Research Activities

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Agency for Healthcare Research and Quality

Highlights

Departments

Regular Features

Noninvasive tests may miss breast cancer

Four common noninvasive tests for breast cancer are not accurate enough to routinely replace biopsies for women who receive abnormal findings from a mammogram or physical examination, according to a study supported by the Agency for Healthcare Research and Quality (AHRQ).

The study is the second from AHRQ's new Effective Health Care Program, which compares the effectiveness of different treatments for health conditions. Researchers found that each of the four tests—magnetic resonance imaging, ultrasonography, positron emission tomography scanning, and scintimammography—would miss a significant number of cases of cancer, compared with immediate biopsy for women at high-enough risk to warrant evaluation for breast cancer.

Mammography and physical examination are both used to detect the possibility of breast cancer. A woman receiving an abnormal mammogram or physical examination needs further confirmation to determine whether cancer is present. Currently, confirmation is recommended through a tissue biopsy, either by surgical excision or needle sampling. Only about one in five women currently getting a biopsy for an abnormal mammogram or breast examination has breast cancer. The need for confirmation of the mammogram means some 80 percent of women with an abnormal mammogram must undergo the biopsy procedure, even though they ultimately prove not to have cancer. Accurate noninvasive tests could reduce the number of women needing to undergo a biopsy.

However, AHRQ's *Comparative Effectiveness Review, Effectiveness of Noninvasive Diagnostic Tests for Breast Abnormalities*, indicates that four common tests would miss about 4 to 9 percent of cancer cases among women testing negative who have average risk for the disease, with potentially more missed cancers among women at higher risk. The four tests reviewed in the study and their results were:

- **Magnetic resonance imaging (MRI)**—MRI images are created by recording signals generated after radio frequency excitation of nuclear particles exposed to a strong magnetic field. Typically for breast imaging,

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dedicated breast coils (used to generate the magnetic field) are used – a woman lies prone with her breasts in close proximity to the coils. A contrast agent is given intravenously to highlight concentrations of blood vessels (e.g. around a tumor). For every 1,000 women who had a negative MRI, about 962 would have avoided an unnecessary biopsy, but 38 would have missed cancers.

- **Ultrasonography**—Ultrasound uses high-frequency sound waves that reflect at boundaries with different acoustic properties (for example, between fatty breast tissue and a fluid-filled cyst). Typically, a woman would lie in a supine position with her arm behind her head, and an ultrasound transducer is placed on her breast. Ultrasound accuracy is strongly dependent on the skill of the operator. No intravenous injections are necessary. For every 1,000 women who had a negative ultrasound test, about 950 women would have avoided an unnecessary biopsy, but 50 women would have missed cancers.
- **Positron emission tomography scanning (PET scan)**—In PET scanning, a small amount of radioactive glucose is injected into the bloodstream. A gamma camera scanner, whole body scanner, or specific breast scanner are used for breast imaging to scan for the glucose uptake. Areas with rapid metabolism/high growth (such as tumors) will have a high amount of tracer uptake. For every 1,000 women who had a negative PET scan, about 924 women would have avoided an unnecessary biopsy, but 76 women would have missed cancers.
- **Scintimammography**—Scintimammography is a nuclear medicine scan usually using 99mTc-sestamibi as a radioactive tracer injected into the bloodstream. A gamma camera scanner (for a 2-D planar image) or a single photon emission tomography (SPECT) scanner (for a 3-D image similar to CT scanning) is used to identify areas of high tracer uptake, indicative of a potential tumor. For every 1,000 women who had a negative scintimammogram, about 907 women would have avoided an unnecessary biopsy, but 93 women would have missed cancers.

The findings are calculated based on average risk for cancer, but risks for individual women may vary widely, based on factors such as age, family history and specific findings on mammogram or physical examination. The report indicates that women who wish to have a noninvasive procedure should discuss their individual risk of cancer with their health provider.

More details can be found in *Effectiveness of Noninvasive Diagnostic Tests for Breast Abnormalities. Comparative Effectiveness Review No. 2,* by Wendy Bruening, Ph.D., Jason Launders, M.Sc., Nathan Pinkney, B.S., R.D.M.S., and others, Rockville, MD: Agency for Healthcare Research and Quality. February 2006. Available online at: www.effectivehealthcare.ahrq.gov/reports/final.cfm. Copies of the executive summary (AHRQ Publication No. 06-EHC005-1) of the report are also available through AHRQ.*

Editor's note: The report was carried out through systematic review of 81 studies by the ECRI Evidence-based Practice Center, Plymouth Meeting, PA. ECRI is one of 13 evidence-based practice centers carrying out effectiveness research for AHRQ's new Effective Health Care Program. The program compares the effectiveness of different interventions, including drugs, in order to better inform consumers, health care providers and others as they make treatment choices. The Effective Health Care Program Web site at

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http://www.effectivehealthcare.ahrq.gov includes features for the public to participate in the Effective Health Care Program. Users can sign up to receive notification when new reports are available. They can also be notified when draft reports and other features are posted for comment, and comments can be submitted through the Web site. The public is also invited to use the Web site to nominate topics for review by the Effective Health Care Program. AHRQ has also produced an audio news release on this report that includes a soundbite from AHRQ Director Dr. Carolyn Clancy. A transcript and soundbite, an .mp3 file, may be downloaded by visiting http://www.ahrq.gov/news/audionr.htm. ■

Patient Safety and Quality

Excessive nurse workload is a key factor affecting the safety of patients in intensive care units

Every day, 55,000 patients are cared for in the 6,000 intensive care units (ICUs) in the United States. Heavy or excessive nursing workload is a key factor affecting ICU patient safety and quality of care. A review of studies, supported by the Agency for Healthcare Research and Quality (HS11561 and HS14517), revealed that 1.7 errors per patient per day occur in ICUs. University of Wisconsin researchers Pascale Carayon, Ph.D., and Ayse P. Gurses, Ph.D., reviewed studies that indicate heavy nursing workload results in less adequate patient supervision, incorrect ventilator or equipment setup, and drug administration problems, as well as insufficient time for clinical procedures to be done properly, inadequate training or supervision, errors, overcrowding and resulting hospital-caused infections, and premature ICU discharge. All of these factors lead to worse patient outcomes. High workload may also lead to poor nurse-patient communication, impaired nurse-physician collaboration, nurse burnout, and job dissatisfaction.

The researchers propose that workload measures developed in the human factors engineering literature (called performance obstacles and facilitators) be used to assess situation-level workload. For example, if a nurse goes into a patient isolation room to perform a procedure and finds the equipment needed is not there, the nurse has to degown, get the equipment, then regown before re-entering the room. In this case, the additional workload stems from inadequate stocking of isolation rooms, a performance obstacle.

See "A human factors engineering conceptual framework of nursing workload and patient safety in intensive care units," by Drs. Carayon and Gurses, in the October 2005 *Intensive and Critical Care Nursing* 21, pp. 284-301. ■

Also in this issue:

Consumers are unlikely to engage in protective behaviors to prevent medical errors

About 42 percent of the U.S. public says either they or a family member has experienced a medical error. Although the public has been provided with actions they can take to protect themselves against medical errors, consumers are unlikely to engage in very many of them, according to a study supported by the Agency for Healthcare Research and Quality (HS11500). Consumers with more self-efficacy (confidence in their ability to prevent medical errors), however, indicate that they would be more likely to take preventive action.

Researchers asked 195 consumers (predominantly white with an average age of 42) in Oregon how serious the problem of patient safety was, how effective recommended actions in protecting against errors were, and how likely they were to engage in the recommended actions. Overall, 27 percent of consumers thought that patient safety was not a serious problem, while only 23 percent thought that medical errors were not a serious problem, even though both refer to the same topic.

Consumers viewed most of the recommended actions as highly effective, especially long-standing recommendations such as choosing a surgeon based on surgical experience and making sure the doctors know about prescription drugs the patient is taking. Newer recommendations were perceived as less effective, such as choosing a hospital that has a computer system for tracking each patient's medications. Consumers were less likely to take actions that required them to question medical professionals about their judgment, for example, having the surgeon mark where the surgery will be, even though they thought this questioning might help protect them from harm.

More details are in "Can patients be part of the solution? Views on their role in preventing medical errors," by Judith H. Hibbard, Dr.P.H., Ellen Peters, Ph.D., Paul Slovic, Ph.D., and Martin Tusler, M.S., in the October 2005 *Medical Care Research and Review* 62(5), pp. 601-615. ■

Asking terminally ill patients why they want to hasten their death may provide opportunities to improve their situation

When a terminally ill patient asks a doctor for aid in dying, a new study, supported in part by the Agency for Healthcare Research and Quality (HS13853), suggests that the doctor should ask why the person wants to die now. Asking this question may reveal opportunities for intervention, including therapies to address pain, lack of energy, and fatigue, which may have eroded the patient's will to live. Interviews with patients and their families revealed that those who hastened their death perceived themselves as dying, but, for many, they were not dying fast enough.

On average, the 26 predominantly white, elderly patients who hastened their deaths had lived with their illness for 2.5 years and had actively planned their deaths for 3 months. Most felt that hastening their death was consistent with their spiritual or religious views. They all suffered from physical pain and other symptoms, as well as emotional pain. They described feeling lonely, having no energy left to fight against the illness, fears about the future, and a series of losses that undermined their sense of self and purpose. Many

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Terminally ill patients

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wanted to control the dying process and location of death, especially avoiding hospitals and nursing homes.

Ten people who had less than a week to live indicated that they were "dying and done," having experienced a final functional loss that signaled the end, such as constant vomiting or diarrhea. Eight people with less than a month stated they were "dying, but not fast enough." Five people with 1 to 6 months to live saw a "looming crisis" on their horizon that would prohibit them from swallowing pills or otherwise following through with their plans. Three patients with more than 6 months to live were "not recognized by others as dying, but suffering just the same."

See "Why now? Timing and circumstances of hastened deaths," by Helene Starks, Ph.D., M.P.H., Robert A. Pearlman, M.D., M.P.H., Clarissa Hsu, Ph.D., and others, in the September 2005 *Journal of Pain and Symptom Management* 30(3), pp. 215-226. ■

Experienced nurse practitioners and physician assistants provide high-quality care for people with HIV

About 20 percent of patients cared for in HIV clinics receive most of their HIV care from nurse practitioners (NPs) and physician assistants (PAs). Under certain circumstances, these NPs and PAs provide HIV care similar to that of physician HIV experts and infectious disease physicians, and better care than generalist physicians who are not HIV experts. According to a study supported in part by the Agency for Healthcare Research and Quality (HS10227), NPs and PAs who provide this level of HIV care have extensive HIV experience and usually follow an average of 10 HIV patients at a time. They also typically practice in clinics with several supports for HIV care, including HIV care teams and access to expert HIV physicians.

Researchers surveyed 243 clinicians (177 physicians and 66 NPs and PAs) at 68 HIV care sites in 30 different States. They reviewed the medical records of 6,651 persons with HIV or AIDS over a 1-year period to examine their quality of care. NP and PA performance on eight quality measures of HIV care were similar to or better than physicians, even after controlling for patient and HIV clinic characteristics.

For example, rates of highly active antiretroviral therapy (HAART) use for eligible patients, control of viral load for patients receiving HAART, flu vaccine use, and number of outpatient monitoring visits were higher for NPs and PAs than for generalist non-HIV experts and were similar to infectious disease-trained physicians and generalist HIV experts. Rates of prophylaxis for *Pneumocystis carinii* pneumonia (that often occurs with impaired immune function) and hepatitis C testing did not differ significantly between groups. However, NPs and PAs performed more tuberculosis and cervical cancer screening tests than all three groups of doctors.

