



# RESEARCH ACTIVITIES

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## Fewer families can afford to purchase their own health insurance than previously thought

The majority of uninsured American families who are not covered by group health insurance through an employer cannot afford to buy health insurance, according to a new study by Agency for Healthcare Research and Quality (AHRQ) researchers, Didem M. Bernard, Ph.D., Jessica S. Banthin, Ph.D., and William E. Encinosa, Ph.D. Some experts have suggested that because 23.8 million uninsured Americans under age 65 who do not have access to employer-based health insurance have incomes above the Federal poverty line (FPL), they can afford to purchase policies if they so choose; however, the new study shows otherwise.

It found that measuring a family's net worth (value of their savings plus other assets minus debt) rather than just income more precisely estimates the percentage of American families who could purchase health insurance policies if they chose to do so. Until now, most studies of uninsured families have considered income the main (or sole) determinant of why a family chooses not to purchase health insurance.

Using 2002 and 2003 national data from AHRQ's Medical Expenditure Panel Survey, the

researchers found that the median net worth of families who purchased health insurance was \$105,819 – nearly 35 times greater than the median net worth of only \$3,057 for families who were uninsured. In contrast, the median income of families who purchased health insurance was \$41,086 – only 2.3 times greater than the median income of \$17,690 for families who were uninsured. The study also found that 4.1 percent of families with access to employer-based health insurance were poor (family income below 100 percent of the FPL; the 2009 FPL was \$20,050 for a family of four) and 11.1 percent were low income (family income 100-199 percent of the FPL). In contrast, among families without access to employer-based health insurance, 33.8 percent were poor and 28.4 percent were low income.

According to Dr. Bernard, an economist who led the research, the standard model based on income alone used by economists works well for estimating who will enroll in employer-based health insurance. However, it does not work well for estimating who will purchase non-group coverage, because it

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## Uninsured American families

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overestimates health insurance enrollment for people with low net

worth and underestimates it for people with high net worth.

More details are in “Wealth, income, and affordability of health insurance,” by Drs. Bernard,

Banthin, and Encinosa, in the May/June 2009 *Health Affairs* 28(3), pp. 887-896. Reprints (AHRQ Publication No. 09-R059) are available from AHRQ.\* ■

## Disparities/Minority Health

### Underresourced clinics with more challenging patients may underlie poor chronic disease outcomes of minorities

Primary care clinics serving minority patients have less access to medical resources, an often chaotic work environment, and challenging patients compared with clinics serving predominantly white patients, finds a new study. This may play a role in the poorer chronic disease outcomes of minority patients, suggest the study authors. They analyzed survey responses of 96 clinic managers, 388 primary care physicians, and 1,701 of their adult patients with hypertension, diabetes, or congestive health failure. They compared data from 27 clinics with at least 30 percent minority patients with data from 69 clinics with less than 30 percent minority patients.

On a scale of 1 (none) to 4 (great), clinics serving at least 30 percent minority patients had less access to medical supplies (2.7 vs. 3.4), referral specialists (3.0 vs. 3.5), and examination rooms per physician (2.2 vs. 2.7) than clinics treating fewer minorities. Clinics serving more minorities had patients who were more often depressed (22.8 vs. 12.1 percent), were more often covered by Medicaid (30.2 vs. 11.4 percent), and

reported lower health literacy (3.7 vs. 4.4 on a 5-point scale).

Physicians from clinics serving higher proportions of minority populations perceived their patients as frequently speaking little or no English (27.1 vs. 3.4 percent), suffering more chronic pain (24.1 vs. 12.9 percent) and substance abuse problems (15.1 vs. 10.1 percent), and being more medically complex (53.1 vs. 39.8 percent) and psychosocially complex (44.9 vs. 28.2 percent). Finally, clinics with at least 30 percent minority patients were more likely to have chaotic work environments and to have fewer physicians reporting high work control or high job satisfaction. The study was supported in part by the Agency for Healthcare Research and Quality (HS11955).

More details are in “Separate and unequal: Clinics where minority and nonminority patients receive primary care,” by Anita B. Varkey, M.D., Linda Baier Manwell, M.S., Eric S. Williams, Ph.D., and others, in the February 9, 2009 *Archives of Internal Medicine* 169(3), pp. 243-250. ■

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## Disparities in outpatient care and expenditures have widened for Hispanics, but not for blacks

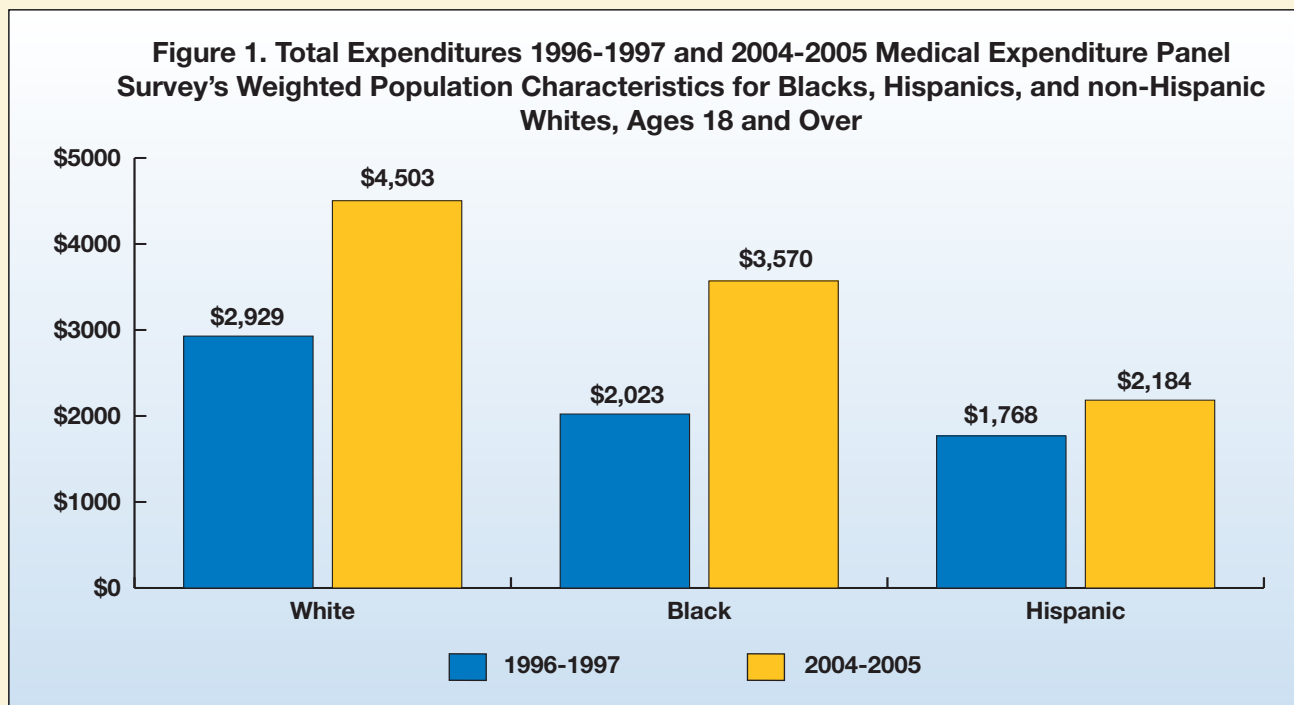
Disparities in outpatient care and expenditures have steadily widened for Hispanics compared with whites, while remaining relatively constant for blacks, reveals a new study. However, these disparities would have been slightly worse in 2004-2005, if socioeconomic status (SES) factors such as insurance and income, which indirectly affect access to care, had not improved for Hispanics since 1996-1997, according to calculations by Samuel H. Zuvekas, Ph.D., of the Agency for Healthcare Research and Quality (AHRQ), and colleagues. This leaves open the question of why Hispanics are faring badly compared with whites, note the researchers. Is it due to changing sociodemographics such as increased immigration of Hispanics who face language barriers to care, or is it due to changes in functioning of the health care system?

To explore trends in care disparities, they analyzed data on office-based or outpatient visits from the 1996-2005 Medical Expenditure Panel Survey (MEPS) for two time periods: 1996-1997 and 2004-2005. The researchers used the definition of racial/ethnic disparity developed by the Institute of Medicine, which adjusts for health status and takes into consideration mediation of disparities through SES factors.

The researchers found that medical care spending for whites and blacks increased significantly (over \$1,500) between both periods (Figure 1). However, there was little increase (about \$400) in spending on Hispanics.

When it came to having any outpatient or office-based visit in the past year, Hispanic-white disparities increased between 1996 and 2005. Black-white disparities remained relatively constant. Blacks had a 14 percent lower likelihood of making a doctor visit than whites during either time period. The disparity between blacks and whites in expenditures increased from \$869 in 1996-1997 to \$1,054 in 2004-2005, a difference that was not statistically significant. Hispanics were 16 percent less likely than whites to see a doctor in 1996-1997. They also had \$1,011 less in expenditures compared with whites in 1996-1997, which became \$1,819 less than whites by 2004-2005. This was nearly twice the black-white spending difference.

See “Measuring trends in racial/ethnic health care disparities,” by Benjamin Lê Cook, Ph.D., M.P.H., Thomas G. McGuire, Ph.D., and Dr. Zuvekas, in the February 2009 *Medical Care Research and Review* 66(1), pp. 23-48. Reprints (AHRQ Publication No. 09-R019) are available from AHRQ.\* ■



## Inner-city Hispanic adults with limited English proficiency have poorer asthma control and quality of life

Adults with asthma must know how to manage their symptoms by avoiding asthma triggers, using the right medications, and monitoring their breathing capacity with peak flow meters. A new study links limited English proficiency (LEP), which can interfere with doctor-patient communication essential to learning about asthma self-management, to poorer asthma control, higher care use, and lower quality of life among inner-city Hispanic adults with asthma. A team led by Juan P. Wisnivesky, M.D., M.P.H., of the Mount Sinai School of Medicine, interviewed 318 adults with persistent asthma receiving care at 2 large inner-city clinics.

The team classified them into three groups: non-Hispanics (all native English speakers), Hispanics

proficient in English, and Hispanics with LEP. The researchers asked them to fill out questionnaires on asthma control and quality of life and obtained data on their use of care at 1 and 3 months after study enrollment. Hispanics with LEP had significantly worse asthma control and quality of life scores compared with non-Hispanic asthmatics. Yet, quality of life scores were not significantly different among patients with adequate English language proficiency, regardless of ethnicity.

Hispanics with LEP were 2.4 times more likely to suffer an asthma episode requiring outpatient treatment and 4.4 times more likely to suffer an episode requiring an emergency department visit or hospitalization compared with non-Hispanic patients. LEP was also

associated with more worries about side effects or becoming addicted to inhaled corticosteroids (ICS), beliefs that asthma is an acute (rather than chronic) disease, decreased self-efficacy (in ability to control asthma and use ICS), and lower adherence to controller medications. These findings suggest that Hispanics with asthma and LEP are at high risk for poor outcomes. The study was supported in part by the Agency for Healthcare Research and Quality (HS13312).

See “Assessing the relationship between language proficiency and asthma morbidity among inner-city asthmatics,” by Dr. Wisnivesky, Meyer Kattan, M.D., David Evans, Ph.D., and others, in the February 2009 *Medical Care* 47(2), pp. 243-249. ■

## Better short-term survival of blacks with heart failure is linked to less severe illness at hospital admission

Blacks suffer from higher rates of heart failure as well as related hospitalizations and deaths than whites. Yet, paradoxically, black patients hospitalized for heart failure have better short-term survival than white patients. One reason may be that black patients are less severely ill when they arrive at the emergency department (ED), suggests a new study. The University of Pittsburgh researchers analyzed 1,408 black and 7,260 white patients in one State, who were admitted to the hospital from the ED during 2003 and 2004 and discharged with a diagnosis of heart failure. The researchers used three clinical prediction rules to estimate patients' severity of illness at the time of hospital admission.

Overall, black patients were younger than white patients (65.8 vs. 77.4 years) and were 1.16 to 4.3 times more likely to be assigned to the lowest risk classes by the three prediction rules. The authors suggest several possible explanations for this. Blacks are less likely than whites to have a usual source of care and thus may be more likely to seek initial

treatment for heart failure in the ED. Better access to primary care for white patients may paradoxically result in greater severity of illness when they do arrive at the ED, because they are more likely to visit the ED after failure of initial outpatient treatment.

After adjusting for hospital clustering, blacks were 25 percent less likely to suffer hospital death and complications and 66 percent less likely to die within 30 days. These findings suggest a varying opportunity between black and white patients when considering alternative initial treatment strategies and site of care, conclude the researchers. Their study was supported by the Agency for Healthcare Research and Quality (HS10888).

More details are in “Differences in initial severity of illness between black and white emergency department patients hospitalized with heart failure,” by Thomas E. Auble, Ph.D., Margaret Hsieh, M.D., M.S., and Donald M. Yealy, M.D., in the February 2009 *American Heart Journal* 157(2), pp. 306-311. ■

## The time spent in office visits with psychiatrists has equalized among blacks and whites in recent years

In recent years, there has been progress in eradicating racial differences in the time office-based psychiatrists spend with patients, reveals a new study. For example, from 2001 to 2003, black patients had office-based visits with psychiatrists that were an average of 4.4 minutes shorter than visits by whites (28.3 vs. 32.7 minutes). This difference was reduced to 3.5 minutes after accounting for other factors that could affect visit length. However, by 2004 to 2006, the time spent with the psychiatrist was about the same for black and white patients. Between these periods, there were longer visits by black patients rather than shorter visits by white patients. This suggests that the change was not mediated by the pattern of psychotherapy or medication visits.

This gain is good news against the backdrop of persisting racial disparities in access and quality of mental health care, note the researchers. They calculated face-to-face time between psychiatrists and black and white patients based on data from the 2001-2006 National Ambulatory Medical Care Survey of U.S. office-based physicians. They analyzed a total of 7,094 office visits to psychiatrists made by white patients and 504 visits by black patients.

