



Research Activities



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Agency for Healthcare Research and Quality

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While most diabetes drugs provide similar glucose control, some offer important advantages

Most oral medications prescribed for type 2 diabetes are similarly effective for reducing blood glucose, but the drug metformin is less likely to cause weight gain and may be more likely than other treatments to decrease so-called bad cholesterol, according to a report funded by the Agency for Healthcare Research and Quality (AHRQ). The analysis is based on scientific evidence found in 216 published studies. The report summarizes the effectiveness, risks, and estimated costs for 10 drugs: acarbose, glimepiride, glipizide, glyburide, metformin, miglitol, nateglinide, pioglitazone, repaglinide, and rosiglitazone.

Type 2 diabetes is an increasingly common chronic disease that occurs in people who have difficulty converting glucose (a sugar) into energy. Blood glucose levels are high either because their cells are resistant to insulin (a hormone that helps convert glucose into energy) or because their

pancreas does not produce enough insulin. Diabetes can cause severe problems with the heart, eyes, kidneys, and nerves. Obesity increases the risks of developing type 2 diabetes. From 1980 through 2005, the number of Americans diagnosed with diabetes soared from 5.6 million to 15.8 million.

As new classes of oral diabetes medications have become available, patients and clinicians have faced a growing list of treatment options. Earlier scientific reviews have highlighted some differences between medications, but AHRQ's new analysis is the first to summarize evidence on the effectiveness and adverse events for all approved oral medications commonly used in the United States for type 2 diabetes.

Diabetes patients typically are monitored with tests that check the percentage of hemoglobin A1c (HbA1c) in their blood. Checking for HbA1c is a more reliable indicator of chronic high

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Diabetes drugs

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blood sugar than checking blood glucose itself. According to the AHRQ review, most diabetes drugs offer about a one point absolute reduction in HbA1c. In those cases, for example, a diabetes patient's HbA1c might drop from 8 to 7 (with 5 being normal in patients who don't have diabetes). Nateglinide, acarbose, and miglitol lower HbA1c by about half that much. Combining diabetes medications, evidence shows, often works better at reducing HbA1c.

AHRQ's analysis of published studies, completed by the Agency's Johns Hopkins University Evidence-based Practice Center in Baltimore, also concluded:

- Metformin and acarbose do not increase weight among diabetes patients. Other diabetes drugs (glimepiride, glipizide, glyburide, pioglitazone, repaglinide, and rosiglitazone) have been shown to increase weight by an average of 2 pounds to 11 pounds.
- Blood levels of low-density lipoprotein, which is known as "bad cholesterol" because it may amplify risks of heart attack and stroke, consistently decrease (by about 10 milligrams per deciliter) in patients taking metformin and

increase (by similar amounts) in patients taking rosiglitazone and pioglitazone.

- Pioglitazone and rosiglitazone cause a small but significant increase in high-density lipoprotein, often called "good cholesterol" because it promotes the breakdown and removal of cholesterol from the body.
- Glimepiride, glipizide, glyburide, and repaglinide are associated with hypoglycemia (when blood glucose levels go too low) more than other diabetes drugs.
- Metformin and acarbose are generally more likely than other diabetes medications to cause gastrointestinal problems such as diarrhea. Patients who used metformin alone were more likely to experience problems than those using the drug at a lower dose in combination with glimepiride, glipizide, glyburide, pioglitazone, or rosiglitazone.
- Patients who take pioglitazone and rosiglitazone have a greater risk of congestive heart failure compared with those who take metformin, glimepiride, glipizide, or glyburide. While one recent analysis raised the possibility that rosiglitazone may also increase heart attack risks, authors of the AHRQ analysis concluded that current evidence is not sufficient to make a meaningful assessment.

Additional studies are needed to understand the impact of oral diabetes drugs on patients' quality of life and whether long-term use causes adverse side effects or reduces important complications of diabetes such as heart disease and kidney disease. More research is needed to study interactions between the drugs and to compare therapeutic combinations of the drugs, according to the report.

The report, *Comparative Effectiveness and Safety of Oral Diabetes Medications for Adults with Type 2 Diabetes*, is the newest analysis from AHRQ's Effective Health Care program, authorized by the Medicare Prescription Drug, Improvement and Modernization Act. That program represents an important Federal effort to compare alternative treatments for health conditions and make the findings public. The program is intended to help patients, doctors, nurses, and others choose the most effective treatments. Information can be found at <http://www.effectivehealthcare.ahrq.gov>. ■

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Disparities/Minority Health

Greater access to physician services may narrow mortality differences among the black and white elderly

Less access to physician services among the black elderly explains most of the racial differences in mortality compared with the white elderly, concludes a new study. These results held, even after accounting for racial differences in diagnosed medical conditions, socioeconomic status, and use of other health care services. Black elderly people in Tennessee made more trips to the emergency room than white elderly people (2.6 vs. 2.1 visits), and had more hospitalizations (1.34 vs 1.25). Whites averaged 7.5 more trips to the physician than blacks during the 5 years of observation. However, adding controls for physician service use reduced the risk of mortality for several medical conditions from 7.53 to 1 for blacks.

Dissatisfaction with physician services and poor treatment likely contribute to blacks' tendency to avoid primary care. However, primary care doctors are essential for monitoring diabetes and hypertension, and for providing referrals for screening for cancer and other conditions. Delaying treatment until emergency services are required may increase mortality rates for the black elderly, explain the researchers.

They found that elderly blacks were diagnosed with more conditions than whites, especially certain conditions. Blacks had 52 percent higher likelihood of a diabetes diagnosis than whites and a 17 percent higher risk of a mental illness diagnosis. Blacks also were more likely to be diagnosed with colorectal cancer and had a 25 percent higher risk of prostate cancer. The researchers used longitudinal data from the Center for Medicare and Medicaid Services Physician billing data and Medicare Enrollment Database to assess physician-diagnosed conditions, health service use, and mortality among the 665,887 Medicare beneficiaries in Tennessee. The study was supported by the Agency for Healthcare Research and Quality (HS11640).

See "The impact of health service use on racial differences in mortality among the elderly," by Darren E. Sherkat, Ph.D., Barbara S. Kilbourne, Ph.D., Van A. Cain, M.A., and others, in the May 2007 *Research on Aging* 29(3), pp. 207-224. ■

Child/Adolescent Health

Today's teen smokers are more likely to engage in risky behaviors than teens who smoked in the early nineties

The risk profile of the American adolescent smoker has changed, according to a new study. Today's adolescent smokers are more likely to engage in risky sexual behavior, risky alcohol-related behaviors, and to not use a seatbelt or bicycle helmet than adolescent smokers in the early 1990s. Some may argue that this greater link between smoking and certain risky behaviors among today's adolescents suggests that smoking may be becoming a more socially deviant behavior among

adolescents, notes Jonathan D. Klein, M.D., M.P.H. Dr. Klein and colleagues at the University of Rochester School of Medicine suggest that doctors screen adolescents who smoke for other risky behaviors, and that adolescents may benefit from multifaceted prevention programs that target both smoking and other risky behaviors.

The researchers analyzed data from national Youth Risk Behavior Surveys from 1991 to 2003. They

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Adolescent smokers

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controlled for gender, race/ethnicity, and school grade to examine the associations between smoking and other risky behaviors. The strength of the relationship between smoking and lifetime number of sexual partners increased slightly from 1991 to 2003. Smokers in 2001 were almost twice as likely to have had sexual partners in the past 3 months as they were in 1991. Smokers were five times more likely in 1997 than they were in 1991 to never wear a

bicycle helmet. Increased links between smoking and binge drinking and physical fighting were also seen.

In contrast, risky sexual behaviors and binge drinking declined among adolescents who didn't smoke during this period. The relationship between smoking and other drug use remained stable or slightly decreased over time. Nevertheless, between 5 and 12 percent of adolescent nonsmokers used marijuana at least once in the past month, whereas 39 to 59 percent of smokers did. Similarly,

34 to 45 percent of nonsmokers reported having at least one sex partner in their life compared with more than 67 percent of smokers. The study was supported in part by the Agency for Healthcare Research and Quality (HS14418).

See "The changing risk profile of the American adolescent smoker: Implications for prevention programs and tobacco interventions," by Deepa R. Camenga, M.D., Dr. Klein, and Jason Roy, Ph.D., in the July 2006 *Journal of Adolescent Health* 39, pp. 120.e1-120.e10. ■

Hospitalization patterns change as young people with congenital heart disease transition from adolescence to adulthood

Due to improved diagnosis and treatment, 85 to 90 percent of children born with congenital heart disease (CHD) in the United States will survive to adulthood. Yet, between 18 and 23 years of age, many of these youth will lose public or parental insurance and will struggle to obtain comprehensive health insurance. During this transition period, twice as many of those aged 21 to 23 years than those aged 15 to 17 years are admitted to the hospital via the emergency department (ED), according to a new study. One reason underlying this difference may be the loss of insurance during the transition to adulthood, notes Michelle Z. Gurvitz, M.D., M.S., of Children's Hospital and Regional Medical Center in Seattle. She and coinvestigators studied data on CHD patients aged 12 to 44 years, from the 2000 to 2003 California hospital discharge database.

Overall, there were 9,017 hospitalizations at 368 hospitals. The proportion of patients admitted via the ED nearly doubled during the transition to adulthood, beginning at age 18. Those with public insurance were 2.3 times more likely and the uninsured were 4.6 times more likely than the privately insured to be admitted to the hospital via the ED. Hospitalization patterns also changed when CHD patients reached 21 years, often the age when patients can no longer be admitted to a children's hospital or a pediatric ward.

