



Research Activities



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Agency for Healthcare Research and Quality

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AHRQ expands therapeutics education and research centers and adds new topics: Health IT, economics, and formularies

The Agency for Healthcare Research and Quality (AHRQ) has awarded \$41.6 million over the next 4 years for a new coordinating center and 10 research centers as part of its Centers for Education and Research on Therapeutics (CERTs) program. Four new centers are also added to the CERTs program.

The new AHRQ-funded CERTs Coordinating Center is Kaiser Permanente's Center for Health Research in Portland, Oregon. The Center for Health Research will assume infrastructure and leadership support for the CERTs National Steering Committee and research centers. In addition, it will expand the program's ability to translate research findings through collaborations with other research networks, including the National Institutes of Health Roadmap's Clinical Trials Initiative, the NIH Clinical and Translational Science Awards, and AHRQ's Effective Healthcare Program.

The four new CERTs program centers receiving first-time funding are:

- Brigham and Women's Hospital in Boston, which will focus on how health information technology can improve the safe use of medications.
- The University of Illinois at Chicago, which will focus on how reinvigorating formularies promote best medication uses.
- Cincinnati's Children's Hospital Medical Center, which will focus on improving pediatric patient care through projects, such as how children's metabolism may affect drug effectiveness and safety.
- The University of Chicago, which will focus on hospital use of medications and other therapeutics and their clinical and economic implications.

Six previously funded CERTs research centers won new funding awards:

- Duke University (therapies for disorders of the heart and blood vessels).

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Therapeutics education

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- Harvard Pilgrim Health Care on behalf of the HMO Research Network (drug use, safety, and effectiveness in defined populations cared for by health plans).
- University of Alabama at Birmingham (therapies for disorders of the joints and bones).
- The Arizona CERT at the Critical Path Institute (potentially harmful drug interactions, particularly in women).
- University of Pennsylvania (therapies for infectious diseases).
- Vanderbilt University (prescription drug use in a Medicaid population).

The remaining four centers, which received funding in 2006, are: MD Anderson, Texas (risk and health communication; patient, consumer, and professional education); Rutgers, The State University of New Jersey (mental health therapies); the University of Iowa (improving elderly care, both therapeutics and care management); and the Weill Medical College of Cornell University, New York (therapeutic medical devices).

The CERTs program, which AHRQ administers in partnership with the Food and Drug Administration, was originally authorized by Congress in 1997 to examine the benefits, risks, and cost-effectiveness of therapeutic products; educate patients, consumers, doctors, pharmacists, and other clinical personnel; and improve quality of care while reducing unnecessary costs by increasing appropriate use of therapeutics and preventing adverse effects and their medical consequences. For more information, go to www.ahrq.gov/clinic/certsovr.htm. ■

Women's Health

Study documents the health costs of being a woman

Women commonly seek care for female-specific conditions, such as pregnancy and menopause, which substantially increases

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their costs for health care, according to a new study. Based on 3 years of data from the 2000-2002 National Medical Expenditure Panel Survey, more than one-fifth of women (21.2 percent) sought care for a female-specific condition during a 1-year period. They sought care primarily for gynecologic disorders (7.4 percent), pregnancy-related conditions (6.4 percent), and menopausal symptoms (5.3 percent). The health costs of being a woman were substantial. For example, women spent from a mean of \$483 per year for menopausal disorders to \$3,896 for female cancers.

Overall, women spent an estimated \$108 billion a year for health care, of which more than 40 percent (\$43.3 billion) was for female-specific conditions. However, more than 20 percent of U.S. women had no health insurance coverage for some or all of a year, and nearly 30 percent of pregnant women had no health insurance. Uninsured women seeking care for female-specific conditions were less likely to have visited a doctor, filled a prescription, or been hospitalized for these conditions. Yet they were more likely to have sought treatment for these problems at emergency departments (especially younger and black women).

Women primarily sought outpatient care for female-related medical problems, usually requiring several outpatient visits. This underscores the importance of

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Female-specific conditions

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outpatient care for women's health, as well as access to providers with the expertise to provide care for female-specific problems, note the researchers. Their study was supported by the Agency for Healthcare Research and Quality (HS13057).

