaction with neonatal intensive care among the families of moderately premature infants,” by

Dr. McCormick, Gabriel J. Escobar, M.D., Zheng Zheng, B.S., and Douglas K. Richardson, M.D., M.B.A., in the June 2008 *Pediatrics* 121(6), pp. 1111-1118. ■

## Behavioral modification programs help obese children manage their weight

**O**bese school-age kids and teens can lose weight or prevent further weight gain if they participate in medium- to high-intensity behavioral management programs, according to a new report released by the Agency for Healthcare Research and Quality (AHRQ). The new report, *Effectiveness of Weight Management Programs in Children and Adolescents*, found that after completing weight management programs, obese children weigh between 3 pounds and 23 pounds less, on average, than obese children not involved in such programs. Among those enrolled, the weight difference is greatest among heavier children as well as in those enrolled in more intensive programs. Researchers also found that weight improvements could be maintained for up to a year after the program ended.

The report also showed that adding prescription drugs to a behavioral weight management program helped extremely obese adolescents lose weight. However, no studies evaluated maintenance of weight loss after drug treatment ended.

The two primary drugs reviewed were sibutramine (Meridia®), which is an appetite suppressant, and orlistat (Xenical®), which helps block fat absorption. In one 12-month study, adolescents taking sibutramine as part of a weight management program lost an average

of 14 pounds, compared with a 4.2-pound weight gain among those who took a placebo. In another trial, adolescents who took orlistat as part of their weight management program gained an average of 1.2 pounds, compared with their peers who took a placebo and gained nearly 7 pounds.

While there were no reported harms from behavioral intervention alone, there were side effects from prescription drugs. These included mild increases in heart rate or blood pressure from the use of sibutramine. Among those taking orlistat, up to one-third reported abdominal pain, oily spotting, or fecal urgency; 9 percent reported fecal incontinence.

The report, *Effectiveness of Weight Management Programs in Children and Adolescents*, (Publication No. 08-E014) is available at [www.ahrq.gov/clinic/tp/chwghttp.htm](http://www.ahrq.gov/clinic/tp/chwghttp.htm) and can also be ordered directly from the AHRQ Clearinghouse.\*

**Editor’s note:** AHRQ also has a free DVD for families and children aged 5 to 9 called Max’s Magical Delivery: Fit for Kids (Product No. 04-0088-DVD). The 30-minute DVD teaches children and their parents about smart eating and physical activity. Copies can be ordered electronically at [www.ahrq.gov/child/dvdobesity.htm](http://www.ahrq.gov/child/dvdobesity.htm) or from the AHRQ Clearinghouse.\* ■

## 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/>.

## Bronchiolitis-related outpatient and hospital visits have risen markedly among Medicaid-insured infants in Tennessee

The number of Medicaid-insured infants in Tennessee seeking medical care for bronchiolitis has risen markedly, reveals a new study. Bronchiolitis is a lower respiratory tract infection caused by respiratory syncytial virus (RSV) and other viruses. The infection causes coughing, wheezing, abnormally rapid breathing, and/or rales (crackling sounds that indicate fluid in the air sacs of the lungs). RSV infects most children in the first year of life and typically causes yearly epidemics of bronchiolitis between November and April, resulting in about 80,000 infant hospitalizations per year.

Although the majority of infants affected are generally healthy, younger maternal age and lower birth weight are risk factors,

explain the researchers. They retrospectively studied 103,670 term, non-low-birth weight infants enrolled in Tennessee Medicaid from 1995-2003, and identified their health care visits for bronchiolitis in the first year of life. The researchers examined risk factors for bronchiolitis during infancy and rates of various types of health care for the disease.

During the 9-year study period, rates of bronchiolitis visits were 238 outpatient visits, 77 emergency department (ED) visits, and 71 hospitalizations per 1,000 infant-years. However, average annual rates for bronchiolitis visits jumped 41 percent, from 188 visits per 1,000 infant-years to 265 visits per 1,000 infant-years from 1996-1997 to 2002-2003. Compared with

infants of mothers 20 to 29 years of age, infants of mothers 15 to 19 years of age had a small increased risk of having a bronchiolitis visit, whereas infants of older mothers (30-39 and 40-44) were less likely to have a visit for the illness. Higher infant birth weight was another protective factor. The study was supported in part by the Agency for Healthcare Research and Quality (HS10384).

See “Increasing burden and risk factors for bronchiolitis-related medical visits in infants enrolled in a state health care insurance plan,” by Kecia N. Carroll, M.D., M.P.H., Tebeb Gebretsadik, M.P.H., Marie R. Griffin, M.D., M.P.H., and others in the July 2008 *Pediatrics* 122, pp. 58-64. ■

### Women's Health

## Less receipt of effective treatment by elderly black women with ovarian cancer may underlie their poorer survival

Most women with ovarian cancer are diagnosed with late-stage disease with poor survival rates due to lack of obvious cancer symptoms and an effective screening tool. Several studies have shown that black women are less likely to receive recommended chemotherapy in addition to surgery for advanced ovarian cancer than white, Hispanic, or Asian women, which may contribute to their poorer survival, suggests a new study.

A University of Texas team led by Xianglin L. Du, M.D., Ph.D., studied 5,131 elderly women diagnosed with ovarian cancer between 1992 and 1999 with up to 11 years of followup. Overall, 72 percent of white women and 70 percent of black women were diagnosed with advanced stage disease (stage 3 or 4). Of the 4,264 women with stage 4 disease, those who underwent ovarian surgery and received adjuvant chemotherapy were 50 percent less likely to die during

the followup period than those who did not, regardless of race. Yet, fewer blacks received chemotherapy than whites (50 vs. 65 percent).

Socioeconomic status played a role in ethnic variations in receipt of these treatments. There was no significant difference in survival between black and white women with ovarian cancer after controlling for patient demographics, tumor characteristics, and treatments. The study was supported by the Agency for Healthcare Research and Quality (HS16743).

More details are in “Ethnic differences in socioeconomic status, diagnosis, treatment, and survival among older women with epithelial ovarian cancer,” by Dr. Du, Charlotte C. Sun, Dr.PH, Michael R. Milam, M.D., and others, in the *International Journal of Gynecological Cancer* 18, pp. 660-669, 2008. ■



## Centers that offer screening mammograms only and have a breast specialist on site provide more accurate readings

Many studies have explored how the characteristics of women and radiologists affect the accuracy of mammogram interpretation. In a recent study, researchers examined how variations in the actual facility providing the mammogram affect the results. They reviewed 5 years of mammogram data and results of surveys received from 43 facilities and their 128 radiologists from the Pacific Northwest, New Hampshire, and Colorado. The researchers controlled for patient characteristics, such as breast density, age, and time between mammograms, and radiologist characteristics, such as years of experience in reading mammograms and the volume of mammograms read.

The most accurate facilities offered screening but not

diagnostic mammograms, had a breast imaging specialist on staff, and conducted audits of radiologists' performance two or more times a year. Facility mammography volume did not appear to affect accuracy after the volume of radiologists was taken into consideration.

Researchers were also surprised that having two or more radiologists read mammograms (double reading) did not increase accuracy rates, because this finding contradicts earlier studies. They suggest that either double reading may not be effectively employed at the facilities studied or the team's definition of double-reading did not include methods that do work.

These findings can assist physicians and women in choosing

facilities that offer the best quality in screening mammograms because, while they can usually control what mammography facility is visited, they cannot control who will read the mammogram. This study was funded in part by the Agency for Healthcare Research and Quality (HS10591).

See "Mammography facility characteristics associated with interpretive accuracy of screening mammography," by Stephen Taplin, M.D., M.P.H., Linn Abraham, M.S., William E. Barlow, Ph.D., and others in the June 18, 2008 *Journal of the National Cancer Institute* 100(12), pp. 876-887. ■

## Elderly/Long-Term Care

### Hospital stay duration and cost for the elderly with non-dementia psychiatric illnesses varies by care settings

While dementia is the psychiatric illness most often associated with elderly hospitalizations, other conditions, such as depression, bipolar disorder, and substance abuse, also often require inpatient treatment. General hospitals, psychiatric units, long-stay hospitals, and skilled nursing facilities (SNFs) are the inpatient settings where these conditions, called non-dementia psychiatric illnesses (NDPI), are treated. Medicare's cost-cutting reimbursement strategies and caps on stay lengths in addition to treatment advances have affected how the elderly receive their care, a new study finds. Researchers used Centers for Medicare and Medicaid Services data from 1992 to 2002 to study if the decline in Medicare hospital admissions and expenditures that occurred in the 1990s continued into the following decade for this group of patients.

Mean inpatient length of stay for NDPI illnesses fell from nearly 14.9 days in 1992 to just 12.1 days in 2002. Similarly, mean Medicare expenditures per stay declined from \$8,461 to \$6,207. The authors point out that these declines occurred during a period of increased use of outpatient service and drug therapy.

Each of the four types of facilities treating these patients was impacted differently during the 10-year period. The portion of NDPI stays that were in general hospitals fell from 34.5 percent to 27.4 percent, and the portion in long-stay hospitals fell from 19.5 percent to 11.3 percent. Except for SNFs, all facility types saw mean Medicare expenditures, covered days, and beneficiary expenditures per NDPI stay fall from 1992 to 2002. However, SNFs witnessed mean Medicare-covered days per NDPI stay remain stable, while mean

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## Hospital stay duration

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Medicare-covered costs rose from \$4,153 to \$6,375. These increases may result from more SNFs becoming certified by Medicare (the number of certified SNFs rose from nearly 4,000 in 1992 to more than 6,800 in 2002). Thus, these SNFs could be reimbursed by Medicare for services at a higher rate than they would be for services provided under Medicaid. This study

was funded in part by the Agency for Healthcare Research and Quality (HS16097).

See “Medicare inpatient treatment for elderly non-dementia psychiatric illnesses 1992-2002; length of stay and expenditures by facility type,” by Donald R. Hoover, Ph.D., M.P.H., Ayse Akincigil, Ph.D., Jonathan D. Prince, Ph.D., and others in the July 2008 *Administration and Policy in Mental Health* 35(4), pp. 231-240. ■

## Some U.S. nursing homes need more specific evacuation plans to better respond to natural or other disasters

In the wake of Hurricane Katrina, residents at 5 of 13 Louisiana nursing homes suffered adverse effects such as dehydration, depression, and skin tears, which were primarily attributed to lack of effective emergency planning.

Indeed, some nursing homes lack a critical part of emergency planning—specific evacuation plans, concludes a new study. U.S. nursing homes are subject to citations and fines for care deficiencies if the Medicare or Medicaid survey and certification process determines that they do not have adequate written evacuation plans.

The University of Pittsburgh study analyzed national data from 1997 to 2005 on 2,134 nursing homes for 4 specific deficiency citations (written emergency plans, staff emergency training, written

evacuation plans, and fire drills) to determine the types of nursing homes cited for deficiencies in their evacuation plans. They also surveyed nursing home administrators in 2006 about their evacuation plans.

In general, most nursing homes were well prepared to shelter in place. Most facilities (86 percent) had a hazard analysis plan to ensure water supply (96 percent) and had detailed evacuation procedures (92 percent). Fewer facilities had a procedure to meet specific resident needs (37 percent), a plan for serving as a host facility (63 percent), and an evacuation route (31 percent). The rate of citations was relatively stable throughout the study period. Each year about 0.6 percent of facilities were found to be deficient in written emergency

plans, 2.1 percent in staff training, 1.2 percent in written evacuation plans, and 7.9 percent in fire drills. Only 3 percent of nursing homes were compliant with all 25 evacuation plan requirements. For-profit nursing homes were more likely, and those with a higher average Medicaid census and with a high percentage of residents with dementia were less likely to be cited for evacuation plan deficiencies. The study was supported in part by the Agency for Healthcare Research and Quality (HS16547).