For example, for patients aged 12 to 20 years, 12 of the most CHD-experienced hospitals accounted for 70 percent of hospitalizations. For patients 21 to 44 years, 25 of the more CHD-experienced hospitals accounted for only 45 percent of cases. Perhaps because most CHD specialists are located at children's hospitals, older CHD patients end up diversifying to a larger number of general adult cardiologists and hospitals with less CHD experience, which may affect their clinical outcomes. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00046).

See "Changes in hospitalization patterns among patients with congenital heart disease during the transition from adolescence to adulthood," by Dr. Gurvitz, Moira Inkelas, Ph.D., Maggie Lee, M.P.H., and others, in the February 27, 2007 *Journal of the American College of Cardiology* 49(8), pp. 875-882.

Editor's note: Another related AHRQ-supported study (HS10399) found that over 6 percent of people (mostly infants) undergoing median sternotomy (cracking open the breast bone) for congenital heart disease developed postoperative bloodstream infections, and that certain factors increased the risk of these infections. For more details, see: Shah, S.S., Kagen, J., Lautenbach, E., and others. (2007, February). "Bloodstream infections after median sternotomy at a children's hospital." *Journal of Thoracic and Cardiovascular Surgery* 133, pp. 435-440. ■

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.

Infliximab is a safe and effective therapeutic option for children with severe ulcerative colitis

Infliximab (Remicade®), a drug that blocks the inflammatory action of the body's tumor necrosis factor- α (TFA), is a safe and effective therapeutic option for pediatric patients with severe ulcerative colitis (UC), concludes a new study. It is more effective in acutely ill children with UC than in children with chronic steroid-dependent UC. Also, children treated with infliximab can be weaned from the medication and maintain remission of UC and its symptoms ranging from nocturnal diarrhea to fecal incontinence and abdominal pain. Pediatric patients with UC seem to tolerate infliximab as well as adults with UC and children with Crohn's disease (another inflammatory bowel disease).

Researchers reviewed the charts of 27 children with UC who were treated with infliximab instead of undergoing a colectomy (surgical

removal of all or part of the colon). Sixteen patients with new-onset UC, which did not respond to intravenous steroids for 5 to 10 days, and patients with non-steroid-dependent UC with an acute worsening of the condition were classified as acutely ill. Eleven patients with chronic steroid-dependent UC were classified as chronically ill. Patients were regarded as successfully treated if they remained off steroids and avoided colectomy.

Acutely ill children were nearly 3 times more likely to be successfully treated than were the chronically ill patients. The acutely ill group had a mean Lichtiger Colitis Activity Index (LCAI) score of 11.4 at initial infusion of the medicine and 0.3 after 2 months of treatment. The chronically ill group had a mean LCAI score of 11.2 at initial infusion and 5.5 after 2 months. LCAI scores of 10 or higher indicate

active disease and no response to current therapy, scores below 10 suggest a response to therapy, and scores of 2 or lower indicate disease in remission. Treatment with infliximab was successful in 75 percent of acutely ill patients and in 27 percent of chronically ill patients. Infliximab was discontinued in 80 percent of successfully treated patients, after an average of 10 infusions and a mean of 10 months from their last infliximab infusion. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00060).

More details are in "Short- and long-term response to and weaning from infliximab therapy in pediatric ulcerative colitis," by Gary Fanjiang, M.D., George H. Russell, M.D., and Aubrey J. Katz, M.D., in the March 2007 *Journal of Pediatric Gastroenterology and Nutrition* 44, pp. 312-317. ■

Women's Health

Inadequate communication of mammogram results may prevent black women from fully benefiting from screening

Black women continue to be diagnosed at later stages of breast cancer than white women. A new study suggests that poorer communication of mammogram results may not allow black women to benefit fully from mammography screening and may underlie their later diagnosis of breast cancer. The researchers compared self-reported mammogram results via telephone interview with results listed in the radiology record of 411 black and 734 white women. The women underwent mammography screening at five hospital-based facilities in Connecticut between 1996 and 1998.

The researchers categorized the results of mammograms as negative, benign, probably benign, suspicious, or highly suggestive of malignancy. Women were asked what they were told about their mammogram results and what they were asked to do

next. There was no difference in the proportion of abnormal screening mammograms between the two racial groups, according to the radiology records. Overall, communication of mammogram results was problematic for 14.5 percent of the women in the study (12.5 percent had not received their screening result, and 2 percent had received their result, but their self-report differed from the radiology record).

Inadequate communication of mammogram results was nearly twice as common among black women than white women (21 vs. 11 percent), even after adjustment for other sociodemographic, clinical, and care access factors. Also, abnormal results were more likely to be inadequately communicated to black women (31 percent of abnormal results vs. 19 percent of normal results), but not to white women. Among women in the

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Mammogram screening

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study who had abnormal results, 44 percent of those in the inadequate communication group (many of whom believed their mammogram was normal) compared with 29 percent of those in the adequate communication group did not receive adequate follow-up. The study was supported in part by the Agency for Healthcare Research and Quality (HS11603).

See “Adequacy of communicating results from screening mammograms to African American and white women,” by Beth A. Jones, Ph.D., M.P.H., Kam Reams, M.P.H., Lisa Calvocoressi, Ph.D., M.S.W., and

others, in the March 2007 *American Journal of Public Health* 97(3), pp. 531-538.

Editor’s Note: Another AHRQ-supported study (HS15686) on a related topic found that perceived racial discrimination was not associated with nonadherence to age-specific mammography screening guidelines. For more details, see: Dailey, A.B., Kasl, S.V., Holford, T.R., and Jones, B.A. (2007, June). “Perceived racial discrimination and nonadherence to screening mammography guidelines: Results from the race differences in the screening mammography process study.” *American Journal of Epidemiology* 165(11), pp. 1287-1295. ■

Elderly/Long-Term Care

Certain resident and facility characteristics and medications increase the risk of fractures among nursing home residents

Nursing home residents are more likely to fall or suffer from fractures than elderly persons in the community because nursing home residents often have mobility, balance, cognition, and vision problems. Also, they take an average of seven to eight prescription medications, including many that increase the risk of falls and fractures. Certain resident and facility characteristics and medications increase the likelihood of fall-related fractures in nursing homes, according to Agency for Healthcare Research and Quality researchers William Spector, Ph.D., and D.E.B. Potter, M.S., and colleagues. They conducted the first nationally representative study of nursing home residents to identify their risk factors for fractures.

Data from a sample of nursing homes in the 1996 Medical Expenditure Panel Survey and resident medical records revealed

that 6 percent of nursing home residents suffered a fracture during their nursing home stay. For the vast majority (85 percent), a fall caused the fracture (41 percent of them in the hip or pelvis). Those who were 85 years and older were 61 percent more at risk for fractures than younger residents, and those admitted from the community were 50 percent more at risk compared to those admitted from another nursing home. Residents who were agitated were three times more at risk for fractures than those without agitation problems. Residents who used both a wheelchair and cane or walker were twice as likely to suffer fractures as those who used only a wheelchair.

Also, elderly residents who used anticonvulsants had 2.2 times greater risk, antidepressants, 1.5 times greater risk, and opioid analgesics, 1.5 times greater risk of fracture. Use of iron supplements

(a marker of anemia) and bisphosphonates (a marker for loss of bone mass) increased the risk of fracture 1.6 and 6.4 times, respectively. Laxatives, which sometimes can lead to electrolyte imbalance and resulting dizziness, increased the risk of fracture 1.5 times. Finally, a high certified nurse aide to patient ratio (the only significant facility characteristic) reduced the risk of fractures.

More details are in “Risk factors associated with the occurrence of fractures in U.S. nursing homes: Resident and facility characteristics and prescription medications,” by Dr. Spector, Thomas Shaffer, M.H.S., Ms. Potter, and others, in the March 2007 *Journal of the American Geriatrics Society* 55, pp. 327-333. Reprints (AHRQ Publication No. 07-R047) are available from AHRQ.* ■

Urinary incontinence is common among residents of Southeastern nursing homes, especially among black residents

Over half of the three million elderly who receive care from nursing homes (NHs) are reported to suffer from urinary incontinence (UI), considered a key indicator of poor quality of care. Relatively little is known about differences in the prevalence of UI by race and region in the United States. However, a new study, supported in part by the Agency for Healthcare Research and Quality (HS13353), found that UI is common among residents of Southeastern nursing homes, and is even more common among black residents. The researchers analyzed data from the 1999-2002 Centers for Medicare and Medicaid Services Minimum Data Set, Atlanta Region, to investigate the prevalence of UI among black and white NH residents in the Southeast.

Most residents were white (82 percent) and female (77 percent). Regional UI prevalence was 65.4 percent at NH admission and 74.3 percent after admission. After NH admission, 73.5 percent of white and 78.1 percent of blacks were incontinent. Similarly, 72.2 percent of men and 75 percent of women were incontinent. Admission prevalence of UI was greater

than 50 percent in all eight States studied, with Mississippi having the lowest (56.1 percent) and South Carolina the highest (71.9 percent) prevalence. Black NH residents had higher rates of admission UI in all States. Blacks also had significantly higher odds of UI than whites after admission in Kentucky and Tennessee, but not in other States.

These racial differences in prevalence of UI indicate a lack of optimal care for blacks in the Southeastern region, note the researchers. The findings also highlight potential racial differences in access to care prior to NH entrance and differences in treatment options after NH admission. The researchers call for more studies to explore determinants of these racial differences.

See "Differences in resident characteristics and prevalence of urinary incontinence in nursing homes in the southeastern United States," by Josephine E. Boyington, Ph.D., M.P.H., R.N., Daniel L. Howard, Ph.D., Lori Carter-Edwards, Ph.D., M.P.H., and others, in the March 2007 *Nursing Research* 56(2), pp. 97-107. ■

One-third of Medicare patients say that the decision about where to undergo surgery was made mainly by their doctor

Numerous government and other organizations wish to disseminate surgeon and hospital volume or mortality data to help patients choose where to have major surgery. The accepted belief is that patients may fare better at hospitals that have been deemed low-mortality or high-volume hospitals. Most Medicare patients participate in the decision of where they should have major elective surgery. Nevertheless, one-third say that the decision was made mainly by their physician, according to a new study supported in part by the Agency for Healthcare Research and Quality (HS13049).