More details are in "The cost of being a woman: A national study of health care utilization and expenditures for female-specific conditions," by Kristen H. Kjerulff, Ph.D., Kevin D. Frick, Ph.D., Jeffrey A. Rhoades, Ph.D., R.D., and Christopher S. Hollenbeck, Ph.D., in the January-February, 2007 *Women's Health Issues* 17, pp. 13-21. Reprints (AHRQ Publication No. 07-R057) are available from AHRQ.* ■

Death and complications after breast cancer surgery are rare, with wound infection the most common problem

Death and complications after breast cancer surgery are rare. The most common complication of the surgery is wound infection, which is twice as common after mastectomy than breast conserving surgery (lumpectomy and lymph node dissection), according to a new study. Mortality rates 30 days after surgery were 0.24 percent for mastectomy and 0 percent for breast conserving surgery. Wound infection affected 4.34 percent of women undergoing mastectomy and 1.97 percent of those undergoing lumpectomy. Factors that may contribute to the higher rate of wound infections after mastectomy include extensive tissue dissection, drain placement, formation of seromas (pockets of fluid), and longer operation time.

A woman's overall health status also affected the likelihood of infection. For example, women who were morbidly obese (body mass index over 30), or who had low preoperative albumin (protein) levels and hematocrit greater than 45 percent, were more likely to develop wound complications. Wound healing requires protein synthesis (an albumin level of 4.08

appeared to protect against postoperative wound complications) and adequate nutritional status.

Women with these health problems who undergo mastectomy may be likely candidates for prophylactic antibiotics, suggest the researchers. They analyzed data from a national database on 1,660 women who underwent mastectomy and 1,447 women who underwent breast conserving surgery at 14 university and 4 community medical centers. The women's mean age was 56 years.

Few women who underwent mastectomy experienced cardiac (0.12 percent) or pulmonary (0.66 percent) complications. There were no cardiac or pulmonary complications in the lumpectomy group. Central nervous systems problems were also rare in the mastectomy (0.12 percent) and breast conservation (0.07 percent) group. Since morbidity and mortality rates are so low following breast cancer surgery, it is difficult to compare quality of care among different centers using these criteria. The study was supported by the Agency for Healthcare Research and Quality (HS11913).

See "Morbidity and mortality following breast cancer surgery in women: National benchmarks for standards of care," by Mahmoud B. El-Tamer, M.D., F.A.C.S., B. Marie Ward, M.D., Tracy Schiffner, M.Sc., and others, in the May 2007 *Annals of Surgery* 245(5), pp. 665-671. ■

Also in this issue:

Low-income elderly and care management, see page 7

Reducing errors with electronic prescribing, see page 9

Survival advantages of surgery for prostate cancer, see page 13

Complications following heart valve replacements, see page 16

Prescription formularies and consumer costs, see page 20

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.

Women suffer fewer postoperative problems after vascular surgery at Veterans Administration than at private hospitals

Women's mortality rates one month after vascular surgery at Veterans Administration (VA) and private sector hospitals are similar, after adjusting for differences in severity of illness. However, postoperative problems are 40 percent fewer at VA than they are at private hospitals, even after adjusting for these differences, according to a new study. A research team used data from the Patient Safety in Surgery Study to compare postoperative mortality and morbidity between 458 women who underwent vascular surgery at 128 VA hospitals and 3,535 women who underwent surgery at 14 private sector medical centers between 2001 and 2004. Operations included surgery on the carotid artery and below- or above-the-knee amputations.

The private hospital group had more preoperative health problems than the VA group, which ranged from renal failure and heart failure to wound infection and bleeding disorders. Without adjusting for these differences, the 30-day mortality rate was higher in the private group than it was in the VA group (5.2 vs. 2.4 percent), as was the morbidity rate (23.4 vs. 13.3 percent). After adjusting for differences in preoperative severity of illness, mortality rates were similar between the two groups. However, the difference in postoperative problems remained pronounced, with the

VA group suffering from 40 percent fewer postoperative problems than the private group.

Postoperative complications that were more frequent among the private sector patients were deep wound infection, respiratory failure, urinary tract infections, cardiac arrest, and graft failure. These differences in postoperative complications suggest unidentified differences in the hospital populations, their processes of care, or both. For example, a greater percentage of the VA patients were operated on with epidural and monitored techniques. Also, the technical complexity of the surgeries was substantially higher in the private group, and these surgeries were more likely to be emergencies. The study was supported by the Agency for Healthcare Research and Quality (HS11913).

See "Comparison of risk-adjusted 30-day postoperative mortality and morbidity in Department of Veterans Affairs hospitals and selected university medical centers: Vascular surgical operations in women," by Robert G. Johnson, M.D., F.A.C.S., Catherine M. Wittgen, M.D., F.A.C.S., Matthew M. Hutter, M.D., M.P.H., F.A.C.S., and others, in the June 2007 *Journal of the American College of Surgeons* 204(6), pp. 1137-1146. ■

Child/Adolescent Health

Local touchscreen computer kiosks can help parents in urban, low-income communities learn about their child's health

Parents in urban, low-income communities can learn about their child's health by using touchscreen computer kiosks placed in public settings such as the local library or a McDonald's restaurant, concludes a new study. When parents entered the age of their child, they were presented with age-appropriate modules containing prevention information and screening tools. Half (52 percent) of the kiosk sessions identified at-risk children, such as those with uncontrolled asthma, and 87 percent of first-time kiosk

users who completed the asthma assessment had children whose asthma was uncontrolled. Of parents who responded to the exit survey at the end of the kiosk session, 48 percent had less than a high school education, and 26 percent had never used the Internet.