See “Nursing home evacuation plans,” by Nicholas G. Castle, Ph.D., M.H.A., A.G.S.F, in the July 2008 *American Journal of Public Health* 98(7), pp. 1235-1240. ■

## New care tracking tool helps identify nursing home patients at risk for pressure ulcers

Despite knowledge of clinical guidelines to prevent and treat pressure ulcers among nursing home residents, it remains difficult for staff to integrate this knowledge into their daily work. A new pressure ulcer reduction program, the On-Time Quality Improvement for Long Term Care (On-Time), was developed by the Agency for Healthcare Research and Quality (AHRQ) with support from the California Health Care Foundation, to close the gap between staff knowledge and staff practice. The On-Time program uses a set of newly developed tools that staff may adapt and

integrate into their current processes and structures, explains AHRQ researcher William Spector, Ph.D.

The tools include a daily care documentation form completed by certified nursing assistants (CNAs), an audit report of the form’s completeness, and four weekly clinical reports that help identify residents at high risk for developing pressure ulcers. The heart of the program lies in the CNA daily reports on care relevant to pressure ulcer risk factors such as nutrition and behavior. The data are stored in a database, which

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## Pressure ulcers

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then produces clinical reports that can be used by nurses, dietitians, physicians, and other professionals providing resident care.

The reports summarize information about residents' nutritional status, behavior, pressure ulcer triggers (such as substantial weight loss, daily urinary incontinence, or presence of a Foley catheter), and priority areas for intervention. The On-Time reports identify residents at highest risk for pressure ulcer development, show trends in outcomes for these

residents over time, help staff monitor the effectiveness of care in a timely fashion, and foster teamwork and communication. Two preliminary evaluations of the program showed that it reduced high-risk pressure ulcer quality measures by 33 percent in a span of 18 months and 13 percent in 6 months. Reprints (AHRQ Publication No. 08-R084) are available from AHRQ.\*

See "Pressure ulcer plan is working," by Sandra Hudak, M.S., R.N., Siobhan Sharkey, M.B.A., Michal Engleman, M.H.S., and others, in the May 2008 *Provider*, pp. 34-39. ■

## Changes in cost to patients reduce new use of antidepressants among the elderly, but have less impact on continued use

Greater cost-sharing requirements reduce the likelihood that elderly adults with depression will begin using needed antidepressant medications, but has little effect on those who are already taking such medications, according to a new study. The researchers used two closely timed changes in costs to elderly patients in the Canadian Province of British Columbia to shed light on the likely impact of changes in prescription drug coverage in the United States as persons go from private insurance copayments (fixed payment per prescription) for medications to Medicare coinsurance (fixed percentage of the cost per prescription) with deductibles.

In January 2002, the British Columbia Government switched from paying the full cost of prescriptions for seniors to requiring a copay of \$25 Canadian (\$10 for low-income seniors). In May 2003, the program began

requiring patients to pay a 25 percent coinsurance once an income-based deductible was met. This "natural experiment" allowed the researchers to study the effect of the cost changes on the starting, usage, and stopping of antidepressant therapy by British Columbian seniors from January 1997 through December 2005. They found that, as the British Columbia health plan moved from complete coverage of prescriptions to requiring a copayment and, later, to coinsurance after meeting a deductible, the rate of initiation of antidepressant therapy slowed significantly. The level of antidepressant initiation increased from 4.3 starts per 1,000 seniors per month in 1997 to 5.0 starts per 1,000 in December 2001. Implementation of the copay policy in January 2002 reduced the antidepressant therapy start level by 0.38 per 1,000 seniors per month without changing the rate of

increase over time. Introduction of coinsurance in May 2003 reduced the rate of increase per month by 0.03 per 1,000 seniors.

Depression is thought to be undertreated among seniors in the United States, and programs have been developed to increase the use of antidepressants in this population. To be effective, these programs may need to take into account (and perhaps intervene) to counter the effects of patient cost sharing on antidepressant use, the researchers concluded. The study was funded in part by the Agency for Healthcare Research and Quality (HS10881).

More details are in "The impact of cost sharing on antidepressant use among older adults in British Columbia," by Philip S. Wang, M.D., Dr.P.H., Amanda R. Patrick, M.S., Colin R. Dormuth, Sc.D., and others, in the April 2008 *Psychiatric Services* 59(4), pp. 377-383. ■

**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.



### Pediatricians show less implicit race bias than others

**A**lthough racial and ethnic disparities in care exist in pediatrics, pediatricians are less likely to harbor attitudes that favor white Americans than other physicians and individuals, suggests a new study. Implicit attitudes and stereotypes are by nature outside of personal awareness, and may unknowingly influence quality of care. However, the University of Washington researchers found no link between pediatricians' implicit racial attitudes and stereotypes and quality of pediatric care, and they call for more studies to examine the complex relationship between implicit attitudes and stereotypes and medical care.

Researchers surveyed academic pediatricians about their implicit and explicit racial attitudes and stereotypes using the Implicit Association Test (IAT). The IAT asks test takers to quickly sort and categorize two pairs of images and words, and it assumes that the test taker will more quickly sort

concepts that are more readily associated mentally than concepts that are more weakly associated. To measure quality of care, they asked the pediatricians how they would treat patients using four pediatric case vignettes (each were given two black patients and two white patients) to determine if there were racial differences in treatment recommendations for pain control, management of urinary tract infection, attention deficit hyperactivity disorder, and asthma control.

Most (82 percent) of the surveyed pediatricians were white, and 93 percent were American-born. The majority of pediatricians reported no difference in feelings toward racial groups. However, when asked about patients in their own practices, the pediatricians reported attitudes that strongly associated whites (but not blacks) with the concept of "compliant patient," and unexpectedly associated blacks with "preferred

medical care." The pediatricians' Race Attitude IAT results revealed a much smaller implicit preference for whites relative to blacks than found with other physicians and the over one million individuals who have taken the Race Attitude IAT. On the Race and Compliant Patient, researchers found a moderate "perceived compliance and race" stereotype. The researchers did not find a strong relationship between difference in treatment recommendations by patient race (quality of care) and implicit measures. The study was supported in part by the Agency for Healthcare Research and Quality (HS15760).

More details are in "Physician implicit attitudes and stereotypes about race and quality of medical care," by Janice A. Sabin, Ph.D., M.S.W., Frederick P. Rivara, M.D., M.P.H., and Anthony G. Greenwald, Ph.D., in the July 2008 *Medical Care* 46(7), pp. 678-685. ■

### Minority children are half as likely as white children to receive specialized therapies

**A** new study finds that 3.8 percent of children who are 18 or younger obtain specialized therapies from the health care system. These include physical, occupational, and speech therapy or home health services. When therapies provided through the special education system are included in the total, the percentage rises to just 4.3, indicating that the educational system is not a large provider of therapies. Researcher Karen Kuhlthau, Ph.D., of Massachusetts General Hospital and Harvard Medical School, and her colleagues used Medical Expenditure Panel Survey (MEPS) data to examine therapy use for children and its indicators. The Agency for Healthcare Research and Quality sponsors

MEPS, which collects national medical care use and expenditure data at the person and household levels.

Functional limitations, chronic conditions, injuries, or hospitalizations that lasted one or more days serve as predictors for which children received therapies. Children most likely to use specialized therapies tend to be male (59.7 percent), white (80.6 percent), and have chronic conditions (38.8 percent). Black, Hispanic, and children from other non-Hispanic race/ethnic groups were much less likely to receive therapies than white children. These results suggest that either minority children are underusing therapies or

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## Specialized therapies

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white children are overusing them, according to the researchers.

The average cost per child who used therapy was \$266 for physical or occupational therapy and \$1,333 for home health services. Costs for the top 10 percent of therapy users averaged \$997 for physical or occupational therapy and \$7,279 for home health services. Therapy and home health service use comprised nearly half (46 percent) of overall health

expenditures for children in the top user category. The authors suggest that their study will assist policymakers and insurers by providing evidence about the determinants of specialized therapy use in different settings. This study was funded in part by the Agency for Healthcare Research and Quality (HS13757).

See “Correlates of therapy use and expenditures in children in the United States,” by Dr. Kuhlthau, Kristen Hill, M.P.H., Christina Fluet, M.P.H., and others in the April-June 2008 *Developmental Neurorehabilitation* 11(2), pp. 115-123. ■

## Outcomes/Effectiveness Research

### Prostate removal is better than radiation or watchful waiting for elderly men with local/regional prostate cancer

**R**adical prostatectomy (surgical removal of the prostate) prolongs survival more than radiation or watchful waiting for elderly men with local/regional prostate cancer who have at least 10 years of life expectancy, concludes a new study. The University of Texas researchers followed up to nearly 12 years 5,845 men who were diagnosed in 1992 with local/regional stage prostate cancer at age 65-74 and who were potential candidates for radical prostatectomy. The researchers identified the men from the population-based Surveillance, Epidemiology, and End Results (SEER) and Medicare linked data.

Overall, 10-year all-cause survival rates were the highest for

men who underwent radical prostatectomy (81 percent), followed by radical prostatectomy in combination with radiotherapy (67.6 percent), radiotherapy (60.5 percent), and watchful waiting (50.7 percent). There was a similar pattern for 10-year prostate-specific cancer survival. After adjusting for other factors affecting mortality such as age, ethnicity, hormone therapy, chemotherapy, and coexisting illnesses, men who underwent radical prostatectomy or radical prostatectomy plus radiation therapy were only one-third as likely to die from all causes as men who received watchful waiting.

Nevertheless, any benefit of radical prostatectomy on survival must be weighted against the potential side effects of the surgery such as impotence and urinary incontinence. The results may not be generalizable to younger men with prostate cancer. The study was supported in part by the Agency for Healthcare Research and Quality (HS16743).

See “Long-term survival after radical prostatectomy compared to other treatments in older men with local/regional prostate cancer,” by Liqian Liu, M.D., M.S., Ann L. Coker, Ph.D., Xianglin L. Du, M.D., Ph.D., and others in the June 2008 *Journal of Surgical Oncology* 97, pp. 583-591. ■

### Study of the benefit of prophylactic antibiotics prior to major surgery raises questions about pay for performance

**A** growing number of organizations are paying clinicians and hospitals for quality of care measures, such as achieving low rates of surgical site infections (SSIs). Timely administration of prophylactic antibiotics (PA) prior to major surgery is thought to reduce SSIs. However, a new study did not link timely PA to overall patient or hospital SSI rates.

Although most of the patients did get PA prior to surgery, they did not receive it in a timely window (1 to 2 hours prior to surgical incision). It may be that the metric for timely antibiotic administration is too restrictive to be able to discriminate between PA practices that significantly prevent SSIs, explain the researchers.

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## Pay for performance

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They note that these data do not dispute the efficacy of timely PA administration for surgical procedures. However, they do challenge whether this measure appropriately guides patients to higher quality hospitals and whether those hospitals and physicians should be financially rewarded for performance. The investigators studied SSI rates for 9,195 elective orthopedic, colon, and vascular procedures performed in 95 Department of Veterans Affairs hospitals. They compared patient and hospital data from the External Peer Review Program Surgical Care Improvement Project with matched data from the National Surgical Quality Improvement Program data.

About 86 percent of patients received timely PA. Overall, timely PA did not markedly contribute to overall patient or hospital SSI rates. In hospital-level analysis, hospital case volume and hospital case mix were much more important predictors of hospital SSI rate than the hospital's rate of timely PA. The study was supported in part by the Agency for Healthcare Research and Quality (HS13852).

More details are in "Association of timely administration of prophylactic antibiotics for major surgical procedures and surgical site infection," by Mary T. Hawn, M.D., M.P.H., F.A.C.S., Kamal M. Itani, M.D., F.A.C.S., Stephen H. Gray, M.D., and others, in the May 2008 *Journal of the American College of Surgeons* 206, pp. 814-821. ■

## Pancreatic surgery with islet cell autotransplant is safe and effective to treat the pain of chronic pancreatitis

For appropriately selected patients, pancreatic surgery with autotransplantation of islet cells (pancreatic cells that produce insulin to regulate blood-sugar levels) is a safe and effective treatment of the intractable pain associated with chronic inflammation of the pancreas (pancreatitis), concludes a new study. This condition, most often due to alcoholism, typically causes intermittent anorexia, nausea, vomiting, and abdominal pain. As the disease becomes severe, many patients become malnourished and develop debilitating chronic abdominal pain. Surgery is usually recommended when medical management (with alcohol cessation, diet modification, pancreatic enzyme replacement, and pain control) and endoscopic therapies for obstructing stones or other problems don't work.