Access to hospital performance data may be very useful for patients

who do adopt an active decision-making role. The role of performance data for other patients is less clear, note the researchers. They interviewed 510 randomly selected Medicare patients, who had undergone 1 of 5 elective high-risk operations about 3 years earlier: abdominal aneurysm repair, heart valve replacement surgery, or surgery for bladder, lung, or stomach cancer.

Nearly one-third (31 percent) of patients said their doctor was the main decision maker about where the patient would have surgery; 42 percent said they decided equally; 22 percent said they were the main decision maker; and 5 percent said their family helped make the decision for them. These results

were similar across patient age, income, and educational attainment. However, men were more likely than women to say the doctor was the main decision maker (34 vs. 24 percent), as were patients in poor to fair health compared with those in good to excellent health (37 vs. 28 percent). The doctor was significantly more likely to be the main decision maker for cardiovascular operations compared with cancer operations (39 vs. 26 percent).

See "Choosing where to have major surgery," by Chad T. Wilson, M.D., Steven Woloshin, M.D., M.S., and Lisa M. Schwartz, M.D., M.S., in the *Archives of Surgery* 142, pp. 242-246, 2007. ■

The Medicare short stay transfer policy reduced hospital incentives to discharge orthopedic surgery patients early

Shorter hospital stays for orthopedic surgery patients was one result of the Medicare Prospective Payment System, which was implemented in 1983 to reduce health care costs. However, this led to more use of post acute care (PAC) by these patients, which was not cost-saving. Thus, Congress implemented the Short Stay Transfer Policy (SSTP) in 1998, which exacted penalties for early transfer to PAC for certain conditions. The SSTP effectively changed hospital discharge practice patterns for Medicare fee-for-service patients hospitalized for either elective joint replacement surgery (JR) or surgery for hip fracture (FX) from 1996 through 2000, according to a new study.

Following SSTP, hospitals immediately increased length of stay (LOS) for JR and FX, which then stabilized. Use of early discharge to PAC underwent a small step reduction followed by stabilization, explains John D. Fitzgerald, M.D., Ph.D., of the University of California, Los Angeles School of Medicine. For example, prior to implementation of the SSTP, LOS had been falling by 0.37 and 0.30 days per year for JR

and FX patients, respectively. After implementation of the SSTP, there was an immediate increase in LOS by 0.20 and 0.17 days, respectively. Thereafter, the length of hospital stays remained flat.

The proportion of patients discharged early to PAC had been rising by 4.4 and 2.6 percent per year for JR and FX patients respectively, to a peak of 28.8 percent and 20.4 percent early PAC use in September 1998. Immediately after implementation of the SSTP, there was a 4.3 and 3.0 percent drop in use of early PAC. Thereafter, use of early PAC increased at a much slower rate (for JR) or remained flat (for FX). There was also significant regional variation in the magnitude of response to the SSTP. The study was supported in part by the Agency for Healthcare Research and Quality (HS13168).

See “Impact of the Medicare short stay transfer policy on patients undergoing major orthopedic surgery,” by Dr. Fitzgerald, W. John Boscardin, Ph.D., Bevera H. Hahn, M.D., and Susan L. Ettner, Ph.D., in the February 2007 *HSR: Health Services Research* 41(1), pp. 25–44. ■

Health Information Technology

Smaller physician office practices are slower to adopt use of electronic health records

Electronic health records (EHRs) can improve the safety and quality of health care. In Massachusetts, as in other parts of the United States, nearly half of physicians in office practices are now using EHRs. However, most small office practices still do not have EHRs, according to a new study. Researchers found that fewer than one in four Massachusetts practices had adopted EHRs. Adoption rates were lower in smaller practices, those not affiliated with hospitals, and those that did not teach medical students or residents.

About 80 percent of doctors whose practices had not yet adopted EHRs cited financial

factors, including start-up financial costs, ongoing financial costs, and loss of productivity, as barriers to technology adoption. The majority of physicians also pointed to technical factors as important barriers. These included lack of computer skills, lack of technical support, lack of uniform standards, and technical limitations of systems. Finally, 55 percent of physicians voiced concerns about privacy or security as a barrier to adopting use of EHRs in their practices.

These findings suggest that programs to increase the adoption of EHRs should focus on the practice level, where decisions to adopt EHRs are made. These

programs should also help physicians modify their workflow to get the most out of EHRs and explicitly acknowledge and address privacy concerns, suggest the researchers. The study was supported by the Agency for Healthcare Research and Quality (HS15397).

See “Correlates of electronic health record adoption in office practices: A statewide survey,” by Steven R. Simon, M.D., M.P.H., Rainu Kaushal, M.D., M.P.H., Paul D. Cleary, Ph.D., and others, in the January 2007 *Journal of the American Medical Association* 14(1), pp. 110–117. ■

Public Health Preparedness

Studies examine the surge capacity of U.S. hospitals to respond to bioterrorism or other public health disasters

Hospital closures and a reduced number of available beds, combined with shortages of nurses and other health professionals and “just-in-time” supplies, have compromised the ability of hospitals to handle a sudden and massive surge of patients in the event of a bioterrorism or other public health disaster. Hospital emergency departments (EDs) already routinely operate at capacity, with some EDs diverting ambulances to other hospitals due to lack of space, notes Sally Phillips, R.N., Ph.D., of the Agency for Healthcare Research and Quality (AHRQ). Dr. Phillips describes the current status of AHRQ-supported research on hospital surge capacity, that is, their ability to accommodate a huge surge of patients due to bioterrorism or other public health disasters. Also, two AHRQ-supported studies (HS14353) review what is known about daily ED surge and ED surge capacity. The articles are discussed here.

Phillips, S. (2006). “Current status of surge research.”

***Academic Emergency Medicine* 13, pp. 1103-1108.**

AHRQ continues to support surge capacity research. AHRQ-funded researchers have developed evidence-based reports, tools, and models primarily to support local, State, and Federal preparedness efforts. One AHRQ-funded grant was used to develop a simple discharge planning tool for use to make more beds available during a biothreat or other public health disaster. Another study developed the National Hospital Available Beds for Emergencies and Disasters System to collect and report bed availability data to Federal, State, and local medical emergency planners and responders. Other programs include training nurses to respond to mass casualty incidence as well as “just-in-time” training of personnel to deliver mass casualty respiratory care via deployment of ventilators from the Strategic National Stockpile of ventilators.

AHRQ and other researchers are also examining several strategies to alleviate incoming surge at hospitals, such as use of alternative care sites like community health centers, nursing homes, or schools,

for less severely injured or ill patients. Investigators have also developed a site audit tool, used during Hurricane Katrina, which allows teams (engineers, clinicians, security, etc.) to assess the use appropriateness of a facility and the status of affected facilities. Finally, AHRQ has released evidence-based, best-practice emergency preparedness models for personal protective equipment, decontamination, isolation, quarantine, and the laboratory.

One model assists planners’ decisions for mass dispensing of medications or vaccines from the Strategic National Stockpile. The Bioterrorism and Epidemic Outbreak Response Model is an interactive computer model, which was used during the anthrax attacks in 2001. It predicts the number and type of staff needed to respond to a major disease outbreak or bioterrorism attack on a given population. AHRQ has released a number of tools, publications, fact sheets, Web conferences, and evidence reports on surge capacity. Reprints (AHRQ Publication No. 07-R023) are available from AHRQ.*

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Surge capacity

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McCarthy, M.L., Aronsky, D., and Kelen, G.D. (2006). "The measurement of daily surge and its relevance to disaster preparedness." *Academic Emergency Medicine* 13, pp. 1138-1141.

These authors examined hospital ED daily surge as a foundation to more accurately predict how well hospital EDs will respond to a catastrophic surge in demand for their services. The researchers propose that daily and catastrophic ED surge can be measured by the magnitude of the surge, as well as by the nature and severity of the illnesses and injuries of arriving patients. The magnitude of an ED surge can be measured by the patient arrival rate per hour. The nature and severity of the surge can be measured by the type (for example, trauma, infection, or biohazard) and acuity (triage level) of the surge.

Studies have shown that hospital EDs nationwide have some degree of predictability in daily ED surge, and that patient acuity varies moderately by hour of the day, but not by day of the week. All EDs should be examining their patterns of arrival by hour of day and day of week. They should then use this information to optimize ED surge capacity by matching staffing and resources according to the seasonal trends in demand. Although present ED-triage scales may capture the nature and severity of a daily ED surge, they may not be adequate for characterizing the nature and severity of a catastrophic surge, note the researchers.

They argue that daily ED surge and catastrophic surge should be based on the same model of ED surge capacity. The core

dimensions of ED surge capacity should include space (number of beds, physical size of ED, etc.), staffing, systems (admitting process, clinical information systems, ancillary services, etc.), and supplies. With a better understanding of daily ED surge capacity and the factors that influence it, the knowledge of catastrophic events and how to manage them can be combined with advanced simulation techniques to predict the potential impact of various events on the surge capacity of hospital EDs.

Kelen, G.D., Kraus, C.K., McCarthy, M.L., and others (2006, December) "Inpatient disposition classification for the creation of hospital surge capacity: A multiphase study." *Lancet* 368, pp. 1984-1990.

A proposed system that identifies patients who can be discharged early can improve hospital surge capacity, concludes a new study. Gabor D. Kelen, M.D., of Johns Hopkins University, and colleagues have developed a classification system that categorizes inpatients according to suitability for immediate discharge, a type of reverse triage.