More details are in "Quality of HIV care provided by nurse practitioners, physician assistants, and physicians," by Ira B. Wilson, M.D., M.Sc., Bruce E. Landon, M.D., M.B.A., Lisa R. Hirschhorn, M.D., M.P.H., and others in the November 15, 2005 *Annals of Internal Medicine* 143, pp. 729-736. ■

Up to 12 percent of tissues examined by pathologists for cancer result in diagnosis errors

A study supported by the Agency for Healthcare Research and Quality (HS13321) concludes that up to 12 percent of tissues examined by pathologists for cancer result in cancer diagnosis errors. These diagnostic errors can lead to incorrect patient management plans, including delays in cancer treatment. It is not clear whether pathology errors are due to misinterpretation of the sample or poor clinical sampling of the tissues, notes Stephen S. Raab, M.D., of the University of Pittsburgh School of Medicine.

Dr. Raab and colleagues retrospectively examined pathology errors in patients at four hospitals over a 1-year period who underwent pathology tests to determine the presence or absence of cancer or precancerous lesions. They compared pathology reports for same-site cell and tissue specimens for each patient, and a diagnostic error was deemed to have occurred if, for example, a patient's bronchial brush specimen was diagnosed as benign, but the lung biopsy specimen was diagnosed as non-small cell carcinoma. Cancer diagnosis errors

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Diagnosis errors

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were dependent on the hospital, and ranged from approximately 2 to 10 percent of gynecologic cases and from approximately 5 to 12 percent of nongynecologic cases at various hospitals. Errors due to pathologic misinterpretation ranged from 5 to 51 percent, and the remaining errors were due to clinical sampling problems.

Overall, 45 percent of gynecologic pathology errors and 39 percent of nongynecologic errors were associated with harm. Using the number of errors calculated in the study, the researchers estimated that 127,950 patients per year in the U.S. will suffer harm as a result of errors in the diagnosis of cancer in gynecologic and nongynecologic specimens.

More details are in "Clinical impact and frequency of anatomic pathology errors in cancer diagnoses," by Dr. Raab, Dana Marie Grzybicki, M.D., Ph.D., Janine E. Janosky, Ph.D., and others, in the November 15, 2005 *Cancer* 10-4(10), pp. 2205-2213. ■

Study provides estimates of cervical cancers that may be missed by extending screening time after consecutive negative Pap smears

Clinical recommendations currently encourage women to get Pap tests to screen for cervical cancer every 3 years, rather than annually, after three prior, consecutive negative tests. Yet many clinicians still perform annual Pap tests, perhaps due to perceptions that the increased risks associated with longer intervals are too great. A new study, supported in part by the Agency for Healthcare Research and Quality (HS07373), explored the risks of these intervals. Researchers calculated that in the first 18 months after the last negative screening Pap test in women with 3 or more prior negative tests, cancer incidence increased to an estimated 4 to 5 per 100,000 woman-years in each of the subsequent 2 years.

George F. Sawaya, M.D., of the University of California, San Francisco, and colleagues found 129 cases of cervical cancer were diagnosed within 3.5 years of one or more negative screening tests out of an estimated 6,802,641 woman-years of observation. After 3 or more negative tests, incidence per 100,000 woman-years grouped by time from the last negative screening test was: 1.43 0-18 months later, 4.24 19-30 months later, and 4.73 31-42 months later.

These estimations were based on a case-control study of cervical cancer screening efficacy among members of a prepaid health plan, who were diagnosed with cervical squamous cell cancer from 1983 to 1995. The cases were grouped by number of prior conventional Pap tests and by time from the last negative screening test to the diagnosis date. The cases were compared to matched controls (similarly screened women who did not develop cancer).

See "Cervical cancer after multiple negative cytologic tests in long-term members of a prepaid health plan," by Dr. Sawaya, Hai-Yen Sung, Ph.D., Walter Kinney, M.D., and others in the July 2005 *Acta Cytologica* 49(4), pp. 391-397. ■

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.

Study examines the relevance and applications of the Institute of Medicine's quality aims on pediatric critical care

The Institute of Medicine's six aims for improving quality of care, cited in its report *Crossing the Quality Chasm,* provide a useful framework to advance the quality of care in pediatric intensive care, note George Washington University School of Medicine researchers, Anthony D. Slonim, M.D., M.P.H., and Murray M. Pollack, M.D., M.B.A. Supported in part by the Agency for Healthcare Research and Quality (HS14009), they reviewed the literature to assess the relevance, potential impact, and effect of these aims (safety, effectiveness, equity, timeliness, patient-centeredness, and efficiency) on pediatric critical care practice.

They point out that safety is critical to reduce medical errors and adverse events in the high-risk pediatric intensive care units (PICUs). These problems range from diagnostic and treatment errors to hospital-acquired infections, procedural complications, and failure to prevent problems such as pressure ulcers. Second, PICU care must be effective. Even well-known and accepted guidelines, such as treatment of septic shock, may be commonly violated by PICU staff. Third, there are pediatric and neonatal ICU inequities associated with access to care, insurance status, and race. For example, emergency PICU admissions from lower socioeconomic status populations are more severely ill and are consistent with a lack of quality prehospital care.

Fourth, timely communication and management of medical orders or problems is critical to PICU care quality and safety. Fifth, patient-centeredness is particularly important for vulnerable PICU patients and their families, who complain most of inadequate information and lack of care coordination. Communicating procedures and their child's progress with families is important, and allowing them to be present during procedures may be beneficial, which is why it is becoming more common. Finally, a PICU must be efficient, that is, achieve appropriate clinical outcomes while keeping costs to a minimum.

More details are in "Integrating the Institute of Medicine's six quality aims into pediatric critical care: Relevance and applications," by Drs. Slonim and Pollack, in the May 2005 *Pediatric Critical Care Medicine* 6(3), pp. 264-269. ■

Audit/feedback and educational materials have little effect on monitoring patients for NSAID toxicity

Nonsteroidal anti-inflammatory drugs (NSAIDs) can cause serious gastrointestinal (GI) problems, high blood pressure, and kidney damage, and can worsen congestive heart failure. Currently, to identify and prevent such problems, it is recommended that physicians use laboratory tests to screen for early GI and kidney toxicity and prescribe cytoprotective agents to patients who are at high risk for GI problems. However, only half of physicians follow these recommendations for NSAID toxicity monitoring, according to a new study supported by the Agency for Healthcare Research and Quality (HS10389).

Researchers at the University of Alabama Center for Education and Research on Therapeutics (CERTs) randomly assigned 85 physicians (internists, family physicians, and rheumatologists) in a large managed care organization to an intervention or control group. Intervention physicians received print and Web-based materials about safe NSAID prescribing practices. They also received feedback on their monitoring of patients treated with NSAIDs compared with the top performing 10 percent of physicians.

Analysis of patients' medical records 10 months before and after the intervention showed an insignificant difference in ordering of complete blood count and creatinine laboratory tests (to monitor for GI and kidney toxicity, respectively) and use of cytoprotective agents. More strongly associated with improved safety practices than the intervention were rheumatology specialty, number of NSAID prescriptions written for patients, number of physician visits, and patient risk factors for NSAID-related toxicity. The researchers note that their findings support the idea that no single intervention or set of interventions has been proven effective to alter physician practice patterns in all settings.

See "A group randomized trial to improve safe use of nonsteroidal anti-inflammatory drugs," by Jeffrey R. Curtis, M.D., M.P.H., Jason Olivieri, M.P.H., Jeroan J. Allison, M.D., and others, in the September 2005 *American Journal of Managed Care* 11(9), pp. 537-543. ■

The new Medicare drug bill encourages e-prescribing to improve patient safety and health, but advanced systems are key

The Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003 began providing prescription drug coverage to Medicare enrollees in January 2006. The MMA includes provisions to foster electronic prescribing (e-prescribing) to improve patient outcomes and control health care costs. Although physicians have been slow to embrace e-prescribing, adoption may increase in 2006, when a new tide of pharmacy messages will arrive from patients entering the multi-tier drug coverage program under Medicare. Yet the e-prescribing systems they select may lack the advanced features needed to prevent medication errors and chronic disease complications, note Douglas S. Bell, M.D., of RAND, and Maria Friedman, of the Centers for Medicare and Medicaid Services, in an article supported in part by the Agency for Healthcare Research and Quality (HS13572).

Even the most basic e-prescribing systems could reduce miscommunication errors, for example, due to illegible handwriting. To optimize the return on Medicare drug spending, the researchers recommend the government consider additional incentives to encourage the use of advanced e-prescribing systems. In this article, they review the ways in which the e-prescribing rules proposed for Medicare implementation might or might not improve patients' health outcomes and control health care costs.

The researchers point out that most of the benefits of e-prescribing for health outcomes and health care costs depend on advanced features, such as alerts for potentially hazardous prescriptions and reminders for important omitted medications (frequent among older patients). However, one study recently showed that commercially available e-prescribing systems vary greatly in their implementation of these advanced features. What's more, the costs of implementing e-prescribing are a major barrier for physicians, with hardware and software costs of a basic e-prescribing system ranging from $1,500 to $4,500 per physician. More advanced systems cost up to $29,000 per physician in the first year and $4,000 each year thereafter.

See "E-prescribing and the Medicare Modernization Act of 2003," by Dr. Bell and Ms. Friedman, in the September 2005 *Health Affairs* 24(5), pp. 1159-1169. ■

Computerized physician order entry prevents drug errors, but can initially result in new errors in ICUs

Computerized physician order entry (CPOE) systems typically prompt users who are entering medication orders about dosage recommendations, drug interaction warnings, and patient allergies. In the long run, CPOE systems are likely to prevent some types of medication errors. Nevertheless, when systems are first implemented, the risk for a medication error may increase in intensive care units (ICUs), suggests a study supported by the Agency for Healthcare Research and Quality (HS11902).

Researchers found that 55 CPOE-related incidents were reported to the voluntary Web-based Intensive Care Unit Safety Reporting System (ICUSRS) by 18 ICUs between July 1, 2002 and June 20, 2003. Overall, 85 percent of CPOE incidents resulted in medication errors, while 15 percent did not. Of the CPOE incidents that resulted in a medication error or a near miss (an event that did not result in patient harm), 67 percent were coded as user errors, 20 percent as software errors, and 13 percent as computer malfunction problems. Lack of training and education was a contributing factor in 43 percent of the 55 CPOE incidents, team factors (for example, not communicating an order to change a medication dose to the nurse) accounted for 20 percent of CPOE incidents, and provider factors, such as fatigue, accounted for 16 percent. The majority (88 to 98 percent) of CPOE events reported did not result in patient harm.

Implementing a CPOE system creates new risks and types of errors, caution Johns Hopkins University researchers. For example, selection errors may replace transcription errors. When scrolling down the medication list on the computer screen, it is easy

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Computerized physician order entry

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to select the wrong dose or incorrect medication. They suggest that when implementing CPOE systems, ICUs should include independent checks to monitor for mistakes, ensure there are sufficient resources for training, and plan ahead to address the likely disruption in work flow and staffing when implementing a new CPOE system.

More details are in "Computerized physician order entry, a factor in medication errors: Descriptive analysis of events in the intensive care unit safety reporting system," by David A. Thompson, D.N.Sc., M.S., R.N., Laura Duling, Christine G. Holzmueller, B.L.A., and others, in the August 2005 *Journal of Clinical Outcomes Management* 12(8), pp. 407-412. ■

Implementation of computerized order entry systems with clinical decision support in long-term care facilities is a challenge

Long-term care (LTC) residents are at high risk of experiencing adverse drug events (ADEs), because they often use several medications and have multiple chronic medical conditions. Successful implementation of computerized physician order entry (CPOE) adapted for the LTC setting has the potential to reduce this risk. However, a recent article outlines the challenges to this implementation. The authors, who implemented a CPOE system with clinical decision support (CDS) at one LTC facility, offer some insights to help its implementation in other LTC facilities. Their work was supported by the Agency for Healthcare Research and Quality (HS10481 and HS15430).