Nevertheless, over half of parents found the computer kiosk easy to use (57 percent) and the information easy to understand (55 percent); 66 percent said there was at least some new information; 55 percent of parents planned to try some of the prevention

recommendations they had learned; and 49 percent intended to talk to their child's doctor about what they had learned. The findings were based on use of three touchscreen computer kiosks at sites in low-income urban neighborhoods in Seattle.

The kiosks included 14 modules. Ten focused on prevention and safety, including television/media, gun injuries, bicycle injuries, car crashes, tobacco smoke exposure, flu shots, sudden infant death syndrome prevention, house fires,

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Computer kiosks

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Head Start, and scald burn prevention. Three modules were screening tools for developmental delay, tuberculosis, and attention deficit hyperactivity disorder. The final module was a symptom

assessment tool for children with asthma. In total, parents completed 1,846 kiosk sessions, with nearly half of the sessions taking place at McDonald's. The study was supported in part by the Agency for Healthcare Research and Quality (HS13302).

More details are in "Parent use of touchscreen computer kiosks for child health promotion in community settings," by Darcy A. Thompson, M.D., M.P.H., Paula Lozano, M.D., M.P.H., and Dimitri A. Christakis, M.D., M.P.H., in the March 2007 *Pediatrics* 119, pp. 427-434. ■

Premature infants with chronic lung disease can be safely cared for by community-based providers coordinating with a nurse specialist

Premature infants with chronic lung disease (CLD) are prone to frequent respiratory illnesses, feeding difficulties, growth failure, and rehospitalization during infancy. They are also more likely than other infants to suffer from cognitive, motor, and language impairment, and hearing loss. After discharge from a neonatal intensive care unit (NICU), these infants benefit from comprehensive and coordinated care such as that typically provided by sophisticated medical centers, yet such centers may not be accessible for some families. However, a new study shows that premature infants with CLD can fare as well after NICU discharge when follow-up care is provided by community-based providers, with a nurse specialist coordinating the child's care and maintaining frequent telephone contact with the family.

For rural families or those distant from medical centers, community-based care might be a preferred alternative, suggests T. Michael O'Shea, M.D., M.P.H., of Wake Forest University School of Medicine. Dr. O'Shea and colleagues randomly assigned 150 premature infants with CLD to either community-based (75 infants) or medical center-based (75 infants) follow-up care. The researchers measured infant outcomes based on mental and psychomotor developmental indexes, a behavioral scale, evidence of growth delay (less than 5th percentile of weight for

length) at 1 year of age, and respiratory rehospitalizations.

In each group, 73 infants survived and 69 were evaluated at 1 year. The median mental development index (corrected for gestational age) was 90 for both groups. The median psychomotor developmental index, behavior composite, and rehospitalization rate for respiratory illness were similar for center-based and community-based groups (82 vs. 81, 100 vs. 102, and 33 vs. 29 percent, respectively). Although not statistically significant, twice as many infants receiving community-based care than those receiving center-based care had growth delay (26 vs. 13 percent). This difference may have been due to more accurate pulse oximetry measures of an infant's minimum oxygen saturation during sleep in the clinic than in the home, leading to more optimal supplemental oxygen needed for growth. The study was supported in part by the Agency for Healthcare Research and Quality (HS07928).

See "Follow-up care for infants with chronic lung disease: A randomized comparison of community- and center-based models," by Dr. O'Shea, Savithri Nageswaran, M.B.B.S., M.P.H., Debbie C. Hiatt, B.S.N., R.N., and others, in the April 2007 *Pediatrics* 119(4), pp e947-e957. ■

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Caregivers of children with special health care needs rate Medicaid managed care as having better care access than fee-for-service

Most States have been reluctant to enroll children with special health care needs (SHCN) into Medicaid managed care plans. This stems from concerns that capitated plans (plans are reimbursed per patient, regardless of medical resources used) have financial incentives to hold down costs by limiting access to specialty providers, therapeutic care, and other ancillary services. However, caregivers of children with SHCN in the District of Columbia rated a partially capitated Medicaid managed care (MC) plan better than a traditional fee-for-service (FFS) plan in providing these children with access to care.