They developed this reverse triage approach based on research evidence and a consensus panel of 39 experts in clinical care, disaster management and triage, public health, and other areas. The panelists identified 28 critical interventions (such as cardiopulmonary resuscitation, airway management, major surgery, oxygen, dialysis, cardiac monitoring, and intravenous medication). They rated the interventions on their likelihood of causing the patient a serious medical problem if withdrawn, ranging from 3 to 10 on a 10-point

scale. The panelists agreed that low-risk patients who could be discharged early had to have a 4 percent or less chance of suffering a serious medical event if medical interventions were withdrawn due to early discharge. An example of a low-risk patient would be one admitted for intravenous antibiotics for uncomplicated cellulitis, who could readily be switched to oral medication upon early discharge, with low risk of an adverse event.

If surge capacity was needed for victims of a disaster, patients with a 12 percent risk of a consequential medical event might warrant discharge (for example, a patient with acute coronary syndrome with no evidence of high risk for adverse events). Patients with a risk too high for a simple discharge home (a 33 percent risk of problems if discharged early) are patients potentially suitable for transfer to another medical facility. Patients at high risk (a 61 percent risk) can be transferred to a major acute facility only. These patients range from those in need of emergency surgery to those in active labor. Finally, very high risk patients (a 95 to 100 percent risk) are patients who might be too unstable or critically ill even for transfer to another facility. The study was supported by the Agency for Healthcare Research and Quality (HS14353).

Editor's note: Another AHRQ-supported article questions the extent to which daily surge and extraordinary surge are related, noting that extraordinary surge is a phenomenon more complex and less predictable than daily surge. For more details, see Kelen, G.D., and McCarthy, M.L. (2006, November). "The science of surge." (HS14337). *Academic Emergency Medicine* 13(11), pp 1089-1094. ■

Chronic Disease

Studies examine the impact of rheumatic diseases on the ability to work

Work loss accounts for more of the economic costs of rheumatic diseases such as rheumatoid arthritis, fibromyalgia, and systemic lupus erythematosus than medical care costs. Two studies supported by the Agency for Healthcare Research and Quality (HS13893) examined work disability among persons suffering from rheumatic diseases. The first study concluded that flexible working conditions are important for retaining persons with rheumatic diseases in the workforce. The second study found that the work productivity of persons with lupus had declined by nearly one-third since their diagnosis. Both studies, led by Edward Yelin, Ph.D., of the University of California, are summarized here.

Yelin, E. (2007, March). "Work disability in rheumatic diseases." *Current Opinion in Rheumatology* 19, pp. 91-96.

Flexible working conditions are critical for keeping persons with rheumatic diseases in the work force, according to a review of recent literature on work disability among persons suffering from a variety of rheumatic diseases. The first set of studies analyzed alternative research methods to document work disability, indicating the early growth of this area of research.

The second set of studies identified the specific factors that affect the decision to leave work among those with rheumatic diseases. Individuals with rheumatoid arthritis emphasized the need for employer support, understanding of the disease by

their fellow employees, "suitable" working conditions, and support from colleagues and health professionals. Health professionals tended to focus on patient commitment to work and coping. While individuals do differ in their commitment to work, other factors, such as the ability to control the pace of work activities and coworker and supervisor support, appear to drive employment of persons with rheumatoid diseases.

A third set of studies examined interventions to reduce work disability. Several studies found that enhancing the ability of individuals to obtain work accommodations or improve their psychological status had a positive impact on employment. More recent studies found lower rates of work cessation among those with rheumatoid diseases. This is consistent with the view that decreasing physical demands of today's jobs may place fewer persons with rheumatic diseases at risk for work loss. Also, newer medications, which can reduce inflammation, relieve symptoms, and improve functioning, may play a role. However, no randomized trials of these agents have been run long enough to show a positive impact on actual employment status.

Yelin, E., Trupin, L., Katz, P., and others. (2007, February). "Work dynamics among persons with systemic lupus erythematosus." *Arthritis & Rheumatism* 57(1), pp. 56-63.

Work limitations and work loss are common among persons with lupus, who suffer from problems ranging from joint stiffness and

muscle pain to end-stage renal disease, seizures, vision loss, clotting disorders, and cognitive impairment. For example, this study found that since their diagnosis, the productivity (number of hours worked per year) of persons with lupus declined by nearly one-third. Also, similar to persons with rheumatoid arthritis, overall productivity in this group was much more a function of whether or not they continued to work rather than how much they worked if they continue to be employed, note the researchers.

They interviewed 900 persons diagnosed with lupus in 2002 and 2003 (mostly women in their mid-forties who had had the disease for 12 years) and again in 2004 (92 percent were re-interviewed). The proportion of workers with lupus who were employed declined from 74 to 54 percent between the year of diagnosis and the second interview. Over the same period, hours of work per year declined by 32 percent among all individuals with a work history, but by only 1 percent among those continuously employed from the time of diagnosis. Among individuals working when diagnosed, the proportion employed declined by 15 percent after 5 years and 63 percent after 20 years.

Demographics (age, sex, and education) and work characteristics (physical and psychological demands of jobs and level of worker control over the job) were the principal determinants of work loss. During this period of declining labor force participation among this group, there was also a relatively high rate of transition of

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Rheumatic diseases

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persons with lupus into the workforce. This may reflect the relatively young age at lupus onset,

the fluctuating nature of the disease, or the educational attainment of many of those in the study (60 percent had completed some college). Due to their loss of

work, many persons with lupus face a greater risk of poverty in retirement. ■

Patients suffering from arthritis or depression may have worse health-related quality of life than those with other chronic conditions

A new study reveals that 3 out of 5 Americans suffer from at least 1 of 18 chronic health conditions. Of these, arthritis and depression seem to have the most negative impact on health-related quality of life. About half (53 percent) of the people surveyed reported suffering from 1 to 4 of 18 chronic conditions; 10 percent reported having more than 4 of the conditions. Chronic conditions reported by more than 10 percent of the sample were sinusitis (24.8 percent), hypertension (23.5 percent), and arthritis (21.5 percent), followed by depression, hay fever, migraine headaches, and asthma.

University of Arizona researchers, Yu Ko, M.S., and Stephen Joel Coons, Ph.D., analyzed how adults described and rated their health status on the EQ-5D. The EQ-5D has five dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Population-based preference weights are applied to the self-reported health state (defined by responses on the five dimensions) to produce the EQ-5D index score. The EQ-5D index score falls on a scale where 0 = death and 1 = perfect health. The researchers estimated the association between each

chronic condition the person reported and the index score, after adjusting for sociodemographic variables. In the second part of the EQ-5D, individuals place their own health on a visual analog scale that runs from worst (0) to best (100) imaginable health state.

While the presence of chronic conditions was associated with a lower EQ-5D index score, higher household income was associated with a higher score. Depression and arthritis were associated with the greatest decrements in the EQ-5D index scores, after accounting for the impact of demographics and other medical conditions. However, the authors suggest caution in interpreting these results, since they did not have data on the severity of the conditions or how well the conditions were managed, which can both affect health-related quality of life. The data analyzed were from a study supported by the Agency for Healthcare Research and Quality (HS10243).

See "Self-reported chronic conditions and EQ-5D index scores in the U.S adult population," by Mr. Ko and Dr. Coons, in the October 2006 *Current Medical Research and Opinions* 22(10), pp. 2065-2071. ■

Outcomes/Effectiveness Research

Total, partial, and revision hip replacement are associated with different rates of postoperative complications and readmissions

About 200,000 total hip replacements, 100,000 partial hip replacements, and 36,000 revision hip replacements were performed in the United States in 2003, according to a new study by researchers at the Agency for Healthcare Quality and Research and the Food and Drug Administration. About 60 percent

of the patients were 65 years or age or older and at least three-fourths had one or more coexisting diseases. Both total hip replacement, which is usually planned surgery for osteoarthritis, and revision hip replacement, typically performed to treat complications of earlier hip replacements, appear to be safe. The risk of adverse patient

outcomes, especially following partial hip replacement, is mostly due to advanced age, coexisting diseases, and emergency admissions (usually for hip fracture).

Researchers screened more than 8 million hospital discharge abstracts from the 2003 Healthcare Cost and Utilization Project

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Hip replacement

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Nationwide Inpatient Sample and about 9 million discharge abstracts from 5 State inpatient databases. They found that hip replacement procedures varied in in-hospital mortality rates, at 0.33 percent for total hip replacements, 3.04 percent for partial hip replacements, and 0.84 percent for revision hip replacements. The perioperative complication rates associated with the three procedures were 0.68 percent, 1.36 percent, and 1.08 percent, respectively, for deep vein

thrombosis or pulmonary embolism; 0.28 percent, 1.88 percent, and 1.27 percent for pressure sores; and 0.05 percent, 0.06 percent, and 0.25 percent for postoperative infection.

Rates of hospital readmission for any cause within 30 days were 4.91 percent, 12.15 percent, and 8.48 percent, respectively. Rates of readmissions within 30 days that resulted in a surgical procedure on the affected hip were 0.79 percent, 0.91 percent, and 1.53 percent. Advanced age and coexisting diseases were associated with worse outcomes, while private

insurance coverage and planned admissions were associated with better outcomes.