After controlling for relevant patient, psychiatrist, and practice characteristics, the only factors in which there were significant racial differences in visit length in 2004 to 2006 were female patient sex and Medicare payment. When Medicare was the primary source of payment, visits by black patients were an average of 3.5 minutes shorter than

visits by white patients. Blacks are two to three times less likely than whites to have private supplemental insurance that covers charges above Medicare-approved amounts. Psychiatrists treating patients with supplemental policies, regardless of patient race, may tend to provide longer visits, suggest the researchers. During the same period, psychiatric visits by black women were an average of 5.4 minutes shorter than visits by white women. The study was supported in part by the Agency for Healthcare Research and Quality (HS16097).

See “Racial differences in visit duration of outpatient psychiatric visits,” by Mark Olfson, M.D., M.P.H., Donald K. Cherry, M.S., and Roberto Lewis-Fernandez, M.D., in the February 2009 *Archives of General Psychiatry* 66(2), pp. 214-221. ■

## Studies explore survival and treatment disparities among black and white elderly patients with cancer

Blacks are more likely than whites in the United States to develop and die from cancer. Whether these racial disparities are due solely to race or to factors such as differences in treatment or socioeconomic status (SES) remain unanswered. Two new studies by Xianglin L. Du, M.D., Ph.D., and colleagues at the University of Texas Health Science Center examine the impact of racial disparities on lymphoma survival and track treatment disparities among patients with cancer of the colon and rectum. The first study linked factors associated with race, but not intrinsic racial differences, to non-Hodgkin lymphoma (NHL) survival disparities. The second study revealed fewer racial disparities in

receipt of treatment for colorectal cancer over time. Both studies, funded in part by the Agency for Healthcare Research and Quality (HS16743), are summarized here.

**Wang M., Burau, K. D., Fang, S., and others. “Ethnic variation in diagnosis, treatment, socioeconomic status, and survival in a large population-based cohort of elderly patients with non-Hodgkin lymphoma.” (2008, December). *Cancer* 113(11), pp. 3231-3241.**

An estimated 63,000 elderly persons are diagnosed with NHL in the United States each year. Whites are more likely to be struck with the disease than other groups. This study found that whites were more

likely to receive life-prolonging chemotherapy than blacks. Also, poorer SES, more common among the black patients studied, was significantly associated with a higher risk of dying. There were no significant differences in all-cause and lymphoma-specific mortality rates between black and white patients after controlling for differences in treatment, SES, patient demographics, and tumor factors.

Using a national cancer registry linked to the Medicare database, the researchers retrospectively examined a group of 13,321 elderly patients diagnosed with NHL from 1992 to 1999. Among these patients, 11,868 were white, 533

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## Cancer studies

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were black, and 920 were from other ethnic/racial groups. Nearly three-fourths of the black patients were in the lowest SES quartile compared with one-fifth of whites. Black patients were significantly less likely to receive chemotherapy than whites (43.2 vs. 52.4 percent). The risk of all-cause and NHL-specific mortality grew significantly with age, advanced cancer stage, more coexisting illnesses, and poorer SES.

Five-year survival after diagnosis was higher in whites than blacks (60.3 percent vs. 55.6 percent for NHL-specific mortality) and for patients in higher SES quartiles compared with those in the lowest SES quartile. The findings suggest that factors associated with race, but not intrinsic racial differences, accounted for the racial differences in mortality, conclude the researchers.

**White, A., Liu, C.-C., Xia, R., and others. "Racial disparities and treatment trends in a large cohort of elderly African Americans and Caucasians with colorectal cancer, 1991 to 2002." (2008, December). *Cancer* 113(12), pp. 3400-3409.**

Blacks are diagnosed with colorectal cancer at a slightly younger age than whites, and have a lower percentage of 5-year survivors (55 vs. 66 percent). The majority of elderly blacks and whites with colorectal cancer receive the recommended standard of care, with racial disparities in therapy receipt among blacks relatively small and not significant, this study found. They examined data from the SEER-Medicare cancer database to study 55,204 whites and 4,599 blacks who were treated for colorectal cancer between early 1991 and late 2002.

Overall, blacks were 16 percent less likely than whites to receive standard therapy for colorectal

cancer (surgery, radiation, and/or chemotherapy). However, treatment differences became insignificant after adjustment for patient age at diagnosis, marital status, sex, socioeconomic status, and tumor characteristics. Racial disparities in receipt of standard therapy also declined over the study period. Treatment differences remained at about 5 percent between 1991 and 1996, peaked to 7.2 percent in 1997, then declined from 7.1 to 4 percent from 1999 to 2002.

From 1991 to 2002, the percentage of patients who did not receive standard therapy for colorectal cancer declined from 24.5 to 22.4 percent for whites and from 30.4 to 26.4 percent for blacks. The study was unable to sort out the effect of patient preferences, as well as regional variations in physician practice style or health care delivery—factors that may explain some of the racial disparities in treatment. ■

## More comprehensive American Indian and Alaska Native diabetes education programs are linked to better diabetes care

American Indians and Alaska Natives have two to three times higher rates of diabetes and are four times more likely to die from the disease than the general U.S. population. Thus, diabetes education is important for these individuals to self-manage their disease. Yet, few diabetes education programs serving these groups met national standards in 2001, according to a new study. It also found that more comprehensive programs were associated with better quality diabetes care.

The researchers reviewed 88 Indian Health Service (IHS)-funded diabetes care programs in 2001. Most were clinic-based (70 percent); the rest were hospital-

based. All completed a checklist of criteria from the IHS Integrated Diabetes Education Recognition Program (IDERP) on how well programs implemented each of the 10 national standards for diabetes self-management education. Programs were then categorized as Level 1 (developmental), Level 2 (educational), or Level 3 (integrated).

Patients receiving care from Level 2 and Level 3 programs had higher completion rates of all 15 diabetes quality-of-care indicators compared with those in programs at or below Level 1. This difference was

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**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.

## Diabetes care

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significant for annual testing of LDL cholesterol, HDL cholesterol, triglycerides, and hemoglobin A1c (a measure of average blood-sugar level) after adjustment for patient and program factors.

Yet, only 9 of the 86 programs had fulfilled enough criteria to qualify for at least Level 2 IDERP recognition. The remaining 77 programs qualified at Level 1 or less. Programs were often understaffed and unable to complete the extensive documentation process required by the IDERP, according to the

authors. They note that, since the study, with additional IHS funding toward staff and training, the number of IDERP-recognized programs grew to 37 in 2009. The study was supported in part by the Agency for Healthcare Research and Quality (HS10854).

See “Relation between the level of American Indian and Alaska Native diabetes education program services and quality-of-care indicators,” by Yvette Roubideaux, M.D., M.P.H., Carolyn Noonan, M.S., Jack H. Goldberg, Ph.D., and others, in the November 2008 *American Journal of Public Health* 98(11), pp. 2079-2084. ■

## Chronic Disease

### Fewer than half of patients with diabetes are referred for lifestyle counseling, nutrition, and exercise

Lifestyle modifications along with proper nutrition and exercise can improve outcomes in patients with diabetes. This is especially important for blacks, who have a disproportionate burden of diabetes compared with whites, such as higher rates of complications and worse control of diabetes-related conditions (high cholesterol, high blood pressure, and obesity). A new study finds that black and white patients with diabetes are referred for lifestyle counseling at similar rates; however, physicians need to be more proactive in counseling and referring these patients.

Researchers examined data from the 2002-2004 National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey to see if counseling rates were independently associated with

patient race. Of the 6,852 patient visits included in the study sample, 69 percent were made by whites and 26 percent by blacks.

The researchers found similar rates of counseling or referral for whites and blacks. Patients were counseled about nutrition either on-site or referred to outside counselors 37 percent of the time. The rate of exercise advice or referral was 19 percent. Factors that favored a patient being counseled/referred for lifestyle modification included being younger, having private insurance, and being diagnosed with an increased number of comorbid illnesses. The latter was the strongest predictor of physician counseling or referral. Patients were also more likely to receive nutrition and exercise interventions if they were seen by a primary care physician.

These results indicate that more ways are needed to increase and enhance the delivery of nutrition and exercise counseling in the outpatient setting, especially in high-risk groups. The study was supported in part by the Agency for Healthcare Research and Quality (HS15699).

See “National prevalence of lifestyle counseling or referral among African-Americans and whites with diabetes,” by Monica E. Peek, M.D., M.P.H., Hui Tang, M.S., M.S., G. Caleb Alexander, M.D., M.S., and Marshall H. Chin, M.D., M.P.H., in the November 2008 *Journal of General Internal Medicine* 23(11), pp. 1858-1864. ■

## Patients with diabetes and depression are less likely to achieve goals for glucose control

People with diabetes have almost twice the risk of becoming depressed compared with the general public. A new study found that depression can interfere with their ability to reach the recommended goals for control of their glucose (blood sugar).

Researchers examined the responses of 1,223 adult patients with diabetes who completed a survey that included two questions about depression-related symptoms. The researchers also reviewed the patients' medical records and insurance claims to determine medication use and clinical care obtained.

During the previous month, 471 (38.5 percent) reported symptoms of depression. Although no relationship was found between depression and blood sugar (A1c) testing rates, those with depression symptoms were less likely to be at their A1c goal (43 percent) compared with patients without depressive symptoms (50 percent). However, treatment with

antidepressant medication increased their ability to achieve their glucose goals. The researchers also found a reduced rate of LDL cholesterol testing (56 percent) for those with depression compared with those without the condition (68 percent). However, treatment for depression had no impact on achieving lipid goals.

According to the research team, physicians who identify depression in their patients with diabetes must also consider how depression will affect the patient's ability to manage their diabetes, particularly when it comes to reaching personal clinical goals. The study was funded by the Agency for Healthcare Research and Quality (HS09946).

See "Depression in patients with diabetes: Does it impact clinical goals?" by William A. Rush, Ph.D., Robin R. Whitebird, Ph.D., Monica R. Rush, B.S., and others in the September/October 2008 *Journal of the American Board of Family Medicine* 21, pp. 392-397. ■

## Low omega-3 fatty acid levels found in patients with acute coronary syndrome and depression

Patients with chest pain at rest (unstable angina) or a heart attack (myocardial infarction) are usually diagnosed as having acute coronary syndrome (ACS). When patients with ACS also suffer from depression, they are more likely to die or experience recurrent cardiovascular events. Linking these two conditions may be a deficiency in essential fatty acids. In a new study, ACS patients with depression were found to have lower red blood cell membrane levels of omega-3 fatty acids, such as DHA (docosahexaenoic acid).

Researchers measured levels of different omega-3 and omega-6 fatty acids in the cell membranes of 759 patients diagnosed with ACS at 2 hospitals in Kansas City, Missouri. Clinical information was also collected from patient interviews and hospital charts. Levels of depressive symptoms were determined using the Patient

Health Questionnaire-9 (PHQ), a nine-item depression screening tool that has been shown to be valid, sensitive, and specific for quantifying depressive symptoms.

Among the participants, 118 (15.5 percent) were found to have significant depressive symptoms. Those suffering from depression were more likely to be young, female, of a minority race, and have lower education levels. Compared with patients without depression, they were also more likely to be overweight and have higher rates of cardiovascular risk factors, including diabetes, high blood pressure, and smoking.

ACS patients with depression had lower levels of omega-3 fatty acids, particularly DHA, in their cell membranes. The researchers found an inverse relationship between depression and the omega-3 fatty acid index. For every 4.54 percent rise in this index, there was

a one-point decline in depressive symptoms, as assessed by the PHQ. Membrane levels of eicosapentaenoic acid, another omega-3 fatty acid, were not lower in patients with ACS and depression.

The researchers indicate that interventions to raise the level of omega-3 fatty acids may help prevent both depression and adverse cardiovascular events. The study was supported in part by the Agency for Healthcare Research and Quality (HS11282).

See "Acute coronary syndrome patients with depression have low blood cell membrane omega-3 fatty acid levels," by Alpesh A. Amin, M.D., Rishi A. Menon, M.D., Kimberly J. Reid, M.S., and others, in the October 2008 *Psychosomatic Medicine* 70, pp. 856-862. ■



## Obesity boosts risk of diverticulitis and diverticular bleeding

A diet deficient in fiber is a major risk factor for developing diverticular disease. A new study also implicates obesity in development of the disease. Diverticulitis strikes when pouches (diverticula) form in the wall of the colon and then get inflamed or infected when bacteria get trapped in the pouches. Symptoms include stomach pain, bloating, gas, diarrhea or constipation, nausea, fever, and chills. Lisa L. Strate, M.D., M.P.H., of the University of Washington School of Medicine, and colleagues prospectively studied 47,228 male health professionals (40-75 years old) who were free of diverticular disease in 1986 (baseline). Men reporting newly diagnosed diverticular disease on biennial followup questionnaires were sent supplemental questionnaires. Weight was recorded every 2 years and data on waist and hip circumferences were collected in 1987.

During the 18 years of followup, the researchers documented 801 cases of diverticulitis and 383 cases of diverticular bleeding. After adjustment for other risk factors, men with a body mass index (BMI) of 30 kg/m<sup>2</sup> or greater (obese) had a nearly twofold greater relative risk for diverticulitis and more than threefold greater risk for diverticular bleeding compared with

men with a BMI of less than 21 kg/m<sup>2</sup> (18.5 to 24.9 kg/m<sup>2</sup> is normal weight).

Men in the highest quintile of waist circumference compared with those in the lowest quintile had a 56 percent greater relative risk for diverticulitis and nearly twofold increased risk for diverticular bleeding. Similarly, persons in the highest quintile of waist-to-hip ratio had a 62 percent higher risk for diverticulitis and nearly twofold higher risk for diverticular bleeding than those in the lowest quintile. The researchers suggest that obesity may contribute to diverticular disease, because adipose (fatty) tissue secretes a number of cytokines that may precipitate the inflammatory process in the disease. Intestinal microbes that differ between obese and lean individuals may also play a role. The study was supported in part by the Agency for Healthcare Research and Quality (HS14062).