The authors point out that there are prescribing issues unique to the LTC setting that require special modifications of CPOE and CDS software, which has usually been developed for the hospital or ambulatory setting. For instance, the system must target the drug prescribing practices known to increase the risk of ADEs in the LTC setting. The authors developed a set of 39 relevant rules in their facility to target prescribing issues of greatest concern in the LTC setting, such as bleeding risk from anticoagulants and oversedation risk from use of multiple psychoactive medications. They also revised the system to display recommended starting doses for various medications for the LTC population, which are typically lower than for younger people.

They also recommend accommodations to ensure that physicians use the system, such as secure off-site access, since physicians typically spend little time in LTC facilities. They caution that system implementation may require hardware and network upgrades to accommodate the large burden CPOE/CDS systems place on existing computer networks. Finally, they found that system implementation at their facility did not initially save time for the clinicians, which produced concerns and some resistance to implementation of the CPOE/CDS system.

See "Computerized physician order entry with clinical decision support in the long-term care setting: Insights from the Baycrest Centre for Geriatric Care," by Paula A. Rochon, M.D., M.P.H., Terry S. Field, D.Sc., David W. Bates, M.D., and others in the October 2005 *Journal of the American Geriatrics Society* 53, pp. 1780-1789. ■

Child/Adolescent Health

Hospital type and location influence discharge disposition of adolescents hospitalized for suicide attempts

The likelihood of an adolescent transfering to another facility after hospital discharge for a suicide attempt appears to be influenced by the geographic location of the admitting hospital and whether it caters to children. According to a study supported in part by the Agency for Healthcare Research and Quality (HS000002), about two-thirds (66 percent) of adolescent hospitalizations for suicide end with discharge to their home; 21 percent with transfer to a psychiatric, rehabilitation, or chronic care (P/R/C) facility; 10 percent with transfer to a skilled nursing facility, intermediate care facility, or short-term acute care facility; and 2 percent with death or departure against medical advice.

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Suicide attempts

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Researchers analyzed 2000 data from the Kids' Inpatient Database, a nationally representative database of children's hospitalizations in the United States, to examine transfer to home or another facility among adolescents (aged 10 to 19 years) hospitalized for a suicide attempt or self-inflicted injury. Care for 32,655 adolescents who attempted suicide that year was provided in adult hospitals (83 percent), children's units in general hospitals (10 percent), and children's hospitals (4 percent).

Children's units in general hospitals were 44 percent more likely than adult hospitals to transfer adolescent patients to a P/R/C facility. Patients cared for outside the Northeast were significantly less likely to be transferred to a P/R/C facility. These findings suggest that factors other than the needs of these vulnerable adolescents are driving care, conclude the researchers.

See "Discharge disposition of adolescents admitted to medical hospitals after attempting suicide," by Leonard J. Levine, M.D., Donald F. Schwarz, M.D., M.P.H., Jesse Argon, and others, in the September 2005 *Archives of Pediatric and Adolescent Medicine* 159, pp. 860-866. ■

A surgery management protocol helps children with diabetes prepare for surgery

Surgery causes a complex neuroendocrine stress response that can lead to hyperglycemia (excessively high blood-sugar levels) and diabetic ketoacidosis (a life-threatening condition in which the pH of the blood decreases) in children with diabetes. These metabolic effects may be compounded by the requirement of "nothing by mouth" prior to surgery. The resulting hyperglycemia can impair wound healing and the body's infection-fighting ability, needed to recover from surgery. Thus, children with diabetes, who either have no insulin (type 1 diabetes) or not enough insulin (type 2 diabetes) to metabolize sugar, must be carefully managed prior to surgery. A surgery management protocol for children with diabetes was recently developed at Children's Hospital Boston, supported in part by the Agency for Healthcare Research and Quality (HS00063).

According to the protocol, the anesthesiologist should schedule a preoperative consultation to assess the child's metabolic control with the Pre-Op Clinic and Endocrine Service at least 10 days before surgery. When feasible, elective surgery for children with diabetes should be delayed until metabolic control is acceptable: no ketonuria, normal serum electrolytes, and HbA1c (blood-sugar) values close to the ideal range for the child's age. Also, these surgeries should be scheduled, whenever possible, as the first case in the morning to avoid prolonged fasting and so that diabetes treatment regimens can be most easily adjusted.

The preoperative management plan should be based on the child's typical treatment regimen. The regimen for managing diabetes before, during, and after surgery should aim to maintain near-normal blood glucose levels of about 100-200 mg/dL. A child with diabetes should never undergo anesthesia without a blood glucose determination before the anesthetic is started. The insulin and fluid regimen during and after surgery depends on the duration of the procedure, as outlined in the protocol. Also, frequent post-surgical blood glucose monitoring and monitoring of blood or urine ketones is essential.

More details are in "Perioperative management of pediatric surgical patients with diabetes mellitus," by Erin T. Rhodes, M.D., M.P.H., Lynne R. Ferrari, M.D., and Joseph I. Wolfsdorf, M.B., B.Ch., in the October 2005 *Anesthesia Analog* 101, pp. 986-999, 2005. ■

Changes in the delivery of care are needed to reduce the burden of diabetes among ethnic minorities

Critical changes are needed in the delivery of care for patients with type 2 diabetes to improve the overall quality of diabetes care and reduce its disproportionate burden on ethnic minorities, concludes a new study. Researchers Leonard E. Egede, M.D., M.S., of the Medical University of South Carolina, and Samuel Dagogo-Jack, M.D., F.R.C.P., of the University of Tennessee Health Sciences Center, suggest that health providers and health systems must shift from acute care to a chronic disease care model, involve the patient in the day-to-day management of the disease, and include collaboration between the patient and doctor on how to achieve care goals.

Studies have shown that when blood glucose levels are controlled to a similar degree (below 6.5 percent) among different racial and ethnic groups, complication rates from diabetes are also similar. Sometimes insulin is needed in addition to oral medication to achieve blood glucose control; however, because diabetes remains undiagnosed much longer in minority populations than whites, clinicians may want to consider early use of combination drug therapy for minority patients, suggest the researchers.

Medication to control blood glucose levels is most effective if it is initiated as part of a comprehensive chronic disease management plan that encourages patients to manage their disease and partner with the doctor to achieve blood glucose targets. The program should include self-monitoring of blood glucose levels, patient education, and counseling about proper diet and sufficient exercise. Aggressive control of hypertension, cholesterol levels, and obesity should also be a part of routine diabetes management practices, note the researchers. Their study was supported in part by the Agency for Healthcare Research and quality (HS11418).

More details are in "Epidemiology of type 2 diabetes: Focus on ethnic minorities," by Drs. Egede and Dagogo-Jack, in the September 2005 *Medical Clinics of North America* 89, pp. 949-975. ■

Minority adults with asthma in the inner city spend more time in the emergency department and hospital

Minority groups who live in inner cities suffer disproportionately higher asthma rates than other groups. This problem is particularly serious in East Harlem, New York, which has one of the highest asthma hospitalization rates in the country and an asthma mortality rate that is nearly 10 times higher than the national average. A new study, supported in part by the Agency for Healthcare Research and Quality (HS09973 and HS13312), links lack of an established asthma care provider, language barriers, and allergy to cockroaches to more asthma-related emergency department (ED) visits and hospitalizations among minority East Harlem adults with asthma.

Juan P. Wisnivesky M.D., M.P.H., of Mount Sinai School of Medicine, and colleagues interviewed 198 adults hospitalized for asthma at 1 hospital over a 1-year period. Participants were asked about their asthma history, access to care, asthma medications, and allergies to airborne allergens.

Nearly half (49 percent) of patients visited the ED or were hospitalized for asthma within 6 months. After adjusting for several factors, including asthma severity, patients with a doctor in charge of their asthma care had a 60 percent lower risk of hospitalization or ED visits. Conversely, patients with a history of cockroach allergy had twice the risk of hospitalizations or ED visits. Asthma-related quality of life was worse among patients who spoke mostly Spanish or who were allergic to cockroaches.

See "Predictors of asthma-related health care utilization and quality of life among inner-city patients with asthma," by Dr. Wisnivesky, Howard Leventhal, Ph.D., and Ethan A. Halm, M.D., M.P.H., in the September 2005 *Journal of Allergy and Clinical Immunology* 116(3), pp. 636-642. ■

More Latinos than whites die before age 45 due to higher rates of diabetes, HIV, liver disease, and homicide

Higher rates of diabetes, HIV infection, liver disease, and homicide are the primary reasons that more Latinos than whites die before the age of 45. Diabetes alone accounts for between 33 and 62 percent of the years of potential life lost among Latinos compared with whites. Whites, on the other hand, who smoke cigarettes more than Latinos, lose more years due to lung cancer, according to a study supported in part by the Agency for Healthcare Research and Quality (HS10858). Targeting these problems could help eliminate health disparities between Latinos and whites, advise the University of California, Los Angeles researchers who conducted the study.

They linked 1986-1994 data on 24 health problems among members of U.S. households from the National Health Interview Survey to data on the cause of death from the National Death Index through December 1997. They estimated years of potential life lost from age 25 until age 75 or death, after adjusting for sex, education, recent HIV mortality trends, and emigration. Overall, Latinos had higher mortality rates than whites before age 45 and similar mortality rates at older ages. Before age 75, Latino women lost 315 more years of potential life (per 1,000 persons) than white women, while Latino men lost 595 more years (per 1,000 persons) than white men.

Both white men and women, however, lost substantially more years of potential life than Latinos from lung cancer. Contributing most to excess years of potential life lost among Latino men were homicide (267 years per 1,000 persons), diabetes (193 years), HIV (113 years), and liver disease (103 years). Contributors among women were diabetes (105 years) and HIV (49 years).

See "Differences in cause-specific mortality between Latino and white adults," by Mitchell D. Wong, M.D., Ph.D., Tomoko Tagawa, M.D., Hsin-Ju Hsieh, M.S., and others, in the October 2005 *Medical Care* 43(10), pp. 1058-1062. ■

Studies suggest that ethnic differences in use of knee replacement surgery are linked to patient expectations and preferences

Blacks and Hispanics are less likely than whites to undergo total knee arthroplasty (TKA) for knee osteoarthritis in order to relieve pain and improve functioning. This difference is not entirely explained by ethnic differences in prevalence, severity of the condition, or access to care. There is some evidence to suggest that ethnic variation in the use of TKA may be related to pain perception and expectations for the procedure, according to two studies supported by the Agency for Healthcare Research and Quality. The first AHRQ-supported study (HS10389) reveals higher levels of pain with knee osteoarthritis among blacks, which may be related to negative expectations of pain-related outcomes and their relatively low preferences for TKA. A second AHRQ-supported study (HS10876) finds that blacks perceive fewer differences between mild and severe osteoarthritis states than whites, and possibly are less willing to make tradeoffs such as undergoing TKA. Both studies are summarized here.

Bradley, L.A., Deutsch, G., McKendree-Smith, N.L., and Alarcon, G.S. (2005, June). "Pain-related beliefs and affective pain responses: Implications for ethnic disparities in preferences for joint arthroplasty." ***The Journal of Rheumatology*** **32(6), pp. 1149-1152.**

The authors of this study reviewed the research literature to examine two factors relevant to the pain associated with knee osteoarthritis (OA): pain-related beliefs and ethnic variations in these beliefs, including expectations of the outcome of TKA. Several studies indicated that some people "catastrophize" pain—that is, they tend to focus on and exaggerate the threat posed by painful stimuli and to negatively evaluate their ability to cope with pain. Among patients with knee OA, relatively high levels of catastrophizing were associated with higher clinical pain ratings and lower pain threshold and tolerance.

The work of these authors and that of other researchers indicates that, compared to whites, blacks tend to report higher levels of catastrophizing and pain-related affect in both clinical and laboratory-based settings. Two recent studies found that blacks had significantly more negative expectations than whites on pain-related outcomes such as postsurgical pain, walking ability, length of hospital stay, and unintended consequences (for example, persistent pain and death). These findings suggest that the lower incidence of blacks undergoing knee or hip arthroplasty

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Knee replacement surgery

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when compared to whites may be related to differences in patients' expectations.