More details are in "Incidence and short-term outcomes of primary and revision hip replacement in the United States," by Chunliu Zhan, M.D., Ph.D., Ronald Kaczmarek, M.D., M.P.H., Nilsa Loyo-Berrios, Ph.D., Judith Sangl, Ph.D., and Rosalie A. Bright, Sc.D., in the March 2007 *Journal of Bone & Joint Surgery* 89, pp. 526-533. Reprints (AHRQ Publication No. 07-R053) are available from AHRQ.* ■

Primary Care Research

Family physicians manage skin conditions well

Patients visit family physicians for skin conditions that range from athlete's foot, to eczema, to precancerous lesions. Most skin conditions managed by family physicians improve and most patients are satisfied with the care they receive for their skin lesions, according to a new study. A total of 85 percent of patients contacted a week after their visit to the family physician for a skin lesion said their lesions were "better" or "much better." Moreover, patients said they were highly satisfied with their care. Referrals to subspecialists such as dermatologists were rare. Also, the diagnosis and treatment of skin lesions by family physicians correlated well (72 and 80 percent, respectively) with that of two dermatologists who independently reviewed patient histories and digital photos of the lesions.

These findings counter those of previous studies questioning primary care physicians' care of dermatologic conditions. David Meyers, M.D., of the Agency for Healthcare Research and Quality, notes that earlier work, which often relied solely on diagnosis from photographs and other nonclinical methodologies, may have underestimated the

importance of the clinical encounter. He points out that this practice-based study reports on patient-centered outcomes of the care provided by practicing clinicians for their own patients.

Dr. Meyers and colleagues examined the diagnosis, treatment, and outcomes of 244 patients (aged 3 months to 86 years) with new skin lesions who were seen by 53 family physicians at several study sites in 3 States. The doctors completed surveys about diagnosis and treatment after seeing each patient. Patients were interviewed on days 7, 28, and 84. To make their diagnosis, most family physicians examined other parts of the skin (70 percent), consulted a colleague (14 percent), or consulted an electronic resource (6 percent). Laboratory tests, skin scrapings, diagnostic cultures, Woods lamp exams, or skin biopsies were performed in a total of 10 percent of visits.

See "How well do family physicians manage skin lesions?" by Dan Merenstein, M.D., Dr. Meyers, Alex Krist, M.D., and others, in the January 2007 *Journal of Family Practice* 56(1), pp. 40-45. Reprints (AHRQ Publication No. 07-R052) are available from AHRQ.* ■

Access to Care

Supportive housing may be a feasible and appropriate model of care for chronically homeless persons

Supportive housing is subsidized housing for chronically homeless persons that provides them with on-site or closely linked medical, substance abuse, and mental health services. Despite the resistance of many homeless persons to housing, three-fourths of those admitted to supportive housing without requiring sobriety or “housing readiness,” remained housed 2 years later, according to a new study. However, the housed homeless still had similar use of emergency department (ED) care, average care use, and hospitalizations as those not admitted to the supportive housing program.

Based on the high hospitalization and mortality rates of both groups, it is likely that even the housed homeless suffered severe medical illness at study

entry. Also, medical, as opposed to psychiatric, health care use may be less disposed to alteration through housing. It may be that supportive housing has to be introduced prior to the point when homeless persons have end-stage medical illnesses. On the other hand, failure to find a decrease in use of most medical services among those provided supportive housing may have been due to increased detection of medical need, note the California researchers.

They retrospectively studied health care use of 249 homeless applicants to a supportive housing program (114 were housed in the program) 2 years before and 2 years after the supportive housing intervention. The health care use by this homeless group was similar in magnitude to that of the frail elderly. Both housed and nonhoused participants used a great

deal of health care services, more than one health care service per week. Housed and nonhoused persons did not differ in average service use, outpatient mental health use, or change in care use prior to or post intervention. The 2-year time course may have been too short to provide medical stability and decrease use of acute medical care. The study was supported in part by the Agency for Healthcare Research and Quality (HS11415).

More details are in “Public health care utilization in a cohort of homeless adult applicants to a supportive housing program,” by Eric R. Kessell, M.P.H., Rajiv Bhatia, M.D., M.P.H., Joshua D. Bamberger, M.D., M.P.H., and Margot B. Kushel, M.D., in the September 2006 *Journal of Urban Health* 83(5), pp. 860–873. ■

Acute Care/Hospitalization

Mandatory limits on medical resident work hours may constrain hospital house staff and affect patient outcomes and resource use

Mandatory limits on the working hours of medical residents (house staff) may constrain the work of hospital house staff teams. This may affect patient outcomes and medical resources, suggests a new study. Researchers found, for example, that each additional team admission on a patient’s admission day increased length of hospital stay by 3.1 percent and total costs by 2.3 percent. Doing the medical workup of a newly admitted patient is time-consuming, and more admissions reduce the time spent by teams on any one admitted patient. This can lead to inaccurate initial clinical assessment or push workup activity onto subsequent days. This, in turn, leads to longer hospital stays and higher total costs.

On the other hand, patients used fewer medical resources if cared for by teams with a high average census during the patient’s stay, with no differences in patient readmission or mortality rates. An increase in house staff workload of each additional patient added to the team average census reduced length of stay by 5.3 percent and total costs by 5.11 percent. Unlike admission volume, which cannot be modified by teams, team average census is a work measure that teams can control by adapting their daily tasks to meet workload demands, such as skipping teaching conferences to perform patient care tasks.

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Resident work hours

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While this short-term workload improved efficiency, teams that were busier over the entire month-long rotation provided less efficient care. This suggests that fatigue may accumulate within teams over time. Finding ways to reduce team admission loads, while maximizing availability of other resources on nonadmitting days may help minimize total costs and

lengths of stay, suggest the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS11416).

See “House staff team workload and organization effects on patient outcomes in an academic general internal medicine inpatient service,” by Michael Ong, M.D., Ph.D., Alan Bostrom, Ph.D., Arpana Vidyarthi, M.D., and others, in the January 8, 2007 *Archives of Internal Medicine* 167, pp. 47–52. ■

Agency News and Notes

AHRQ's annual *State Snapshots* highlight States' gains and lags in health care quality

New *State Snapshots* released by the Agency for Healthcare Research and Quality (AHRQ) show States have made promising gains in health care quality while identifying needed improvements in areas ranging from cancer screening to treatments of heart attack patients. The 51 *State Snapshots*—every State plus Washington, D.C.—are based on 129 quality measures, each of which evaluates a different segment of health care performance. While the measures are the products of complex statistical formulas, they are expressed on the Web site as simple, five-color “performance meter” illustrations.

For a subset of 15 “State Rankings for Selected Measures,” chosen to represent a broad range of common diseases, the *State Snapshots* highlight specific State strengths. New York, for example, ranks best for its low suicide rate. Montana ranks first for pneumonia vaccinations for seniors. Utah ranks first for its low colorectal cancer death rate. No State is good at everything, however, and the *State Snapshots* point out areas in which States need improvement.

The data, drawn from AHRQ's 2006 National Healthcare Quality Report, come from various data sources that cover multiple years. The statistics provide State-specific information but also underscore the reality that some shortcomings in health care quality are widespread. On average, for example, States reported that only about 59 percent of adult surgery patients insured by Medicare receive appropriate timing of antibiotics. Only about 54 percent of men over 50 reported they ever had a flexible sigmoidoscopy or colonoscopy, according to the all-State average. Only about 54 percent of Medicare managed care patients said their health providers always listened carefully, explained things clearly, showed respect for what they had to say, and spent enough time with them.

The *State Snapshots* provide summaries that measure health care quality in three different contexts: by types of care (such as preventive, acute, or chronic care), by settings of care (such as nursing homes or hospitals), and care by clinical area (such as care for patients with cancer or respiratory diseases). After selecting a State on a national map, users may view

whether that State has improved or worsened compared to other States in a particular area of health care delivery. The *State Snapshots* also allow users to compare a State's performance against other States in the same region, plus how a State compares against “best performing States.” In addition, the Web site offers these options for data searches:

- Strongest and Weakest Measures: This section summarizes areas in which a State has performed well compared to other States, plus areas in which a State's scores are comparatively low.
- Focus on Diabetes: Underscoring the need to confront a disease now afflicting more than 18 million Americans, this section illustrates how States compare in quality of care, treatment variations, and health care spending for diabetes.
- All-State Data Table for All Measures: With more than 5,000 entries, this downloadable spreadsheet includes all 129 individual performance measures for each State.

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State Snapshots

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AHRQ's *State Snapshots* Web tool was launched in 2005 and is based on data drawn from more than 30 sources, including government surveys, health care facilities, and health care organizations. It is an application that helps State health leaders, researchers, consumers, and others

understand the status of health care quality in individual States, including each State's strengths and weaknesses. To access this year's State Snapshots tool, go to <http://statesnapshots.ahrq.gov>.

Editor's Note: The release of this year's *State Snapshots* is complemented by the launch of NHQRnet and NHDRnet, a pair of new, interactive Web-based tools for searching AHRQ's storehouse

of national health care data. These online search engines allow users to create spreadsheets and customize searches of information in the *2006 National Healthcare Quality Report* and the *2006 National Healthcare Disparities Report*. To access AHRQ's new NHQRnet, go to <http://nhqrnet.ahrq.gov>. For NHDRnet, go to <http://nhdrnet.ahrq.gov>. ■

Announcements

New Web tool provides samples of report cards on health care quality

With rising interest in information about the quality of care delivered by health care providers, the Agency for Healthcare Research and Quality (AHRQ) has developed a new Web tool demonstrating a variety of approaches for health quality report cards.

The new *Health Care Report Card Compendium* is a searchable directory of over 200 samples of report cards produced by a variety of organizations. The samples show formats and approaches for providing comparative information on the quality of health plans, hospitals, medical groups, individual physicians, nursing homes, and other providers of care. The Health Care Report Card Compendium can be found at <http://www.talkingquality.gov/compendium/>.

The purpose of the AHRQ *Health Care Report Card Compendium* is to inform and support the various organizations that develop health care quality reports, to provide easy access to examples of different approaches to content and presentation, and to meet the needs of health services researchers. It also provides related Web sites and sample pages where available. Public reporting regarding the performance of health care providers and plans is expanding as standards for measuring quality grow, and reports of

the quality of health care providers and services are increasingly being made available to consumers.