More details are in “Obesity increases the risk of diverticulitis and diverticular bleeding,” by Dr. Strate, Yan L. Liu, M.S., Walid H. Aldoori, M.D., M.P.H., Sc.D., and others, in the January 2009 *Gastroenterology* 136(1), pp. 115-122. ■

## Personality factors influence how patients with chronic disease view their health and functioning

Patients suffering from chronic diseases face many challenges in self-managing diet, exercise, medication, and other factors important to managing their conditions. Personality factors seem to play a role in how they view their health and functional status, concludes a new study. Anthony Jerant, M.D., of the University of California Davis School of Medicine,

and colleagues analyzed baseline data from chronically ill individuals enrolled in a study of approaches to improve disease self-management. They looked for associations between the NEO-Five Factor Inventory (NEO-FFI) of personality factors (neuroticism, conscientiousness, extraversion, openness, and agreeableness) and the EQ-5D preference-based self-rated health

measure. The EQ-5D scores five dimensions of health: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression.

Of the 415 persons studied, 59 percent had 2 or more chronic conditions. For individual EQ-5D scores, one standard deviation (SD) increase in neuroticism worsened

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### Visit the AHRQ Patient Safety Network Web Site

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

## Personality factors

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(increased) anxiety/depression scores nearly threefold, and openness (perhaps due to greater sensitivity to feelings and emotions) worsened the scores by 32 percent. Conscientiousness, on the other hand, was associated with better usual activities scores. There were no associations between agreeableness and extraversion and any EQ-5D dimension scores.

These findings remained after adjustment for patient age, gender, educational level, minority status, and chronic conditions. The results suggest that unmeasured personality effects might bias the findings for cost-effectiveness analysis (CEAs), since preference-based health assessments are used to calculate quality-adjusted life years for use in cost-effectiveness ratios. Routinely assessing the status of personality factors, along with the usual sociodemographic variables, may permit detection and

statistical control for such effects, suggest the researchers. They call for more studies of these complex interrelationships. Their study was supported in part by the Agency for Healthcare Research and Quality (HS13603).

See “Personality and EQ-5D scores among individuals with chronic conditions,” by Dr. Jerant, Benjamin P. Chapman, Ph.D., and Peter Franks, M.S., M.D., in *Quality of Life Research* 17, pp. 1195-1204, 2008. ■

## The prevalence of chronic, impairing low back pain has risen significantly in North Carolina

More than 80 percent of the U.S. population will suffer from an episode of low back pain (LBP) at some time during their lives. Some will develop chronic LBP that lasts 3 months or longer. The incidence of chronic LBP more than doubled in North Carolina between 1992 and 2006, with continuing high levels of disability and health care use, according to a new study. These findings suggest that increases in population-based health care costs may be due to the growing prevalence of this condition more than increased care use by those afflicted, note the authors.

They surveyed a representative sample of North Carolina households in 1992 (4,437 households) and 2006 (5,357 households) to identify adults 21 years or older with chronic LBP or neck pain that limited daily activities. The prevalence of chronic, impairing LBP rose significantly over the 14-year study period from 3.9 to 10.2 percent. Increases were seen for all ages, in men and women, and in white and black races. The severity of symptoms and general health of back pain sufferers were similar for both years.

In addition, the proportion of LBP sufferers who sought care from a health care provider in the previous year increased from 73.1 percent to 84 percent, while the mean number of visits to all health care providers was similar (19.5 in 1992 vs. 19.4 in 2006). When the researchers tried to assess whether back pain sufferers were simply labeling ongoing back symptoms as functionally impairing, they found that those with back pain in 2006 were functioning either similarly or worse than in 1992, with decreased employment, greater use of disability insurance, and continued high pain scores. Efforts to improve function and constrain costs of back pain will need to address issues of causality and self-management, conclude the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00032).

More details are in “The rising prevalence of chronic low back pain,” by Janet K. Freburger, P.T., Ph.D., George M. Holmes, Ph.D., Robert P. Agans, Ph.D., and others, in the February 9, 2009 *Archives of Internal Medicine* 169(3), pp. 251-258. ■

## Using a chronic care model improves smoking cessation programs in primary care clinics

Getting people to quit smoking can be difficult. Primary care providers often use a “5A” approach (ask, advise, assess, assist, and arrange) to help their patients quit the habit. A new study shows that using a chronic care model (CCM) helps providers be more

consistent in their adherence to using the 5A approach with patients. Dorothy Y. Hung, Ph.D., M.A., M.P.H., of Columbia University, and Donna R. Shelley, M.D., M.P.H., of New York University, collected data from nearly 500 primary care providers working in 60 community

clinics in New York City that served mostly low-income, minority populations.

The researchers looked at the associations between providers delivering 5A services, the clinic’s implementation of CCM elements

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## Smoking cessation

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used to treat smoking, and the degree to which these elements were integrated into the clinic's overall operations. The CCM, composed of six elements, is commonly used to improve the care of patients with chronic illnesses such as diabetes, congestive heart failure, and asthma.

Nearly 58 percent of clinic providers asked patients about tobacco use regardless of their history, and nearly 84 percent of them asked patients with a known history of smoking about tobacco

use. Providers most likely to perform all 5A services worked in clinics with three CCM elements: enhanced delivery system design, clinical information systems, and the availability of patient self-management support for smoking cessation.

However, all six CCM elements, including protocols for tobacco use identification and treatment, decision support such as clinical guidelines, and referral to community resources, were positively and significantly related to provider delivery of 5A services across practices. Providers working

in clinics with the highest degree of CCM integration (5 and 6 elements) were 20.4 to 30.9 times more likely to deliver the full spectrum of 5A services to patients. The study was supported in part by the Agency for Healthcare Research and Quality (HS17007).

See "Multilevel analysis of the chronic care model and 5A services for treating tobacco use in urban primary care clinics," by Drs. Hung and Shelley, in the February 2009 *HSR: Health Services Research* 44(1), pp. 103-127. ■

## Child/Adolescent Health

### Quality and accessible primary care is linked to fewer emergency department visits by Medicaid-insured children

**L**ow-income children insured by State Medicaid programs are far more likely than other children to end up in the hospital emergency department (ED) for nonurgent care. Quality pediatric primary care can reduce both urgent and nonurgent ED visits, suggests a new study. David C. Brousseau, M.D., M.S., of the Medical College of Wisconsin, and colleagues studied ED visits by 5,468 children insured by the Wisconsin Medicaid program. They linked these ED visits to parents' scores in three domains of their child's primary care: family centeredness, timeliness, and realized access on the 2002 and 2004 Consumer Assessment of Healthcare Providers and Systems (CAHPS®) survey.

Overall, 28 percent of the children visited the ED during the followup year; 59 percent of those ED visits were classified as nonurgent. A total of 79 percent of parents rated family centeredness, 84 percent rated realized access, and 69 percent rated timeliness of primary care as high quality. High-quality family centeredness was associated with 27 percent fewer nonurgent ED visits, but no lowering of the urgent visit rate. High-quality timeliness was associated with 18 percent fewer nonurgent and

urgent visits. Finally, high-quality realized access was associated with 27 percent fewer nonurgent visits and 33 percent fewer urgent visits.

A higher level of parental educational attainment and better parent-reported child health status were both linked to significantly fewer urgent and nonurgent ED visits. Children 12 years and older showed consistently higher urgent ED use, while children 2 years and younger showed consistently greater nonurgent ED use. Child race/ethnicity was not significant after accounting for other factors. Finally, not having an identified primary care provider was associated with greater nonurgent ED use. The study was supported by the Agency for Healthcare Research and Quality (HS15482). For more information about CAHPS®, go to [www.cahps.ahrq.gov](http://www.cahps.ahrq.gov).

More details are in "Primary care quality and subsequent emergency department utilization for children in Wisconsin Medicaid," by Dr. Brousseau, Marc H. Gorelick, M.D., M.S.C.E., Raymond G. Hoffman, Ph.D., and others, in the January/February 2009 *Academic Pediatrics* 9, pp. 33-39. ■

## Family and insurance factors are linked to poorer control of children's asthma

Inhaled corticosteroids and montelukast (Singulair®) are typically prescribed to control children's asthma symptoms and to reduce the likelihood of acute asthma episodes that can land them in the emergency department. Despite substantial use of daily controller medication, more than half of the children in a new study continued to suffer from poorly controlled asthma. The result was missed school and work days for the family and poorer quality of life for parents and children. Competing family priorities and lack of asthma symptom awareness may underlie some of this poor asthma control, suggest the researchers.

They surveyed parents of 362 children participating in a study to reduce asthma morbidity about asthma-related impairment (indicated by symptoms, activity limitations, and use of albuterol for acute asthma episodes), and the

number of asthma exacerbations in a 1-year period. The survey also addressed demographic characteristics, asthma-related quality of life, pediatric management practices, and medication usage. Based on parents' reports, 76 percent of children took daily controller medications. Yet asthma was well controlled for only 24 percent of children, partially controlled for 20 percent, and poorly controlled for 56 percent. The current level of asthma control suggested that 74 percent of children needed to intensify their use of medication. Both parents and children suffered significantly lower quality-of-life scores when children had poor control.

Medicaid insurance, presence of another family member with asthma, and maternal employment outside the home were significant factors associated with poor asthma

control. These factors suggest competing priorities that may interfere with parental knowledge of a child's level of asthma control, daily use of controller medications, and opportunities for asthma monitoring visits. These families could benefit from more frequent asthma monitoring contacts and additional support and education to augment effective home management of their child's asthma, suggest the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS15378).

See "Socioeconomic, family, and pediatric practice factors that affect level of asthma control," by Gordon R. Bloomberg, M.D., Christina Banister, B.A., C.C.R.P., Randall Sterkel, M.D., and others in the March 2009 *Pediatrics* 123(3), pp. 829-835. ■

## Children with acute bone infections can be switched from intravenous to oral antibiotics before hospital discharge

Osteomyelitis, a bacterial infection of the bone, accounts for 1 percent of all pediatric hospitalizations in the United States. Children can contract these infections from blood infections, penetrating trauma, or when an infection spreads to the bone from a nearby site. Until recently, experts have recommended that these children receive 4 to 6 weeks of intravenous antibiotics through a central venous catheter. However, a new study found that these children fare just as well when given a shorter course of intravenous antibiotics followed by oral antibiotics for the same period of treatment. The potential benefits of switching children to oral antibiotics prior to hospital discharge include lower cost, increased convenience, and reduced risk of complications linked to prolonged insertion of central venous catheters, explain researchers at the University of Pennsylvania Center for Education and Research on Therapeutics (CERT).

The researchers retrospectively studied the antibiotic treatment of children (aged 2 months to 17 years) diagnosed with acute uncomplicated osteomyelitis between 2000 and 2005 at 29 U.S. children's hospitals. They looked at type of treatment and reason for rehospitalization within 6 months of initial diagnosis. Of the 1,969 children studied, 1,021 received prolonged intravenous therapy and 948 were switched to oral therapy before hospital discharge. The use of prolonged intravenous therapy varied significantly across hospitals, ranging from 10 to 95 percent of children treated.

Children in both groups had similar characteristics and similar severity of illness. Overall, 5 percent of children who received prolonged intravenous antibiotics were rehospitalized compared with 4 percent of the oral antibiotic group. However, this was not a significant difference. Additionally, 3.4 percent of

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## Osteomyelitis

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children in the prolonged intravenous therapy group were readmitted for a catheter-associated complication. Also, rates of readmission for antimicrobial complications were significantly higher in the prolonged intravenous treatment group. This study was funded in part by a grant from the Agency for Healthcare Research and Quality (HS10399) to

the University of Pennsylvania CERT. For more information on the CERTs program, visit <http://certs.hhs.gov/index.html>.

See “Prolonged intravenous therapy versus early transition to oral antimicrobial therapy for acute osteomyelitis in children,” by Theoklis Zaoutis, M.D., M.S.C.E., A. Russell Localio, Ph.D., Kateri Leckerman, M.S., and others, in the February 2009 *Pediatrics* 123(2), pp. 636-643. ■

## The number of hospitalized children on antifungal therapy has increased along with use of newer antifungal agents

Factors such as cancer chemotherapy and medications used to suppress the body’s rejection of transplanted organs or stem cells weaken children’s immune systems, making them vulnerable to invasive fungal infections that can be fatal. The frequency and severity of invasive fungal infections in immunocompromised children has steadily grown over the last two decades. A new study shows a rise in the use of antifungal therapy for hospitalized children and a shift to new antifungal agents. Researchers at the University of Pennsylvania School of Medicine Center for Education and Research on Therapeutics (CERT) and colleagues used the Pediatric Health Information System database to describe the changes in pediatric antifungal therapy at 25 U.S. children’s hospitals from 2000 to 2006.

Overall, 62,842 children received antifungal therapy (including 5,839 neonates), with prescriptions increasing significantly during the 7-year study period. Fluconazole was the most commonly prescribed antifungal agent (given to 76 percent of children), followed by amphotericin preparations (26 percent). Fluconazole was the most commonly prescribed agent in neonates (65 percent), followed by conventional amphotericin B or AMB (30 percent), and lipid formulations of amphotericin B or LFAB (20 percent).

Prescriptions of AMB, once considered the standard of treatment for invasive fungal infections but whose use was limited by its toxicity at high doses, steadily decreased from 2000 to 2006. AMB was replaced by LFAB and the newer agents, voriconazole

(especially to treat aspergillosis) and echinocandins (especially to treat candidiasis). The authors call for more research to determine the optimal dosing, efficacy, and safety of these newer agents in children. The study was supported in part by a grant from the Agency for Healthcare Research and Quality to the University of Pennsylvania School of Medicine CERT (HS10399). For more information on the CERTs program, visit <http://certs.hhs.gov/>.

See “Pediatric antifungal utilization: New drugs, new trends,” by Priya A. Prasad, M.P.H., Susan E. Coffin, M.D., M.P.H., Kateri H. Leckerman, M.S., and others, in the December 2008 *Pediatric Infectious Disease Journal* 27(12), pp. 1083-1088. ■

## Pharmaceutical Research

### Risk factors for resistance to fluoroquinolone antibiotics change over time

Fluoroquinolones are the most commonly prescribed class of antibiotics to treat a variety of bacterial infections. Over the years, *Escherichia coli* bacteria have shown increased resistance to this class of antibiotics, making *E. coli* infections harder to treat. Up to 20 percent of hospitalized patients have fluoroquinolone-resistant strains of *E. coli*. Researchers

from the Center for Education and Research on Therapeutics (CERT) at the University of Pennsylvania School of Medicine have found that risk factors for such resistance change over time.