The authors believe these findings are related to the relatively lower preference for TKA among blacks. They have begun work on a video about TKA for blacks to study the benefit of emphasizing the losses that are likely to occur if the surgical procedure is refused. This is in contrast to positive-framing messages that emphasize the likely benefits of the procedure.

Souchek, J., Byrne, M.M., Kelly, P.A., and others. (2005, September). "Valuation of arthritis health states across ethnic groups and between patients and community members." ***Medical Care*** **43(9), pp. 921-928.**

According to this study, people with osteoarthritis (OA) perceive the condition as worse than people without OA. Also, blacks are more likely to perceive the condition as better than whites do, and blacks are less inclined to make tradeoffs (such as TKA) to improve their health. Researchers used 3 techniques during interviews—visual analog scales (VAS), time trade-off (TTO), and standard gamble (SG)—to ascertain how 198 white, black, and Hispanic patients with knee OA and 193 people in the community without the condition viewed mild and severe OA. VAS scores indicated how the participants would feel living with arthritis for the rest of their lives. The SG scale measured participants' preferences for either living with arthritis or undergoing a treatment that had varying chances of perfect health or death. TTO measured participants' preferences for living with arthritis for the rest of their life expectancy or living in perfect health for a shorter life span which was varied between 0 and their life expectancy. Preferences were scored on a scale from 0 to 100.

The researchers defined severe OA to include problems walking, problems with self-care, problems performing daily activities, extreme pain or discomfort, and moderate anxiety and depression. Mild arthritis included problems walking, no problems with self-care, no problems performing daily activities, moderate pain or discomfort, and no anxiety or depression.

Blacks gave higher scores, or a higher preference, to more severe states (having more serious problems) than whites using both the TTO and SG methods. Blacks also had significantly smaller differences in preferences between the severe and mild states of OA by the TTO and SG. These results suggest that blacks were less willing to make tradeoffs to improve their OA. The researchers conclude that some of the ethnic variation in arthroplasty rates may be determined by lower willingness to undergo the procedure among black than white patients. ■

Low-income Hispanics and blacks use alternative health care as a substitute for conventional care

A study of low-income minorities in Los Angeles public housing communities found that financial strain and less access to medical services among blacks and Hispanics are important factors driving their higher use of alternative health care to treat sickness and as a substitute for conventional care. The findings are based on a survey of members of 1,394 households in three public housing communities in Los Angeles County. A total of 287 households completed the interview for a study supported in part by the Agency for Healthcare Research and Quality (HS14022).

Four factors were associated with more frequent use of alternative health care to substitute for conventional care: diminished belief that powerful individuals such as health care professionals control one's health, greater perception of racial discrimination, more financial strain, and reduced access to health care. Perceived racial discrimination was the strongest correlate for each type of alternative health care use.

Prayer was the form of alternative health care most often used, followed by traditional remedies, over-the-counter medication, home remedies, and herbal remedies. Also, 20 percent of those interviewed consulted a spiritual healer; 10 percent and 5 percent consulted with a priest/pastor and/or a psychic, respectively; and 5 percent consulted a herbalist. More than 50 percent used over-the-counter medications; yet three out of four reported that they had never used vitamin therapy for prevention, treatment, or sickness.

More details are in "Alternative healthcare use in the under-served population," by Mohsen Bazargan, Ph.D., Keith Norris, M.D., Shahrzad Bazargan-Hejazi, Ph.D., and others, in the Autumn 2005 *Ethnicity & Disease* 15, pp. 531-539. ■

Patients who suffer from both diabetes and depression have a higher risk of dying

An estimated 10 to 30 percent of people with diabetes also suffer from depression, and they have a higher risk of dying from all causes compared to patients with either condition alone, concludes a new study supported by the Agency for Healthcare Research and Quality (HS11418). More vigilance in recognizing and treating depression among patients with diabetes may improve their outcomes, suggest Leonard E. Egede, M.D., M.S., of the Medical University of South Carolina, and colleagues.

Researchers analyzed mortality rates for coronary heart disease (CHD) and all causes for 10,025 people who participated in the National Health and Nutrition Examination Survey I (1971-1975), then were interviewed in 1982 and followed until 1992. During 8 years of followup, nearly one-fifth of the group (1,925) died, with nearly one-fourth of deaths (522) due to CHD. Compared to patients without diabetes or depression, patients with depression only had a 29 percent and 20 percent higher risk of dying from CHD and all causes, respectively. Patients with diabetes had twice the risk of dying from CHD and all causes. Finally, patients who suffered from both depression and diabetes had more than twice the risk of dying from all causes and CHD.

More details are in "Depression and all-cause and coronary heart disease mortality among adults with and without diabetes," by Dr. Egede, Paul J. Nietert, Ph.D., and Deyi Zheng, M.D., Ph.D., in the June 2005 *Diabetes Care* 28(6), pp. 1339-1345. ■

Study details differences in physician and nonphysician acupuncture treatment for chronic low back pain

Although up to a third of the 10,000 acupuncturists in the United States are medical doctors, little is known about how their practices compare with those of nonphysician licensed acupuncturists. The first study on the topic, supported in part by the Agency for Healthcare Research and Quality (HS09989), offers some revealing insights. For instance, patients seeking acupuncture treatment are likely to receive markedly different tests and treatments depending on whether they see a physician or licensed nonphysician acupuncturist, even though they may be needled at the same body points.

Researchers compared survey responses from a random national sample of 137 physician acupuncturists with survey data published from a similar survey of nonphysician licensed acupuncturists in Washington State. Both groups of acupuncturists use similar acupoint selection (primarily the bladder and kidney meridians) to treat low back pain, and agree that a minimum of seven treatments are appropriate to treat the condition. However, physicians use a host of Western medical diagnostic technologies such as imaging and electromyographic studies and favor Western diagnostic labels such as herniated disk and spinal stenosis. They also use prescription medications and invasive procedures such as spinal injections and nerve blocks, and often refer patients for physical therapy, massage, and psychological counseling.

In contrast, nonphysicians use traditional Chinese diagnostic techniques such as tongue and pulse diagnosis, and are more likely to use Chinese diagnoses, especially Chi (circulating life energy) and/or blood stagnation and Bi syndrome (wind/cold/damp). They also employ adjuncts to needling, such as cupping, herbs, warming needles, and moxibustion (burning of a "moxa" herb on or near acupressure points to stimulate the flow of Chi. The addition of electrical stimulation to the needles after placement is used by about two-thirds of both types of acupuncturists.

More details are in "A comparison of physician and nonphysician acupuncture treatment for chronic low back pain," by Donna Kalauokalani, M.D., M.P.H., Daniel C. Cherkin, Ph.D., and Karen J. Sherman, Ph.D., in the September 2005 *Clinical Journal of Pain* 21(5), pp. 406-411. ■

Clinical setting and physician communication style predict patient participation during medical consultations

The more that patients actively participate in medical consultations about their care, the more likely they are to have better health outcomes and quality of care. Although educated and white patients tend to be more active participants than other patients, the strongest predictors of patient participation are situation-specific, namely the clinical setting and the physician's communication style, concludes a new study supported in part by the Agency for Healthcare Research and Quality (HS10876).

Researchers analyzed 279 physician-patient interactions from 3 clinical sites: primary care patients in Sacramento, patients with systemic lupus erythematosis (SLE) from the San Francisco Bay area, and patients with lung cancer from a Veterans Administration hospital in Texas. They found that patients with at least some college education tended to be more active communicators (for example, asking questions, expressing concern, and being assertive) than patients with less education (a mean of 17.4 vs. 13.8 verbal expressions of active participation per consultation). Patients with lung cancer were more active participants than patients with SLE and primary care patients (a mean of 24.4 vs. 11.2 and 11.3 verbal expressions). Finally, Asian American, black, and Latino patients were less active participants than white patients (a mean of 10.5, 10.7, and 14.9 vs. 17.5 verbal expressions).

Active patient participation was 7 times more likely to have been patient-initiated than physician prompted (14 vs. 2 verbal expressions). However, patients were more active participants when their physicians used partnership-building and offered verbal support via praise, reassurance, and empathy. Doctors engaged in partnering behavior at least once in 83 percent of the consultations, but supportive talk occurred in only 38 percent of the interactions (and more often with lung cancer than SLE or primary care patients). Female physicians offered significantly more supportive talk than male doctors and physicians generally used more supportive talk with white patients than they did with Asian American, black, or Latino patients.

See "Patient participation in medical consultations: Why some patients are more involved than others," by Richard L. Street Jr., Ph.D., Howard S. Gordon, M.D., Michael M. Ward, M.D., and others, in the October 2005 *Medical Care* 43(10), pp. 960-969. ■

Varied use of physical therapists by people with back and neck pain suggests overuse by some patients and underuse by others

A study of people with back or neck pain being seen for initial evaluation at 21 U.S. spine centers found great variation in their use of physical therapists. Although physical therapist use was associated with measures of illness severity (for example, duration of the problem and previous history of surgery), factors other than clinical need were the strongest predictors of use. For instance, men and older patients were less likely to use a physical therapist. Individuals with a college education were 10 percent more likely than those with a high school education to use a physical therapist.

For this study, supported in part by the Agency for Healthcare Research and Quality (HS00032), researchers analyzed data from the National Spine Network database and patient and physician survey responses to examine factors associated with physical therapist use among 29,049 people who had back pain or neck pain or both over a 5-year period (1998 to 2002). People who had workers' compensation coverage or who had taken legal action for an injury were 43 percent and 31 percent more likely, respectively, to use a physical therapist. Also, physical therapist use was 16 percent lower in the Midwest and 27 percent lower in the South than in the Northeast.

These findings suggest that people suffering from back or neck pain who might benefit from physical therapy may not be receiving it, or that those who would not benefit from physical therapy are receiving it, or both.

More details are in "Management of back and neck pain: Who seeks care from physical therapists?" by Janet K. Freburger, P.T., Ph.D., Timothy S. Carey, M.D., M.P.H., and George M. Holmes, Ph.D., in the September 2005 *Physical Therapy* 85(9), pp. 872-886. ■

Long-term antibiotic treatment for acne may be associated with upper respiratory tract infections

Long-term antibiotic treatment is standard therapy for acne, yet patients with acne who use topical or oral antibiotics for more than 6 weeks are about twice as likely to develop and seek care for an upper respiratory tract infection (URTI) than patients not using antibiotics, according to a new study.

The study was conducted by the University of Pennsylvania Center for Education and Research in Therapeutics, supported in part by the Agency for Healthcare Research and Quality (HS10399). The research team retrospectively analyzed use of antibiotics by patients diagnosed with acne between 1987 and 2002 who were included in the General Practice Research Database of the United Kingdom to determine if the long-term use of antibiotics for acne treatment resulted in either URTI or urinary tract infection (UTI), another common infection. Of 118,496 individuals with acne identified from the database, 72 percent received a topical or oral antibiotic (tetracylines, erythromycin, or clindamycin) for acne treatment and 28 percent received no antibiotics. Within the first year of observation, 15 percent of patients with acne had at least one URTI. Also, within that year, the odds of a URTI developing among those receiving antibiotic treatment were 2.15 times greater than those who did not receive an antibiotic. No association was found between antibiotic use and UTI.

More details are in "Antibiotic treatment of acne may be associated with upper respiratory tract infections," by David J. Margolis, M.D., Ph.D., Whitney P. Bowe, B.S., Ole Hoffstad, M.A., and Jesse A. Berlin, Sc.D., in the September 2005 *Archives of Dermatology* 141, pp. 1132-1136. ■

Both aspirin and extended release dipyridamole/aspirin are cost-effective anticoagulant agents to prevent second strokes

Options for preventing a second stroke, heart attack, and premature death among patients who have suffered a stroke include anticoagulant agents such as aspirin (ASA), a combination of extended release dipyridamole/aspirin (DP/A), and clopidogrel (CLO). Both ASA and DP/A are cost-effective compared to placebo, but there is no clear winner between the two, concludes a study supported by the Agency for Healthcare Research and Quality (HS11746).