Pancreatic surgery without transplanting islet cells recovered from the patient's own pancreas to their liver can create several problems, explain the University of Alabama researchers. It can induce total insulin dependency (and diabetes-related problems) as well as the reduction or absence of other regulatory hormones, resulting in "brittle" diabetes, an unstable metabolic state that is difficult to control.

The researchers retrospectively studied 21 patients who underwent total pancreatic surgery and 6 patients who underwent partial removal of the pancreas with autotransplantation of islet cells at 1 hospital from April 2005 to December 2007. They examined medical charts and hospital clinical databases to track patient outcomes.

At 6 months after surgery, 80 percent of reporting patients had decreased or eliminated their use of narcotic medication, and all total pancreatectomy patients required insulin (mean of 23 units per day). Also, patients still had a 13 percent weight loss, underscoring the need for pancreatic enzymes to prevent malabsorption. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS13852).

See "Pancreatic resection with islet cell autotransplant for the treatment of severe chronic pancreatitis," by Joshua L. Argo, M.D., Juan L. Contreras, M.D., Mary M. Welsey, M.P.H., and John D. Christein, M.D., in the June 2008 *The American Surgeon* 74(6), pp. 530-537. ■

## Cirrhosis of the liver does not increase risk during surgical repair of umbilical hernias, unless the procedure is an emergency

Repairing umbilical hernias before they create problems requiring emergency surgery may improve the overall outcomes for patients with cirrhosis of the liver, according to a new study of patients treated at Department of Veterans Affairs (VA) hospitals. Earlier studies had shown that patients with cirrhosis who underwent emergency surgery to repair umbilical hernias

(abdominal protrusions through the area of the belly button) had increased morbidity and mortality compared with patients without cirrhosis. In contrast, the new study found no increased risk for patients with cirrhosis who underwent the procedure as elective surgery, that is, when it was not an emergency.

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## Umbilical hernias

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Repair of umbilical hernias is relatively straightforward among patients considered to be good surgical risks. In this group of patients, morbidity and mortality associated with the surgery is low. Because many surgeons consider patients with cirrhosis to be high-risk, umbilical hernia repair is often delayed until bowel-related complications occur, which only increases the risk of surgery. To determine the influence of elective versus emergency surgery on the outcome of umbilical hernia repair, the researchers looked at the records for patients undergoing this procedure between 1998 and 2002 at 16 VA medical centers across the United States associated with surgical residency programs. Of the 1,421 procedures with enough information for analysis (92.5 percent first-time repairs and 7.5 percent rerepairs), 127 were in patients with documented cirrhosis. The proportion of patients with cirrhosis who underwent emergency repair (26.0

percent) or repair of a recurrent hernia (11.8 percent) was significantly larger than for noncirrhotic patients (4.8 percent for emergency repair and 7.0 percent for recurrent repair). Complications after surgery occurred in 86 patients (6.1 percent); 6 deaths occurred within 30 days of the surgery, including 1 in a patient with cirrhosis. Patients with cirrhosis were significantly more likely than those without the condition to require bowel resection (8.7 percent versus 0.8 percent) or return to the operating room within 30 days of the umbilical repair (7.9 percent versus 2.5 percent). The study was funded in part by the Agency for Healthcare Research and Quality (T32 HS13852).

More details are in “Umbilical herniorrhaphy in cirrhosis: Improved outcomes with elective repair,” by Stephen H. Gray, M.D., Catherine C. Vick, M.S., Laura A. Graham, M.P.H., and others in the *Journal of Gastrointestinal Surgery* 12(4), pp. 675–681, 2008. ■

## Unplanned bowel resections during hernia operations lead to more complications and longer stays

Surgeons who set out to repair a hernia caused by earlier surgeries (incisional hernia repair) at times end up also having to remove part of a patient’s bowels (enterotomy or unplanned bowel resection). This additional procedure leads to longer operating room times, longer hospital stays, and increased chances for complications after the surgery, a new study finds.

Researchers reviewed records of 1,124 patients who were scheduled for elective incisional hernia repair between January 1998 and December 2008 at 16 Veterans Affairs medical centers. A total of 82 patients (7.3 percent) required unplanned bowel resections. Thirty-two percent of patients who had bowel resections experienced complications after surgery compared with 10 percent

who did not require resections. These complications included wound infection (15), urinary tract infection (3), failing to wean from ventilators (2), kidney problems (2), sepsis (2), and deep vein thrombosis (1). Unplanned bowel resection nearly doubled operating room time, from 1.7 hours to 3.5 hours, and caused the patients to spend 4 to 10 days in the hospital instead of 2 to 6.

Researchers found a strong link between unplanned bowel resections and previous hernias that used mesh to hold in the bulging intestines. Foreign materials often cause scar tissue that can damage the intestines. The researchers recommend future studies that examine newer mesh products to see if these result in fewer bowel injuries during surgery.

Long-term steroid use was also linked to unplanned bowel resections. The researchers suggest that these drugs may adversely affect the tissues of the intestine, putting them at risk for injury. They recommend patients who take steroids receive enemas before undergoing elective hernia incision repairs. This study was funded in part by the Agency for Healthcare Research and Quality (HS13852).

See “Risk of complications from enterotomy or unplanned bowel resection during elective hernia repair,” by Stephen H. Gray, M.D., Catherine C. Vick, M.S., Laura A. Graham, M.P.H., and others in the June 2008 *Archives of Surgery* 143(6), pp. 582-586. ■



### Underserved blacks and Hispanics with depression often use complementary and alternative medicine for their symptoms

About 5 to 10 percent of primary care patients suffer from major depression, with another 16 percent estimated to suffer from minor depression. Primary care doctors who treat underserved blacks and Hispanics with depression should be alert to their frequent use of complementary and alternative medicine (CAM) to manage their symptoms, suggests a new study. A team of California researchers analyzed surveys and medical records of 315 patients who screened positive for depression out of a total of 2,321 patients from 2 large outpatient primary care clinics in Los Angeles. Two-thirds of the group were Hispanic and one-fifth were black.

Over 57 percent of the group reported using CAM sometimes or often (24 percent) and frequently (33 percent) to treat their depressive symptoms. Overall, 43 percent said they rarely or never used CAM. Lack of health care coverage was one of the strongest predictors of CAM use after controlling for demographic characteristics. In addition, being moderately depressed, use of psychotherapeutic prescription medications, and poorer self-reported health status were all linked to increased frequency of CAM use to treat depression.

Among CAM users, biologically based practices were the most often reported (58 percent), followed by mind-body medicine (47 percent), manipulative and body-based practices (9 percent), and whole medical systems (8 percent). Nearly 13 percent of patients used SAMe, St. John's wort, or 5-hydroxytryptophan for treatment of their depressive symptoms. Also, 22 percent reported using a relaxation technique, and one of three studied reported using vitamin therapy to treat depressive symptoms. These findings suggest that CAM use among minority underserved individuals may serve as a substitute for conventional care when access to care is limited or unavailable. The study was supported in part by the Agency for Healthcare Research and Quality (HS14022).

See "Correlates of complementary and alternative medicine utilization in depressed, underserved African American and Hispanic patients in primary care settings," by Mohsen Bazargan, Ph.D., Chizobam O. Ani, M.D., M.P.H., David W. Hindman, Ph.D., and others, in *The Journal of Alternative and Complementary Medicine* 14(5), pp. 537-544, 2008. ■

### Screening for alcohol misuse among emergency department patients may uncover depression

Screening for alcohol misuse in the emergency room (ED) may provide patients with early evaluation, prevention, and treatment of depression, which may otherwise go undetected, suggests a new study. It found that a group of mostly Hispanic and black young adults seeking care at an urban ED were about twice as likely to suffer depressive symptoms if they had problems misusing alcohol. The researchers examined the association between four levels of alcohol misuse (at-risk drinking, problem drinking, alcohol abuse, and binge drinking) and recent depressive symptoms among a random sample of 412 adults seen at the ED.

Half of these patients (51 percent) reported depressive symptoms during the past week on a 20-item depression scale, such as loss of appetite, lack of energy, and crying spells. This rate is twice that of depressive symptoms in the general adult population (24 percent). More than one-fourth of the group (26 percent) reported at-risk drinking, 28 percent scored positive on an alcohol problem screen, 25 percent reported alcohol abuse, and 28 percent reported binge drinking.

Patients with at-risk drinking, problem drinking, drinking abuse, and binge drinking were 2.5, 2.1, 2.6, and 1.9 times more likely to

have suffered depressive symptoms in the past week. Other factors strongly linked to depressive symptoms were being male, having less than a high school education, being unemployed, and being younger. The study was supported in part by the Agency for Healthcare Research and Quality (HS14022).

More details are in "Alcohol misuse and report of recent depressive symptoms among ED patients," by Shahrzad Bazargan-Hejazi, Ph.D., Mohsen Bazargan, Ph.D., Tommie Gaines, M.D., and Michael Jemanez, M.D., in the *American Journal of Emergency Medicine* 26, pp. 537-544, 2008. ■



## Studies examine ways to improve delivery of colorectal cancer screening in primary care practice

About 52,000 people died of colorectal cancer in the United States in 2007. However, in 2005 only about half of adults aged 50 and older had been screened in accordance with U.S. Preventive Services Task Force recommendations. The September 2008 supplement to *Medical Care* 46(9) describes and evaluates several promising strategies for improving colorectal cancer screening (CRC) rates within busy primary care practices and among special populations.

The supplement was guest-edited by David Lanier, M.D., of the Agency for Healthcare Research and Quality (AHRQ), and Carrie N. Klabunde, Ph.D., of the National Cancer Institute (NCI). The studies were funded over the past 5 years by AHRQ and NCI. Summaries of the studies supported by AHRQ or conducted by AHRQ staff follow. Reprints of the supplement (AHRQ Publication No. 08-0111) are available from AHRQ.\*

**Klabunde, C.N., Lanier, D., Meissner, H.I., and others.** “Improving colorectal cancer screening through research in primary care settings,” pp. S1-S4.

This introductory article describes the organization of the journal supplement into four thematic sections: informed decisionmaking and patient-provider communication in primary care; meeting the needs of diverse populations; provider- and health system-directed approaches to improving CRC screening delivery; and formative evaluation of strategies for increasing CRC

screening use. The supplement also contains three synthesis articles that address the importance of building data systems to evaluate CRC screening practices and outcomes at the population level; implications of new CRC screening technologies for primary care practice; and research networks as vehicles for improving CRC screening delivery in primary care.

**Hawley, S.T., Volk, R.J., Krishnamurthy, P., and others.** “Preferences for colorectal cancer screening among racially/ethnically diverse primary care patients,” pp. S10-S16. (AHRQ grant HS11187).

This study found that primary care patients have distinct preferences for CRC screening tests that can be linked to test attributes. Thus, tailoring screening recommendations to patients’ preferences may increase screening adherence. The authors asked a diverse group of patients to rate eight hypothetical CRC screening test scenarios comprised of different combinations of five attributes and six scenarios designed to depict recommended CRC screening tests (e.g., fecal occult blood test, flexible sigmoidoscopy, colonoscopy, and double-contrast barium enema), including new technology (e.g., virtual colonoscopy, and fecal immunochemical test).

**Ling, B.S., Trauth, J.M., Fine, M.J., and others.** “Informed decision-making and colorectal cancer screening: Is it occurring

in primary care?,” pp. S23-S29. (AHRQ grant HS10864).

Informed decisionmaking is lacking during discussions of CRC screening between patients and their primary care providers, concludes this study. The authors analyzed audiotaped clinic visits between patients and primary care providers to assess the level of informed decisionmaking during discussions about CRC screening. Six of the nine informed decisionmaking elements occurred in 20 percent or fewer visits, and none of these elements were addressed in half or more of the visits. Certain decisional elements were negatively associated with screening. For example, CRC screening occurred less often for those discussing the “pros and cons” of screening (12 vs. 46 percent) and “patient preferences” (6 vs. 47 percent) compared with those who did not.