AHRQ is providing this compilation of report card samples as a service to report developers, researchers, and other users. AHRQ makes no judgment concerning the effectiveness or value of reports in the compendium but offers them to users for their consideration. Inclusion of a report in the compendium does not constitute an endorsement of the report in its entirety, or of any element in the report, by AHRQ.

The compendium was developed as a resource for report sponsors to supplement guidance provided on AHRQ's TalkingQuality Web site at <http://www.talkingquality.gov>. TalkingQuality informs and supports current and potential sponsors of health care performance reports by sharing the lessons learned by researchers and experienced report developers. This resource was developed by AHRQ's Consumer Assessment of Healthcare Providers and Systems User Network to give sponsors and researchers access to examples of quality reports and to enable them to locate and network with each other on related issues. ■

Research Briefs

Anderson, J. and Holbrook, T.L. (2007). "Quality of well-being profiles followed paths of health status change at micro- and meso-levels in trauma patients." (AHRQ grant HS07611). *Journal of Clinical Epidemiology* 60, pp. 300-308.

The authors of this study used the Quality of Well-Being Scale (QWB) and its elements to document paths of change in health status over time among trauma patients. They analyzed data from 787 Trauma Recovery Project patients who completed preinjury and injury day data and followed 574 of them up to 6 months after hospital release. Means analyses found significant variation on first day of hospitalization versus 6-month recovery scores by injury site. Patients with head injury were worse off than patients with long bone and pelvic injuries at first, but became better off 6 months after release from the hospital. These effects were traced to specific symptom/problem complexes and functional limitations. Along with preference-weighted scores, QWB individual components may be used to describe the specific ways that patient groups differ from one another, conclude the researchers.

Aragon, S.J., Flack, S.A., Holland, C.A., and others. (2006, Fall). "The influence of patient-centeredness on minority and socioeconomically disadvantaged patients' trust in their physicians: An evidence-based structural equation modeling investigation." (AHRQ grant T32 HS00032). *Journal of Health Disparities Research and Practice* 1(1), pp. 63-74.

This study used a two-factor multigroup structural equation modeling design to determine the

effect of physician patient-centeredness on patient trust among predominantly minority and disadvantaged patients from an inner city medical practice. The model fit well. Physician patient-centeredness significantly influenced patient trust, explaining 82 percent of its variability. When physician patient-centeredness increased by 1 unit, the predicted value for patient trust increased by 1.043 units. Patient-centered physician behaviors also increased patients' confidence in and likelihood of recommending their physician.

Arora, S., Geppert, C.M., Kalishman, S., and others. (2007, February). "Academic health center management of chronic diseases through knowledge networks: Project ECHO." (AHRQ grant HS15135). *Academic Medicine* 82(2), pp. 154-160.

This paper describes an innovative academic health center (AHC)-led program of health care delivery and clinical education for the management of complex, common, and chronic diseases in underserved areas. The authors use hepatitis C virus (HCV) as a model. The program, Project Extension for Community Healthcare Outcomes (ECHO), involves a partnership of academic medicine, public health offices, corrections departments, and rural community clinics dedicated to providing best practices and protocol-driven health care in rural areas. Telemedicine and Internet connections enable specialists in the program to comanage patients with complex diseases, using case-based knowledge networks and learning loops. Project ECHO partners present HCV-positive patients

during weekly 2-hour telemedicine clinics, where partners gain expertise in HCV and collaborate with multiple university specialists in comanaging their patients.

Asplin, B.R., and Magid, D.J. (2007, March). "If you want to fix crowding, start by fixing your hospital." (AHRQ grant HS13007). *Annals of Emergency Medicine* 49(3), pp. 273-274.

Hospitals that have had the most success alleviating emergency department (ED) crowding are those that have recognized the hospital-wide nature of patient flow problems and designed initiatives to move admitted patients out of the ED more efficiently, note the authors of this editorial. They assert that the problem of crowded EDs is driven by delays in moving admitted patients to staffed inpatient hospital beds. Many stakeholders in the emergency care system are calling for the end of inpatient boarding in the ED. The Institute of Medicine, for example, has recommended that hospitals and the regulatory bodies that govern them end the practice. The key challenge now is to make this recommendation a reality.

Binns, H.J., Lanier, D., Pace, W.D., and others. (2007, February). "Describing primary care encounters: The Primary Care Network Survey and the National Ambulatory Medical Care Survey." (AHRQ grant HS01004). *Annals of Family Medicine* 5(1), pp. 39-47.

This study compared clinical encounters in 20 primary care research networks with those of the National Ambulatory Medical Care Survey (NAMCS) using the Primary Care Network Survey (PRINS) clinician interview and

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patient record. Overall, 89 percent of PRINS clinicians were physicians and all NAMCS clinicians were physicians. Over half (53 percent) of PRINS physicians specialized in pediatrics compared with 20 percent of NAMCS clinicians. Large proportions of PRINS visits involved preventive care and were made by children, minorities, and those without private health insurance. A diagnostic or other assessment was performed for 99 percent of PRINS visits and 76 percent of NAMCS visits. A preventive or counseling/education service was provided at 64 percent of PRINS visits and 37 percent of NAMCS visits. Reprints (AHRQ Publication No. 07-R046) are available from AHRQ.*

Chandler, S.M., Garcia, S.M., and McCormick, D.P. (2007, March). “Consistency of diagnostic criteria for acute otitis media: A review of the recent literature.” (AHRQ grant HS10613). *Clinical Pediatrics* 46(2), pp. 99-108.

Clinicians use various criteria to diagnose acute otitis media (AOM). Better agreement on the definition of AOM using American Academy of Pediatrics (AAP) criteria could facilitate a more accurate clinical diagnosis. It could also provide standardization of research and patient care practices, suggest the authors of this commentary. They used AAP guidelines to review the consistency of AOM diagnosis in clinical trials from 1994 to 2005. Overall, 81 percent of the 88 studies required at least 1 of the 3 AAP diagnostic criteria. Only 20 percent of the studies met all three AAP criteria for AOM diagnosis. The authors found no association between the number of criteria met and study quality or industry sponsorship.

Curtis, J.R., Westfall, A.O., Allison, J., and others. (2007, March). “Challenges in improving the quality of osteoporosis care for long-term glucocorticoid users.” (AHRQ grant HS10389). *Archives of Internal Medicine* 167, pp. 591-596.

Osteoporosis (severe loss of bone mass) due to long-term glucocorticoid treatment is widely undertreated. A Web-based intervention that incorporated performance audit and feedback and case-based continuing medical education had no significant effect on the quality of osteoporosis care for this group of patients. Following the intervention, 78 intervention physicians versus 75 control physicians had similar rates of bone mineral density testing (19 vs. 21 percent) and osteoporosis medication prescribing (32 vs. 29 percent). However, physicians with greater exposure to the intervention had higher rates of glucocorticoid-induced osteoporosis management.

Dean, G.E., D. Scott, L.D., and Rogers, A.E. (2006, June). “Infants at risk: When nurse fatigue jeopardizes quality care.” (AHRQ grant HS11963). *Advances in Neonatal Care* 6(3), pp. 120-126.

Nurse fatigue may play a role in errors in the neonatal intensive care unit (NICU). Several case studies of NICU nurses detail back-to-back night shifts, excessive work hours, little sleep, and struggling to stay awake when errors occurred. The researchers asked six NICU nurses, who participated in a larger study of nurse fatigue and patient safety, to complete a log of their sleep, mood, work hours, errors, and vigilance each day for 28 days. The nurses ranged in age from 22 to 66 years.

The NICU nurses obtained less than 6 hours and 20 minutes of sleep on workdays 50 percent of the time. They reported a total of six

errors during the 28-day period, three related to procedures and three to medication administration. Analysis of nurse logbooks suggested that fatigue may have been a contributing factor in at least two of the six errors.

DeVoie, J., Fryer, G.E., Straub, A., and others. (2007, January). “Congruent satisfaction: Is there geographic correlation between patient and physician satisfaction?” (AHRQ grant HS01465). *Medical Care* 45(1), pp. 88-94.

There is a strong correlation between physician and patient satisfaction among doctors and patients who live and work in geographic proximity to one another, concludes this study. The researchers analyzed 3 rounds of data from Community Tracking Study (CTS) Household and Physician Surveys from 1996 to 2001 in 60 communities. Patient and physician satisfaction varied by region, but was closely correlated between physicians and patients living in the same CTS sites. Physician career satisfaction was more strongly correlated with patient overall health care satisfaction than any of the other aspects of the health care system. Patient trust in the physician was also highly correlated with physician career satisfaction.

Dormuth, C.R., Glynn, R.J., Neumann, P., and others. (2006, June). “Impact of two sequential drug cost-sharing policies on the use of inhaled medications in older patients with chronic obstructive pulmonary disease or asthma.” (AHRQ grant HS10881). *Clinical Therapeutics* 28(6), pp. 964-978.

When a public drug insurance plan in British Columbia, Canada, phased in copayments and

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coinsurance plus deductible policies, far fewer elderly patients with asthma or chronic obstructive pulmonary disease used inhaled medications for their conditions. Patients with new diagnoses of asthma or chronic obstructive pulmonary disease were 25 percent less likely to begin treatment with inhaled steroids when covered by the copayment or coinsurance plus deductible policies than when they had full coverage. Chronic users of inhaled steroids were 47 percent more likely to cease drug treatment when they were covered by the copayment policy and 22 percent more likely to cease treatment when covered by the coinsurance plus deductible policy than when they had full coverage. Overall, during the study period from 1997 to 2004, use of inhaled steroids declined 12 percent, inhaled anticholinergics 12 percent, and inhaled beta-agonists nearly 6 percent.