They conducted a 3-year (2002-2004), case-control study of 774 hospitalized patients at 2 large medical

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## Fluoroquinolone

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centers. Gastrointestinal tract colonization with fluoroquinolone-resistant *E. coli* was identified in 89 (11.5 percent) of the patients. Prior fluoroquinolone use was significantly associated with resistant strains colonizing the gastrointestinal tract. In 2004, patients who had used fluoroquinolone were nearly ten times more likely to have resistant *E. coli* colonization than those who had not used the antibiotic. However, in 2002 and 2003, the link between fluoroquinolone use and *E. coli* resistance was not significant. This suggests that the clinical epidemiology of resistant organisms

may change over time. The study was supported in part by a grant from the Agency for Healthcare Research and Quality (HS10399) to the University of Pennsylvania School of Medicine CERT. For more information on the CERT program, please visit <http://certs.hhs.gov/>.

See “Gastrointestinal tract colonization with fluoroquinolone-resistant *Escherichia coli* in hospitalized patients: Changes over time in risk factors for resistance,” by Ebbing Lautenbach, M.D., M.P.H., M.S.C.E., Joshua P. Metlay, M.D., Ph.D., Mark G. Weiner, M.D., and others, in the January 2009 *Infection Control and Hospital Epidemiology* 30(1), pp. 18-24. ■

## Previous antimicrobial use is linked to drug resistance in *Candida glabrata* bloodstream infections

**B**loodstream infections caused by the fungus *Candida glabrata* have recently increased. Fluconazole is often used to treat these infections; however, some strains of *C. glabrata* are resistant to fluconazole. A patient’s previous use of fluconazole is a risk factor for this drug resistance, finds a new study that was conducted at three hospitals in the University of Pennsylvania health system from 2003 to 2007.

The researchers studied 76 patients with fluconazole-resistant *C. glabrata* infections. These

patients were more likely to have used fluconazole in the past compared with those who did not have *C. glabrata* infection. Further, use of linezolid, another antimicrobial used to treat bacterial infections, was also found to be a risk factor for fluconazole-resistant *C. glabrata* infections. The authors suggest that use of these drugs may alter the body’s natural flora and permit infection with and colonization of fluconazole-resistant *C. glabrata*. Additionally, the researchers found that previous use of either one of the antimicrobials cefepime and

metronidazole was associated with fluconazole-susceptible *C. glabrata*. This study was funded in part by the Agency for Healthcare Research and Quality (HS16946 and HS10399).

See “Risk factors for fluconazole-resistant *Candida glabrata* bloodstream infections,” by Ingi Lee, M.D., M.S.C.E., Neil O. Fishman, M.D., Theoklis E. Zaoutis, M.D., M.S.C.E., and others in the February 23, 2009 *Archives of Internal Medicine*, 169(4), pp. 379-383. ■

## Elderly/Long-Term Care

### Elderly patients on digoxin, recently discharged from the hospital, are at higher risk for drug-related toxicity

**A** patient’s risk of toxicity from digoxin, a drug used to treat heart ailments, is low overall. However, the risk is much greater within 2 months of hospital discharge, finds a new study. The reasons for this are unclear; however, prior and ongoing studies suggest that transitions from inpatient care to outpatient providers could be a leading contributor. Examples of care transition factors possibly related to the digoxin toxicity finding could include changes in medication regimen,

poor communication, and incomplete coordination across care settings.

The researchers prospectively studied 2,030 elderly white women who were enrolled in the Pennsylvania Pharmaceutical Assistance Contract for the Elderly program. They inspected hospital and pharmacy claims data and conducted interviews with the participants at baseline, 12, and 24 months.

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## Digoxin

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The number and rate of hospitalizations was not statistically significant. A total of 34 hospitalizations were due to digoxin toxicity, or 1.12 hospitalizations per 1,000 person-months of exposure to the drug. However, if a patient had been hospitalized 2 months prior, then the risk for digoxin-related toxicity increased fourfold. This risk remained even after adjustment for patient characteristics and complexity of health care (such as number of physicians and number of medications taken in the past 3 months).

If the patient received medication instructions from both a pharmacist and a doctor or a pharmacist alone, it did not alter the risk. Interestingly, if the patient obtained instructions only from the doctor, the risk of hospitalization for digoxin-related toxicity increased threefold. The study was supported by the Agency for Healthcare Research and Quality (HS11530).

See “Increased risk of digoxin toxicity following hospitalization,” by Kevin Haynes, Pharm.D., M.S.C.E., Sean Hennessy, Pharm.D., Ph.D., A. Russell Localio, Ph.D., and others, in *Pharmacoepidemiology and Drug Safety* 18, pp. 28-35, 2009. ■

## Dramatic changes in family structure have altered the care of disabled elderly parents

Since the 1970s there have been profound changes in family structure in the United States that have the potential to alter the care received by disabled elderly parents from their children, according to a new study by Barbara Steinberg Schone, Ph.D., of the Agency for Healthcare Research and Quality, and colleagues. They used data from the Asset and Health Dynamics Among the Oldest Old survey to estimate the joint probabilities that an adult child provides time and/or cash transfers to a parent.

The estimates suggest significant detrimental effects of parental divorce and step relationships on support of disabled elderly parents. For example, children were significantly less likely to provide care to their disabled parent if the parent was divorced versus

widowed. Children of divorced parents were about half as likely as children of widowed parents to co-reside with a parent and their parents were more likely to live alone or in a nursing home. Children with parents who remarried were less likely to provide cash transfers and more likely to have a parent who was in a nursing home.

Biological children with no siblings were four times more likely than single stepchildren to provide time (26 vs. 7.7 percent) or cash (13.5 vs. 2.9 percent) to their disabled parents. Also, stepchildren were significantly less likely than biological children to co-reside with the parent (1.8 vs. 7.9 percent) and more likely to have a parent living alone or in a nursing home (63.6 vs. 60.6 percent and 10.6 vs. 7.5

percent, respectively). Children in traditional nuclear families were significantly more likely to provide cash and time transfers than children in blended families (with stepchildren). Similarly, children of parents in blended families were less likely to co-reside with the parent and slightly more likely to have their parent live with other relatives or nonrelatives than children in traditional nuclear families, suggesting that the sibling network also matters.

See “Parental marital disruption, family type, and transfers to disabled elderly parents,” by Liliana E. Pezzin, Ph.D., J.D., Robert A. Pollak, Ph.D., and Dr. Schone, in the *Journal of Gerontology: Social Sciences* 63B(6), pp. 5349-5358, 2008. ■

## Women's Health

### Elderly women still see lifelong cervical cancer screening as important

Some guidelines recommend that women stop being screened for cervical cancer when they are older than 65 or 70, provided that earlier Pap screening tests have been normal. However, most women consider cervical cancer screening important over their entire lifetime, reveals a new study. Researchers conducted

face-to-face interviews with 199 elderly women; most were nonwhite and 44.7 percent were Asian. In addition to English, interviews were conducted in Spanish, Cantonese, or Mandarin. None of the women had a previous hysterectomy, which usually includes removal of

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## Cervical cancer screening

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the cervix and rules out the need for cervical screening. All of the women had received regular cervical cancer screenings.

The majority of women participating in the study (68 percent) felt that lifelong screening was either important or very important. Compared with Asian and white women, black and Latina women were more likely to hold strongly to this belief. Most of the women (77 percent) planned on being screened for the rest of their lives. Also, 60 percent had never given thought to stopping their regular screenings. Even when given information about the benefits and harms of Pap testing, the women did not change their beliefs about lifelong screening or plans to continue getting screened.

However, if recommended by their physicians, 68 percent of the women would stop screening. According

to the study, Asian women would be particularly persuaded by their physicians, with three-fourths saying they would accept the recommendation. Only 20 percent of women said they had talked with their physicians about ending screening. More than half of the women who had these conversations with their physician had received a recommendation to stop being screened, and 87 percent reported that they did, in fact, end cervical cancer screening. Independent predictors of ending screening included older age, having public insurance, and having no personal or family history of cancer. The study was supported in part by the Agency for Healthcare Research and Quality (HS10856).

See “Ending cervical cancer screening: Attitudes and beliefs from ethnically diverse older women,” by George F. Sawaya, M.D., A. Yuri Iwaoka-Scott, M.A., Sue Kim, Ph.D., M.P.H., and others, in the January 2009 *American Journal of Obstetrics & Gynecology* 200(1), pp. 40.e1-40.e7. ■

## Tool helps women decide if prenatal genetic testing is the right decision for them

The American College of Obstetrics and Gynecology recommends that all pregnant women be given an opportunity to have the fetus tested for genetic disorders, such as Down syndrome. The decision to undergo this testing can be a difficult one, because some tests pose risks to the fetus and some results pose ethical dilemmas for parents. Researchers in San Francisco evaluated the effect of a computerized tool, the Prenatal Testing Decision-Assisting Tool (PT Tool), which is designed to help pregnant women decide whether to undergo prenatal testing. The researchers evaluated the women’s knowledge, decisional conflict, and prenatal diagnostic testing choices. The tool provides personalized estimates of the chances a woman is carrying a fetus with chromosomal abnormalities, describes prenatal screening and diagnostic tests, and develops a tailored testing strategy.

Nearly 80 percent of women who used the PT Tool were able to answer questions on prenatal testing correctly compared with 65 percent of women in the control group who only read a computerized educational booklet on prenatal testing provided to all pregnant women by the State of California. Compared with the control group, women who used the PT Tool were also more able to correctly estimate their risk of experiencing a procedure-related miscarriage (48 vs. 65 percent, respectively) and chance they were carrying a fetus with Down syndrome (15 vs. 64 percent, respectively). Women who used the PT Tool were more satisfied with the educational intervention than women in the control group and were also more confident about their decision to undergo or forego testing.

After using the PT Tool, many women changed their opinions about prenatal testing. For example,

women who at baseline said they would undergo no-cost prenatal diagnostic testing if it were offered, were less likely to have the tests after determining their risks with the PT Tool. Some women who at baseline said they were not inclined to have testing, ended up having an amniocentesis or chorionic villus sampling procedure. The authors suggest that tools such as these can improve women’s decisionmaking about prenatal testing before they decline or request these procedures. This study was funded in part by the Agency for Healthcare Research and Quality (HS10856).

See “Computerized prenatal genetic testing decision-assisting tool: A randomized controlled trial,” by Miriam Kuppermann, Ph.D., M.P.H., Mary E. Norton, M.D., Elena Gates, M.D., and others in the January 2009 *Obstetrics & Gynecology* 113(1), pp. 53-63. ■



### Staff “super users” who train others on clinical information systems help shape positive employee attitudes

Clinical information systems (CIS) are often installed in health care organizations to improve patient quality. When implementing a CIS, institutions often provide extra training to employees who then serve as trainers, provide technical support, and champion the use of the system. Such individuals are called “super users.” A new study finds that the attitudes and time spent by these super users go a long way toward increasing positive employee perceptions of the CIS.

For this study, a new CIS was implemented at a large midwestern, rural hospital. The system included an electronic health record component with computerized provider order entry. Departmental administrators selected 82 clinical staff members to be trained as super users. These super users were surveyed on the amount of time they spent on work related to super user duties and on their attitudes toward these responsibilities.

The researchers found that more hours devoted to carrying out the super user role was associated with positive employee perceptions about the CIS. They

also found a positive correlation between super user attitudes toward the CIS and employee attitudes. How super users perceived their qualifications was also significantly associated with employee outcomes. According to the researchers, the effects produced by super users are far reaching within the health care organization. These individuals enhance the perceptions among employees about the usefulness and ease of use of the CIS. Super users also provide clinical staff members with supplementary development of informatics competencies in the form of just-in-time training at the point the staff are doing actual work. The study was supported in part by the Agency for Healthcare Research and Quality (HS15196).

See “The relationship between super users’ attitudes and employee experiences with clinical information systems,” by Jonathon R. B. Halbesleben, Ph.D., Douglas S. Wakefield, Ph.D., Marcia M. Ward, M.A., Ph.D., and Donald Crandall, M.D., in the January 2009 *Medical Care Research and Review* 66(1), pp. 82-96. ■

### Physician practices appear ready for electronic health record implementation

As the United States tries to meet its goal of universal electronic health records (EHR) by 2014, regional health information organizations (RHIOs) and related entities are being formed to assist in this effort. The Massachusetts e-Health Collaborative (MAeHC) is implementing EHRs in physicians’ offices located in three diverse communities and establishing an electronic health information exchange within each of those communities. Researchers have discovered that these practices mirror other physician practices throughout

the State in terms of their readiness to embrace the use of EHRs.

The researchers compared the responses of 355 MAeHC physicians with those of 1,345 physicians who were randomly selected. The survey asked about physician and practice characteristics, Internet connectivity, current health information technology use, financial incentives, satisfaction with their current practice situation, and problems that physicians encounter, such as isolation from colleagues, stress, and long work hours.

A similar proportion of physicians in both sample groups reported receiving incentives to adopt EHRs. There were also similarities in usage, patient satisfaction scores, and clinical quality measures. The majority of practices in both groups said they had limited or no financial capital to expand or improve their practices.

Internet connections were more readily available in MAeHC physician offices (96 percent) compared with statewide practices (83 percent). Physicians in MAeHC practices were more likely to report

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## Electronic health records

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that computers would have positive effects in their offices. More MAeHC than statewide physicians (68 vs. 55 percent) felt that computers would have a positive effect on controlling health care costs. Both groups reported similar barriers to starting or expanding computer use in their offices.

MAeHC practices resembled statewide practices in terms of size, existing computer infrastructure, technology adoption, and quality incentives. These findings indicate that the experiences of the physicians and practices participating in the MAeHC are likely to be generalizable to physicians and practices elsewhere throughout Massachusetts. The study was supported in part by the

Agency for Healthcare Research and Quality (HS15397).