**Nease Jr., D.E., Ruffin, M.T., Klinkman, M.S., and others.** “Impact of a generalizable reminder system on colorectal cancer screening in diverse primary care practices,” pp. S68-S73. (AHRQ/NCI cooperative agreement).

Implementing a generalizable computerized reminder system (CRS) in diverse primary care practices significantly improved CRC screening rates, according to this study. All but 1 practice increased their CRC screening rates, ranging from 41.7 to 50.9 percent across all 12 practices. Technology capabilities influenced

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## Colorectal cancer screening

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printing days (74 percent for high-technology vs. 45 percent for low-technology practices). Also, practice cohesion influenced screening trends, with highly cohesive practices showing nearly twice the improvement in their CRC screening rate than not very cohesive practices (15.3 vs. 7.9 percent). The findings were based on pre- and post-CRS implementation CRC screening rates among patients seen at the 12 practices during the 9-month study period.

**Schneider, E.C., Rosenthal, M., Gatsonis, C.G., and others, “Is the type of Medicare insurance associated with colorectal cancer screening prevalence and selection of screening strategy?” pp. S84-S90. (AHRQ grant HS11431).**

The type of Medicare insurance a patient had in 2000 was linked to prevalence and type of CRC screening, found this study. The researchers compared CRC screening prevalence and type of screening among Medicare beneficiaries enrolled in Medicare managed care (MMC) plans, Medicare fee-for-service (FFS) plans with supplemental insurance, and those with Medicare FFS coverage only. Interval-appropriate CRC screening was reported by 54.7 percent of those in Medicare FFS plans with supplemental insurance, 52.9 percent in MMC plans, and 36.3 percent in the FFS group that did not have supplemental insurance. Use of fecal occult blood testing was a more common screening strategy among persons in MMC plans than those with FFS plans with or without supplemental insurance.

**Lane, D.S., Messina, C.R., Cavanagh, M.F., and Chen, J.J. “A provider intervention to improve colorectal cancer screening in county health centers,” pp. S109-S116. (AHRQ/NCI cooperative agreement).**

Publicly funded health centers care for disadvantaged groups who typically underuse CRC screening. This study found that when health center providers received continuing medical education with a teambuilding strategic planning exercise, provider referrals, dispensing, and completion of CRC screening significantly improved. Intervention centers had a 16 percent increase in CRC referral/dispensing/completion compared with a 4 percent increase among non-intervention centers. Also, fewer patients at the intervention centers cited lack of physician recommendation as a reason for not having CRC screening.

**Chan, E.C. and Vernon, S.W. “Implementing an intervention to promote colon cancer screening through e-mail over the Internet: Lessons learned from a pilot study,” pp. S117-S122. (AHRQ grant HS11421).**

Physician e-mails recommending CRC screening to 97 patients in their primary care practice were not feasible to implement, concluded this pilot study. However, reasons for lack of success differed for patients with home or work e-mails and those using computers at the public library to access e-mail. Patients with both types of Internet access were randomized to InterNet LETter (NetLET) or a control group. The NetLET was a personalized e-mail from the physician reminding the patient to undergo CRC screening via a fecal

occult blood test (FOBT) and linked to a Web page with more information. The control group received a reminder letter from their physician. All patients were mailed an FOBT kit. Among private access patients, 26 percent of the intervention and 23 percent of the control group returned an FOBT. Among public access patients, none of the intervention group, but 3 of 9 in the control group returned an FOBT.

**Lanier, D. “Practice-based research networks: Laboratories for improving colorectal cancer screening in primary care practice,” pp. S147-S152.**

Practice-based research networks (PBRNs), which AHRQ has supported since 1999, are a strong resource for the study of best methods for improving CRC screening in complex, time-pressured primary care offices, notes the author of this article. He focuses on two types of PBRNs currently active in the United States—those composed mostly of smaller, independent primary care practices and those composed of large integrated health systems—and the types of CRC screening-related questions that have been or can be addressed by these networks. For example, by probing the rich clinical databases of HMOs, the Cancer Research Network has been able to conduct population-based, longitudinal monitoring of the use of CRC screening services within a managed care population and study the occurrence of rare events, such as complications of screening procedures. ■

## Studies suggest that large-scale strategies may be needed to reduce overuse of antibiotics in U.S. communities

Antibiotic resistance among many community-acquired bacterial pathogens is a growing public health problem. While recent studies suggest that agriculture is the largest source of exposure to antibiotics, the health care system is also viewed as a contributor. Hence, most efforts to reduce unnecessary antibiotic use, which fuels this problem, have focused on office-level educational programs for clinicians and patients. Two new studies, supported by the Agency for Healthcare Research and Quality, suggest that community-level approaches may boost the effectiveness of this approach. The first study (HS10247) found that an office-based intervention to promote judicious antibiotic prescribing reached its intended audience, but physicians felt that reinforcement of the messages via mass media would enhance its effectiveness. A second study (HS13001) linked a low-cost mass media campaign with reduced antibiotic use in the community. While these studies show declines in the prescribing of antibiotics, they do not claim to affect rates of antibiotic resistance. Both studies are briefly summarized here.

**Stille, C.J., Rifas-Shiman, S.L., Kleinman, K., and others. (2008, May-June). "Physician responses to a community-level trial promoting judicious antibiotic use." *Annals of Family Medicine* 6(3), pp. 206-212.**

This study found that the message to reduce unnecessary use of antibiotics, promoted through multiple methods directed at both physicians and parents, reached physician audiences in those communities. These materials were also welcomed by physicians as a

tool for parent education. The researchers surveyed 168 physicians in 16 Massachusetts communities in a 3-year REACH (Reducing Antibiotics in Children) trial to promote judicious antibiotic use for respiratory tract infections that are caused by viruses, which cannot be treated by antibiotics.

Physicians in intervention communities received locally endorsed guidelines, group educational sessions, and biweekly newsletters on judicious antibiotic use. Parents simultaneously received materials in physicians' offices and by mail. The researchers mailed a physician survey and interviewed them after the educational campaign to assess its impact.

More intervention than control physicians (who received no educational materials or training) reported decreased antibiotic prescribing from 2000 to 2003 (75 vs. 58 percent), but there were no differences between groups in knowledge, attitudes, or behaviors favoring judicious antibiotic use. Both groups expressed concern about antibiotic resistance and reported room to reduce their own prescribing. Interviewed intervention physicians believed that frequent repetition of short, consistent messages to both parents and physicians, brief physician and parent handouts on specific topics, and dissemination of the message by the mass media were the most effective way to improve judicious antibiotic use.

**Gonzales, R., Corbett, K.K., Wong, S., and others. (2008, June). "Get smart Colorado": Impact of a mass media campaign to improve community**

**antibiotic use." *Medical Care* 46(6), pp. 597-605.**

A mass media campaign for appropriate antibiotic use that targeted mothers of young children in a large metropolitan community reduced community-level antibiotic use in a cost-efficient manner, according to this study. The researchers examined the impact of a "Get Smart Colorado" campaign. The campaign consisted of paid outdoor advertising and media and physician advocacy and ran between November 2002 and February 2003. The researchers measured antibiotics dispensed per 1,000 persons or managed care enrollees, and the proportion of office visits in which antibiotics were received during the 10 to 12 months before and after the campaign.

Following the mass media campaign, there was a 3.8 percent net decrease in retail pharmacy antibiotic dispensings per 1,000 persons and an 8.8 percent net decrease in managed care-associated antibiotic dispensings per 1,000 members in the mass media community. Most of the decline was among children and corresponded with a decline in the number of pediatric office visits in which patients received antibiotics.

Finally, the campaign seemed to be cost-saving. The monetary savings per 1,000 pediatric managed care members was over \$5,500. Overall, the researchers estimated a savings of over \$7 per managed care member per year. The "Get Smart Colorado" campaign is the first example of a wide-scale mass media campaign to affect office visit and antibiotic use at the community level in the United States. ■

## Women are dispensed more drugs than men during their reproductive years

A new study finds that women in their reproductive years are prescribed more medications than men, particularly for certain conditions. However, as they age, women don't always receive the same medications as men with similar conditions.

Researchers from the Arizona Center for Education and Research on Therapeutics (CERT), at the Critical Path Institute, and colleagues reviewed prescriptions for 200 of the most common medicines that were filled by nearly 69 million patients at a national drug store from 2002 to 2003.

Children of both sexes received equal numbers of common prescriptions. However, once women reached their childbearing years, they received more prescriptions than men in 48 of 53 drug classes. As expected, females received drugs commonly used to treat urinary tract and vaginal infections. They also received more prescriptions to treat mental health, pain, and gastrointestinal ailments than men.

These prescription patterns may be in part because women are more likely than men to suffer with certain ailments and seek care, the authors suggest. For example, women are three times as likely as men

to have migraines, and 73 percent of women with migraines see a doctor, while just 49 percent of men do.

Once women and men reached the 55 to 64 and 65 to 74 age groups, prescription patterns changed. Men received more drugs than women for angina, to prevent blood clots, to lower blood cholesterol, and to treat heart failure, even though women in these age categories often have the same conditions. Further, women were given certain pain relievers twice as often as men thus putting women at higher risk for adverse drug reactions.

The study was supported by the Agency for Healthcare Research and Quality by a grant (HS17001) to the Arizona CERT. For more information on the CERT's program, go to [www.ahrq.gov/clinic/certsovr.htm](http://www.ahrq.gov/clinic/certsovr.htm).

See "Gender and age differences in medications dispensed from a national chain drugstore," by Marietta Anthony, Ph.D., Kwan Y. Lee, Ph.D., Carl T. Bertram, Pharm.D., and others in the June 2008 *Journal of Women's Health* 17(5), pp. 735-743. ■

## Stool cultures are rarely used in diarrhea cases

Clinical guidelines recommend that patients who are suffering from diarrhea provide stool samples for culture. The test results can help pinpoint which, if any, antibiotics can aid the patient. Cultures can also provide valuable clues during a diarrheal disease outbreak, such as the one that occurred earlier this year with Salmonella in tomatoes and peppers. Nevertheless, a new study finds that when patients with diarrhea receive prescriptions for antibiotics, more than likely no stool culture was performed.

Researchers scoured the outpatient and pharmacy records of TennCare, Tennessee's Medicaid program, for visits for diarrhea and antibiotic prescriptions from 1995 to 2004. For the 315,828 visits for diarrhea, stool culture was performed for just 15,820 patients (5

percent). However, antibiotics were prescribed for 32,949 patients (10.4 percent). Of the diarrheal episodes for which antibiotics were prescribed, 3,504 (10.6 percent) had stool cultures performed.

Stool cultures were most often provided for whites who lived in urban areas, suggesting this group had better access to health care. Whites were also more likely than blacks to receive prescriptions for antibiotics for their diarrhea.

Although some clinicians see stool cultures as expensive tests that do not yield valuable results, the authors state that the lack of stool cultures for diarrhea cases indicates that antibiotics are possibly being used inappropriately. This can lead to adverse events, high costs, and antibiotic resistance. This study was funded

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## Diarrhea

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in part by the Agency for Healthcare Research and Quality (HS13833).

See “Stool cultures and antimicrobial prescriptions related to infectious diarrhea,” by L. Rand Carpenter,

D.V.M., Stephen J. Pont, M.D., M.P.H., William O. Cooper, M.D., M.P.H., and others in the June 15, 2008 *Journal of Infectious Diseases* 197, pp. 1709-1712. ■

## Health Care Costs and Financing

### Quality partnerships yield advances in collaboration

In November 2005, users, researchers, funders, and developers of health care market data converged at a conference hosted by the Agency for Healthcare Research and Quality (AHRQ). A long-time supporter of research on health care costs, productivity, market forces, and organization, the Agency hosted the event to present recent research on health care and health insurance markets and to chart a course for future research endeavors. Further, the attendees were to adapt current or craft new measures of activities in the health care market. Five papers from the conference appear in the Spring 2008 *Inquiry*, Volume 45, introduced by a conference overview from Michael Hagan and William Encinosa, senior economists at AHRQ, on pages 15-18. Each paper puts forth recommendations on how AHRQ can assist researchers interested in health care markets. The papers are briefly summarized here.