Egan, B.M., Lackland, D.T., Igho-Pemu, P., and others. (2006, December). "Cardiovascular risk factor control in communities—update from the ASH Carolinas-Georgia chapter, the Hypertension Initiative, and the Community Physicians' Network." (AHRQ grant HS10871 and HS10875). *Journal of Clinical Hypertension* 8(12), pp. 879-886.

This paper describes the collaboration among the American Society of Hypertension (ASH) Carolinas—Georgia chapter, the Hypertension Initiative, and the Community Physicians' Network to improve cardiovascular risk factor control in communities. This collaboration provides a model for other ASH chapters and health delivery groups to partner in delivering continuing medical education programs focused on cardiovascular risk factor

management, recruiting practices into the network, and developing and maintaining a centralized patient database. Evidence suggests that this collaboration is facilitating application of evidence-based medicine and risk factor control.

Garbutt, J.M., DeFer, T.M., Highstein, G., and others. (2006). "Safe prescribing: An educational intervention for medical students." (AHRQ grant HS11898). *Teaching and Learning in Medicine* 18(3), pp. 244-250.

Two 1-hour, small group interactive educational sessions can reduce medication prescribing errors by medical students. Researchers assessed 28 third-year medical students' knowledge of, attitudes toward, and behaviors regarding safe prescribing. The students thought that their training in safe prescribing was inadequate. At the time of the study, they began writing medication orders, but all their orders had to be reviewed and countersigned by a resident before they attended the two educational sessions. The sessions taught them how to write complete, legible, unambiguous medication orders.

The researchers asked the students to transcribe 10 verbal medication orders for patients onto an order sheet a few days before and 11 weeks after the educational sessions. There were 84 opportunities to make a prescribing error in the 10-order transcription test. Following the educational sessions, the average number of error-free orders increased fivefold from 0.82 to 4.54 per student and the average number of errors and dangerous errors per student decreased from 13.96 to 7.36 and from 4.75 to 2.68, respectively.

Holman, R.C., Stoll, B.J., Curns, A.T., and others. (2006, November). "Necrotising enterocolitis hospitalizations

among neonates in the United States." *Paediatric and Perinatal Epidemiology* 20, pp. 498-506.

During 2000, there was 1 necrotising enterocolitis (NEC), hospitalization per 1,000 live births, with about 1 in 7 NEC hospitalizations ending in death, according to a study providing the first national estimate of NEC hospitalizations among newborns. Researchers analyzed hospital discharge records for neonates with an NEC diagnosis and in-hospital death or routine discharge data from the 2000 Kids' Inpatient Database of AHRQ's Healthcare Cost and Utilization Project. An estimated 4,463 NEC-related hospitalizations occurred among neonates in the United States in 2000, resulting in a hospitalization rate of 109.9 per 100,000 live births. The rate of NEC hospitalizations was highest among black neonates.

The median hospital stay was 49 days. The in-hospital fatality rate was 15.2 percent. Neonates who underwent a surgical procedure during hospitalization were more likely to have a longer stay and to die than those who did not undergo surgery. Low-birthweight (LBW) neonates with NEC were more likely than LBW neonates hospitalized for other conditions to be very LBW, black, and male. LBW neonates with NEC also had higher hospital charges and longer stays, and were more likely to die during hospitalization than LBW infants hospitalized for other problems.

Reprints (AHRQ Publication No. 07-R027) are available from AHRQ.*

James, P.A., Li, P., and Ward, M.M. (2007, March). "Myocardial infarction mortality in rural and urban hospitals: Rethinking measures of quality of care." (AHRQ grant HS15009).

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Annals of Family Medicine 5(2), pp. 105-111.

Heart attack patients in rural hospitals have higher mortality rates than those in urban hospitals, suggesting substandard quality of care in rural hospitals. However, this study of over 12,000 adults hospitalized for heart attack found that heart attack mortality rates in rural Iowa hospitals were no higher than in urban ones, after controlling for unmeasured confounding patient factors. Yet unadjusted mortality rates for the urban and rural hospitals were 6.4 and 14 percent, respectively. Current risk-adjustment models may not be sufficient to assess hospitals that perform different functions within the health care system, conclude the researchers.

Kelley, E. (2007). "All or none measurement: Why we know so little about the comprehensiveness of care." *International Journal for Quality in Health Care* 19(1), pp. 1-3.

There are major advantages to the use of "all or none" measurement as one of a range of tools for reporting on local and national health care quality, notes the author of this editorial. Like all summary measures, this approach provides a rapid "dashboard" look at performance, but is limited in its ability to provide specific guidance on improving care. This approach usefully broadens the focus beyond individual measures to better approximate the experience of patients with given conditions. However, more work is needed to refine this approach to keep it consistent with evidence-based guidelines. Also, more consensus building is needed on what is important to measure for given conditions.

Reprints (AHRQ publication no. 07-R058) are available from AHRQ.*

Lemus, F.C., Freeman Jr., D.H., Bajaj, M., and Freeman, J.L. (2007). "Uncontrolled diabetes in southeast Texas communities: Use of hospital discharge data to assess a healthy people 2010 goal." (AHRQ grants HS16381 and HS11618). *Texas Public Health Association Journal* 58(4), pp. 7-11.

One goal of the Healthy People 2010 is to reduce hospitalization for uncontrolled diabetes among nonelderly adults to 5.4 hospital admissions per 10,000 persons. Using Texas hospital discharge data and 2000 U.S. Census population counts, only one southeast Texas community was at the Healthy People goal. There were also disparities between whites and blacks and lower-than-anticipated hospitalization rates among Hispanics/Latinos. The use of Texas hospital discharge data with the Healthy People 2010 goal for uncontrolled diabetes demonstrates a method for communities to better assess, measure, and make decisions about the quality of care provided to their population groups. It also allows them to evaluate how access to this health care affects these groups.

Meredith, L.S., Cheng, W.J., Hickey, S.C., and Dwight-Johnson, M. (2007, January). "Factors associated with primary care clinicians' choice of a watchful waiting approach to managing depression." (AHRQ grant HS08349). *Psychiatric Services* 58(1), pp. 72-78.

Watchful waiting to manage depression in primary care may be an appropriate management approach for some patients who have less severe depression. This study used a scenario of a patient

with major depression to examine factors associated this approach among 167 primary care clinicians from 46 practices of 7 managed care organizations across the United States. Overall, 20 percent of clinicians were inclined to use watchful waiting for the patient in the scenario. Clinicians were significantly more likely to choose this approach if they had more psychotherapy knowledge and perceived the treatment of the patient's medical illness to be more important than treatment of the mental illness. Clinicians were less likely to choose this approach if they perceived lack of availability of mental health professionals as a barrier.

Mittal, V., Rosen, J., Govind, R., and others. (2007). "Perception gap in quality-of-life ratings: An empirical investigation of nursing home residents and caregivers." (AHRQ grant HS11976). *The Gerontologist* 47(2), pp. 159-168.

Caregivers perceive quality of life to be lower than nursing home residents do across a variety of domains, according to this study. Caregiver demographics do not directly predict the perception gap. However, satisfaction with work, pay, and promotion were significant predictors, and satisfaction with a supervisor was a marginally significant predictor of the perception gap. As satisfaction with these job dimensions increased, the perception gap decreased. Thus, job-satisfaction dimensions, rather than caregiver characteristics, are appropriate predictors of the perception gap. The findings were based on interviews with caregivers and nursing home residents on 11 quality-of-life domains.

Platt, R. (2007, January). "Speed bumps, potholes, and tollbooths on the road to panacea: Making

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best use of data.” (AHRQ grant HS10391). *Health Affairs* 26(2), pp. w153-w155.

Electronic health databases promise to transform both the assessment of health care delivery and the understanding of treatments’ safety and effectiveness, note the authors of this commentary. They assert that to achieve these goals, it will be necessary to recognize limits on inferring causality; protect confidentiality while allowing important societal gain; and link health data back to the individual patients. It will also be necessary to obtain more information from medical records; understand ways in which electronic data can misrepresent reality; and create the infrastructure, expertise, and resources to use the data.

Ralston, S., Kellett, N., Williams, R.L., and others. (2007, March). “Practice-based assessment of tobacco usage in southwestern primary care patients: A Research Involving Outpatient Settings Network (RIOS Net) study.” (AHRQ grant HS13496). *Journal of the American Board of Family Medicine* 20, pp. 174-180.

Primary care clinicians rely, perhaps erroneously, on general population-based data about risk factors to decide how much time to allocate in the brief primary care visit. Yet this study found that patients seen in primary care differ in important ways in rates and patterns of tobacco use, when compared with rates reported in population-based surveys. For example, Hispanic women smoked at more than twice the national population-based rate (25 vs. 12 percent). Youth smoked at higher rates as well, particularly young Native American men. These findings were based on data

gathered on 2,442 patients during visits to 91 primary care clinicians in a practice-based research network.

Rosenthal, M.B. and Dudley, R.A. (2007, February). “Pay-for-performance: Will the latest payment trend improve care?” (AHRQ grant HS09660 and HS16117). *Journal of the American Medical Association* 297(7), pp. 740-744.

The current enthusiasm for pay-for-performance may represent a rare opportunity for physicians and payers to engage cooperatively in meaningful reform of an arcane payment system that for decades has held back efforts to improve care, assert the authors of this commentary. They highlight several key ways to increase the fidelity of payment incentives to the goal of improving care for all patients. The public discourse on the use of incentives need not be limited to direct payment issues. Other approaches have included public reporting of performance or “honor roll” programs, grants or in-kind support from payers to community quality improvement initiatives, and administrative simplification programs. Providers, purchasers, and policy makers must understand both the potential benefits and the limitations of pay-for-performance and consider how it can best be designed to improve care for patients.