Jean M. Mitchell, Ph.D., of the Georgetown Public Policy Institute, and Darrell J. Gaskin, Ph.D., of Johns Hopkins University, interviewed a random sample of 1,088 caregivers

of children with SHCN enrolled in the Medicaid program of the District of Columbia. After controlling for the potential selection bias linked to plan choice and other factors, they found that caregivers of children in the FFS plan were significantly more likely to rate several dimensions of care access as either fair or poor than caregivers of children enrolled in the partially capitated MC plan. These included access to specialists' care, access to emergency room care, convenience of the doctor's office, and waiting time between making an appointment and the actual visit.

Case management and care coordination services of the MC plan probably underlie its better care access ratings, note the researchers. For example, each special needs child enrolled in the MC plan was assigned a case manager, who was responsible for scheduling

appointments, arranging transportation, and facilitating the services each child received from primary care doctors, specialty providers, and the public school system. Also, the MC plan reimbursed pediatricians and physician specialists at twice the rate of those paid to physicians under FFS. However, most of the children in the study were black and from urban areas, so the findings may not generalize to other races or to children in rural areas. The study was supported in part by the Agency for Healthcare Research and Quality (HS10912).

See "Caregivers' ratings of access: Do children with special health care needs fare better under fee-for-service or partially capitated managed care," by Drs. Mitchell and Gaskin, in the February 2007 *Medical Care* 45(2), pp. 146-153. ■

A skin condition may identify young patients at risk for developing type 2 diabetes

Children and young adults who develop a skin condition called acanthosis nigricans (AN) have double the risk of having type 2 diabetes, even after controlling for diabetes risk factors, age, and body mass index. This condition typically causes dark, thickened, velvety skin at the back of the neck, armpits, elbows, and knees. Individuals with this skin condition are likely to have other risk factors for type 2 diabetes, such as obesity and hypertension. The presence of AN can alert physicians to high-risk individuals who may need diabetes counseling, notes Robert L. Williams, M.D., M.P.H., of the University of New Mexico School of Medicine.

Dr. Williams and colleagues analyzed diabetes risk factors and prevalence of AN among children and adults aged 7 to 39 years, who were cared for at clinics in a Southwestern primary care practice-based research network. Diabetes risk factors were common among the 1,133 patients: 69 percent had a family history of the disease; 3 percent of children and 12 percent of adults suffered from hypertension; 43 percent of children and 73 percent of adults were overweight or obese; and 80 percent were members of ethnic minorities.

Nearly one-fifth of the children (17 percent) and one-fifth of adults (21 percent) studied had AN. Those with AN had double the rate of diabetes compared with those without AN, after controlling for age, body mass index, and number of type 2 diabetes risk factors. The more diabetes risk factors that were present, the higher the prevalence of AN. Patients 7 to 19 years of age and those 20 to 39 years of age with more than two diabetes risk factors were over eight and four times, respectively, more likely to have AN. After detecting AN, study clinicians typically discussed lifestyle modification, such as diet and exercise, with patients to decrease their risk of developing type 2 diabetes. The study was supported in part by the Agency for Healthcare Research and Quality (HS13496).

See "Acanthosis nigricans and diabetes risk factors: Prevalence in young persons seen in Southwestern U.S. primary care practices," by Alberta S. Kong, M.D., M.P.H., Dr. Williams, Melissa Smith, B.A., and others, in the May 2007 *Annals of Family Medicine* 5(3), pp. 202-208. ■

Nursing home report cards have prompted many nursing homes to improve care, especially those with poor scores

Concerns have persisted about malnutrition, pressure ulcers, medication errors, and other problems reflecting poor quality of care in nursing homes. These concerns prompted the Centers for Medicare and Medicaid Services (CMS) in 2002 to publish quality report cards for all nursing homes in the country. These report cards have prompted many nursing homes, especially those with poor scores, to take actions to improve care according to a survey of 724 nursing home administrators. In response to the scores, 42 percent of nursing homes changed priorities of existing quality assurance programs and 20 percent were motivated to start new programs.

To improve their quality of care, nursing homes most commonly

changed care protocols (36 percent changed existing protocols and 28 percent developed new protocols) and trained staff for the specific quality measure in which the facility had a poor score (36 percent). They were less likely to increase staff or add new equipment or technology, which requires additional resources, notes William D. Spector, Ph.D., of the Agency for Healthcare Research and Quality.