**Lindrooth, R.C. “Research on the hospital market: Recent advances and continuing data needs,” pp. 19-29. (AHRQ grant HS10730)**

The author uses papers published on health economics to show how measures, data, and models of hospital services, locations, and competition are used to evaluate what drives consumers to choose

hospitals. Evaluations could be bettered by tracking care utilization of all patients instead of just the Medicare population (commonly done because data are readily available), and by creating physician identifiers to link them with the care they provide to get a clearer picture of their role in hospital quality. The AHRQ-sponsored Healthcare Cost and Utilization Project databases could also serve as clearinghouses for data on care measures for heart attacks, heart failure, pneumonia, and surgery to aid research on consumer choice. Another useful measure for researching hospital choice is to collect distance data from a patient’s ZIP code to the hospital.

**Garrett, B. and Chernew, M. “Health insurance and labor markets: Concepts, open questions, and data needs,” pp. 30-57.**

By conducting literature reviews, the authors attempt to answer questions on the relationship between health insurance and the labor force. They examined the implications of employer-sponsored health insurance, including how premium costs affect wages and influence employees to elect or decline it, and whether employees who might be more productive

elsewhere opt to stay with companies simply because of health benefits. The answers to these queries have public policy implications because initiatives, such as subsidizing premiums and mandating insurance coverage, can be complicated in light of limited data. The authors would like to have better measures on workers’ and their families’ health status and expenses to determine the value they place on employer-sponsored insurance. The article lists ways AHRQ can better organize data to assist researchers interested in examining the link between the labor and health insurance market, such as promoting standardized data collection and improving the Medical Expenditure Panel Survey Household Component/Insurance Component files.

**Grabowski, D.C. “The market for long-term care services,” pp. 58-74.**

Addressing the lack of good measures to evaluate the long-term care market, the author states that good measures reflect market competition, consider the fact that patient choice is linked to facility quality, and can be linked to other market-level data (such as population) measures. The article’s list of policy questions that could

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## Partnerships

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benefit from better measures and data include whether increased competition among nursing homes lowers costs, if nursing homes and home health care agencies compete with one another, and how assisted living influences the nursing home market. The author suggests that AHRQ can improve long-term care research by defining market boundaries, collecting market and regulatory data, providing de-identified data, standardizing Medicaid cost data, and encouraging research outside of nursing home settings.

**Brooks, J.M., Doucette, W.R., Wan, S., and Klepser, D.G.**

## “Retail pharmacy market structure and performance,” pp. 75-88.

The authors explore current methods of research and data available to examine the retail pharmacy market and its effect on use, pricing, and service levels. Though vendors collect a wealth of data on payer prescription utilization, payment, and costs, researchers do not have access to this information. One remedy is to have AHRQ develop agreements with vendors to gain access to this data.

**Simon, K. “Data needs for policy research on State-level health insurance markets,” pp. 89-97.**

States appear to be leading the way in health care transformation through initiatives such as expanding Medicaid eligibility and small group insurance reform. However, to assist States in making informed policy decisions, researchers need annual data on Medicaid enrollment, drug and service use, payments, policies, and spending. They also need economic measures on premiums, reimbursement rates, and health insurance plan characteristics. Ideally, this information would be stored in a central database. As a starting point, AHRQ can assist in the data compiling effort by creating a Web site that points researchers to existing data collection efforts or puts all

## Introduction of a multitiered formulary decreases antidepressant use

The great majority of U.S. health plans use multitiered formularies because they offer a means to contain prescription drug costs. With this business model, health plans sort drugs by price into tiers, and patients' copayments are linked to the tier their drug falls within. For example, if a patient is prescribed a medication that falls within the “nonpreferred” tier, the patient must either pay more out of pocket to get the drug or request the physician write a prescription for a medication that falls in a preferred, more affordable tier.

Dominic Hodgkin, Ph.D., of Brandeis University, and colleagues examined how a managed care organization's introduction of a three-tiered formulary in 2000 affected enrollee copayments and drug use for antidepressant prescriptions. The plan's copayment for generics was \$5, for preferred brand drugs was \$10, and for nonpreferred drugs was \$25. Because the new formulary was phased in during the year, researchers were able to compare costs and use for 45,197 members who were subject to the new formulary with 64,489 members who were not.

The three-tier program reduced both the probability of using an antidepressant and the spending per user. Prescriptions per enrollee declined 11 percent for enrollees who were in the experimental group (where

some antidepressants were placed on a nonpreferred tier). However, prescriptions per enrollee increased 5 percent in the comparison group. Though their higher copayments apparently caused a shift away from nonpreferred drugs, some patients continued to use those antidepressants. This may be in part because their physicians believed those nonpreferred drugs worked better and were unwilling to switch patients to preferred antidepressants or patients refused to settle for any drug but the one initially prescribed.

Certain antidepressants work better than others for some patients, which may be one reason the response to the three-tier formularies is more muted for antidepressants than has been shown for other drug classes, such as statins, explain the researchers. Their study was funded in part by the Agency for Healthcare Research and Quality (HS13092).

See “The effect of a three-tier formulary on antidepressant utilization and expenditures,” by Dr. Hodgkin, Cindy Parks Thomas, Ph.D., Linda Simoni-Wastila, Ph.D., and others in the June 2008 *Journal of Mental Health Policy and Economics* 11(2), pp. 67-77. ■

## Most Federal health centers are not integrated in their community's emergency preparedness plans

More than 15 million Americans receive care from 890 federally funded health centers across the United States. Despite their prevalence in both rural and urban areas and potential contributions in a disaster, these centers often do not have a designated role to play in community emergency response plans, a new study finds. Jerod M. Loeb, Ph.D., of The Joint Commission, and colleagues mailed 60-item questionnaires to the health centers, covering experience with prior emergencies or disasters, community emergency preparedness planning, the health center's role in a community response, communication, surveillance, reporting and lab testing, and training and exercises. The research team focused the analysis on three items selected to best represent the health center's links to community preparedness efforts. These items included whether the center worked with

community responders on a hazard vulnerability assessment (HVA), the center was included in the community emergency response plan, and the center participated in community exercises.

Of the 307 health centers that responded, just 25 (8.1 percent) answered positively to all three items. Those centers tended to be rural (and typically the only health care providers in a community), have past experience in responding to a disaster or public health emergency, perceived a threat of hazards, and were accredited by The Joint Commission. Breaking down responses to the three items, 27 percent of the centers had completed an HVA, with rural centers more likely than urban centers to complete the assessment. Thirty percent said their centers were included in community emergency response plans. The 24 percent of centers that participated in exercises

tended to have high patient volumes and past experience with emergencies or disasters.

Health centers offered several reasons why they were not incorporated in community disaster plans. They include staff and time limitations, insufficient funding for training and equipment, poor leadership and coordination, insufficient reimbursement for services, and lack of community understanding of the center's potential role. This study was funded in part by the Agency for Healthcare Research and Quality (HS13728).

See "Assessing the integration of health center and community emergency preparedness and response planning," by Nicole V. Wineman, M.A., M.P.H., M.B.A., Barbara I. Braun, Ph.D., Joseph A. Barbera, M.D., and Dr. Loeb in the November 2007 *Disaster Medicine and Health Preparedness* 1(2), pp. 96-105. ■

## Complementary/Alternative Medicine

### Skeptical patients with arthritis and fibromyalgia are likely to use alternative medicine

Medical skeptics are individuals who doubt conventional medicine's ability to significantly improve their health status. Their skepticism can often lead them to seek additional care from massage therapists, church leaders, chiropractors, herbalists, and acupuncturists. In a recent study, researchers at the University of North Carolina at Chapel Hill surveyed 1,759 patients with arthritis and fibromyalgia to determine the strength of their medical skepticism and

their subsequent use of complementary and alternative medicine (CAM).

Of the 721 individuals who returned the survey, 106 (15 percent) used CAM providers. When church leaders were excluded, the number fell to 75 (10 percent). Of the 106, 54 percent had rheumatoid arthritis, 23 percent had osteoarthritis, and 23 percent had fibromyalgia. Most were female (78 percent) and

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## Arthritis and fibromyalgia

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white (86 percent) and had spent some time in college.

Researchers measured medical skepticism using the Medical Skepticism Scale. This consists of four questions to which respondents answer using a five-point Likert scale (disagree strongly to agree strongly). In this study, medical skepticism was associated with CAM provider use. In fact, a one-point increase in the skepticism scale increased the probability of using a CAM provider by 70 percent.

The authors note that providers who treat medical skeptics can better assist these patients by thoroughly

communicating what conventional medicine offers as well as which alternative therapies may be useful in treating their conditions. This study was funded in part by the Agency for Healthcare Research and Quality (T32 HS00032).

See “Medical skepticism and the use of complementary and alternative health care providers by patients followed by rheumatologists,” by Leigh F. Callahan, Ph.D., Janet K. Freburger, P.T., Ph.D., Thelma J. Mielenz, P.T., Ph.D., O.C.S., and Elizabeth K. Wiley-Exley, M.P.H., in the June 2008 *Journal of Clinical Rheumatology* 14(3), pp. 143-147. ■

## Agency News and Notes

### Patients' hospital bills jumped \$70 billion in just one year

**H**ospital charges—what patients are billed for their rooms, nursing care, diagnostic tests, and other services—jumped from \$873 billion in 2005 to \$943 billion in 2006, according to data from the Agency for Healthcare Research and Quality.

The steep increase occurred even though hospital admissions increased only slightly, from 39.2 million to 39.5 million. Insured patients and their health plans pay less than the full charge, but uninsured patients are expected to pay the full amount. Between 2005

and 2006, hospital charges increased by:

- \$38 billion to \$44 billion—15 percent for people with no insurance
- \$124 billion to \$135 billion—9 percent for Medicaid patients
- \$411 billion to \$444 billion—8 percent for Medicare patients
- \$272 billion to \$287 billion—6 percent for patients with private insurance.

For more information, see *The National Bill: The Most Expensive Conditions by Payer*, 2006, HCUP

Statistical Brief #59 ([www.hcup-us.ahrq.gov/reports/statbriefs.jsp](http://www.hcup-us.ahrq.gov/reports/statbriefs.jsp)). The report uses statistics from the 2006 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. ■

### Modified insulin is most effective for controlling postmeal blood sugar levels

**P**remixed insulin analogues, a modified form of conventional premixed human insulin, are more effective than long-acting analogues for controlling high blood sugar levels after meals in patients with type 2 diabetes, according to a report funded by the Agency for Healthcare Research and Quality (AHRQ). Conventional premixed human insulin, however, appears to be equally as effective as premixed insulin analogues for lowering blood sugar levels when patients go 8 or more hours without eating, according to the report.

Type 2 diabetes accounts for more than 90 percent of diabetes. The number of Americans diagnosed with

type 2 diabetes tripled from 5.6 million in 1980 to 15.8 million in 2005. Obesity increases the risks of developing type 2 diabetes. Diabetes can cause serious problems with the heart, kidneys, eyes, and nerves. Many patients with type 2 diabetes control their blood sugar through diet and use of oral medications. Recent research suggests that good blood glucose control can reduce loss of sight, kidney failure, and heart disease.

The new report was compiled by the Johns Hopkins University Evidence-based Practice Center in Baltimore, 1 of 14 such centers funded by AHRQ

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## Blood sugar levels

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through its Effective Health Care program. The report represents a systematic review of 45 research studies and is intended to provide unbiased, evidence-based information so that patients, clinicians, and others can make the best possible treatment decisions.

Premixed insulin analogues are a modified form of conventional premixed human insulin. AHRQ's report compared premixed insulin analogues with conventional premixed human insulin, oral diabetes drugs, and two other kinds of insulin analogues—long-acting (or “basal”) analogues, and rapid-acting (or “bolus”) analogues.

Although noninsulin oral medications are used as a first-line treatment for patients with type 2 diabetes, insulin is frequently required at some stage during the course of the disease. Under such circumstances, some patients are controlled with long-acting insulin alone while others need a combination of long-acting and rapid-acting insulins to control blood sugar levels after meals, especially meals with high sugar content.