David Matchar, M.D., of Duke University Medical Center, and colleagues used the Duke Stroke Policy Model (DSPM), a simulation model of the natural history of stroke and the impact of various prevention strategies, to compare four strategies of secondary stroke prevention. They examined the impact of ASA, DP/A, CLO, and placebo on quality-adjusted-life-years (QALYs), costs, and costs per QALY for 70-year-old men who had suffered a first, nondisabling stroke. The researchers modified model inputs to reflect the cost of the drugs, as well as their relative ability to prevent subsequent ischemic stroke (based on published reports) compared with placebo.

In large part because of its low drug cost, ASA led to modest improvements in outcome at minimal costs compared to placebo, and it is cost-effective using the cost-effectiveness benchmark of $50,000 per QALY. DP/A led to additional improvements in outcome compared with ASA, at additional cost. However, the comparison between ASA and DP/A was not definitive. In some simulations, when accounting for uncertainty due to the limits of available evidence, ASA resulted in slightly more QALYs than DP/A. More often, DP/A resulted in better quality-adjusted life expectancy. However, the additional benefits of DP/A in some cases were worth the cost, and sometimes not. CLO was seldom judged to be the optimal strategy, and was dominated by DP/A and ASA in several simulations.

See "Cost-effectiveness of antiplatelet agents in secondary stroke prevention: The limits of certainty," by Dr. Matchar, Gregory P. Samsa, Ph.D., and Suping Liu, M.S., in the September/October 2005 *Value In Health* 8(5), pp. 572-580. ■

A diet high in omega-3 fatty acids is unlikely to reduce the risk of cancer

Taking dietary supplements containing omega-3 fatty acids or regularly consuming fish does not appear to reduce a person's risk of developing cancer, according to the findings of an in-depth analysis of large-scale U.S. and foreign population studies supported in part by the Agency for Healthcare Research and Quality (AHRQ) (290-02-0003). Some research indicates that people who consume diets high in omega-3 fatty acids are less likely to develop some types of cancer; however, researchers at the Southern California Evidence-based Practice Center in Santa Monica found very little evidence that omega-3 fatty acids reduce any one of 11 different types of cancer.

The researchers analyzed findings from a large body of literature spanning numerous groups from many countries with different demographic characteristics for the effects of omega-3 fatty acids on 11 different types of cancer—breast, colorectal, prostate, ovarian, lung, pancreatic, stomach, skin, and bladder—as well as aerodigestive cancer and lymphoma. In addition, the researchers evaluated the literature on the possible effect of omega-3 fatty acids in cancer treatment but did not find a significant association between omega-3 fatty acids and clinical outcomes after tumor surgery.

After analyzing data from prospective studies conducted in the United States and six other countries—Norway, Sweden, Denmark, the Netherlands, Japan, and China—that involved more than 700,000 patients and in some cases lasted up to 30 years, the researchers found no evidence that omega-3 fatty acids reduce overall risk of cancer. Fifty-five of the 65 analyses conducted found no effects at all. Only 10 studies yielded statistically significant results, and these were mixed. Omega-3 fatty acids appeared to increase the risk of developing some cancer, particularly breast, prostate, and lung cancer, while in other types it appeared to reduce the risk.

However, the data are not sufficient to rule out with certainty the possibility of an association between consumption of omega-3 fatty acids and cancer incidence, according to RAND Health's Catherine H. MacLean, M.D., Ph.D., who led the systematic review. RAND Health is a part of the Southern California Evidence-based Practice Center. Dr. MacLean also said that although a number of studies suggest that omega-3 fatty acids may play a role in inhibiting tumor growth in laboratory animals, it is not possible to form strong conclusions because of the quality of the studies.

For more details, see "Effects of Omega-3 Fatty Acids on Cancer Risk: A Systematic Review," by Dr. MacLean, Sydne J. Newberry, Ph.D., Walter A. Mojica, M.D., M.P.H., and others, in the January 25, 2006 *Journal of the American Medical Association* 295(4), pp. 403-415.

Editor's note: This new study is part of a larger project supported by AHRQ and the National Institutes of Health's Office of Dietary Supplements which reviewed the scientific evidence of the health benefits of omega-3 fatty acids and found that that taking these supplements or eating fish has been shown to help protect against heart disease. Other reports in this series evaluated the effects of omega-3 fatty acids on cardiovascular outcomes, child and maternal health, cognitive function, asthma, and organ transplantation. All of the reports are available at AHRQ's Web site at http://www.ahrq.gov/clinic/epcix.htm. ■

Surgeon experience with on-pump coronary bypass surgery affects outcome of patients undergoing off-pump surgery

In New York State, the percentage of coronary artery bypass graft (CABG) surgeries performed on a beating heart increased from 3 percent in 1997 to 27 percent in 2000. Conventional CABG surgery generally uses an on-pump procedure where blood is pumped out of the stopped heart (cardiopulmonary bypass, CPB) so that the surgeon can work on the heart while the blood circulates through an external pump to other parts of the body. However, CPB initiates a systemic inflammatory response that may cause problems in over a third of patients. Although use of off-pump CABG surgery may avoid many of these problems, operating on a beating heart is technically more difficult.

A recent study supported by the Agency for Healthcare Research and Quality (HS13617) found that surgeon experience with on-pump CABG improves patient outcomes, but experience with the technically more difficult off-pump surgery on a beating heart does not.

Laurent G. Glance, M.D., of the University of Rochester School of Medicine and Dentistry, and colleagues analyzed data from the New York State Cardiac Surgery database to determine whether the impact of surgeon experience on off-pump surgery was significantly different than that for on-pump surgery. The study sample consisted of 36,930 patients undergoing CABG surgery between 1998 and 1999, performed by 181 surgeons at 33 hospitals. The researchers found no association between the number of CABG procedures performed off-pump by an individual surgeon and in-hospital mortality rates. Researchers also found that surgeons performing a high volume of on-pump CABG procedures had significantly lower risk-adjusted mortality rates among their patients compared to surgeons performing lower volumes of such procedures. Dr. Glance cautions, however, this study was limited in scope.

See "The relation between surgeon volume and outcome following off-pump vs. on-pump coronary artery bypass graft surgery," by Dr. Glance, Andrew W. Dick, Ph.D., Turner M. Osler, M.D., and Dana B. Mukamel, Ph.D., in the August 2005 *Chest* 128, pp. 829-837. ■

Recreational physical activities improve symptoms in patients with low back pain

Specific back exercises may be counterproductive for patients who suffer from low back pain. Instead, a research study, supported in part by the Agency for Healthcare Research and Quality (HS07755), indicates they should focus on low-stress recreational physical activities such as walking and swimming as recommended by current guidelines.

Researchers interviewed 681 patients with low back pain at 3 primary care sites, nearly half of whom had been in pain for more than a year. The patients were asked about their participation in recreational physical activities and use of back exercises, as well as intensity of low back pain, related disability, and psychological distress at baseline, at 6 weeks, and at 6, 12, and 18 months. A metabolic equivalent task (MET) value was assigned to each activity. For example, walking briskly for at least 3 hours per week is equal to 10.5 METs.

Patients in the top quartile of recreational physical activity (26 or more METs per week) were 48 percent less likely to suffer from severe back pain than those reporting no physical activity, half as likely to suffer from significant low back disability, and 40 percent less likely to be psychologically distressed. They were also 28 percent, 31 percent, and 25 percent less likely, respectively, to suffer from subsequent low back pain, disability, and psychological distress.

In contrast, patients who performed back exercises 4 to 7 days per week were twice as likely as those who never did back exercises to suffer from severe pain and 61 percent more likely to suffer from back disability, but were no more likely to experience psychological distress. Also, doing frequent back exercises increased the odds of subsequent appreciable low back pain and disability by 64 percent and 44 percent, respectively, but reduced the odds of subsequent psychological distress by 22 percent.

More details are in "Effects of recreational physical activity and back exercises on low back pain and psychological distress: Findings from the UCLA low back pain study," by Eric L. Hurwitz, D.C., Ph.D., Hal Morgenstern, Ph.D., and Chi Chiao, M.S., Ph.D., in the October 2005 *American Journal of Public Health* 95(10), pp. 1817-1824. ■

Light therapy appears to improve sleep, mood, and energy among women with nonseasonal depression

Light therapy effectively treats seasonal affective disorder (SAD), a depression that strikes only in the fall and winter, when there is less daylight. A new study, supported by the Agency for Healthcare Research and Quality (HS00093), shows that light therapy can also improve sleep, mood, and energy among women with depression who do not suffer from SAD. Geoffry W. McEnany, R.N., Ph.D., C.S., of the University of Massachusetts, and Kathryn A. Lee, R.N., Ph.D., F.A.A.N., of the University of California, San Francisco studied 29 premenopausal and postmenopausal women who were diagnosed with major depressive disorder (MDD) and were not taking psychotropic drugs or hormone replacement therapy during the study. Sixteen women wore a light visor, which had proven successful in trials of persons diagnosed with SAD, during the first waking hour for one month. The placebo group of 13 women wore a pair of glasses that filtered out light one hour before bedtime.

The light intensity of the light visor was set at 2,500 lux. This light appears bright relative to typical indoor lighting of 150 lux, but dim compared to outdoor light, which can reach 100,000 lux. Both the severity and symptoms related to depressed mood declined significantly in the light-treated group but not in the placebo group. The depression scores of the light-treated group also continued to drop on day 29 to below that of day 15.

The 24-hour mean body temperature and time to sleep onset declined significantly and level of energy increased significantly in the treatment group, but not in the placebo group. This is important because the lower the 24-hour mean temperature, the shorter the time to sleep onset, the better the sleep efficiency, and higher the level of energy. The researchers speculate that depression changes normal thermoregulatory and neuroendocrine rhythms, which the light therapy corrects.

For more information, see "Effects of light therapy on sleep, mood, and temperature in women with nonseasonal major depression," by Drs. McEnany and Lee, in the August/September 2005 Issues in *Mental Health Nursing* 26, pp. 781-794, 2005. ■

Variants in certain receptor genes affect the survival of patients with acute coronary syndrome who are prescribed beta-blocker therapy

Beta-blockers (beta-adrenergic antagonists) are typically prescribed to reduce the risk of further cardiac problems in patients discharged from the hospital after treatment for acute coronary syndrome (ACS, unstable angina or heart attack). However, specific sequence variants in the beta-adrenergic receptor genes can increase the mortality risk of patients with ACS discharged with beta-blocker therapy, according to a study supported in part by the Agency for Healthcare Research and Quality (HS11282).

Previous studies have shown an association between the $beta_1$- and $beta_2$-adrenergic receptors (*ADRB1* and *ADRB2*) and response to beta-adrenergic blocker therapy. This study went further, finding that 39 percent of ACS patients with the ADRB2 79 CG genotype discharged with beta-blockers and 16 percent of those with *ADRB2* 46 GA genotype were at high risk for dying within 3 years after hospitalization for ACS.

These patients may need additional treatments to optimize their prognosis, suggest the researchers. They prospectively studied 735 patients admitted for ACS at two Kansas City medical centers in 2001 and 2002. They evaluated the effect of *ADRB1*, Arg389Gly (1165 CG), and Ser49Gly (145 AG) as well as *ADRB2* Gly16Arg (46 GA), and Gln27Glu (79 CG) genotypes on 3-year survival of the 597 patients discharged with beta-blockers.

There was a significant association between *ADRB2* genotypes and 3-year mortality among this patient group. For the 79 *ADRB2* CG DNA sequence, 3-year mortality rates were 16 percent, 11 percent, and 6 percent for the CC, CG, and GG genotypes, respectively. For the *ADRB2* 46 GA DNA sequence, 3-year mortality estimates were 10 percent, 10 percent, and 20 percent for the GG, GA, and AA genotypes. The researchers found no mortality difference between genotypes among patients with ACS who were not discharged with beta-blocker therapy for either the 79 CG or 46 GA gene sequences. They indicate that more studies are needed to definitively demonstrate

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the potential benefit or harm of beta-blocker therapy within specific *ADRB2* genotype groups.