Nursing home report cards examine quality measures for short- and long-term residents. Measures for long-term residents range from the percentage of residents who lose their ability to perform basic daily tasks to the percentage who suffer from pressure ulcers, pain, or infections. Measures for short-term residents

range from the percentage of residents with delirium to the percentage who walk better than when they arrived. About 60 percent of nursing home administrators believed that care quality influenced their scores, even though they felt other factors also played a role. However, they didn't feel the report cards had much influence over consumers, who never inquired about their facility's quality score.

See "Nursing homes' response to the nursing home compare report card," by Dana B. Mukamel, Ph.D., Dr. Spector, Jacqueline S. Zinn, Ph.D., and others, in the *Journal of Gerontology: Social Sciences* 62B (4), pp. S218-S225, 2007. Reprints (AHRQ Publication No. 07-0080) are available from AHRQ.* ■

Postdischarge care management that integrates medical and social care can improve outcomes of the low-income elderly

Care management that integrates medical and social care can improve the outcomes of chronically ill and functionally impaired low-income elderly patients recently discharged from the hospital, according to a pilot care management program that was developed for a Medicare Advantage HMO population. These are patients who are at high risk of being rehospitalized or placed in a nursing home.

The pilot program has led to the development of an ongoing randomized controlled trial—After Discharge Care Management of Low-Income Frail Elderly (AD-LIFE)—a larger trial in which the subjects' insurance coverage includes traditional Medicare, Medicaid, and/or Medicare Advantage. Both the pilot study and the AD-LIFE trial use a hospital-based interdisciplinary team, comprehensive geriatric assessment, and care management by a team nurse.

The nurse works collaboratively with the local Agency of Aging social services program through the patient's first year after hospital discharge.

The programs include comprehensive (hospital and home) assessment, patient goal setting, development of patient self-care skills, and care planning for chronic illnesses and geriatric syndromes (including incontinence, depression, nutrition and skin problems, and memory impairment). The interdisciplinary team has access to medical specialists and the patient's primary care doctor, does frequent follow-up evaluations, and revises care plans as needed.

An estimated 92 percent of the 118 Medicare/Medicaid-insured elderly patients enrolled in the care management pilot program had at least 1 medical or social problem requiring intervention. Half of these patients were taking 5 to 10 prescription

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Care management

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drugs, 40 percent were living alone, 28 percent had congestive heart failure, 28 percent had diabetes, and many were unable to perform some activity of daily living or suffered from geriatric syndromes. About 70 percent of the patients said the care management program improved their health, made it easier to get health care services, and provided them with a better understanding of their disease. Program

implementation was also associated with decreased hospital admissions and care costs with savings of approximately \$1,000 per patient per month. Funding for the 3-year AD-LIFE trial is supported in part by the Agency for Healthcare Research and Quality (HS14539).

See "The AD-LIFE trial," by Kathy Wright, M.S.N., R.N., A.P.N., B.C., Susan Hazelett, R.N., M.S., David Jarjoura, Ph.D., and Kyle Allen, D.O., in the May 2007 *Home Healthcare Nurse* 25(5), pp. 308-314. ■

Health Information Technology

Studies explore the use and functions of electronic health records

Less than one-fourth of U.S. physicians use electronic health records (EHRs), even though they have great potential to improve health care quality and safety. For example, EHRs can keep medication records in an easily accessible format, flag drug interactions and allergies, and prevent medical errors and adverse drug events. EHRs also have the potential to evaluate quality of care. Two studies supported by the Agency for Healthcare Research and Quality recently examined the use of EHRs. The first study (HS15397) found considerable variability in the functions available in EHRs and in the extent to which physicians used them. According to the second study (HS13690), automated review of EHR data on quality of care of outpatients with heart failure sometimes underestimated performance on medication-based quality measures. The two studies are briefly discussed here.

Simon, S.R., Kaushal, R., Cleary, P.D., and others. (2007, March). "Physicians and electronic health records: A statewide survey." *Archives of Internal Medicine* 167, pp. 507-512.

Physicians vary considerably in the EHR functions they have

available to them and the extent to which they use EHRs and various EHR functions, conclude the authors of this study. They surveyed a random sample of 1,884 physicians in Massachusetts to assess the availability, use, and perceptions of EHR use in physicians' medical practices. Of the 1,345 physicians who responded to the survey, 29 percent said their practice had adopted EHRs. More than 80 percent of physicians with EHRs said they had the ability to view laboratory reports (85 percent) and document visits electronically (84 percent). However, considerably fewer physicians reported being able to order laboratory tests electronically (47 percent) or transmit prescriptions to a pharmacy electronically (45 percent).

Fewer than half of the physicians with EHRs with clinical decision support, transmittal of electronic prescriptions, and radiology order entry actually used these functions most or all of the time. Compared with physicians who had not adopted EHRs in their practices, EHR users had more positive views of the effects of computers on health care. However, there were no significant differences in these attitudes between high and low users of EHRs. EHR adoption or

use did not seem related to physician dissatisfaction with medical practice.