The report, *Comparative Effectiveness, Safety and Indications of Pre-mixed Insulin Analogues for Adults With Type 2 Diabetes*, is available at <http://effectivehealthcare.ahrq.gov>. ■

## Hispanics are hospitalized at higher rates for potentially preventable hospitalizations than whites in both wealthy and poor communities

Hispanic adults from both poor and wealthy communities are much more likely than whites to be hospitalized for health problems such as uncontrolled diabetes and heart ailments, according to data from the Agency for Healthcare Research and Quality (AHRQ). Wealthy communities in this report have average annual household incomes of \$62,000 or greater. AHRQ's analysis found that in 2006:

- Hispanic adults were more than two times as likely as white adults to be hospitalized for uncontrolled diabetes and its complications such as leg or foot

amputations, glaucoma and other eye problems, and kidney failure.

- Hispanic adults were almost 1.5 times more likely than whites to be hospitalized for congestive heart failure, high blood pressure, and heart pain known as angina.
- In contrast, hospitalization rates were about the same for Hispanics and whites with chronic respiratory conditions (asthma and chronic obstructive pulmonary disease).
- In wealthy communities, Hispanics were 1.8 times more likely to be hospitalized for

diabetes complications and nearly one-fifth more likely to be admitted for heart ailments than whites. The ratios were similar in the poorest communities.

The report uses statistics from a special disparities analysis file created from the Healthcare Cost and Utilization Project (HCUP) 2006 State Inpatient Databases (SID). For details, see *Potentially Preventable Hospitalizations among Hispanic Adults, 2006*, HCUP Statistical Brief #61 ([www.hcup-us.ahrq.gov/reports/statbriefs.jsp](http://www.hcup-us.ahrq.gov/reports/statbriefs.jsp)). ■

## Hospitalizations for osteoarthritis are rising sharply

Hospitalizations for osteoarthritis soared from about 322,000 in 1993 to 735,000 in 2006, according to data from the Agency for Healthcare Research and Quality (AHRQ). Osteoarthritis is a painful disease resulting from deteriorating cartilage and bones rubbing together. AHRQ's analysis of arthritis hospitalizations found:

- In 2006, osteoarthritis was the principal diagnosis for about 90 percent of 547,000 knee surgery hospitalizations and about 50 percent of hip replacement hospitalizations.
- Also in 2006, 45-64 year olds accounted for 38 percent of all osteoarthritis, compared with 25

percent in 1997. Women accounted for 63 percent of hospitalizations for osteoarthritis in 2006, a number that is essentially unchanged since 1997.

- Most of the increase in osteoarthritis hospitalizations occurred beginning in 2000, when osteoarthritis stays rose from 443,000 to 735,000, a 66 percent increase.
- The large increase in osteoarthritis hospitalizations is primarily related to the increase in knee replacement surgery. From 2000 to 2006, knee replacement surgery increased 65 percent while hip replacement surgery increased 21 percent.

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## Osteoarthritis

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This summary is based on data in *HCUP Facts and Figures, 2006* ([www.hcup-us.ahrq.gov/reports/](http://www.hcup-us.ahrq.gov/reports/)

[factsandfigures/HAR\\_2006.pdf](#)). The document highlights the latest data from the 2006 Nationwide Inpatient Sample, a part of AHRQ's Healthcare Cost and Utilization Project. ■

## More U.S. children are getting government dental insurance

About 30 percent of U.S. children and adolescents were covered by government-sponsored dental insurance in 2006, a significant increase from the 18 percent covered in 1996, according to data from the Agency for Healthcare Research and Quality (AHRQ). Private dental insurance enrollment remained relatively unchanged during the period.

Much of the increase resulted from the State Children's Health Insurance Program, which began in 1997, and extensions of Medicaid coverage for dental services. AHRQ's analysis also

found that between 1996 and 2006:

- Enrollment in government dental insurance rose sharply among Hispanic and black adolescents and children, 48 percent and 35 percent, respectively.
- White children and adolescents were less likely than blacks and Hispanics to have public dental insurance, but their enrollment doubled, climbing from 10 percent to 20 percent.
- Largely due to expanded government coverage, only 19 percent of U.S. children had no

dental insurance in 2006 compared with 29 percent in 1996.

The data are taken from the Medical Expenditure Panel Survey, a detailed source of information on the health services used by Americans, the frequency with which they are used, the cost of those services, and how they are paid. For more information, go to *Dental Coverage of Children and Young Adults under Age 21, United States, 1996 and 2006*, MEPS Statistical Brief #221 (<http://meps.ahrq.gov/>). ■

## Announcements

### HHS issues interim guidance for Patient Safety Organizations

New interim guidance that outlines how to become a Patient Safety Organization (PSO) is now available from the U.S. Department of Health and Human Services. The Patient Safety and Quality Improvement Act (Patient Safety Act) authorized the creation of PSOs to improve safety through the collection and analysis of data on patient safety events. By providing both privilege and confidentiality, PSOs will create a secure environment where clinicians and health care organizations can voluntarily collect, aggregate, and analyze data that enable the identification and reduction of the risks and hazards associated with patient care.

The interim guidance allows the Agency for Healthcare Research and Quality (AHRQ) to begin receiving applications from qualified entities that wish to become PSOs. This guidance will remain effective until HHS issues a final rule for PSOs, which will then supersede the interim guidance. A final rule is expected to be released by the end of 2008.

The interim guidance describes how an organization may become a PSO by submitting a certification form that is available on AHRQ's PSO Web site at [www.pso.ahrq.gov](http://www.pso.ahrq.gov). The Web site includes more explanation of the certification process and instructions for submitting this form either electronically or via mail. When the organization's certifications are accepted, AHRQ will list the entity as a PSO on the AHRQ PSO Web site.

"Patient safety work product," which is the data submitted by the health care provider to a listed PSO and the data developed by the listed PSO during the interim guidance period, is privileged and confidential under the Patient Safety Act. This patient safety work product will remain privileged and confidential during and after the interim period. HHS' Office for Civil Rights will enforce the confidentiality provisions of the Patient Safety Act. These data protection provisions are a significant component of the Patient Safety Act.

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## Patient Safety Organizations

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To facilitate the collection and reporting of patient safety information, AHRQ released Common Formats on Aug. 29. The Common Formats, now available for download through AHRQ's PSO Web site, provide

common definitions and reporting formats that health care professionals can use to collect and track patient safety information. These formats may be used by providers and PSOs to report a range of patient safety concerns, capturing both structured and narrative information. ■

## Task Force finds several methods equally effective for colorectal cancer screening

In a change from its previous recommendation, the U.S. Preventive Services Task Force (Task Force) now recommends that adults age 50 to 75 be screened for colorectal cancer using annual high-sensitivity fecal occult blood testing, sigmoidoscopy every 5 years with fecal occult testing between sigmoidoscopic exams, or colonoscopy every 10 years. According to the Task Force, good evidence exists that using these methods save lives.

The Task Force recommends against routine colorectal cancer screening in adults between the ages of 76 and 85 because the benefits of regular screening were small compared with the risks. The Task Force also recommends that adults over the age of 85 not be screened at all because the harms of screening may be significant, and other conditions may be more likely to affect their health or well-being.

For people of all ages, the Task Force found insufficient evidence to assess the benefits and harms of computed tomographic (CT)

colonography and fecal DNA testing as screening methods for the disease. Further, these Task Force recommendations do not apply to people with a personal history of certain types of polyps who are being monitored regularly for the condition or to those who have a family history of rare syndromes that increase a person's chances of getting colon cancer.

This recommendation strengthens the Task Force's previous position in 2002, when it recommended screening for colorectal cancer but noted that evidence was insufficient to recommend one screening method over another. This is also the first time that the Task Force has indicated an age that people should stop being screened for colorectal cancer.

The Task Force is the leading independent panel of experts in prevention and primary care. The Task Force, which is supported by the Agency for Healthcare Research and Quality (AHRQ), conducts rigorous, impartial assessments of

the scientific evidence for the effectiveness of a broad range of clinical preventive services, including screening, counseling, and preventive medications. Its recommendations are considered the gold standard for clinical preventive services. The Task Force based its conclusions on a report from a research team led by Evelyn Whitlock, M.D., at the Kaiser Permanente Center for Health Research, which is part of AHRQ's Oregon Evidence-based Practice Center.

The recommendation and the accompanying summary of evidence are posted in the *Annals of Internal Medicine* online at <http://www.annals.org/> and will appear in the November 4, 2008 print edition of the journal. The recommendations and materials for clinicians are also available on the AHRQ Web site at [www.ahrq.gov/clinic/uspstf/usp斯科lo.htm](http://www.ahrq.gov/clinic/uspstf/usp斯科lo.htm). Previous Task Force recommendations, summaries of the evidence, and related materials are available from AHRQ.\* ■

## New Guide to Clinical Preventive Services 2008 is available

The *Guide to Clinical Preventive Services 2008*, which highlights recommendations of the U.S. Preventive Services Task Force (Task Force), contains evidence-based recommendations that have been adapted for a pocket-size book, making it easier for clinicians to consult the recommendations in their daily practice. The Task Force is sponsored by the Agency for Healthcare Research and Quality (AHRQ).

In addition to previous recommendations, this year's Guide provides new Task Force recommendations released during 2007 on aspirin or nonsteroidal anti-inflammatory drugs for the primary prevention of colorectal cancer; screening for carotid artery stenosis; screening for chronic obstructive pulmonary disease using spirometry; counseling about proper

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## New Guide

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use of motor vehicle occupant restraints and avoidance of alcohol use while driving; screening for illicit drug use; screening for lipid disorders in children; and screening for sickle cell disease in newborns.

## Two new resources can help consumers and clinicians prevent dangerous blood clots

Two new guides to help consumers and clinicians prevent and treat deep vein thrombosis have been released by the Agency for Healthcare Research and Quality (AHRQ). AHRQ's consumer booklet, *Your Guide to Preventing and Treating Blood Clots*, is a 12-page easy-to-read resource that helps both patients and their families identify the causes and symptoms of dangerous blood clots, learn tips on how to prevent them, and know what to expect during treatment. The clinician guide, *Preventing Hospital-Acquired Venous Thromboembolism: A Guide for Effective Quality Improvement*, is a comprehensive tool to help hospitals and clinicians implement processes to prevent dangerous blood clots. The 60-page guide

details how to start, implement, evaluate, and sustain a quality improvement strategy. It includes case studies, as well as examples of forms that clinicians in the field can use.

The AHRQ guides were developed from toolkits originally created by experts funded through AHRQ's Partnerships in Implementing Patient Safety grant program ([www.ahrq.gov/qual/pips](http://www.ahrq.gov/qual/pips)). The consumer guide, *Your Guide to Preventing and Treating Blood Clots*, is available in both English (publication no. 08-0058-A, [www.ahrq.gov/consumer/bloodclots.htm](http://www.ahrq.gov/consumer/bloodclots.htm)) and Spanish (publication no. 08-0058-B, [www.ahrq.gov/consumer/spblclots.htm](http://www.ahrq.gov/consumer/spblclots.htm)). The clinician guide, *Preventing Hospital-Acquired Venous*

Recommendations are presented in an indexed, easy-to-use format, with at-a-glance charts.

The pocket guide is available in several formats on the Web at [www.ahrq.gov/clinic/pocketgd.htm](http://www.ahrq.gov/clinic/pocketgd.htm). Single print copies are also available from AHRQ.\* ■

*Thromboembolism: A Guide for Effective Quality Improvement* (publication no. 08-0075) is available at [www.ahrq.gov/qual/vtguide](http://www.ahrq.gov/qual/vtguide). Copies are also available from AHRQ.\*

**Editor's note:** Treatment for blood clots often includes blood thinning medications such as Coumadin® (generic name: warfarin). AHRQ recently published *Your Guide to Coumadin®/Warfarin Therapy* (publication no. 08-0028-A) to help these patients better understand their treatment. This guide also originated from an AHRQ-funded patient safety project. It is available at [www.ahrq.gov/consumer/coumadin.htm](http://www.ahrq.gov/consumer/coumadin.htm) and from AHRQ.\* ■

## New computer-based tools will help make best use of genetic breast cancer tests

A new Federal project, funded by the Agency for Healthcare Research and Quality (AHRQ), will lead efforts to develop, implement, and evaluate four computer-based decision-support tools that will help clinicians and patients better use genetic tests to evaluate and treat breast cancer.