See "B_2-adrenergic receptor genotype and survival among patients receiving B-blocker therapy after an acute coronary syndrome," by David E. Lanfear, M.D., Philip G. Jones, M.S., Sharon Marsh, Ph.D., and others, in the September 28, 2005 *Journal of the American Medical Association* 294(12), pp. 1526-1533. ■

Clinical Decisionmaking

Urethral catheterization to diagnose urinary tract infections in feverish infants is questioned

Urinary tract infections (UTIs) are the most common cause of serious bacterial infections in feverish infants younger than 3 months, but there is a debate over the optimal method of urine collection to diagnose UTIs in these infants. According to a study supported in part by the Agency for Healthcare Research and Quality (HS06485), most doctors use urethral catheterization; however, its accuracy is only marginally better than bag collection. Urethral catheterization is considered more accurate than bag collection, but is technically difficult, invasive, and painful.

Researchers examined urine collection methods to diagnose UTI among 3,066 infants 3 months or younger (fever of 38 degrees C or higher) cared for in 219 practices from within the Pediatric Research in Office Settings' multistate network. Overall, 70 percent of urine samples were obtained by catheterization. Predictors of catheterization included infant female sex, practitioner older than 40 years, Medicaid insurance, Hispanic ethnicity, nighttime evaluation, and infants' severe dehydration.

Urinary specimens from bag and catheterization methods had similar sensitivity for detecting the number of white blood cells in the urine (leukocyte esterase levels), which indicates infection. However, bag specimens had somewhat lower specificity (84 vs. 94 percent), that is, they had many more false positives. The poorer specificity of bag specimens is of greater concern for doctors who manage UTIs aggressively with routine hospitalization and imaging. Ultimately, the choice of urine collection method should incorporate a number of factors, including patient age, parental preference, need for immediate diagnosis and/or antibiotic treatment, and plans for future imaging, suggest the researchers.

See "Choice of urine collection methods for the diagnosis of urinary tract infection in young, febrile infants," by Alan R. Schroeder, M.D., Thomas N. Newman, M.D., M.P.H., Richard C. Wasserman, M.D., M.P.H., and others, in the October 2005 *Archives of Pediatric and Adolescent Medicine* 159, pp. 915-922. ■

Delaying treatment may increase the need for bowel resection in patients surgically treated for complete small bowel obstruction

Some patients with symptoms of complete small bowel obstruction, such as abdominal pain and distention, nausea, and vomiting, do not respond to conservative measures, such as bowel rest and decompression. Physicians may need to be cautious about postponing surgery beyond 24 hours on these patients, concludes a study supported by the Agency for Healthcare Research and Quality (HS09698), because patients with delayed surgery suffer higher complication rates such as wound infection, longer hospital stays, and death.

Nina A. Bickell, M.D., M.P.H. of the Mount Sinai School of Medicine, and colleagues studied the management and outcomes of 141 patients who were surgically treated for complete small bowel obstruction at two hospitals. They abstracted detailed clinical and time data from their medical records and calculated their risk of resection (surgical removal of the diseased

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Small bowel obstruction

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portion of the bowel). They also determined factors affecting time to treatment. Of all patients treated surgically for obstruction, 45 percent underwent resection. Resected patients had longer (11 vs. 8 days) and more complicated (31 vs. 14 percent were in the intensive care unit) hospital stays.

Time to surgery, not clinical factors, was associated with risk of resection. Risk of resection was 4 percent among patients with 24 hours of unresponsive symptoms, but increased to 10 to 14 percent through 96 hours, then dropped slightly, but did not disappear. Patients treated first with a tube to drain gastrointestinal contents and decompress the bowel had longer times between first examination and operation (system-time of 40.6 vs. 10.2 hours), but this was not associated with an increased resection risk. System-times were shorter among patients seen first in the emergency department (median of 25.7 vs. 59.7 hours).

See "Influence of time on risk of bowel resection in complete small bowel obstruction," by Dr. Bickell, Alex D. Federman, M.D., M.P.H., and Arthur H. Aufses Jr., M.D., F.A.C.S., in the December 2005 *Journal of the American College of Surgeons* 201, pp. 847-854. ■

Concern about bleeding problems should not delay giving clot-busting drugs to heart attack patients with kidney disease

People suffering from mild to moderate kidney disease have a 2- to 4-fold risk, respectively, of dying after a heart attack than those with normal kidney function. Yet, patients with kidney disease are less likely to receive recommended clot-busting (thrombolytic) medications after a heart attack. Physicians may be reluctant to give thrombolytic medications to heart attack patients with kidney disease due to their concern about potential bleeding problems these medications might cause. According to a new study, however, heart attack patients with worse kidney function are not at greater risk for hemorrhage or other bleeding problems due to thrombolytic medication than patients with normal kidney functioning.

These findings support existing recommendations for expedient thrombolytic treatment for heart attack patients with kidney disease, conclude the researchers. Supported in part by the Agency for Healthcare Research and Quality (HS13853), they retrospectively analyzed data on all Medicare heart attack patients from 4,601 hospitals. They measured time to receipt of thrombolytic medication within 6 hours of hospital arrival and bleeding events. Nearly 14 percent of the 109,169 patients received thrombolytic therapy.

Average time to thrombolytic therapy was longer in patients with worse kidney function. For instance, average time to receipt of thrombolytic therapy for patients with normal kidney function (serum creatinine level of 1.5 mg/dL or less) was 70.8 minutes after hospital arrival, for those with moderately impaired kidney function (serum creatinine level greater than 2.0), 88.3 minutes, and for dialysis patients, 86.7 minutes. Yet, dialysis patients who received thrombolytics did not have significantly more bleeding problems than those with normal kidney function. Both groups were about twice as likely to suffer from bleeding problems as patients not given thrombolytics.

See "Delay in time to receipt of thrombolytic medication among Medicare patients with kidney disease," by Britt B. Newsome, M.D., M.P.H., M.S.P.H., David G. Warnock, M.D., Catarina I. Kiefe, M.D., Ph.D., and others in the October 2005 *American Journal of Kidney Disease* 46(4), pp. 595-602. ■

Regional strategies to prepare for public health disasters in Texas offer lessons about community resource allocation

In 2002, The Centers for Disease Control and Prevention (CDC) sent out a blueprint to State health departments to develop strategies to prepare for public health disasters. Funding to the States was contingent upon written submission of these strategies. Two case studies of strategies developed with use of the CDC funds in two public health regions in Texas (San Antonio and Dallas/Fort Worth areas) offer lessons about resource allocation to prepare for bioterrorism and other public health disasters.

With support from the Agency for Healthcare Research and Quality (HS13715), the researchers conducted interviews with regional directors, the State epidemiologist, and public health officials individually and in a focus group. Those interviewed emphasized that personal relationships are the cornerstone of public health preparedness. Public health officials at all levels, emergency managers, firefighters, health care workers, pharmacists, and hospital administrators must work together. Trust and cooperative working relationships must be developed through person-to-person meetings, planning sessions, and training exercises, and are essential for preparedness.

Second, funding from Federal agencies to State and local public health agencies has generally been allocated on a per capita basis. However, in Texas, regional use of funds (with input from local jurisdictions) was more effective based on the satisfaction of those involved 1 year after strategy implementation. Third, those interviewed recommended streamlining the planning processes with up-to-date computer networks in every county public health office, as well as software and software training. Finally, they stressed the importance of a communication plan to link the regional director, State epidemiologist's office, and local public health officials.

More details are in "Lessons learned from a regional strategy for resource allocation," by Janine C. Edwards, Ph.D., Jonathan Stapley, Ph.D., Ralitsa Akins, M.D., Ph.D., and others, in *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 3(2), pp. 113-118, 2005. ■

People with diabetes take less diabetes medication when costs increase

Health insurance plans have substantially increased the costs that plan members have to pay for prescription drugs. For patients suffering from chronic diseases, large increases in cost-sharing may reduce use of medications that are essential to control their disease, suggests a new study. It found that people with diabetes decreased their use of oral hypoglycemic (OH) medications when their share of medication costs increased by more than $10 for a 30-day supply. Over time, adults with type 2 diabetes, who typically use OH medication, require increases in their OH average daily dose or addition of other hypoglycemic agents such as insulin to achieve good blood-sugar control and avoid complications from diabetes.

Researchers, supported by the Agency for Healthcare Research and Quality's Centers for Education and Research on Therapeutics (CERTs) program (HS10391), analyzed membership, benefit, and pharmacy dispensing data from five managed care organizations. They compared 13,110 12-month episodes of OH use and a medication cost-sharing increase with 13,110 episodes with no increase during 6 months prior to and 6 months after a cost-sharing increase.

Researchers found that 6 months after an increase of more than $10 for a 30-day supply of medication, the OH average daily dose was 18.5 percent less than what would have been expected based on the OH

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Diabetes medication costs

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average daily dose before the cost-sharing increase. However, established episodes of OH use with small cost-sharing increases ($1 to $6 per 30-day supply) and no cost-sharing increases had uninterrupted trends in rising OH average daily dose.

See "Effect of increased cost-sharing on oral hypoglycemic use in five managed care organizations: How much is too much?" by Douglas W. Roblin, Ph.D., Richard Platt, M.D., M.Sc., Michael J. Goodman, Ph.D., and others, in the October 2005 *Medical Care* 43(10), pp. 951-959. ■

Expansion in public health insurance for children lessens the financial burden of health care for low-income families

Expansions in public health insurance programs between 1980 and 2000 have reduced the financial burden of out-of-pocket medical expenses for children in poor families, concludes a study supported by the Agency for Healthcare Research and Quality (HS11662). Federal and State Medicaid health insurance programs expanded the number of families eligible for Medicaid coverage throughout the 1980's and 1990's. Also, in 1997, the State Children's Health Insurance Programs (SCHIP) were enacted and included children of families who were not poor enough to qualify for Medicaid. Both programs limit deductibles, coinsurance, and copayments to nominal levels, note the study authors. As a result, there was a large increase in the proportion of children in low-income families covered by public insurance between 1980 and 2000.

The researchers compared patterns of out-of-pocket health care expenditures and their associated financial burden for children aged 0 to 18 years in 6 poverty level groups (family income ranging from 100 to 300 percent of the poverty threshold and above). The 2000 poverty threshold was $17,050 for a family of four. The researchers used the same poverty thresholds to analyze data from the 1980 National Medical Care Utilization and Expenditure Survey and the 2000 Medical Expenditure Panel Survey.

In 2000, total out-of-pocket health care expenditures for children averaged $200 per child. Relative financial burden (out-of-pocket expenses relative to family income) decreased significantly for all of the impoverished groups studied in 2000 compared to 1980. They ranged from a reduction of 36.5 percent for those below 100 percent of the Federal poverty level, to a reduction of 46.7 percent for those at or above 300 percent (4 times) the Federal poverty level. Despite these persistent socioeconomic disparities in financial burden, low-income children with public insurance had a 49.5 percent lower relative financial burden than similar children without insurance, while those with private insurance had a 79 percent greater relative financial burden.

See "Disparities in the financial burden of children's healthcare expenditures," by Sabrina T. Wong, R.N., Ph.D., Alison Galbraith, M.D., M.P.H., Sue Kim, Ph.D., M.P.H., and Paul W. Newacheck, Dr.P.H., in the November 2005 *Archives of Pediatric and Adolescent Medicine* 159, pp. 1008-1013. ■

Employer-offered health coverage affects plan uptake by workers, but has less effect on overall worker and family coverage rates

Most individuals under the age of 65 obtain health insurance through their employer. However, employers vary in the number and types of plans offered and the premium contribution required from workers. The type of health plan coverage an employer offers affects whether its employees take the insurance, but the type of coverage has a smaller effect on overall coverage rates for workers and their families because of the availability of alternative sources of coverage (such as the spouse's employer).