Baker, D.W., Persell, S.D., Thompson, J.A., and others. (2007, February). "Automated review of electronic health records to assess quality of care for outpatients with heart failure." *Annals of Internal Medicine* 146, pp. 270-277.

This study evaluated the accuracy of automated review of EHR data to measure the quality of care for 517 outpatients with heart failure at a general internal medicine clinic. The review was followed by manual review of electronic notes for patients with apparent care quality deficits. Care performance based on automated review of EHR data was similar to that of manual review for assessing left ventricular ejection fraction (94.6 vs. 97.3 percent), prescription of beta-blockers (90.9 vs. 92.8 percent), and prescription of angiotensin-converting enzyme inhibitors or angiotensin-receptor blockers (93.9 vs. 98.7 percent).

However, performance based on automated review was lower than that based on manual review for prescription of warfarin for atrial

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Electronic health records

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fibrillation (70.4 vs. 93.6 percent). This was primarily because automated review did not detect

documentation of accepted reasons (contraindications) for not prescribing warfarin. Thus, automated review of EHR data to measure the quality of care for outpatients with heart failure missed many exclusion criteria for

medications documented only in providers' notes. As a result, it sometimes underestimated performance on medication-based quality measures. ■

Implementing a basic electronic prescribing system may reduce nonclinical prescribing errors

Illegibility, missing information, and wrong dose were the prescribing errors most frequently found during a pilot study of handwritten prescribing errors conducted in an internal medicine clinic that is part of a large health system. In preparation for implementation of an electronic prescribing system, Emily Beth Devine, Pharm.D., M.B.A., of the University of Washington, and colleagues retrospectively reviewed 1,411 prescriptions that were handwritten during a 5-month timeframe to identify and characterize medication errors. The electronic prescribing system was then implemented in two stages: a basic system and then an advanced system with computerized decision support (CDS) capabilities.

To identify errors, the researchers reviewed each handwritten prescription and the electronic health record. Nearly 28 percent of the prescriptions evaluated contained one or more errors. Over 90 percent of the errors were potential errors and 79

percent were nonclinical errors (most often missing information); 21 percent were clinical errors. A total of 6.9 percent of errors reached the patient, 0.2 percent of errors caused patient harm (2 in every 1,000 prescriptions written that contained an error).

The authors suggest that implementing a basic electronic prescribing system may reduce nonclinical prescribing errors such as illegibility, missing information, and wrong dose, but that the addition of CDS alerts will be necessary to help reduce more severe clinical prescribing errors, such as contraindications due to drug-disease or drug-drug interactions. The study was supported in part by the Agency for Healthcare Research and Quality (HS15319).

See "Characterization of prescribing errors in an internal medicine clinic," by Dr. Devine, Jennifer I. Wilson-Norton, M.B.A., Nathan M. Lawless, Ch.E., and others, in the May 15, 2007 *American Journal of Health-Systems Pharmacy* 64, pp. 1062-1070. ■

Electronic data collection can greatly improve recruitment of primary care patients into clinical trials

It is difficult for busy primary care doctors in practice-based research networks (PBRNs) to identify patients who are eligible for a research protocol. This may be one reason that only 3 percent of cancer patients being cared for by community oncologists are entered into clinical trials. However, electronic data collection can greatly facilitate PBRN research, particularly by improving data management and identification of eligible patients, concludes a study supported by the Agency for

Healthcare Research and Quality (HS11226).

Researchers used a review of research studies on the topic, discussions with PBRN researchers, and personal research experience to outline principles to apply when considering electronic data collection in a PBRN. They give working examples of electronic means they used to improve data collection and patient enrollment at their Indiana PBRN.

The PBRN screened more than 18,000 patients and enrolled more

than 6,000 study subjects in 5 years. The research assistants missed less than 2 percent of potentially eligible patients. The clinicians achieved this success through extensive integration of the ResNet infrastructure (research databases and personnel) with an electronic medical record system and computerized provider order entry. They also made extensive use of widely used standards for data storage, definition, and transmission

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Electronic data collection

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to ensure data reusability. They also successfully implemented a real-time means to identify follow-up patients.

See “Information technology in PBRNs: The Indiana University Medical Group Research Network (IUMG ResNet) experience,” by

Abel Kho, M.D., M.S., Atif Zafar, M.D., and William Tierney, M.D., in the March 2007 *Journal of the American Board of Family Medicine* 20, pp. 196-203.