The first pair of tools will assess whether a woman with a family history of cancer should be tested for BRCA1 and BRCA2 gene mutations. Knowing whether a woman has inherited these gene mutations may help determine her chances of developing certain kinds of cancer, especially breast cancer. The second pair of tools, for women already diagnosed with breast cancer, will help determine which patients are appropriate for a Gene Expression Profiling (GEP) test.

GEP test results can help evaluate which patients are at a high risk of cancer recurrence and therefore are good candidates for chemotherapy, in addition to other appropriate treatments.

The \$1 million project will be completed by RTI International, an independent, nonprofit research institute in Research Triangle Park, NC. It is expected to take about 16 months. Development of these tools will support AHRQ's work of translating research into clinical practice in the areas of genetic tests, health information technology, and patient care.

The new project to create decision-support tools is funded through AHRQ's DECIDE (Developing Evidence to Inform Decisions about Effectiveness)

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## Breast cancer tests

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research network, part of the Effective Health Care Program. The Effective Health Care Program sponsors the development of new scientific knowledge through studies on the outcomes of health care technologies and

services. For more information about AHRQ's Effective Health Care Program, the DECIDE Network, and to learn more about the project to create gene-based clinical decision-support tools for breast cancer patients, visit the Effective Health Care Web site at <http://effectivehealthcare.ahrq.gov>. ■

## Research Briefs

**Alexander, G.C. (2008, Spring).** "Commentary on the case of Mr. A.B.: Dilemmas for a reason." (AHRQ grant HS15699). *The Journal of Clinical Ethics*, pp. 70-71.

The author comments on the following ethical dilemma: should the staff not tell Mr. A.B. about the tragic loss of his daughter prior to a planned bypass surgery, as his family asks? The medical team must grapple with a classic tension between beneficence and patient autonomy. A complicating factor is the difficulty of knowing how the timing of the message will affect Mr. A.B., because the physiologic consequences of grief in the context of his critical illness are not clear. Given his comorbid conditions and clinical instability, Mr. A.B. is more likely than most patients to be at increased risk of a poor outcome triggered by acute grief. As with many cases of delivering bad news, the crux of the issue is how, not whether, it should be told. The clinician shares with the family a responsibility for the situation. In this case, the team reached a decision through thoughtful deliberation and careful consultation with the affected parties. Reasonable people, of course, may differ about this or any such decision.

**Arora, V. and Meltzer, D. (2008, June).** "Effects of ACGME duty hours on attending physician teaching and satisfaction." (AHRQ grant HS10597).

*Archives of Internal Medicine* 168(11), pp. 1226-1227.

The implementation of restricted duty hours by the Accreditation Council for Graduate Medical Education (ACGME) has raised concerns regarding possible negative effects not only on resident education and patient care, but also on teaching faculty. The researchers studied the effects of restricted duty hours on inpatient attending physician teaching and satisfaction using data collected for 5 years before and after implementation at a single institution. After implementation of restricted duty hours, attending physicians reported fewer hours of teaching more times per week when residents missed conferences due to rounds, and a lower percentage of patients seen on the day of admissions. They were also less satisfied with time for teaching, ability to determine patient length of stay, and influence on hospital policy. The researchers caution that since the survey was originally designed to test the effects of hospitalists, it may have missed other effects of duty hours.

**Brady, J., Ho, K., and Clancy, C.M. (2008).** "Slowed progress in improving quality and minimizing disparities." *AORN Journal* 87(5), pp. 1007-1009.

In its fifth annual *National Healthcare Quality Report* and the *National Healthcare Disparities Report*, the Agency for Healthcare Research and Quality (AHRQ) finds that the rate of quality

improvement appears to be slowing. Overall quality improved by an average of just 1.5 percent per year between the years 2000 and 2005. This represents a decline when compared with the 2.3 percent average annual rate over the longer reporting period of 1994 to 2005. Some areas have improved, such as counseling to quit smoking and reduced disparities in childhood vaccinations, according to the 2007 reports. However, measures of patient safety showed an average annual improvement of only 1 percent. Part of improving health care quality is reducing the variation in health care delivery across the country, so that patients in all States receive the same level of high-quality, appropriate care. On the average, since the year 2000, variation has decreased across the measures for which State data is tracked, but this progress is not uniform.

**Bravata, D.M., Shojania, K.G., Olin, I., and Rave, A. (2008).** "CoPlot: A tool for visualizing multivariate data in medicine." (AHRQ Contract No. 290-02-0017). *Statistics in Medicine* 27, pp. 2234-2247.

Many research questions in medicine require the analysis of complex multivariate data. Multidimensional scaling (MDS) facilitates the analysis of multivariate data by reducing the multidimensional data into a two-dimensional structure that attempts

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## Research briefs

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to uncover the hidden structure in a data set by creating a pictorial representation of the data. CoPlot, an adaptation of MDS, addresses two key limitations of MDS—the inability to simultaneously map the variables and observations and the lack of orientation of the MDS map. CoPlot maps the observations and variables in a manner that preserves their relationships, allowing richer interpretation of the data. The authors describe CoPlot and its methodology and present the results of the application of CoPlot to multivariate data describing clinical presentations and treatment responses of children infected with anthrax. They also provide recommendations for the use of CoPlot for evaluating and interpreting other health care data sets.

**Clancy, C.M. (2008, May/June).** “Evidence shows cost and patient safety benefits of emergency pharmacists.” *American Journal of Medical Quality* 23(3), pp. 231-233.

Adverse drug events (ADEs) account for nearly 20 percent of adverse events overall and hospital emergency departments (EDs) have the highest rates of reportable errors, notes the author of this commentary. There is some evidence that use of ED pharmacists results in substantially lower rates of ADEs. One hospital found that within 6 months of employing an emergency pharmacist, medication errors in the ED had dropped by 50 percent. A recent survey of pharmacy directors found that 10.5 percent of level 1 trauma centers employed an emergency pharmacist (EPh), while only 2.7 percent of hospitals without a level 1 trauma center employed an EPh.

**Clancy, C. (2008, June).** “AHRQ’s Effective Health Care Program: Accelerated access to decisive clinical information.” *The Journal of Family Practice* S20-S23.

To mine the potential of practice-based research networks and existing literature, the Agency for Healthcare Research and Quality (AHRQ) has formed partnerships with major universities, health maintenance organizations, and independent office practices. According to Carolyn M. Clancy, M.D., director of AHRQ, the goal of these efforts is to develop better, more accessible clinical information and to disseminate it faster. One such partnership is Developing Evidence to Inform Decisions about Effectiveness (DEcIDE), a consortium of health care organizations that conduct rapid practical research in different topic areas with existing patient databases. AHRQ has also established 14 Evidence-based Practice Centers (EPCs) to compile results of scientific literature, promote evidence-based practice on various clinical topics, and conduct comparative effectiveness reviews on medications, devices, and other interventions. In addition, AHRQ has established the Eisenberg Clinical Decisions and Communications Science Center to translate the complex knowledge gleaned by DEcIDE and the EPCs into practical tools for clinicians, patients, and policymakers. Readers are invited to suggest topics for research in progress (visit <http://effectivehealthcare.ahrq.gov>).

**Clancy, C. (2008, June).** “Improving care quality and reducing disparities: Physicians’ roles.” *Archives of Internal Medicine* 168(11), pp. 1135-1136.

As the U.S. population becomes increasingly diverse, there is

growing urgency to identify solutions to the challenges of “unequal treatment.” Most studies confirm that disparities remain pervasive, even though these differences vary by specific racial or ethnic group, specific disease condition, and specific region, health plan, or hospital. The author of this paper, Carolyn M. Clancy, M.D., director of the Agency for Healthcare Research and Quality, discusses a research article focusing on the role of variation among individual physicians in contributing to observed disparities in quality of care. That article found that rates of achieving target blood sugar and cholesterol levels were significantly lower for black patients than for white patients. Within-physician effects rather than patient sociodemographic or clinical factors explained most of these observed differences. Since hypotheses differ as to why this is the case, Dr. Clancy calls for more research to better understand how to close such gaps in disparities of care and for physician leadership to assure that the care provided is evidence-based, patient-centered, effective, consistent, and equitable.

**Dalby, D.M. and Hirdes, J.P. (2008).** “The relationship between agency characteristics and quality of home care.” (AHRQ grant HS09455). *Home Health Care Services Quarterly* 27(1), pp. 59-74.

To assess the relationship between Canadian home health care agency characteristics and the quality of care, the researchers examined data from 12 agencies in Ontario and the Winnipeg region of Manitoba and 11,767 of their adult home care clients. These agencies used a set of home care quality indicators (HCQIs) based on the Resident Assessment Instrument for

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## Research briefs

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Home Care (RAI-HC), a questionnaire to which their clients responded. The agencies also responded to a mailed survey about their characteristics. The researchers found that agencies that served a larger population had lower quality of care with respect to 11 of the HCQIs and the overall summary measure of quality. Home care case managers had between 90 and 130 clients and agencies with fewer clients per case manager had better performance.

**Dougherty, D. and Conway, P.H. (2008, May). “The ‘3T’s’ road map to transform US health care.” *Journal of the American Medical Association* 299(19), pp. 2319-2321.**

The authors outline a model or “road map” to transform the U.S. health care system by accelerating the pace at which innovations are implemented in clinical settings and addressing the “how” of health care delivery. Translation 1 (T1) is basic science and its translation into clinical research; Translation 2 (T2) focuses on practice guidelines and tools for patients; Translation 3 (T3) activities address the “how” of health care delivery so that evidence-based treatment, prevention, and other interventions are delivered reliably to all patients in all settings of care. The 3T’s model of transformation has four main activities: 1) measurement and accountability, 2) implementation and system redesign, 3) scaling and spread, and 4) research. For these activities to truly transform the health system to achieve the goal of high-quality care and better health outcomes, the key facilitators of leadership, teamwork, tools, and resources must be established and integrated.

**Edwards, J.C., Kang, J., and Silenas, R. (2008, Summer). “Promoting regional disaster preparedness.” (AHRQ grant HS13715). *Journal of Rural Health* 24(3), pp. 321-325.**

Rural as well as urban areas need to be prepared for natural disasters. Rural hospitals face multiple obstacles to preparedness. The authors created and implemented a simple and effective planning and training exercise to assist rural hospitals to improve disaster preparedness and enhance regional collaboration among these hospitals.

The intervention selected for use was a tabletop exercise, one of the training methods from the discipline of emergency management. Tabletop exercises are scripted scenarios depicting a public health emergency that are led by a facilitator who asks a group of participants to respond to a series of incidents in the scenario. The 3-hour exercise emphasizing regional issues in an avian flu pandemic was followed by a 1-hour debriefing. The exercise was successful in identifying problems such as insufficient staff for incident command, facility constraints, and the need to develop more regional cooperation.

**Ensign, J. and Ammerman, S. (2008). “Ethical issues in research with homeless youths.” (AHRQ grant HS11414). *Journal of Advanced Nursing* 62(3), 365-372.**

As a vulnerable group, homeless youths are the focus of an increasing body of research documenting their unique health and social needs. Unlike research with other adolescents, there are no specific guidelines for the ethical conduct of research with homeless youth. Specific ethical issues concern the ability of minor

homeless youths to consent to participation in research and what constitutes appropriate research payments for homeless youths. The authors used a 10-15 minute questionnaire to document researcher, health care provider, and program administrators’ experiences with ethical issues of research with homeless youths in the U.S. and Canada. Of the 72 respondents to the questionnaire, 37 respondents obtained written consent and 14 oral consent from the youths. Overall, 27 of the researchers used money as an incentive, while 26 used vouchers or gift cards, 16 used food, and 10 used no incentive. Mental health and/or substance abuse researchers tended to use money as an incentive, while health care providers and program administrators tended to use nonmonetary incentives.