These findings are based on analysis of the 1996-1997 and 1998-1999 rounds of the nationally representative Community Tracking Study Household Survey. The researchers examined variation in coverage rates among those eligible for employer-sponsored health insurance. They measured the extent to which the characteristics of the health plans available to workers from their own employer affected the likelihood of enrollment in a plan offered by their

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Health coverage

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employer, enrollment in an alternative source of coverage, or remaining uninsured.

The study, supported in part by the Agency for Healthcare Research and Quality (HS11668), found that when an employer offered only a plan from a health maintenance organization, married employees were 27 percent more likely to decline coverage from their employer and take up another offer, while single employees were more likely to accept the coverage offered by their employer rather than go uninsured. Higher net premiums slightly increased the odds that both married and single employees would decline the coverage offered by an employer and remain uninsured. However, after including possible insurance through a spouse's employer, the decline in coverage rates from higher net premiums was less.

More details are in "Employer health insurance offerings and employee enrollment decisions," by Daniel Polsky, Ph.D., Rebecca Stein, Ph.D., Sean Nicholson, Ph.D., and M. Kate Bundorf, Ph.D., M.B.A., in the October 2005 HSR: *Health Services Research* 40(5), pp. 1259-1278. ■

Agency News and Notes

Translating Research Into Practice 2006 Conference TRIP: Optimizing the Medium and the Message

The fourth annual Translating Research Into Practice (TRIP) conference will be held on July 10-12, 2006, at the Omni Shoreham Hotel in Washington, DC. Co-sponsored by the Agency for Healthcare Research and Quality and the National Cancer Institute, this year's conference, *TRIP: Optimizing the Medium and the Message*, will highlight strategies and tools for designing TRIP interventions to effectively reach different audiences and settings. The conference will provide an opportunity for health services researchers, clinicians, health care managers, payers, patient and consumer representatives, industry representatives, and policy makers to share innovative TRIP research and implementation methods, case studies and other experiences.

Current working session titles include:

- Implementing Actionable Research in "Real World" Settings
- Organizational Transformation at the Practice Level: Tools and Strategies
- Organizational Transformation at the System Level: Tools and Strategies
- Translating Evidence into Clinical Practice Guidelines
- Translating Evidence into Coverage Policies
- Communicating Public Health Messages
- Promoting Cultures of Patient Safety and High-Reliability Organizations
- Health Information Technology/e-Health Tools for TRIP
- Lessons from Mass Media Advertising
- TRIP Tools for Health Literacy
- TRIP to Reduce Health Disparities
- Does Research Translate Into Practice or Practice into Research?
- Is Changing Practice Cost-Effective?
- Networking Research into Practice
- TRIP Model of Partnerships Between "Real World" and "Academics"
- Singular Sensations: The Role of Champions and Opinion Leaders in TRIP
- The Collaborative Model as a Medium for TRIP ■

AHRQ supports publications on pay for performance

Five articles and three commentaries on the topic of pay for performance are featured in the February 1, 2006 issue of *Medical Care Research and Review*, which was supported by the Agency for Healthcare Research and Quality. Summaries of the articles are listed below:

Levin-Scherz, J., DeVita, N., and Timbie, J. (2006, February). "Impact of pay-for-performance contracts and network registry on diabetes and asthma HEDIS® measures in an integrated delivery network." ***Medical Care Research and Review*** **63, pp. 14S-28S.**

This article reviews the experience of a large integrated delivery network that incorporated physician quality metrics into pay-for-performance contracts. The authors present criteria for including measures in pay-for-performance contracts and offer a practical approach to determining withhold return or bonus distribution based on improvement and performance. They demonstrate interventions undertaken to improve performance, including the development of a claims-based registry. Empirical data show that the network performance improved more than the comparable State and national performance during the period of this observational study. The authors conclude that pay-for-performance contracts led to development of medical management programs including a claims-based registry and nonphysician interventions.

Grossbart, S.R. (2006, February). "What's the return? Assessing the effect of 'pay-for-performance' initiatives on the quality of care delivery." ***Medical Care Research and Review*** **63, pp. 29S-48S.**

This article evaluates the impact of the Centers for Medicare and Medicaid Services' premier pay-for-performance demonstration project on performance improvement in three clinical areas in a multihospital health care system. The study compares a group of hospitals participating in this project against a control group of similar hospitals that did not participate. Although the incentives are extremely small, the findings show that participation in the pay-for-performance initiative had a significant impact on the rate and magnitude of performance improvement. The project led to marked improvement in the quality of clinical process delivery and accelerated the adoption of evidence-based practices.

Nahra, T.A., Reiter, K.L., Hirth, R.A., and others. (2006, February). "Cost-effectiveness of hospital pay-for-performance incentives." ***Medical Care Research and Review*** **63, pp. 49S-72S.**

This article examines the cost-effectiveness of a hospital incentive system for heart-related care, using a principal-agent model, where the insurer is the principal and hospitals are the agents. Four-year incentive system costs for the payer were $22,059,383, composed primarily of payments to the participating hospitals, with approximately 5 percent in administrative costs. Effectiveness is measured in stages, beginning with improvements in the processes of heart care. Care process improvements are converted into quality-adjusted life years (QALYs) gained. An estimated 24,418 patients received improved care, resulting in a range of QALYs from 733 to 1,701, depending on assumptions about clinical effectiveness. Cost per QALY was found to be between $12,967 and $30,081, a level well under consensus measures of the value of a QALY.

Bokhour, B.G., Burgess, J.F., Hook, J.M., and others. (2006, February). "Incentive implementation in physician practices: A qualitative study of practice executive perspectives on pay for performance." ***Medical Care Research and Review*** **63, pp. 73S-95S.**

Using a qualitative interview design, this article examines the role practice executives play in the implementation of pay-for-performance (P4P) programs and how their perspectives and decisions can influence the success of these programs. The authors identified five key findings related to practice executives' views on P4P: quality incentives are better than utilization incentives, quality incentives are bonus rewards, quality incentives are agents for change, providers do not feel they have control over attaining quality targets, and the ways in which quality is measured are problematic. The authors discuss five different ways in which practice executives distribute rewards to physicians. These findings may help payers more effectively design and implement financial rewards for quality.

Beich, J., Scanlon, D.P., Ulbrecht, J., and others. "The role of disease management in pay-for-performance programs for improving the care of chronically ill patients." ***Medical Care Research and Review*** **63, pp. 96S-116S.**

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Pay for performance

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To date, pay-for-performance programs targeting the care of persons with chronic conditions have primarily been directed at physicians and provide an alternative to health plan-sponsored chronic disease management (DM) programs. Both approaches require similar infrastructure, and each has its own advantages and disadvantages for program implementation. Pay-for-performance programs use incentives based on patient outcomes; however, an alternative system might incorporate measures of structure and process. Using a conceptual framework, the authors explore the variation in 50 diabetes DM programs using data from the 2002 National Business Coalition on Health's eValue8 Request for Information (RFI). The authors raise issues relevant to the assignment of accountability for patient outcomes to either health plans or physicians. They analyze the association between RFI scores measuring structures and processes, and HEDIS diabetes intermediate outcome measures. Finally, the strengths and weaknesses of using the RFI scores as an alternative metric for pay-for-performance programs are discussed.

This issue also features commentaries by a policymaker, a provider, and an employer:

- Glenn Hackbarth, Commentary, Med Care Res Rev 2006 63: 117S-121S.
- Mark R. Chassin, "Does Paying for Performance Improve the Quality of Health Care?" Med Care Res Rev 2006 63: 122S-125S.
- Robert S. Galvin, "Evaluating the Performance of Pay for Performance," Med Care Res Rev 2006 63: 126S-130S.

Articles and commentaries can be downloaded from http://mcr.sagepub.com/current.dtl. Copies of the special supplement (AHRQ Publication No. OM06-0036) are also available from AHRQ.* ■

Announcements

AHRQ launches new "learning resources" to help providers adopt health IT

The Agency for Healthcare Research and Quality (AHRQ) has launched a new suite of "learning resources" designed to help health care providers adopt health information technologies quickly and effectively. The step represents a new phase for the AHRQ National Resource Center on Health Information Technology, as the Agency acts rapidly to convey the lessons learned through AHRQ-funded projects and other sources. The new resources are at the center's Web site: http://www.healthit.ahrq.gov.

AHRQ's $166 million health IT initiative funds more than 100 projects throughout the nation, in settings ranging from large health plans and hospitals to small practices, including rural and inner city communities. As leaders of these projects plan and implement various health IT products, they provide a clinic-level window on the pitfalls and opportunities that others will face. AHRQ will synthesize these experiences to create useful findings and tools. The projects also will measure actual benefits from AHRQ's health IT projects, providing evidence for the business case for health IT adoption.

The resource center site provides emerging lessons from the field; a knowledge library with links to more than 5,000 health IT information resources; an evaluation toolkit to help those implementing health IT projects; a summary of key topics; plus other resources pointing to current health IT activities, funding opportunities, and other information. ■

Announcing ExpectMore.gov, a new Web site that provides information on how Federal programs perform

The Federal government is working to ensure its programs perform well and wants everyone to know how well its programs are performing. ExpectMore.gov is a new website that provides candid information about programs that are successful and programs that fall short, and, in both situations, what they are doing to improve their performance next year.

What should you know about ExpectMore.gov:

- Assessments of programs you may be interested in will be available on ExpectMore.gov. These include a program overview, some of the key findings of the assessment, and the follow-up actions we are taking to address those findings.
- ExpectMore.gov is being publicized in the press and on Capitol Hill as a comprehensive site to learn about program performance and what programs are doing to improve.
- There will be increased attention to results from ExpectMore.gov. Sharing this information with you in a clear, accessible way will increase attention to these performance improvement efforts.
- Consider suggesting additions to a program's improvement plan to help it achieve greater results.

For more information, go to http:www.ExpectMore.gov. ■

Research Briefs

Clarke, P.S. (2005, November). "Analyzing change based on two measures taken under different conditions." (AHRQ grant HS06516). *Statistics in Medicine* 24, pp. 3401-3415.

In longitudinal studies, it can be difficult to analyze change in measures from two periods when the measurement conditions are different. In such situations, conditions effects will necessarily be confounded with change between periods. One example is the practice or learning effect, where a participant is tested at each period, but learns to complete the test more effectively on the second occasion. Estimating such conditions effects is impossible without modeling assumptions, note the authors. In this paper, they develop a conditions-effect adjustment model for estimating change effects under different sets of assumptions.

Crofton, C., Darby, C., Farquhar, M., and Clancy, M. (2005, November). "The CAHPS hospital survey: Development, testing, and use." *Journal on Quality and Patient Safety* 31(11), pp. 655-659.

The Consumer Assessment of Healthcare Providers and Systems (CAHPS®) consortium has been developing and testing patient experience surveys since 1995. These surveys include tools for assessment of care given to adults (including Medicare recipients), children, children with special health care needs, and others. This includes care received through managed care, fee-for-service plans, and preferred provider organizations. The article describes how the CAHPS® consortium developed the CAHPS® Hospital Survey instrument, how it was tested, and expectations for its use.

Reprints (AHRQ Publication No. 06-R017) are available from AHRQ.*

Dudley, R.A. (2005, October). "Pay-for-performance research: How to learn what clinicians and policy makers need to know." (AHRQ grant HS16117). *Journal of the American Medical Association* 294(14), pp. 1821-1823.

The rationale for pay-for-performance in health care comes almost entirely from experience with incentives in other industries. According to the authors of this paper, pay-for-performance involves a common problem in health service research: despite little evidence, clinicians and policy makers are responding to this major policy trend, while researchers determine how to inform those

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Research briefs

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decision makers. The authors call for strategies that address four fundamental aspects of research: study design, selecting theory-driven hypotheses, reporting research findings in a complete and informative manner, and setting research priorities. They caution that until these issues are clearly addressed, clinicians should be skeptical of any research that purports to describe the impact of pay-for-performance.