Editor’s note: Another AHRQ-supported study (HS13557 and HS14850) demonstrates how strategic adoption of health information technology led to the re-engineering of practices and subsequent improvements in

delivery of evidence-based preventive services in a PBRN. For more details, see: Nagykaldi, Z. and Mold, J.W. (2007, March). “The role of health information technology in the translation of research into practice: An Oklahoma physicians resource/research network (OKPRN) study.” *Journal of the American Board of Family Medicine* 20, pp. 188-195. ■

Patient Safety and Quality

Studies examine patients’ ratings of physicians

In the future, patient ratings of physicians may be used for recertification by physician specialty boards and determining physician bonus payments. Several patient and physician factors, including physician personality, influence patients’ ratings of physicians, according to a new study. A second study calls into question the use of subjective patient ratings to evaluate physician performance. Both studies were supported by the Agency for Healthcare Research and Quality (HS10610) and are discussed here.

Duberstein, P., Meldrum, S., Fiscella, K., and others. (2007, February). “Influences on patients’ ratings of physicians: Physicians demographics and personality.” *Patient Education and Counseling* 65, pp. 270-274.

This study identified several patient and physician factors that influenced patients’ ratings of physicians. Physician gender was the only significant determinant of patient ratings of physicians who had treated them for a short time. For example, patients treated by a physician for 1 year or less rated

male physicians higher than female physicians. This gender difference disappeared after 1 year. Two physician personality traits, openness and conscientiousness, were associated with patients’ ratings in lengthier patient-physician relationships. Patients tended to be more satisfied with doctors who were relatively high in openness and average in conscientiousness. Patient characteristics also influenced physician ratings. Older patients and those with a greater medical burden rated their physicians higher than younger and less burdened patients.

A learning environment could be created to reinforce certain physician personality traits and corresponding habits that enhance patient satisfaction. Such a shift in the culture of medical education and practice could have important implications for patient care, note the researchers.

Their findings were based on analysis of 4,616 patients and their physicians at New York primary care practices. They stratified the length of the patient-physician relationship and used factor

analysis of data from several questionnaires and surveys to determine factors that influenced patients’ satisfaction with physicians.

Fiscella, K., Franks, P., Srinivasan, M., and others. (2007, March). “Ratings of physician communication by real and standardized patients.” *Annals of Family Medicine* 5(2), pp. 151-158.

This study calls into question the use of subjective patient ratings to evaluate physician performance. The researchers compared ratings of 96 community physicians by 49 real patients and 2 standardized patients who portrayed symptoms of gastroesophageal disorder reflux and poorly characterized chest pain with multiple unexplained symptoms. Standardized patients, persons trained to portray a specific patient case in a standardized fashion, represent a potentially more objective means to assess physician communication, since they are not influenced by longevity of relationship and other personal factors. In this study, real patient and standardized patient

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Patient ratings

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ratings of physician communication style differed substantially.

The real and standardized patients completed a modified version of the Health Care Climate Questionnaire (HCCQ) for each physician, which measures physician support of patient autonomy, a key dimension in patient-centered communication.

Compared with standardized patient scores, real patient HCCQ

scores were higher (mean 22.0 vs. 17.2), standard deviations were lower (3.1 vs. 4.9), and ranges were similar (both 5 to 25). The standardized patient ratings of physician communication skills showed superior psychometric properties. A single postvisit standardized patient rating was far more reliable than a single real patient self-report either before or after a clinic visit.

Also, real and standardized patient ratings yielded quite

different rankings of physicians for autonomy support. The low correlation in physician ranking based on real and standardized patient ratings suggests caution in using only real patient ratings for physician pay-for-performance or recertification. Different physicians would be rewarded for their interpersonal skills, depending on which measurement approach was used. ■

Diagnostic codes poorly identify deep vein thrombosis or pulmonary embolism after surgery from hospital claims

After surgery, patients run the risk of developing debilitating and life threatening blood clots. The Agency for Healthcare Research and Quality (AHRQ) offers hospitals a collection of Patient Safety Indicators (PSIs) as free software to help identify post-operative deep vein thrombosis and pulmonary embolism (DVT/PE) and other adverse events from billing or claims data that hospitals regularly collect. These indicators are developed, in part, by using the diagnostic codes.

AHRQ researchers Chunliu Zhan, M.D., Ph.D., James Battles, Ph.D., and Yen-pin Chiang, Ph.D., and David Hunt, M.D., Centers for Medicare & Medicaid Services (CMS), compared the diagnostic codes for DVT and PE against the gold standard of medical record extractions to determine the accuracy of the diagnostic codes for identifying DVT/PE. The researchers reviewed nearly 21,000 surgery discharge records for 2002 to 2004 from CMS. The study found that every two in three DVT/PE cases identified with medical records were flagged by diagnostic codes. However, only one in three DVT/PE cases identified by diagnostic codes was confirmed by medical records. These results suggest that the diagnostic codes

have limited ability to identify DVT and PE events after surgery.