See “Readiness for electronic health records: Comparison of characteristics of practices in a collaborative with the remainder of Massachusetts,” by Steven R. Simon, M.D., M.P.H., Rainu Kaushal, M.D., M.P.H., Lynn A. Volk, M.H.S., and others, in *Informatics in Primary Care* 16, pp. 129-137, 2008. ■

## Data derived from electronic health records is not superior to administrative data for measuring performance

Insurance claims data for medical visits, procedures, lab work, and medications are often used to determine how well a medical encounter rates when compared with performance measures. However, these administrative data lack clinical information that also may be useful for measuring performance in acute care delivery. Electronic health records (EHRs) have been put forth as a tool that can capture both administrative and clinical data that, in turn, can be used to rate performance. However, a new study by Jeffrey A. Linder, M.D., M.P.H., of Harvard Medical School, and colleagues found that EHRs do not offer complete data to gauge performance.

Researchers found that EHRs at eight clinics in the Boston area were often inaccurate in determining if a patient’s visit was actually because of pneumonia. For example, although 688 patient encounters were billed with pneumonia as a diagnosis, chart reviewers found just 198 actual visits for pneumonia. Further, 40 percent of encounters with pneumonia as a billing code were followup appointments for previous medical visits. The researchers suggest that other criteria, in addition to billing codes, are needed to improve the accuracy of identifying visits for pneumonia.

Physician performance for the 12 approved care measures for pneumonia averaged 52 percent. This poor performance may indicate that physicians have room to improve or they may not be familiar with the specific performance measures, such as the need to document mental or hydration status. Measures themselves may also have contributed to poor performance because they lacked acceptable timeframes and clear definitions.

Finally, a large portion of the data in the EHR was not coded, making data extraction for items such as mental status, hydration status, and chest x-rays difficult. EHR data may be more accurate and reliable if performance measures use variables that are likely to be coded and routinely entered in data fields. This study was funded in part by the Agency for Healthcare Research and Quality (HS14563).

See “Using electronic health records to measure physician performance for acute conditions in primary care: Empirical evaluation of the community-acquired pneumonia clinical quality measure set,” by Dr. Linder, Erin O. Kaleba, M.P.H., and Karen S. Kmetik, Ph.D., in the February 2009 *Medical Care* 47(2), pp. 208-216. ■

## Electronic medication administration records improve communication and decisionmaking in nursing homes

The 1.6 million U.S. nursing home residents are at high risk for adverse effects from medication errors. Electronic point-of-care medication administration records (eMARs) can do much to reduce this risk when combined with quality improvement efforts, concludes a new study.

Between 2003 and 2007, a team led by Jill Scott-Cawiezell, Ph.D., R.N., partnered with five midwestern nursing homes to implement eMARs. At each nursing home, a medication safety team guided staff during the transition from paper-based systems to the eMAR. The study involved more

than 300 hours of observed implementation and integration of the eMAR. The researchers analyzed medication errors made on nearly 16,000 medication doses for 3,700 residents across 200 medication administrations.

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## eMAR

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At each nursing home, the eMAR offered a structure and process to improve communication among a variety of users. For example, instead of using a 30-day hard-copy medication administration record, nurses could access real-time resident-specific medications on the computer on the medication cart. The eMAR also supported effective decisionmaking with use of drug alerts and signaling features on medication safety issues, while at the same time integrating complex tasks.

However, the technology could not overcome the outdated and

fragmented medication systems already in place. During its initial implementation, the eMAR highlighted what was broken in these systems rather than fixing medication safety practices. As the eMAR was implemented, staff continued to hold onto traditional strategies and circumvent the new eMAR features. Some types of medication errors, such as late and omitted (or missing) medications, were better reduced by the eMAR and focused quality improvement efforts. Although the eMAR did not solve these problems, it did provide real-time information that brought together staff to explore the root causes in a blame-free environment.

Prior to that, staff tended to keep medication errors underground for fear of punishment. The study was supported by the Agency for Healthcare Research and Quality (HS14281).

See “Medication safety teams’ guided implementation of electronic medication administration records in five nursing homes,” by Dr. Scott-Cawiezell, Richard W. Madsen, Ph.D., Ginette A. Pepper, Ph.D., R.N., and others, in the January 2009 *The Joint Commission Journal on Quality and Patient Safety* 35(1), pp. 29-35. ■

## Acute Care/Hospitalization

### Getting patients admitted to a hospital floor reduces length of stay and congestion in emergency departments

**P**atients seeking care at hospital emergency departments (EDs) typically face overcrowding. In some busy EDs, it is not uncommon for patients to be treated in hallways when regular bays are full. Congestion is often related to patients waiting to be admitted to hospital floors. A new study finds that adding more beds in the ED is not the answer. Instead, improving the rate at which admitted patients are moved to hospital floors shortens patient stays in the ED and consequently reduces ED congestion.

Researchers designed a computer simulation model that could replicate various ED scenarios, such as increasing beds and patients, and changing admitted ED patient departure times. The study found that increasing ED beds with a constant ED departure rate increased the mean length of stay from 240 to 247 minutes. Shortening the ED length of stay was the key to minimizing overcrowding. The most successful way of doing this was by rapidly moving admitted patients to inpatient units.

Boosting the departure rate of admitted patients decreased the ED length of stay from 240 to 218 minutes when the number of beds was kept constant. For example, in a 23-bed ED, increasing the departure rate from 1 patient every 20 minutes to 1 every 15 minutes reduced the length of stay. Such a strategy was also successful for a 28-bed ED. Length of ED stay remained the same or increased when the number of processed patients increased without a similar increase in the rate of patient departures out of the ED. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00078).

See “Adding more beds to the emergency department or reducing admitted patient boarding times: Which has a more significant influence on emergency department congestion?” by Rahul K. Khare, M.D., Emille S. Powell, M.D., M.B.A., Gilles Reinhardt, Ph.D., and Martin Lucenti, M.D., Ph.D., in the May 2009 *Annals of Emergency Medicine* 52(4), pp. S44-S56. ■

## Evidenced-based practices improve pain management and lower costs for patients hospitalized for hip fracture

Evidence-based practice (EBP) is an essential component of health care delivery. To implement EBPs, a multifaceted, translating research into practice (TRIP) intervention was used to improve the quality of acute pain management in older adults hospitalized with hip fractures. Two new studies supported by the Agency for Healthcare Research and Quality (HS10482) demonstrated that the TRIP intervention lowered pain levels experienced by these patients and cut costs. The first study showed that the quality of acute pain care increased significantly, with patients reporting lower mean pain intensity ratings. The second study found that, although it cost hospitals to implement the TRIP intervention, it more than paid for itself by lowering overall costs. Both studies are briefly summarized here.

**Titler, M.G., Herr, K., Brooks, J.M., and others. (2009, February). “Translating research into practice intervention improves management of acute pain in older hip fracture patients.” *HSR: Health Services Research* 44(1), pp. 264-287.**

Each year, more than 225,000 Medicare recipients 65 years of age or older are hospitalized with painful hip fractures. While there is a great deal of evidence on acute pain management, most elderly patients do not receive adequate pain management when they are in the hospital.

Researchers examined the medical records of 1,401 patients admitted with hip fractures to 12 acute care hospitals to measure the impact of a TRIP intervention on greater adoption of EBPs for acute pain management by nurses and physicians. Overall, patients participating in the TRIP intervention received more evidence-based pain practices compared with those not receiving the TRIP intervention. Those in the TRIP group were 2.7 times more likely to have their pain assessed every 4 hours during the first 3 days of their admission.

There was also greater adoption of pain treatment practices by nurses participating in the TRIP intervention. These included giving more patients around-the-clock administration of opioid and nonopioid analgesics. Nurses also reported a significant decrease in barriers associated with evidence-based pain management practices, such as the lack of peer consultation. Physicians participating in the TRIP intervention also had greater adoption of these evidence-based acute pain management practices.

**Brooks, J.M., Titler, M.G., Ardery, G., and Herr, K. (2009, February). “Effect of evidence-based acute pain management practices on inpatient costs.” *HSR: Health Services Research* 44(1), pp. 245-263.**

In this study, the researchers estimated cost changes associated

with implementing the TRIP intervention within 12 acute care hospitals. The TRIP intervention used physician and nurse opinion leaders, educational programs, and evidenced-based practice guidelines on acute pain management in the elderly. A total of 1,401 medical records and associated costs were reviewed.

The TRIP intervention reduced the cost of an average inpatient stay by just over \$1,500. Contributing to these savings were a half-day reduction in length of stay and a reduction of more than \$150 in cost per day. The average direct cost to get the program up and running at a hospital was \$17,714. Implementing TRIP resulted in extra nursing costs as well as costs associated with special patient rooms.

However, the cost increases were offset by cost savings for such things as room and board, pharmacy, laboratory, radiology, and operating room use. If a hospital treats 100 patients with hip fractures, it can expect to see a reduction in treatment costs of more than \$150,000 by using the TRIP intervention. Factoring in the cost of the program, the overall cost reduction would be \$132,286. ■

## Surgical Apgar score can help pinpoint patients at risk for major complications and/or death after surgery

Efforts to reduce surgery's overall 3 percent major complication rate have been partially hampered, because most hospital surgical departments have no easily applied tool to routinely measure and monitor surgical results. However, a preliminary study shows promising results for a recently developed tool that may be useful for evaluating interventions to prevent poor surgical outcomes. The Surgical Apgar Score calculates a patient's blood loss (BL), lowest heart rate (HR), and lowest mean arterial pressure (MAP) during an operation to identify patients at risk for major complications and/or death within 30 days after surgery.

The researchers used electronic intraoperative records at a major medical center to calculate Surgical Apgar Scores during a 2-year period from July 1, 2003 through June 30, 2005. They used the 10-point score to rate surgical outcomes in a sample of 4,119 general and vascular surgery patients enrolled in the National Surgical Quality Improvement Program at the medical center. Of 1,441 patients with Surgical Apgar Scores of 9 or 10 (best scores), 5 percent developed major

complications within 30 days, including two deaths (0.1 percent). By comparison, among 128 patients with scores of 4 or less, 56.3 percent developed major complications and 25 (19.5 percent) died. Each of the three scores was a significant predictor of complications and death. The mean lowest heart rates were significantly lower (58 vs. 63) and mean lowest MAPs were significantly higher (65 vs. 61) among patients with no complications compared with those with major complications. Likewise, median BL was significantly lower in operations with no major complications than in those resulting in major complications (25 vs. 200 mL). The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00020).

See "Utility of the surgical Apgar score," by Scott E. Regenbogen, M.D., M.P.H., Jesse M. Ehrenfeld, M.D., Stuart R. Lipsitz, Sc.D., and others in the January 2009 *Archives of Surgery* 144(1), pp. 30-36. ■

### Patient Safety and Quality

## Surgeons are skeptical about how surgeon-specific quality outcomes should be measured and reported

Surgeons endorse surgical quality improvement programs at the institutional level. However, they remain skeptical about how surgeon-specific quality outcomes should be measured and reported, suggests a new study. For example, they fear that the risk-adjustment methods used in measuring outcomes are not reliable enough to avoid penalizing surgeons who perform high-risk procedures that often have poorer outcomes.

Researchers evaluated surgeons' awareness and attitudes about the American College of Surgeons' National Surgical Quality Improvement Program (ACS-NSQIP). This risk-adjusted measure of surgical patient outcomes is now

used in more than 180 private sector hospitals. It is also being considered to direct future pay-for-performance programs sponsored by the Centers for Medicare & Medicaid Services. The study surveyed 108 surgeons, including residents and highly experienced clinicians.

Overall, the study found that surgeons recognized the importance and acceptance of quality initiatives, such as the ACS-NSQIP. They were also aware of the key principles behind the NSQIP, including its prospective data collection and risk-adjustment methods. The participating surgeons viewed the ACS-NSQIP data as being more reliable

compared with other quality improvement initiatives.

However, they did not believe that the unique risk-adjustment aspect of the program was reliable enough to prevent surgeons who perform high-risk procedures from being penalized. There was also uncertainty as to whether or not these data should be reported to the public, including patients and payers, or used in marketing campaigns. Most surveyed surgeons believed that surgical outcomes were not the sole measure of surgical quality and that surgeon-specific outcomes should not be used within a hospital to direct patient referrals. Finally, most

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## Surgeons

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surgeons considered that the data were not accurate enough to guide pay-for-performance programs. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00066).

See “Surrounded by quality metrics: What do surgeons think of ACS-NSQIP?” by Heather B. Neuman, M.D., M.S., Fabrizio Michelassi, M.D., F.A.C.S., James W. Turner, M.D., F.A.C.S., and Barbara Lee Bass, M.D., F.A.C.S., in the January 2009 *Surgery* 145, pp. 27-33. ■

## Anesthesiologists who read during operations are as vigilant as those who do not read

Critics claim that anesthesiologists who read while their patients undergo medical procedures are less vigilant and provide poor quality of care. Countering those accusations are the claims that reading during long operations actually keeps anesthesiologists intellectually stimulated. A new study finds that anesthesiologists who read during operations are just as vigilant and manage their workloads equally well as anesthesiologists who do not read.

Researchers from the Vanderbilt University School of Medicine observed anesthesiologists reading

during 60 of 172 general anesthesia cases at 2 teaching hospitals in San Diego, California, from April 1998 to April 2002. Readers spent an average of 29 minutes reading during each case. When observers recorded the time it took anesthesiologists to acknowledge a red alarm light, both the reading and nonreading group responded in an average of just under 30 seconds.

Reading occurred only when the anesthesiologist had no tasks to perform, other than monitoring the patient. The authors suggest that reading is used as a way to stave off the boredom that can

result from low workload during the maintenance periods of anesthesia. Policies that prohibit anesthesiologists from reading to stay alert during procedures may result in unintended adverse events, the authors suggest. This study was funded in part by the Agency for Healthcare Research and Quality (HS11521).

See “Effects of intraoperative reading on vigilance and workload during anesthesia care in an academic medical center,” by Jason M. Slagle, Ph.D., and Matthew B. Weinger, M.D., in the February 2009 *Anesthesiology* 110(2), pp. 275-283. ■

## Several practices of hospital governing boards are linked to improved quality of care

Legal responsibility for hospital quality of care ultimately resides with the hospital's governing board. Several hospital governing board practices are linked to improved quality of hospital care, reveals a new study. Governing boards need to organize themselves to actively participate in setting the quality agenda, establish strategic goals for improvement, and evaluate the hospital's clinical performance against those goals, assert H. Joanna Jiang, Ph.D., and Irene Fraser, Ph.D., of the Agency for Healthcare Research and Quality (AHRQ). Along with coinvestigators at The Governance Institute, they measured quality by performance in process of care and risk-adjusted mortality rates. They analyzed Hospital Compare data from the Centers for Medicare & Medicaid Services and the AHRQ Quality Indicators and Healthcare Cost and Utilization Project inpatient databases.