Harris, K.M., Edlund, M.J., and Larson, S. (2005, August). "Racial and ethnic differences in the mental health problems and use of mental health care." *Medical Care* 43(8), pp. 775-784

Researchers analyzed data from the 2001-2003 National Surveys on Drug Use and Health, specifically the subsample of 134,875 adults who answered questions in the Adult Mental Health module. Findings indicate that more American Indian/Alaskan Natives and multiracial respondents than whites had at least one mental health symptom (26 and 30 percent vs. 20 percent, respectively) and more multiracial respondents had serious mental illness (10 vs. 6 percent). Blacks, Asians, Mexicans, and Central or South Americans had significantly lower rates compared to whites of at least one mental health symptom and serious mental illness. However, compared with Mexicans, Puerto Ricans had significantly higher rates of mental health problems.

American Indian/Alaskan Natives and multiracial respondents used mental health care at rates similar to those of whites, despite worse mental health status. Blacks, Asians, Mexicans, and other Hispanics used mental health care at significantly lower rates than whites, with less than 10 percent in each group reporting use of mental health care in the past year. Puerto Ricans and other Hispanics used mental health care services at higher rates than Mexicans (13 and 9 percent vs. 7 percent, respectively). American Indians and Alaskan Natives reported substantially higher rates of unmet need compared with whites (33 vs. 18 percent and 63 vs. 35 percent, respectively).

Reprints (AHRQ Publication No. 05-R064) are available from AHRQ.*

Hepner, K.A., Brown, J.A., and Hays, R.D. (2005, December). "Comparison of mail and telephone in assessing patient experiences in receiving care from medical group practices." (AHRQ grant HS00924). *Evaluation & The Health Professions* 28(4), pp. 377-389.

This study compares mail and telephone responses to the medical groups survey from the Consumer Assessment of Health Plans Study (G-CAHPS) in a sample of 880 patients from 4 physician groups. Patients were randomly assigned to a survey mode, although in the end both survey modes produced similar results. The investigators obtained a total of 537 phone completes and 343 mail completes (a 54 percent response rate). There were no significant differences in internal consistency by mode. In addition, there was only one significant mode difference in item and composite means by mode of survey administration after adjustment for case-mix differences.

Janssen, W.J., Collard, H.R., Saint, S., and Weinberger, S.E. (2005, November). "A perfect storm." (AHRQ grant HS11540). *New England Journal of Medicine* 353(18), pp. 1956-1961.

This article discusses a clinical case in which the combination of scoliosis, a rigid spine, costovertebral joint contractures, and respiratory muscle weakness—perhaps worsened by respiratory infection—generated a "perfect storm" for hypercapnic respiratory failure in a 21-year-old male college student. Although the physician correctly deduced that the patient's hypoxemia was due to chronic hypoventilation, he did not identify the specific abnormality as rigid spine syndrome, which is rare. The authors caution that hypoventilation in a young adult is rare and should raise concern about congenital diseases. Congenital neuromuscular disease should be considered in all patients, but particularly those with severe scoliosis.

Kuhlthau, K., Ferris, T.G., Davis, R.B., and others. (2005, November). "Pharmacy- and diagnosis-based risk adjustment for children with Medicaid." (AHRQ grant HS10152). *Medical Care* 43(11), pp. 1155-1159.

This study found that models with either pharmacy- or diagnosis-based risk adjustment improved the prediction of Medicaid child health expenditures compared to demographic models without risk adjustment. No single risk adjuster performed best in all situations. This suggests that optimal choices of risk adjuster may differ by purpose and content, note the authors. They used 1994-1995 Medicaid claims files for children who were not covered by managed care in three States, examining six risk adjustment methods: two pharmacy-based and four diagnosis-based. They compared the predictive accuracy of the methods for the whole sample and stratified by State and Medicaid enrollment category.

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Luo, N., Johnson, J.A., Shaw, J.W., and others. (2005, November). "Self-reported health status of the general adult U.S. population as assessed by the EQ-5D and health utilities index." (AHRQ grant HS10243). *Medical Care* 43(11), pp. 1078-1086.

This study describes the self-reported health status of the general adult U.S. population using three multi-attribute preference-based measures—the EQ-5D, Health Utilities Index Mark 2 (HUI2) and Mark 3 (HUI3). A total of 4,048 respondents completed all 3 questionnaires. Generally, younger, male, and Hispanic or black adults had better index scores than older, female adults and adults in other racial/ethnic categories. Index scores were also higher with higher educational attainment and household income. Although the three indexes appeared to be valid and demonstrated similarities, health status assessed by these measures is not exactly the same.

McCloskey, L.A., Lichter, E., Ganz, M.L., and others. (2005, August. "Intimate partner violence and patient screening across medical specialties." (AHRQ grant HS11088). *Academic Emergency Medicine* 12, p. 712-722, 2005.

Researchers analyzed the responses of 2,465 women who completed written surveys about intimate partner violence (IPV) and health care screening for IPV. Among the women who responded to the survey, 14 percent had suffered IPV during the previous 12-month period, with 37 percent revealing a lifetime suffering from IPV. The highest rates of recent IPV were disclosed in the hospital-based addiction recovery units (36 percent) and in the EDs (17 percent).

Women between 18 and 23 years were at highest risk of being IPV victims. Also, women who were IPV victims were twice as likely to have an annual income less than $20,000 and nearly twice as likely to be unemployed than women who were not victims. Healthcare providers were more likely to inquire about IPV with low-income than middle- or high-income women, but were no more likely to ask about IPV among the youngest age group. Among women who did reveal being a victim of IPV to their health care provider, half reported receiving direct interventions or services as a result.

Murray, P.K., Love, T.E., Dawson, N.V., and others. (2005, November). "Rehabilitation services after the implementation of the nursing home prospective payment system." (AHRQ grant HS13412). *Medical Care* 43(11), pp. 1109-1115.

The prospective payment system (PPS) for nursing homes was designed to curtail the rapid expansion of Medicare costs for skilled nursing care. This study found that following implementation of the PPS, patients had less cognitive impairment, more depression, and more family support. The amount of rehabilitation services declined the most in patients most likely to receive them before PPS and in stroke patients. In contrast, patients who in the pre-PPS period were in groups unlikely to receive therapy, were more likely to receive some type of rehabilitation service in the post-PPS period. The changes were most apparent in for-profit nursing homes.

Sawaya, G.F. (2005, December). "A 21-year-old woman with atypical squamous cells of undetermined significance." (AHRQ grant HS10856). *Journal of the American Medical Association* 294(17), pp. 2210-2218.

The author discusses the case of a 21-year-old woman with a history of abnormal Pap tests, which showed atypical squamous cells of undetermined significance. Current guidelines recommend that cervical cancer screening should not begin before the onset of vaginal intercourse and should be delayed for about 3 years, but begin no later than age 21 years. This is because screening before the 3-year period may result in an overdiagnosis of cervical lesions that will regress spontaneously, leading to inappropriate interventions that may do more harm than good. That was the case of this young woman, who had her first Pap test 4 months after beginning sexual intercourse, when she was 19 years old. Within her first 3 years of being screened, she had six cervical cytology tests, a colposcopy with a cervical biopsy, and two more cytology tests are planned within the coming year. So far, no cervical disease has been identified.

Stuart, B., Briesacher, B.A., Shea, D.G., and others. (2005, July). "Riding the rollercoaster: The ups and downs in out-of-pocket spending under the standard Medicare drug benefit." *Health Affairs* 24(4), pp. 1022-1031.

Researchers analyzed data from the 1998-2000 Medicare Current Beneficiary Survey and the National Health Accounts from the Center for Medicare and Medicaid Services to examine out-of-pocket spending under the 2006 MMA Part D drug benefit. They estimated quarterly out-of-pocket drug spending from 2006 through

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Research briefs

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2008 for all beneficiaries and two subgroups dubbed "high spenders" (those with projected 2006 drug spending above the initial benefit limit of $2,250) and "catastrophic spenders" (projected 2006 drug spending above the catastrophic threshold of $5,100).

The researchers projected that, averaged over 3 years, potential Part D enrollees would pay 44 percent of total drug spending out of pocket. High spenders would pay about 67 percent out of pocket, and catastrophic spenders would pay about 51 percent. These out-of-pocket spending estimates do not include premiums, which are projected to be about $35 a month in 2006, $37 in 2007, and $41 in 2008.

Reprints (AHRQ Publication No. 05-R069) are available from AHRQ.*

Zuvekas, S.H., Rupp, A.E., and Norquist, G.S. (2005, November). "The impacts of mental health parity and managed care in one large employer group: A reexamination." ***Health Affairs*** **24(6), pp. 1668-1671.**

Numerous case studies demonstrate that managed behavioral health care organizations (MBHOs) reduce mental health specialty provider treatment costs, even when mental health benefits are expanded. Less clear is how access to mental health treatment changes in response to changes in coverage and the introduction of an MBHO carve-out. The authors of this paper reexamine a study which found that the number of people receiving mental health/substance abuse treatment increased by almost 50 percent after the introduction of mental health parity and an MBHO. Based on their use of multivariate panel data methods, they suggest that secular trends were largely responsible for this increase.

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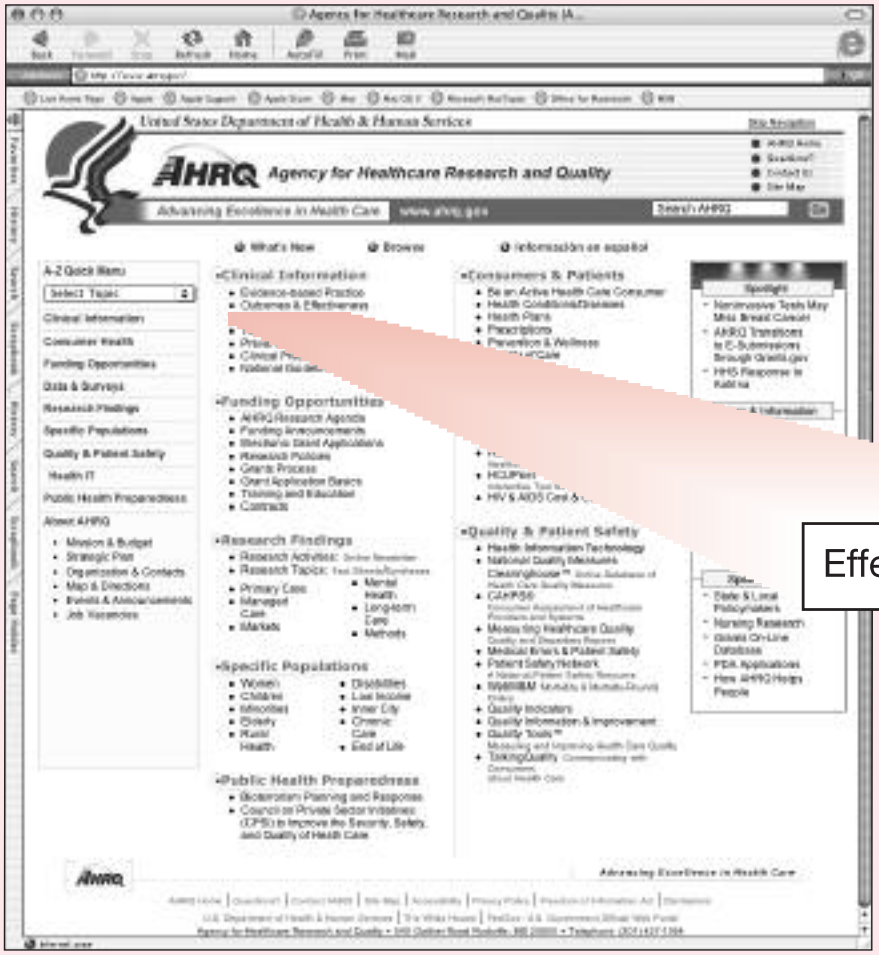

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