**Fiscella, K. and Meldrum, K. (2008). “Race and ethnicity coding agreement between hospitals and between hospital and death data.” (AHRQ grant HS10910). *Medical Science Monitor* 14(3), pp. SR9-13.**

Reliable coding of race and ethnicity by hospitals represents a critical step toward assessing and addressing racial and ethnic disparities in acute inpatient care. The authors of this study used California State Inpatient Data and matching vital data to examine the reliability of race and ethnicity by hospitals and death certificates for 1998-2000. The analysis focused on the rates of agreement for race and ethnicity coding among patients admitted to different hospitals, the rates of agreement of coding between hospital data and death certificate data among 548,006 persons, and the rates of agreement for coding Asian and Hispanic

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ethnicity between hospital and death data by country of origin coded on death certificate data. The rates of agreement were high for most major racial and ethnic groups both among hospitals and between hospitals and death certificates but were too low for American Indians, persons born in India, and selected Hispanic subgroups. Among patients admitted to different hospitals, the rates of agreement were 98 percent for Asians, 91 percent for Whites, 88 percent for Blacks, 19 percent for American Indian, 26 percent for "Other" race, and 4 percent for unknown race.

**Fuhlbrigge, A., Carey, V.J., Finkelstein, J.A., and others. (2008).** "Are performance measures based on automated medical records valid for physician/practice profiling of asthma care?" (AHRQ grant HS08368). *Medical Care* 46, pp. 620-626.

The researchers sought to determine if physician practices in treating children with asthma could be reliably ranked using the Health Employers Data Information System (HEDIS) performance measure plus three other measures. The research design was based on a simulation describing the relationship between practice size and precision of practice measures to estimate performance. The study group consisted of 39 practices with a total of 1,457 children meeting the criteria for persistent asthma. The main outcome was reproducibility of the HEDIS measure and three other measures (proportion of children with asthma-related hospitalization, emergency department visits, and oral steroid dispensings for asthma). Of the four measures evaluated, none achieved a reproducibility of greater than 85

percent for a practice size of 50 or less. Only with a practice size larger than 100 children with persistent asthma was reproducibility greater than 85 percent for all measures. The researchers concluded that only at the level of the health care organization can the asthma measures available within claims data be used to reliably rank physician/practice performance.

**Hazlehurst, B., Gorman, P.N., and McMullen, C.K. (2008).** "Distributed cognition: An alternative model of cognition for medical informatics." (AHRQ grant HS12003). *International Journal of Medical Informatics* 77, pp. 226-234.

Cognitive science has provided medical informatics with theory, methods, and findings for understanding clinical knowledge, problemsolving, decisionmaking, and other cognitive phenomena in health care. Classical cognitive theory takes the individual person as the relevant unit of cognitive analysis, and medical informatics has largely inherited this approach in its teaching, research, and design of workplace technologies. However, health care activities include resources internal to individuals as well as resources provided by workplace tools and technologies and the organization of individuals into task-oriented and role-based groups and collaborative teams. The authors review developments in cognitive science that have generated a theory of distributed cognition, where the unit of analysis is the activity system, which includes individual agents, their technologies and tools, and their understandings, roles, and relationships defined by their history of interaction. They argue that the theory of distributed cognition is relevant to medical

informatics in its efforts to understand and to improve information processing in health care.

**Henderson, G., Garret, J., Bussey-Jones, J., and others. (2008, March).** "Great expectations: Views of genetic research participants regarding current and future genetic studies." (AHRQ grant T32 HS00032). *Genetics in Medicine* 10(3), pp. 193-200.

People who have already participated in genetic research represent an important resource for future genetic research. However, few studies have investigated their attitudes about their willingness to participate in future genetic research. The researchers interviewed 801 black and white individuals who had participated in a genetic epidemiology study of colon cancer risk factors. Overall, 63 percent felt "very positive" and 32 percent felt "positive" about research looking at whether genes put people at risk for disease or illness. Most reported being "very likely" (49 percent) or "somewhat likely" (40 percent) to participate in a genetic research study in the future. When asked to list the good things about such research, respondents cited the potential for discovering the causes and cures of various types of cancer, and increased awareness and preventive health activities that might reduce or eliminate the risk of disease. When asked to list the "bad things," over half of the subsample of 194 said "none." The most common expressed concern was about the implications of genetic information.

**Kuzniewicz, M.W., Vasilevskis, E.E., Lane, R., and others. (2008).** "Variations in ICU risk-adjusted mortality. Impact of

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**methods of assessment and potential confounders.”** (AHRQ grant HS13919). *Chest Journal* 133, pp. 1319-1327.

The intensive care unit (ICU) has become a focus of efforts to improve the quality of care because of the growing number of severely ill hospital patients and the increased complexity of care. In order for Federal and State agencies to assess ICU performance, an accurate method of measuring performance must be selected. The objectives of this study were to determine whether substantial variation in ICU mortality performance still exists in modern ICUs and to compare the updated ICU risk-prediction models for predictive accuracy, reliability, and data burden. The three models compared in the study were the mortality probability model (MPM) III, the simplified acute physiology score (SAPS) III, and the acute physiology and chronic health evaluation (APACHE) IV. A total of 11,300 patients from 35 California hospitals were used to compare the models. The researchers found substantial variation in ICU risk-adjusted mortality rates, regardless of the risk adjustment model used. Since there is no “gold standard” against which to judge the available models, there is no way to tell if variations in outcomes represent true differences in performance or merely the inability of the models to account for unmeasured differences in case mix.

**Lanoue, E. and Still, C.J. (2008, May/June). “Patient identification: Producing a better barcoded wristband.”** (AHRQ grant HS15270). *Patient Safety & Quality Healthcare* (available online at [www.psqh.com](http://www.psqh.com)).

Patient identification is the cornerstone of patient safety. The use of barcode technology for patient identification is a growing trend at many health care organizations. After deciding that a radio-frequency identification system was too new and costly, a small Vermont-based health system explored barcode symbologies and print options in light of the needs of patients, clinicians, and the hospital mission. The system switched from using laser-generated labels, which were easily damaged, to using thermal printers specifically designed for barcoding that produce durable barcodes easily scanned at the point of care. These wristbands can survive a week of wear and temperatures up to 130 degrees. In addition, there is not a significant cost difference between thermal and laser printers.

**Lee, I., Thompson, S., Lautenbach, E., and others. (2008). “Effect of accessibility of influenza vaccination on the rate of childcare staff vaccination.”** (AHRQ grant HS10399). *Infection Control and Hospital Epidemiology* 29(5), pp.465-467.

In 2002, the Centers for Disease Control and Prevention expanded its influenza vaccination recommendations to include children aged 6-23 months and their caregivers, and again in 2006 to include children aged 6-59 months and their caregivers. The researchers conducted a study to evaluate the impact of free on-site vaccination on childcare staff vaccination rates. Included in the study were four influenza seasons: 2002-2003, 2003-2004, 2005-2006, and 2006-2007. Free on-site vaccinations were offered in the 2003-2004 and the 2006-2007 seasons. Vaccination rates were markedly higher in the two intervention seasons (51 percent in

2003-2004, 45 percent in 2006-2007) than in the two nonintervention seasons (28 percent in 2002-2003, 26 percent in 2005-2006). Of those vaccinated, two-thirds said they would not have been vaccinated without the intervention, with one-third stating that they would not have been vaccinated if required to pay for it.

**Leonard, C.E., Haynes, K., Localio, A.R., and others. (2008). “Diagnostic E-codes for commonly used, narrow therapeutic index medications poorly predict adverse drug events.”** (AHRQ grant HS11530). *Journal of Clinical Epidemiology* 61, pp. 561-571.

Adverse drug events (ADEs) are a common, major clinical problem resulting in patient morbidity and mortality and increased cost of care. The researchers sought to determine the validity of hospital discharge E-codes (External-Cause-of-Injury codes) in identifying drug toxicity precipitating hospitalization among elderly users of warfarin, digoxin, or phenytoin. Included in the study were 4,803 patients with 11,409 person-years of experience with at least 1 of the 3 drug groups and with 8,756 hospitalizations of which 304 were considered to be ADEs related to the use of warfarin, digoxin, or phenytoin. The researchers found that the positive predictive values of E-codes indicating toxicity were too low to confirm hospitalizations due to ADEs for any of the three drugs. They concluded that such rare events identified in studies based solely on discharge coding should be confirmed by medical record review.

**Lieberthal, R.D. (2008, June). “Hospital quality: A PRIDIT approach.”** (AHRQ grant T32

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### **HS00009). HSR: Health Services Research 43(3), pp. 988-1005.**

Measuring hospital care quality can be done by measuring inputs to care (process measures) or measuring outputs from care (patient outcomes). This study used the PRIDIT method to retrospectively analyze Medicare hospital data to determine a relative measure of hospital care quality for 4,217 hospitals. The PRIDIT approach uses 20 care process measures in 4 categories: heart attack care, heart failure care, pneumonia care, and surgical infection prevention and five structural measures of hospital type. The best indicators of hospital quality were heart failure patients given an assessment of left ventricular function and heart attack patients given a beta-blocker at hospital arrival and at discharge. Hospital teaching status was also an important indicator of higher quality of care. The author concludes that the PRIDIT method is an alternative to the use of clinical outcome measures in measuring hospital quality.

### **Ness, R. and Grainger, D.A. (2008). "Male reproductive proteins and reproductive outcomes." (AHRQ grant HS08358). American Journal of Obstetrics and Gynecology 198, pp. 620.e1-620.e4.**

Male reproductive proteins (MRPs) are among the most rapidly evolving functional genes known. They play a central role in embryo implantation and placentation by inducing inflammation. No studies to date have directly examined whether and how MRPs have an impact on the efficacy and outcomes of human reproduction.

There is some evidence to suggest that novel exposure to MRPs may elevate preeclampsia risk since first pregnancies, teenage pregnancies, out-of-wedlock pregnancies, paternity change, and donor sperm insemination are markers that increase the risk for preeclampsia. MRPs may also contribute to spontaneous preterm birth. If novel MRPs influence reproductive outcomes, donor insemination might provide a useful framework to demonstrate this. The proposed link between MRPs and adverse pregnancy outcomes in humans is speculative. Direct measures relating specific sperm and semen proteins to conception and birth outcomes will be needed to test the import of MRPs.

### **Osler, T., Glance, L., Buzas, J.S., and others. (2008). "A trauma mortality prediction model based on the anatomic injury scale." (AHRQ grant HS16737). Annals of Surgery 247, pp. 1041-1048.**

Improving outcomes, whether through private comparisons among trauma centers or public report cards, depends on the ability to accurately compare performance across trauma centers. This, in turn, depends on accurate statistical adjustment, especially for the severity of injury. Measuring this factor is difficult, because there are hundreds of possible individual injuries, and patients often have more than one injury. The researchers developed three new models based on empiric estimates of injury severity in the abbreviated injury scale (AIS) and tested them against the injury severity score (ISS). For each of the 1,322 AIS coded injuries, the researchers derived an empiric severity model-averaged regression coefficient (MARC) value ranging from -1.01 for a trivial injury to a value of 4.03

for an unsurvivable injury. Applied to a National Trauma Data Bank containing information on 702,229 patients, these continuous values provided much greater granularity than the 6 integer values available to the AIS. All three of the models discriminated survivors from nonsurvivors better than the ISS, but the trauma mortality prediction model had both better discrimination and better calibration than the ISS.

### **Quigley, D.D., Elliott, M.N., Hays, R.D., and others. (2008, July). "Bridging from the Picker hospital survey to the CAHPS® hospital survey." (AHRQ grants HS09204 and HS16980). Medical Care 46, pp. 654-661.**

The Consumer Assessment of Healthcare Providers and System (CAHPS®) Hospital Survey compares performance information on hospitals to inform consumer choice and provide incentives to hospitals to improve the care they provide. With the introduction of the CAHPS® Hospital Survey in early 2007, hospitals that previously used other surveys are faced with bridging and trending issues as they adopt the new survey. The authors of this paper illustrate an accessible method of bridging data from earlier surveys to the CAHPS® Hospital Survey to support hospitals' internal quality improvement efforts. They administered 6 pairs of parallel items from the CAHPS® and Picker Hospital Surveys to the same 734 patients. Differences in wording, response options, and cut points for "problem scores" yielded large differences in problem score rates between the Picker and CAHPS Hospital Surveys, which required bridging formulas that they detail. ■

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