Hospitals that had a single board committee that focused exclusively on quality had better performance in process of care and mortality indicators. Having a chief medical officer/vice president of medical affairs on the quality committee further enhanced a hospital's quality performance. Another favorable practice was use of a dashboard with internal data and national benchmarks for monitoring clinical quality, patient safety, and patient satisfaction.

Holding senior executives accountable for meeting specific goals by including measures for quality and patient safety in their performance evaluation was also linked to improved quality. Other board practices linked to improved hospital care quality included discussion of quality-specific items at board meetings; establishing strategic goals for quality improvement; and board

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## Quality of Care

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involvement in setting the quality agenda of the hospital.

More details are in “Board oversight of quality: Any differences in process of care and mortality?” by Dr.

Jiang, Carlin Lockee, Karma Bass, F.A.C.H.E., and Dr. Fraser, in the January/February 2009 *Journal of Healthcare Management* 54(1), pp. 15-30. Reprints (AHRQ Publication No. 09-R041) are available from AHRQ.\* ■

## Examining processes, not outcomes, improves patient safety in hospitals

When adverse events occur, hospitals typically use two approaches, or a combination of the two, to document them. The outcome approach examines the harm a patient suffered, such as a heart attack that may or may not have been a result of medical care. The process approach looks at the steps leading up to the event to see how systems can be improved to prevent future errors, such as giving a patient the wrong medication. A new study from RAND researchers determines that the process approach is superior to the outcome approach for improving patient safety, because process reports typically offer more useful information on factors that caused adverse events and promote a blame-free culture for voluntary reporting.

Of the 3,875 incident reports from two Southern California hospitals, half focused on care process variations, 35.3 percent on undesirable outcomes, and 10.3 percent on a mix of both. Nearly all the process-oriented reports pinpointed how incidents could have been prevented, but 75 percent of the outcome-oriented reports did not offer that information.

The authors suggest that neither process- nor outcome-oriented reports are perfect instruments. Process-oriented reports need more particulars to be useful. One way to gather richer details is by using an electronic reporting system that offers a classification system for patient safety events and encourages providers to provide in-depth descriptions that may reveal

factors that contributed to the incident. Although outcome-oriented reports do not specify if an adverse event occurred and don't offer information on preventing them, hospitals can still use the information to conduct thorough investigations when necessary. This study was funded in part by the Agency for Healthcare Research and Quality (HS11512).

See “Comparing process- and outcome-oriented approaches to voluntary incident reporting in two hospitals,” by Teryl K. Nuckols, M.D., M.S.H.S., Douglas S. Bell, M.D., Ph.D., Susan M. Paddock, Ph.D., and Lee H. Hilborne, M.D., M.P.H., in the March 2009 *Joint Commission Journal on Quality and Patient Safety* 35(3), pp. 139-145. ■

## Nurses feel left out of the medical error disclosure process

The disclosure of harmful medical errors is actively promoted by patients and health care professionals. However, only 30 percent of these errors actually get disclosed to patients harmed by them. Such disclosures are typically conducted by physicians. In fact, nurses are often left out of disclosure discussions and feel excluded from the process, reveals a new study. Health care organizations that integrate the entire health care team into the disclosure process will likely improve the quality of error disclosure, suggest the study authors.

They conducted 11 focus groups with 96 registered nurses at 4 health care organizations near Seattle, Washington. Participants were asked to share information about a serious safety event that occurred and what was communicated to the team and the patient. They were also asked to comment on their

institution's culture and policies on disclosing medical errors.

The study found that nurses routinely disclosed errors that caused either no harm or minor harm. However, when it came to more serious or team errors, the participating nurses were not fully encouraged to participate in the disclosure process. In addition to not knowing if an error had actually been disclosed, the nurses were often not told what was explained to the patient. These inadequacies in communication led nurses to share information with patients and families that was ultimately inaccurate, incomplete, or ill-timed. Nurses also admitted to either avoiding questions about errors altogether or providing indirect answers. Some even resorted to deception at times as a way to avoid discussion.

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## Medical errors

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Unlike physicians, nurses saw the disclosure process as a team event rather than a physician-patient conversation. They cited hierarchical relationships between physicians and other health care professionals as having a negative impact on such open dialogue. The authors recommend that hospital administrators support the role of the nurse manager as a resource for error

disclosures through training and education. The study was supported in part by the Agency for Healthcare Research and Quality (HS65801 and HS01201).

See “Disclosing errors to patients: Perspectives of registered nurses,” by Sarah E. Shannon, Ph.D., R.N., Mary Beth Foglia, Ph.D., M.N., M.A., R.N., Mary Hardy, M.A., R.N., and Thomas H. Gallagher, M.D., in the January 2009 *Joint Commission Journal on Quality and Patient Safety* 35(1), pp. 5-12. ■

## Outcomes/Effectiveness Research

### Study underscores the positive impact of patient-centered care delivered by nurses on cancer patient outcomes

A new study reveals the positive impact of patient-centered care delivered by nurses on the outcomes of cancer patients. Desired outcomes such as optimism, a sense of well-being, and trust were more likely for patients who received patient-centered nursing interventions (PCNIs). Laurel E. Radwin, Ph.D., R.N., of Massachusetts General Hospital, and colleagues used factor analysis to examine the relationships between PCNIs (care individualization, care coordination, responsiveness, and proficiency), hospital system characteristics, and patient characteristics with specific desired health outcomes for 173 hematology-oncology patients at 1 hospital.

Nurse responsiveness and proficiency were positively related

to patients' trust in nurses. Individualization of care was positively related to patients' authentic self-representation, optimism, and sense of well-being. Care coordination was positively related to patients' authentic self-representation. Two health care system characteristics were significantly related to PCNIs and patient outcomes. Oncology nursing certification was positively related to proficiency and oncology nursing experience was inversely related to proficiency. Both were indirectly related to patients' subsequent trust in nurses.

Finally, two patient characteristics were related to desired health outcomes. The patient's rating of general health was positively related to optimism and a sense of well-being. Patient

educational level was positively related to a sense of well-being. Patients' perceptions of PCNIs did not vary by age, gender, race, ethnicity, or educational level. Patient-centeredness of care for cancer patients may be enhanced by quality improvement activities that measure and monitor these PCNIs and resulting outcomes, suggest the researchers. Their study was supported by the Agency for Healthcare Research and Quality (HS11625).

See “Relationships between patient-centered cancer nursing interventions and desired health outcomes in the context of the health care system,” by Dr. Radwin, Howard J. Cabral, Ph.D., M.P.H., and Gail Wilkes, M.S., R.N., in *Research in Nursing & Health* 32, pp. 4-17, 2009. ■

### Nonelderly patients have more negative perceptions of patient-provider communication than the elderly

Effective communication between health care providers and patients can substantially influence patient behaviors and health outcomes. Nonelderly patients have more negative perceptions of this communication than the elderly, according to a new study. Researchers found that individuals aged 18 to 64 years were less likely than those 65 and older to report that their provider always listened to them, always showed respect

for what they had to say, and always spent enough time with them. Patients aged 25 to 44 years were similarly less likely to report positive perceptions of communication with their provider, although the perceptions of those between 45 and 64 years were somewhat closer to the oldest group.

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## Communication

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Patient age was less associated with perceptions about how usual care providers engaged patients in shared health care decisionmaking. Adults between 18 and 44 years were less likely to report that their usual care provider(s) included them in health care decisionmaking compared with the oldest group. However, there was no significant difference in this area between the oldest group and those 45 to 64 years. There were no significant differences among the various age groups in their responses to the question of how often a usual care provider gave them some control over treatment.

It's not clear whether younger patients have higher expectations for communication, whether age itself influences how different patients perceive similar interactions, or if physicians simply communicate

differently with older patients, notes Jennifer E. DeVoe, M.D., D.Phil., of the Oregon Health and Science University.

Dr. DeVoe and fellow researchers analyzed data from the 2002 Medical Expenditure Panel Survey. They examined the association between patient age and six outcomes related to communication and decisionmaking autonomy. They controlled for other factors affecting patient-provider communication such as gender, race/ethnicity, family income, and education. The study was supported in part by the Agency for Healthcare Research and Quality (HS14645 and HS16181).

See "Patient age influences perceptions about health care communication," by Dr. DeVoe, Lorraine S. Wallace, Ph.D., and George E. Fryer, Jr., Ph.D., in the February 2009 *Family Medicine* 41(2), pp. 126-133. ■

## Patients who are connected to their doctors tend to receive care that adheres to guidelines

Patients shown to have a close connection to their doctors visited their doctors more often and had better outcomes than patients who merely reported an association with a medical practice, a recent study finds. Of the 155,590 patients seen at 13 Boston medical practices, 59.3 percent were connected to a primary care physician (PCP) compared with 34.5 percent who were connected only to a medical practice. This doctor-patient connection often resulted in receiving care that adhered to established screening guidelines. For example, 78.1 percent of PCP-connected women received mammograms compared with 65.9 percent of women who reported a connection to a medical practice. Screenings for colorectal

cancer were 77.1 percent for PCP-connected patients compared with 69.6 percent for practice-connected patients.

Timothy G. Ferris, M.D., M.P.H., of Harvard Medical School, and colleagues found that patients who did not have close relationships with their physicians were less likely to undergo tests for preventive or chronic care. This lack of a connection may affect doctors who participate in pay-for-performance systems, which reward physicians for high scores on performance measures. These systems, the authors suggest, may penalize physicians who provide care to populations that are disinclined to connect to their physicians, potentially through no fault of the physician.

Black and Hispanic patients were less likely than whites to have a PCP connection; thus, these patients were less likely to receive care that adhered to guidelines. The authors suggest that disparities in care may be mediated in part by improving patients' relationships with their PCPs. This study was funded in part by the Agency for Healthcare Research and Quality (HS15002).

See "Patient-physician connectedness and quality of primary care," by Steven J. Atlas, M.D., M.P.H., Richard W. Grant, M.D., M.P.H., Dr. Ferris, and others in the March 3, 2009 *Annals of Internal Medicine* 150(5), pp. 325-335. ■

## Study uncovers factors that determine when rural hospitals convert to critical access hospital designation

The goal of Federal Medicare legislation that allows small rural hospitals meeting certain criteria to convert to Critical Access Hospital (CAH) status is to provide them with financial relief and ensure Medicare-insured rural patients access to care. While hospital administrators often cite financial concerns as the main reason for converting to CAH status, other factors actually determine when rural hospitals decide to undergo conversion, concludes a new study. CAH designation enables hospitals to change from fixed prospective to cost-based Medicare reimbursement, which pays them more for swing beds in which patients initially receive acute care followed by skilled nursing care. However hospitals must meet bed size restrictions and have an average annual length of stay of 4 days, notes Marcia Ward, Ph.D., of the University of Iowa.

Dr. Ward and colleagues examined conversion factors among 89 not-for-profit, nonteaching rural hospitals in Iowa from 1998 to 2005, a time when the number of Iowa CAHs grew from 1 to 81. They used a variety of hospital-level data from several databases, including the American Hospital Association and the Iowa Hospital Association. Hospital inpatient volume

and average length of stay were the two strongest predictors of time to conversion. Hospitals that converted early on in the period tended to be smaller, with lower operating margins and fewer full-time nurses per bed. They also had significantly higher skilled swing bed days (when patients received skilled nursing care) relative to acute bed days (when patients received acute care).

The mean number of staffed hospital beds in 1998 was 52 for early converters compared with 76 for nonconverting hospitals. Other characteristics of early hospital conversions besides fewer staffed beds, were acute discharges and acute inpatient days, but higher Medicare acute days. The number of skilled swing bed days had a stronger effect on time to conversion compared with nonskilled swing bed days. The study was supported in part by the Agency for Healthcare Research and Quality (HS15009).

See “Factors associated with Iowa rural hospitals’ decision to convert to critical access hospital status,” by Pengxiang Li, Ph.D., Dr. Ward, and John E. Schneider, Ph.D., in the Winter 2009 *Journal of Rural Health* 25(1), pp. 70-76. ■

## Health Care Costs and Financing

### Both patient and hospital factors drive discharge costs of coronary artery bypass graft surgery

Nearly half a million coronary artery bypass graft (CABG) surgeries were performed in the United States in 2005. Several patient and hospital factors drive CABG discharge costs, reveals a new study. It found that older patient age, female gender, and being black were linked with higher costs. Also, lower cardiac ejection fraction (indicating lower pumping power of the heart), longer time between heart attack and CABG hospital admission, greater number of diseased coronary vessels, previous open heart operations, and a

number of coexisting illnesses besides heart disease were all linked to higher CABG discharge costs.

Understanding the differential impact of these patient risk factors can aid in cost containment efforts, suggests Shadi S. Saleh, Ph.D., M.P.H., of the State University of New York at Albany. For example, certain interventions can be implemented to reduce risk among patients with specific preoperative characteristics. Dr. Saleh’s team also linked several hospital characteristics to higher CABG

discharge costs. Larger hospitals had higher CABG discharge costs, perhaps because many of them were teaching hospitals that typically have higher costs than nonteaching hospitals. On the other hand, CABG discharge costs significantly declined with greater hospital CABG volume (250 or more CABG procedures each year).

The researchers suggest that providers could enhance efficiency by attracting more CABG procedures to their facility. They

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## CABG

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note that payers may reward (for example, selectively contract) high-volume and consequently lower-cost hospitals as part of implementing a value-based purchasing system. Other factors such as hospital staffing and operating room scheduling may

affect CABG discharge costs, but these were not studied. These findings were based on analysis of data in the New York State Cardiac Surgery Reporting System, American Hospital Association data, and Medicare data. The study population included 12,016 adults who underwent CABG in a New York hospital and were discharged in 2003. The study was supported

in part by the Agency for Healthcare Research and Quality (HS15751).