Rust, G. and Cooper, L.A. (2007). “How can practice-based research contribute to the elimination of health disparities?” (AHRQ grant HS13645). *Journal of the American Board of Family Medicine* 20, pp. 105-114.

Racial, ethnic, and socioeconomic disparities in health care and health outcomes are well documented. Disparities research is evolving, yet few studies to date

have demonstrated substantial reductions in health outcomes disparities. Because patients in high-disparity groups are medically complex and their disparities are linked to complex social factors, no single intervention is likely to make a meaningful difference in reducing health disparities, note the authors of this article. They review 12 promising strategies that could substantially increase the impact of research on eliminating health disparities in the United States. These range from using diverse research teams and partnerships with communities to triangulation interventions on practice, patient, and community.

Schneeweiss, S., Solomon, D.H., Wang, P.S., and others. (2006, November). “Simultaneous assessment of short-term gastrointestinal benefits and cardiovascular risks of selective cyclooxygenase 2 inhibitors and nonselective nonsteroidal anti-inflammatory drugs.” (AHRQ grant HS10881). *Arthritis & Rheumatism* 54(11), pp. 3390-3398.

The cyclooxygenase 2 (COX-2) inhibitor rofecoxib (Vioxx®), which was removed from the market in September 2004 due to its serious cardiac risks, and the nonselective nonsteroidal anti-inflammatory drug (NSAID) diclofenac, were deemed the most risky NSAIDs used by the elderly in a 1999-2002 study. Researchers identified elderly Medicare-insured persons who began nonselective NSAID or selective COX-2 inhibitor therapy between 1999 and 2002. They used an estimation method to simultaneously assess the reduction in risk of gastrointestinal (GI) complications and increase in risk of acute heart attack within 6 months of being started on

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rofecoxib, and several nonselective NSAIDs (ibuprofen, diclofenac, and naproxen) compared with new celecoxib (Celebrex®) users.

Within 6 months, a total of 746 patients had GI complications and 698 patients had an acute heart attack. Compared with nonselective NSAIDs, celecoxib reduced the risk of GI complications by 1.4 per 100 users, but increased the risk of heart attack by 0.3 per 100 users.

Rofecoxib decreased GI complications by 1.1 per 100 users and increased the risk of heart attack by 0.3 per 100 users. Using celecoxib as the reference drug showed a 40 percent increase in the heart attack risk for rofecoxib and sixfold increased risk with diclofenac. Naproxen had a benefit-risk balance similar to that of celecoxib.

Silber, J.H., Rosenbaum, P.R., Zhang, X., and Even-Shoshan, O. (2007, February). "Estimating anesthesia and surgical procedure times from Medicare anesthesia claims." (AHRQ grant HS09460). *Anesthesiology* 106(2), pp. 346-355.

The length of surgery is linked to probability of complications or deaths as well as costs. However, because obtaining procedure time usually requires costly chart review, most studies are limited to single-institution analyses. Yet this study found that anesthesia chart time can be well estimated using Medicare claims. Thus, it can facilitate studies with vastly larger sample sizes and much lower costs of data collection. The authors abstracted information on time of anesthesia induction and entrance to the recovery room (anesthesia chart time) from the charts of 1,931 patients who underwent general and orthopedic surgical procedures in Pennsylvania.

Slutsky, J.R. (2007, January). "Moving closer to a rapid-learning health care system." *Health Affairs* 26(2), pp. w122-w124.

The author of this commentary discusses activities that are necessary for developing a rapid-learning health system. She notes that recognition of the central role that patients play in the successful evolution of such a system will help ensure that the goals of the transformation are met.

Understanding the trade-offs of using a less controlled form of research to inform health care decision making and making necessary investments in methodology and translation will help secure the success of continuous-learning research. Major public policy interest in promoting health information technology and in getting more value for health care spending creates a framework for moving ahead.

Reprints (AHRQ publication no. 07-R040) are available from AHRQ.*

Wong, S.T. (2006, December). "The relationship between parent emotion, parent behavior, and health status of young African American and Latino children." (AHRQ grant HS10004). *Journal of Pediatric Nursing* 21(6), pp. 434-442.

This study of low-income black and Latino families in San Francisco found that parental depression, single parent households, and more use of physical discipline such as spanking was significantly related to lower physical, emotional, and social well being of children. Parents of 196 black and Latino children aged 1 to 5 years, who attended a nurse-managed primary care clinic responded to a Parent Behavior Checklist (by telephone or face-to-face). The checklist consisted of three scales: discipline (mainly

corporal punishment - spanking), nurturing (playing together on the floor, getting books for the child, and taking walks together), and expectations.

Both groups of parents reported low use of discipline (36.7 percent of black parents and 34.5 percent of Latino parents), high amounts of nurturing (80.8 percent of blacks, 78.2 percent of Latino parents), and low rates of depressive symptoms on a 0-100 scale, with 0-32 considered low (28.3 for blacks and 26.1 for Latinos). Children's higher functional health status was significantly related to higher family income and more nurturing. Lower functional health status was significantly related to having only one parent, more use of physical discipline, and increased parental depressive symptoms.

Woodard, D.B., Gelfand, A.E., Barlow, W.E., and Elmore, J.G. (2007). "Performance assessment for radiologists interpreting screening mammography." (AHRQ grant HS10591). *Statistics in Medicine* 26, pp. 1532-1551.

Radiologists vary widely in their interpretation of mammograms. These researchers used hierarchical modeling techniques to draw inferences about the interpretive performance of individual radiologists in screening mammography. They also accounted for patient mix and radiologist attributes. They modeled at the mammogram level, and then used these models to assess radiologist performance. They modeled the false-positive rate and the false-negative rate separately using logistic regression on patient risk factors and radiologist random effects. The radiologist random effects were, in turn, regressed on radiologist attributes such as a number of years in practice.

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Wun, L.-M., Ezzati-Rice, T.M., Diaz-Tena, N., and Greenblatt, J. (2007). "On modeling response propensity for dwelling unit (DU) level non-response adjustment in the Medical Expenditure Panel Survey (MEPS)." *Statistics in Medicine* 26, pp. 1875-1884.

Nonresponse is a common problem in household sample surveys. This paper summarizes research on comparing alternative approaches for modeling response propensity to compensate for dwelling unit (DU) nonresponse in the Medical Expenditure Panel Survey (MEPS). The researchers used logistic regression to model the response probability at the DU level and to create nonresponse adjustment cells. They evaluated both main effects models and models with interaction terms as well as inclusion of the base weights as a covariate in the logistic models. They also compared the variability of weights of two alternative response propensity approaches as well as direct use of propensity scores. They conclude that using propensity scores from logistic models with interaction terms to form five classification groups for weight adjustment appears to perform best in terms of limiting variability and bias.

Reprints (AHRQ publication no. 07-R050) are available from AHRQ.*

Wyrich, K.W., Metz, S.M., Kroenke, K., and others. (2007). "Measuring patient and clinician perspectives to evaluate change in health-related quality of life among patients with chronic obstructive pulmonary disease." (AHRQ grant HS11635). *Journal of General Internal Medicine* 22, pp. 161-170.

Consensus is lacking on which health-related quality of life

(HRQOL) measures are appropriate to assess and how much change on those measures depicts significant HRQOL improvement. This study used triangulation methods to identify and understand clinically important differences for the amount of change in HRQOL, reflecting both health professionals and patients' values among patients with chronic obstructive pulmonary disease (COPD). They incorporated the perspectives of an expert panel of physicians familiar with measurement of HRQOL in COPD patients, primary care COPD outpatients, and primary care physicians of these patients. With few exceptions, the Chronic Respiratory Disease questionnaire was able to detect small changes at levels reported by the patients and their primary care doctors.

Zhang, W., Ayanian, J.Z., and Zaslavsky, A.M. (2007, February). "Patient characteristics and hospital quality for colorectal cancer surgery." *International Journal for Quality in Health Care* 19(1), pp. 11-20.

Researchers examined characteristics of California hospitals where colorectal cancer (CRC) patients underwent CRC-related surgery. CRC patients who were Hispanic or Asian, less affluent, or with more advanced cancer were less likely to undergo CRC surgery at hospitals that conducted a high volume of CRC surgeries. They were also treated at hospitals with above average mortality rates (30 days after surgery), higher rates than hospitals that treated the less severely ill, white, or more affluent. Black patients also underwent CRC surgery at hospitals with above average mortality rates.

Among elderly Medicare beneficiaries, managed care members were more likely than fee-for-service beneficiaries to enter hospitals with high patient volume.

However, adjusted mortality rates were similar for hospitals used by the two groups. Most of the racial variation in outcomes within individual hospitals stemmed from patients' clinical status. These findings were based on analysis of a population-based cancer registry in California for a total of 38,237 patients diagnosed with stages I-III (nonmetastatic) colorectal cancer between 1994 and 1998. The researchers linked registry data to hospital discharge abstracts, U.S. census data, and Medicare enrollment data.

Zhang, L., Kao, L., Berthier-Schaad, Y., and others. (2007, January). "C-reactive protein haplotype predicts serum C-reactive protein levels but not cardiovascular disease risk in a dialysis cohort." (AHRQ grant HS08365). *American Journal of Kidney Diseases* 49(1), pp. 118-126.

Elevated serum C-reactive protein (CRP) level is significantly associated with risk for cardiovascular disease (CVD) in both the general and dialysis patient population. This study examined the associations of CRP gene variation with longitudinal CRP measurements and incident CVD risk in a group of 504 white and 244 black dialysis patients. Compared with the most common haplotype of the CRP gene, one haplotype predicted a lower serum CRP level over time, but no association existed between the haplotype of the CRP gene and incident CVD in this dialysis group. Serum CRP level might be a biomarker, rather than a causal factor, in CVD development. CRP variation may lead to susceptibility to inflammation, but not risk for CVD. However, replication of this research in multiple settings is needed. ■

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