More details are in “The effect of preoperative and hospital characteristics on costs for coronary artery bypass graft,” by Dr. Saleh, Michael Racz, Ph.D., and Edward Hannan, Ph.D., in the February 2009 *Annals of Surgery* 249(2), pp. 335-341. ■

## Information on past-year drug use improves the accuracy of Medicare Part D prescription drug payments to health plans

Medicare offers an outpatient prescription drug plan under Part D of the program. It pays private health plans a prospective payment for each Part D beneficiary, which is adjusted for the individual’s disease burden. Incorporating information on the person’s prior year drug use and costs can improve the accuracy of payments to Part D plans, concludes a new study. A research team evaluated the performance of multiple approaches to predict 2006 Part D drug costs and plan liability for 139,462 beneficiaries participating in the Medicare

Advantage drug program in 2005 and 2006. Accurate risk adjustment allows for plans to be paid fairly, while at the same time discouraging them from selecting patients with better health risk profiles. Currently, the Part D risk-adjustment score only takes into consideration patient diagnostic and demographic information.

The current approach explained 12 percent of the variation in all Part D costs in 2006 and 19 percent of Part D plan liability. Approaches that included prior year drug use, including types of drugs used in a particular therapeutic class,

explained 29 percent of the variation in Part D costs. Including drug cost information further improved prediction, increasing the percentage of variation explained to 39 percent. The study was supported in part by the Agency for Healthcare Research and Quality (HS13902).

See “Distributing \$800 billion: An early assessment of Medicare part D risk adjustment,” by John Hsu, M.D., M.B.A., M.S.C.E., Jie Huang, Ph.D., Vicki Fung, Ph.D., and others, in the January/February 2009 *Health Affairs* 28(1), pp. 215-225. ■

## Agency News and Notes

### Hospitalizations for asthma, diabetes, and other conditions are much higher among the poor

Hospital admissions of Americans from the poorest communities for asthma and diabetes were 87 percent and 77 percent higher, respectively, than admissions for patients from wealthier areas for the same diseases, according to data from the Agency for Healthcare Research and Quality.

Hospitalizations for asthma and diabetes are potentially preventable, because good outpatient care can help to prevent the need for hospitalization. Despite national efforts to eliminate health care disparities, low-income Americans continue to have higher hospital admission rates for asthma and many other conditions.

AHRQ’s analysis found that compared to Americans from wealthier areas:

- Patients from the poorest communities were more likely to be hospitalized for chronic obstructive pulmonary disease, 69 percent; congestive heart failure, 51 percent; skin infections, 49 percent; and dehydration, 38 percent.
- Patients from the poorest communities were more likely to be admitted for severe blood infection, stroke, and depression.

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## Hospital admissions

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- Hospitalized Americans from the poorest communities were 80 percent more likely to receive hemodialysis for kidney failure, and they were 81 percent more likely to undergo procedures often done on an outpatient basis, such as eye and ear procedures.

These findings are based on data in *Hospital Stays among People Living in the Poorest Communities*,

2006, Statistical Brief #73 ([www.hcup-us.ahrq.gov/reports/statbriefs/sb73.pdf](http://www.hcup-us.ahrq.gov/reports/statbriefs/sb73.pdf)). 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. ■

## Keeping diabetes under control is still elusive for many Americans

Only slightly more than half of the 18 million Americans diagnosed with diabetes had their blood sugar, cholesterol, and blood pressure under optimum control in 2006, according to the latest data from the Agency for Healthcare Research and Quality. Overall, about 55 percent of American adults with diabetes had their blood sugar and total cholesterol levels under control, and about 59 percent had their blood pressure under control. Failure to properly manage diabetes can increase the risk of complications such as heart attack and stroke.

Diabetes is the sixth leading cause of death in the United States, with \$116 billion spent on medical care for people with the

disease, according to AHRQ's recently released 2008 *National Healthcare Disparities Report*. The report also indicates that another 6 million Americans may have diabetes but don't know it.

In addition, the report shows that:

- In 2006, just 43 percent of blacks and 38 percent of Mexican-Americans with diabetes had their blood sugar levels under control, compared with 61 percent of non-Hispanic whites with diabetes.
- From 2002 to 2006, the percentage of people with diabetes who had their blood

pressure under control improved for blacks, from 39 percent to 58 percent, and for Mexican-Americans, from 49 percent to 67 percent. By 2006, there were no significant differences in blood pressure control among blacks, Mexican-Americans, and non-Hispanic whites with diabetes.

These data come from the 2008 *National Healthcare Disparities Report*, which examines the disparities in Americans' access to and quality of health care, with breakdowns by race, ethnicity, income, and education. The report is available at <http://www.ahrq.gov/qual/nhdr08/nhdr08.pdf>. ■

## Minorities and the poor find communicating with doctors more difficult

Patient-provider communication influences quality of care, but black and Asian patients were more likely than white patients to report communication difficulties with their doctors in 2005, according to data from the Agency for Healthcare Research and Quality (AHRQ). Good communication is important for the medical care provider to understand the patient's needs, wants, and preferences, and for the patient to understand and participate in his or her own care.

AHRQ found that roughly 13 percent of blacks and Asians reported communication problems with their doctors in 2005, compared with 9 percent of whites.

Moreover, the gap between blacks and whites widened between 2002 and 2005. In contrast, the gap between Hispanic and non-Hispanic white adults narrowed. Even so, about 12 percent of Hispanic adults reported difficulties communicating with their doctors in 2005. AHRQ's analysis also showed that:

- Roughly twice as many poor people as high-income people, regardless of their race or ethnicity, reported communication problems in 2005 (15 percent vs. 7 percent).

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## Patient-provider communication

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- Among high school graduates, blacks (13 percent) and Hispanics (12 percent) were more likely than, whites (9 percent) to report poor communication with their health providers.
- Among people with less than a high school education, blacks were more likely than whites to

report communication problems (18.6 percent vs. 12.5 percent).

These findings are based on data from the 2008 *National Healthcare Disparities Report* ([www.ahrq.gov/qual/qdr08.htm](http://www.ahrq.gov/qual/qdr08.htm)), which examines the disparities in Americans' access to and quality of health care, with breakdowns by race, ethnicity, income, and education. ■

## Nearly 25 million U.S. women treated for high blood pressure

Approximately 25 million women in the United States – most over the age of 45 – were treated for high blood pressure in 2006, making it the most common condition for which women sought treatment, according to data from the Agency for Healthcare Research and Quality (AHRQ). The statistical analysis by AHRQ found that the other most common diseases for which women sought treatment in 2006 by age group, included:

- Women age 65 and older: Hyperlipidemia, fat buildup in the blood (7.1 million); osteoarthritis (5.9 million); heart

disease (5.7 million); and chronic obstructive pulmonary disease and asthma (5.5 million).

- Women aged 45 to 64: Depression and other mental disorders (8.3 million); chronic obstructive pulmonary disease and asthma (8.2 million); hyperlipidemia (6.5 million); and osteoarthritis (5.8 million).
- Women 30 to 44: Depression and other mental disorders (5 million); chronic obstructive pulmonary disease or asthma (4.8 million); female genital disorders (4.2 million); and acute bronchitis (4 million).

AHRQ's data include treatment in doctors' offices and hospital outpatient clinics, emergency rooms, hospitals, and by home health care providers. This analysis was based on data from AHRQ's Medical Expenditure Panel ([www.meps.ahrq.gov](http://www.meps.ahrq.gov)). MEPS collects information each year from a nationally representative sample of the U.S. civilian noninstitutionalized population about their health care use, expenses, access to services, health status, and the quality of the health care they obtained. ■

## Nearly two in three publicly insured adults under age 65 suffer from one or more chronic conditions

Nearly two of every three adult Americans under age 65 who were covered by public insurance from 2005 to 2006 had at least one chronic illness, such as diabetes, heart disease, and kidney disease, according to data from the Agency for Healthcare Research and Quality.

- About 57 percent of people with private insurance and 36 percent of the uninsured had one or more chronic ailments.
- People who had two or more chronic illnesses accounted for 45 percent of the publicly insured, 32 percent of the privately insured, and 17 percent of the uninsured.
- Health expenditures for treatment of chronic conditions for adults with two or more such conditions averaged \$6,455 for people who only had public insurance compared with \$1,987 for the uninsured and \$3,598 for people with private insurance.

- However, a publicly insured person with two or more chronic illnesses had lower average annual out-of-pocket expenses than a similar uninsured person (\$708 vs. \$1,040).
- Chronic diseases accounted for 57 percent of medical care spending for adults who only had public insurance, 46 percent for the privately insured, and 47 percent for the uninsured.

These data are taken from the Medical Expenditure Panel Survey (MEPS), a detailed source of information on the health services used by Americans, the frequency and cost of use, and source(s) of payment. For more information, see *Healthcare Expenses for Chronic Conditions Among Non-Elderly Adults: Variations by Insurance Coverage, 2005-2006 (Average Annual Estimates)*, Statistical Brief #243, at [www.meps.ahrq.gov/mepsweb/](http://www.meps.ahrq.gov/mepsweb/). ■

## New AHRQ report finds no clear evidence for which erectile dysfunction drugs work best

A new report by the Agency for Healthcare Research and Quality (AHRQ) found that there isn't enough evidence to determine which drugs work best to treat erectile dysfunction and which cause the least harm. Erectile dysfunction is a common sexual disorder that prevents men from getting or keeping an erection. It affects between 15 million and 30 million men in the United States.

The authors found that men who took oral phosphodiesterase type 5 inhibitors (PDE-5 inhibitors) had improved erectile function compared with men who didn't take the medication. However, head-to-head trials comparing three erectile function medications – sildenafil (Viagra®), vardenafil (Levitra®), and tadalafil (Cialis®) - were inconclusive as to which medication worked best.

The most common short-term side effects in men taking PDE-5 inhibitors were headache, flushing, abdominal pain, and runny nose. Although the types of reactions varied with the drugs studied, there were no significant differences in side effects associated with any of the three drugs.

Alexander Tsertsvadze, M.D., of the AHRQ-supported University of Ottawa Evidence-based Practice Center, who led the review, called for more studies to clarify the best treatment management options for different groups of patients, as well as more clinical trials to compare PDE-5 inhibitors to hormones, injections, and creams or other topical treatments for erectile dysfunction. For a copy of the report, *Diagnosis and Treatment of Erectile Dysfunction* see <http://www.ahrq.gov/downloads/pub/evidence/pdf/erectiledys/erecdys.pdf>. ■

### Research Briefs

**An, P. G., Rabatin, J. S., Manwell, L. B., and others. (2009, February). “Burden of difficult encounters in primary care: Data from the Minimizing Error, Maximizing Outcomes study.” (AHRQ grant HS11955). *Archives of Internal Medicine*, 169(4), pp. 410-414.**

Difficult encounters between patient and physician are a readily recognized challenge in primary care, and the shared responsibility and contributions to such interactions have been increasingly acknowledged. Using a survey derived from the Physician Worklife Survey, the researchers asked general internists and family physicians associated with ambulatory clinics in three States about such interactions. These included encounters in which the patient insisted on an unnecessary drug or procedure, was verbally abusive, not respectful, or persistently complained about care.

They found that insisting on an unnecessary drug was the most frequently cited challenge (36 percent). A Latent Cluster Analysis was used to classify physicians based on their responses of the Burden of Difficult Encounters measure. Physicians were divided into clusters of low, medium, or high difficulty, based on perceived difficulty. Physicians were also measured on job satisfaction, stress, and burnout. High difficulty cluster physicians were significantly younger on average (41 years), compared with those in medium (43 years), and low (46 years) clusters. They were also 2.2 times more likely than medium difficulty cluster physicians to report burnout and 12.2 times more likely to be burned out than low difficulty cluster physicians.

**Battles, J. B., and Stevens, D. P. (2009, February). “Adverse event reporting systems and safer**

**healthcare.” *Quality and Safety of Health Care*, 18(1), p.2. Reprints (AHRQ Publication No. 09-R043) are available from AHRQ.\***

Although event-reporting systems are now central elements in effective patient safety systems, their growth and implementation have been slow, and their effective use for implementing strategies for safer care has been even slower. Large-scale reporting systems have been developed in the U.S. Veteran's Administration, national systems in Denmark and the UK, and State-based systems in the United States and Australia. However, regulations to allow an effective national approach in the United States did not become effective until January 2009. The UK established its National Reporting and Learning System in England and Wales in 2003, and by 2007, had over one million reports. Reporting must be accompanied by

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real change and improvement that uses what we know to address what we find by such measurement systems. The authors conclude that the most compelling challenge to operators of existing reporting systems is to mine their data and publish findings from their systems.

**Clancy, C. M. “New patient safety organizations can help health providers learn from and reduce patient safety events.” (2009, March). *Journal of Patient Safety* 5(1), pp 1–2. Reprints (AHRQ Publication No. 09-R049) are available from AHRQ.\***

In this commentary, AHRQ Director Carolyn M. Clancy, M.D., discusses the creation of patient safety organizations (PSOs) by the Patient Safety and Quality Improvement Act of 2005. She explains that PSOs are intended to address the need for privilege and confidentiality of information about patient safety events so that this information can be collected for analysis without fear of such data being used in lawsuits. She explains how PSOs will serve the function of providing a national, uniform set of privilege and confidentiality protections on submitted data and technical support to health care providers who want a patient safety event or set of events analyzed. To facilitate the collection and reporting of patient safety information, AHRQ released Common Formats for event reporting last fall. Because of the value of large-scale data aggregation to identify the underlying causes of the risks and hazards of patient care, The Department of Health and Human Services has been authorized to create a network of patient safety databases to encourage learning

from pooled event data and dissemination of lessons learned.

**Clancy, C. M., Anderson, K. M., and White, P. J. (2009, March/April). “Investing in health information infrastructure: Can it help achieve health reform?” *Health Affairs* 28(2), pp. 478–482. Reprints (AHRQ Publication No. 09-R045) are available from AHRQ.\***

This paper examines the current status of health information technology (health IT) in supporting quality measurement efforts in health care, describes near-term steps to link health IT and quality improvement, and suggests future directions for using health IT to support quality health care. The authors note that current commercial health IT systems only have a rudimentary capacity for quality measurement without additional programming by the user facility. They list a series of near-term initiatives to improve this situation recommended by the Health IT Expert Panel convened by the National Quality Forum. The initiatives are: emphasize and provide incentives for data sharing as a first step toward care coordination; launch focused multipayer pilot projects; create policy interoperability, such as for State and Federal privacy protections; and tailor resources to a region’s readiness for health IT adoption. The authors note that, for the future, sizable long-term investments are needed to create and manage a strategic plan to achieve a high-value health care system that takes full benefit of health IT.

**Conway, P. H., and Clancy, C. M. (2009). “Transformation of health care at the front line.” *Journal of the American Medical***

***Association* 301(7), pp. 763-765. Reprints (AHRQ Publication No. 09-R026) are available from AHRQ.\***

Given an underperforming health care system and untenable rising costs, it is important for health care to take the path that aligns quality and value efforts with care where it matters, at the front line with clinicians and patients. The Agency for Healthcare Research and Quality has a role to play in developing the science of measurement, research on quality improvement, and informing how to transform the system successfully, but leadership and collaboration from all stakeholders and a clear vision are needed. In this process, the five key drivers are quality measurement and payment, health information technology, comparative effectiveness, quality improvement collaboratives and learning networks, and clinician training. There must be an investment in these key drivers, which are fundamental building blocks in the transformation of care.

Also, clinicians need to actively engage in the process of developing solutions to improve care at the front line. In addition, the health care payment system should increase its focus on payment for high-quality efficient care.

**Diamond, C. C., Mostashari, F., and Shirky, C. (2009). “Collecting and sharing data for population health: A new paradigm,” (AHRQ grant HS17059). *Health Affairs* 28(2), pp. 454–466.**

The dominant approach to handling population health data over the past 30 years has been to gather copies of the needed information into a data storehouse, make data from different sources comparable (normalize the data),

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and run queries against the collected data. This centralized databank model can create difficulties because of incomplete participation by institutions that gather the data, the likelihood of errors in the data, and time lags between gathering and analysis of the data. These problems can be avoided by use of a networked technical architecture and a federated governance model, suggest the authors of this paper. The advantages of a networked model for analyzing population health information are that the original sources retain strong control of their data and little raw data is moved around. Instead, using shared standards, queries are sent to each of the data sources and normalized and question-specific data are shared with the researchers. Such networked architectures can reduce costs and make better use of existing technical infrastructure, the authors suggest. Examples of successful distributed data networks, such as the Distributed Surveillance Taskforce for Real-time Influence Burden Tracking, are discussed in the paper.

**Dimitropoulos, L., and Rizk, S. (2009).** “A State-based approach to privacy and security for interoperable health information exchange.” (AHRQ Contract No. 290-05-0015). *Health Affairs* 28(2), pp. 428–434.

The design of systems that allow for exchange of information from electronic health records is made more difficult by variations in State laws and organizational policies on privacy and authorization. This article describes the formation of the Privacy and Security Solutions for Interoperable Health Information Exchange project, and

its creation of the Health Information Security and Privacy Collaboration (HISPC) that currently involves 42 States and territories. The key activities have been assessment of variation in: consent and permission, privacy and security, authentication and authorization, and linking data to one person. A multi-State collaboration is working to develop common solutions for: patient consent for disclosure, harmonizing State privacy laws, standard authentication and audit policies, model interorganizational agreements, consumer education and engagement, and provider education. The authors note that the challenge ahead is to gain widespread adoption of the solutions developed by the HISPC.

**Grossman, J. M., Zayas-Caban, T., and Kemper, N. (2009).** “Information gap: Can health insurer personal health records meet patients’ and physicians’ needs?” *Health Affairs* 28(2), pp. 377–389. Reprints (AHRQ Publication No. 09-R044) are available from AHRQ.\*

The authors report the findings of a qualitative study of personal health records (PHRs)—centralized electronic places for people to store and organize their health information—created by insurers, which contain a combination of insurer claims data and data from enrollees. They note that PHRs can benefit both patients and doctors. Unlike so-called “tethered PHRs,” limited to a single health care system or HMO, newer PHRs offered by insurers or third-party sources provide access to information for care across many providers (and in the case of third-party sources, across multiple insurers). Drawing on telephone interviews conducted during summer 2008 in 12 nationally

representative markets, the authors collected qualitative information on the PHRs offered by a leading insurer in each market. All offered the ability for enrollees to enter data, and 7 of 12 offered autofilling of data from claims at the time of the study. Enrollees were able to print out summaries to share with physicians in all cases, but varied in offering physicians electronic access to the PHR or the claims-based data. The authors note that the PHRs are not portable in their current form if the enrollee changes insurer, nor do they contain data on services not resulting in claims to the insurer. The authors suggest several ways that insurers can reduce barriers to participation by enrollees.

**Halm, E. A., Tuhim, S., Wang, J. J., and others. (2009).** “Risk factors for perioperative death and stroke after carotid endarterectomy: Results of the New York Carotid Artery Surgery Study.” (AHRQ grant HS09754). *Journal of the American Heart Association* 40, pp. 221–229.

The benefits of carotid artery surgery must be weighed against the risk of perioperative death or stroke. To identify independent patient risk factors for death and stroke within 30 days of carotid endarterectomies (CEAs), the researchers used data from the statewide New York Carotid Artery Surgery Study of 9,308 CEAs performed by 482 surgeons in 167 hospitals. The 30-day rate of death or stroke among asymptomatic patients with no history of stroke/transient ischemic attack (TIA) was 2.71 percent. Patients with a higher rate of death or stroke included asymptomatic ones with a distant history of stroke/TIA (4.06 percent), those operated on for

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carotid TIA (5.62 percent), those with a stroke (7.9 percent), and those with crescendo TIA/stroke-in-evolution (13.33 percent).

Significant factors predictive of a greater risk of death or stroke, in addition to those just mentioned, included: age greater than 80, nonwhite race, admission from the emergency department, contralateral carotid stenosis, severe disability, and having diabetes treated with insulin. The finding that black and Hispanic patients had worse outcomes was unexpected and requires further investigation.

**Horvath, M. M., Cozart, C., Ahmad, A., and others. (2009). "Sharing adverse drug event data using business intelligence technology." (AHRQ grant HS14882). *Journal of Patient Safety* 5(1), pp. 35–41.**

This paper describes the software strategy used by the three hospitals of the Duke University Health System (DUHS) to automate adverse drug event (ADE) surveillance data and to make reports accessible to patient safety leadership. In many health care organizations, aggregate reports of ADEs are created by hand in Microsoft Excel by a dedicated research analyst. Merging many data extracts (ADE surveillance, patient census, hospital encounter details, and demographics) is very time-consuming, preventing the research analyst from designing queries that patient safety leaders can use by themselves. Using business intelligence software to extract, transform, and load the desired ADE and other relevant information from the DUHS data warehouse, the Duke patient safety leaders can use a set of prewritten

reports, available through a Web interface. Emphasis is on reports concerning ADEs caused by three drug categories (anticoagulants, hypoglycemia medication, and narcotics/benzodiazepines). The major classes of reports are a list of ADEs with event details, ADE rates by month by drug category, and ADE rates per month by nursing station.

**Hsieh, Y., Rothman, R. E., Bartlett, J. G., and others. (2008). "HIV seropositivity predicts longer duration of stay and rehospitalization among nonbacteremic febrile injection drug users with skin and soft tissue infections." (AHRQ grant HS09555). *Journal of Acquired Immune Deficiency Syndrome* 49(4), pp. 398–405.**

Among injection drug users (IDUs), skin and soft tissue infections (i.e., cellulitis and abscesses) are a leading cause of emergency department and hospital admissions. The researchers retrospectively studied the epidemiology of skin and soft tissue infections (SSTIs) in 295 IDUs with fever. For these patients, increased length-of-stay (LOS), a proxy for increased health care use, was associated with positive culture results (either blood or SST) and being older. For those without bacteremia, positive SST culture results and being HIV positive predicted increased LOS. Furthermore, having HIV infection was associated with an increased rate of hospital readmission (another proxy for health care resource utilization). Among injection drug users with SSTIs, bacteremia was the strongest predictor for longer LOS. In those who were nonbacteremic, HIV infection was associated with

increased LOS and approximately tripled the risk for rehospitalization within 90 days. This study provides pilot data for further examination of risk factors associated with adverse outcomes of IDUs with fever and SSTIs.

**Jerant, A., Chapman, B. P., Duberstein, P., and Franks, P. (2009). "Is personality a key predictor of missing study data? An analysis from a randomized controlled trial." (AHRQ grant HS13603). *Annals of Family Medicine* 7(2), pp. 148–156.**

Missing data can affect validity of the results of a randomized controlled trial (RCT). This paper sought to investigate whether personality factors are a predictor of missing study data. The researchers chose to use the well-studied Five Factor Model of personality factors (neuroticism, extroversion, openness, agreeableness, and conscientiousness) to predict missing data in an RCT of an intervention to help patients with chronic illnesses take better care of themselves. A total of 381 patients with chronic illnesses were deemed eligible for the study and randomly assigned to either participate in a weekly home-visit intervention, a weekly telephone call intervention, or usual care with their regular physician (the control group). The researchers found that missing data were significantly less likely for participants with higher levels of openness, conscientiousness, and agreeableness. Greater efforts to gain full participation by subjects identified as being at-risk for missing data collection on the basis of their psychological characteristics may be an important step in improving the conduct of research studies, the researchers suggest.

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**Kahn, J. S., Aulakh, V., and Bosworth, A. (2009).** “What it takes: Characteristics of the ideal personal health record.” (AHRQ grant HS17784). *Health Affairs* 28(2), pp. 369–376.

Personal health records (PHRs) have been suggested as tools to allow patients to manage their health care information. However, existing PHRs do not meet all of the patients’ needs, leaving a gap that inhibits their widespread use. The authors of this paper review the technical and policy challenges that contribute to slow adoption of PHRs. Among the factors the authors focus on are the combination of computer competency, Internet access, and health literacy; the variety of functions that PHRs are expected to address; and interoperability, data security, consumer control of their health information, and fair access (by underserved populations). Despite the array of problems, the authors are optimistic that new entries, such as the Web-based tools launched by Google and Microsoft, will help push the spread of PHRs. They believe that PHRs will likely prove to be invaluable.

**Liu, L. (2009).** “Joint modeling longitudinal semi-continuous data and survival, with application to longitudinal medical cost data.” (AHRQ grant HS16543). *Statistics in Medicine* 28(6), pp. 972–986.

Analyzing accumulated medical costs over a period of time (longitudinal medical cost) can be important for budgeting and decisionmaking purposes. This approach allows prediction of future medical costs and identification of population groups with the greatest financial need,

improving analysis of cost-effectiveness. The author of this paper reports a method for joint analysis of longitudinal medical cost data and survival that takes into account the semicontinuous nature of medical costs. The model includes the author’s conjecture that sicker patients, who are at greater risk of death, tend to seek medical treatment more often (have higher odds of positive monthly cost) and receive more intensive care when treated (resulting in a higher monthly expenditure). In addition to presenting the mathematics of the joint model, the author applies the model to analyze medical costs and survival for 1,455 chronic heart failure patients.

**Lu, C., Frank, R. G., and McGuire, T. G. (2009, January).** “Demand response to cost sharing under managed health care.” (AHRQ grant HS10803). *Contemporary Economic Policy* 27(1), pp. 1–15.

The researchers sought to estimate demand response to cost-sharing arrangements used by managed health care. They used data from the 1996 Medical Expenditure Panel Survey, since it provides information on insurance coverage policy. The focus was on employees who are privately insured and have no choice of health plan. The principal findings were that the level of a deductible has no significant impact on the use of ambulatory services in the ranges observed; demand response to the coinsurance rate under managed care is less than in traditional indemnity plans; and in particular, raising the coinsurance rate has smaller effects on the level of expenditures in managed care. The researchers conclude that policies that encourage the supply of “high-deductible” health plans

will reduce health insurance costs mainly by shifting costs to consumers. They add that a move to higher consumer cost sharing in managed care goes against the tenets of optimal insurance. A low demand response should be tied to lower, not higher, cost sharing.

**Meyers, D. S., and Clancy, C. M. (2009).** “Primary care: Too important to fail.” *Annals of Internal Medicine* 150(4), pp. 272–273. Reprints (AHRQ Publication No. 09-R037) are available from AHRQ.\*

A recent study found that over the course of a year, a typical primary care clinician must coordinate the care of their Medicare patients with 229 other physicians working in 117 practices. The functions of primary care, including care coordination, cannot be accomplished by the lone physician. Primary care teams are a central tenet of the patient-centered medical home, a comprehensive model for delivering primary care. A community-based health care extension service utilizing primary care teams may play an important enabling role in transforming and sustaining primary care. Its functions would be to: provide primary care practices with care managers, social workers, and health educators; serve as connectors linking practices to existing community resources; offer quality improvement technical assistance; and partner with academic centers and research networks to coordinate practical clinical trials. This model has already been demonstrated by the Community of North Carolina initiative, which has shown improved quality of care, cost savings, physician satisfaction, and scalability.

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**Newman-Toker, D. E., and Pronovost, P. J. (2009, March). “Diagnostic errors—the next frontier for patient safety.” (AHRQ grant HS17755). *Journal of the American Medical Association* 301(10), pp. 1060–1062.**

An estimated 40,000 to 80,000 U.S. hospital deaths result from misdiagnosis annually. There has been little systematic study of diagnostic errors. Most

organizations such as the Institute of Medicine and the National Quality Forum have placed their emphasis on treatment errors. Practical solutions to reduce diagnostic errors have lagged behind those in other areas of patient safety. The authors offer suggestions to help safety researchers work toward reducing misdiagnosis-related harm. They urge developing systems solutions to cognitive problems. Diagnostic errors are often seen as cognitive errors rather than system errors, thus perpetuating the view that

individual physicians are to blame. To achieve this, they advise the creation of actionable categories of errors based on context rather than cause. They further recommend emphasizing misdiagnosis-related harm rather than diagnostic error, building workflow-sensitive solutions, and focusing on comparative and cost-effectiveness. Finally, they call for tort reform to reduce excessive testing associated with the practice of “defensive medicine” and ask for a defining of acceptable error. ■



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