AHRQ PSIs have been increasingly used as screening tools to study patient risks and to assess the effectiveness of hospital quality and safety programs. This study is a reminder that rigorous validation and revision are needed before the indicators can be used to assess patient safety or for public reporting. One critical revision will be the inclusion of the “present-on-admission” codes in the AHRQ PSI algorithms. The researchers stressed that adding “present-on-admission” codes to the diagnostic codes, which the Deficit Reduction Act of 2005 mandated CMS to implement in Medicare billing by October 1, 2007, will substantially improve the PSI’s accuracy in identifying DVT/PE and other adverse events from hospital claims.

See “The validity of ICD-9-CM codes identifying postoperative deep vein thrombosis and pulmonary embolism,” by Dr. Zhan, Dr. Battles, Dr. Chiang, and others in the June 2007 *The Joint Commission Journal on Quality and Patient Care* 33(6), pp. 326-331. Reprints (AHRQ Publication No. 07-R074) are available from AHRQ.* ■

Cancer and other chronic conditions affect patients' lives differently during various phases of care

The impact of cancer and other chronic diseases on a patient's life may extend well beyond the initial year following diagnosis, suggests a new study. William F. Lawrence, M.D., of the Agency for Healthcare Research and Quality, and fellow researchers at the National Cancer Institute classified participants in the 1986-1994 National Health Interview Surveys into three phases of care: initial year following diagnosis, continuing, and last year of life. They compared health limitations and health-related quality of life (HRQL) for case patients with a chronic condition (breast,

colorectal, prostate, or lung cancer; and arthritis, diabetes, heart disease, or hypertension) with matched controls without the condition by phase of care.

As expected, individuals diagnosed with cancer and other chronic conditions had more health limitations and worse quality of life than persons without chronic conditions. These limitations were most pronounced in the last year of life, but were also observed in the continuing phase of care, the period between the initial and last year phases of care. Within each phase of care, cases were more likely than controls to report more health

limitations and fair or poor health. Differences were greatest between colorectal cancer, lung cancer, prostate cancer, diabetes, and heart disease cases and their matched controls.

More details are in "Health limitations and quality of life associated with cancer and other chronic diseases by phase of care," by K. Robin Yabroff, Ph.D., M.B.A., Timothy S. McNeel, B.A., William R. Waldron, B.S., and others, in the July 2007 *Medical Care* 45(7), pp. 629-637. Reprints (AHRQ Publication No. 07-0070) are available from AHRQ.* ■

Black and white caregivers of rural patients with dementia have different characteristics and coping styles

Rural Alabama caregivers of patients with dementia are typically women from their early 20s to early 80s, who provide an average of nearly 50 hours of care per week. Many of these caregivers also work outside the home, and one-fifth of them also care for a second person in the family (for example, a young child or another elderly person) an average of 31 hours a week. Yet the average caregiver rated their caregiver burden as moderate, and most of them rated their quality of life as average or high, according to a pilot study. Nearly all of them used religion as a coping mechanism. However, white and black caregivers had significantly different characteristics and coping styles, according to the survey conducted by Jordan I. Kosberg, Ph.D., A.C.S.W., and colleagues from the University of Alabama.

Compared with black caregivers, white caregivers were more likely to be married, older, have higher incomes, and have fewer problems paying bills. White caregivers were also more likely to care for parents, while black caregivers were more likely to care for family members other than parents or parents-in-law.

White caregivers were more likely to engage in private religious activities such as praying, while black caregivers were more likely to participate in organized religious activities.

White caregivers used more medications and used acceptance and humor to cope more often than black caregivers. White caregivers perceived those they were caring for to be more depressed and have more memory problems than their black counterparts, and they felt generally more burdened by caregiving. Although both groups had similar social support scores, their use of formal care support services was low, although it was not clear whether this was due to lack of available services, inability to use resources (for example, transportation difficulties), or lack of desire to use formal services. The study was supported by the Agency for Healthcare Research and Quality (HS13189).

See "Family caregiving to those with dementia in rural Alabama: Racial similarities and differences," by Dr. Kosberg, Allan V. Kaufman, Ph.D., Louis D. Burgio, Ph.D., and others, in the February 2007 *Journal of Aging and Health* 19, pp. 3-21. ■

Men with localized prostate cancer who undergo surgery may live longer than those who undergo radiation or observation

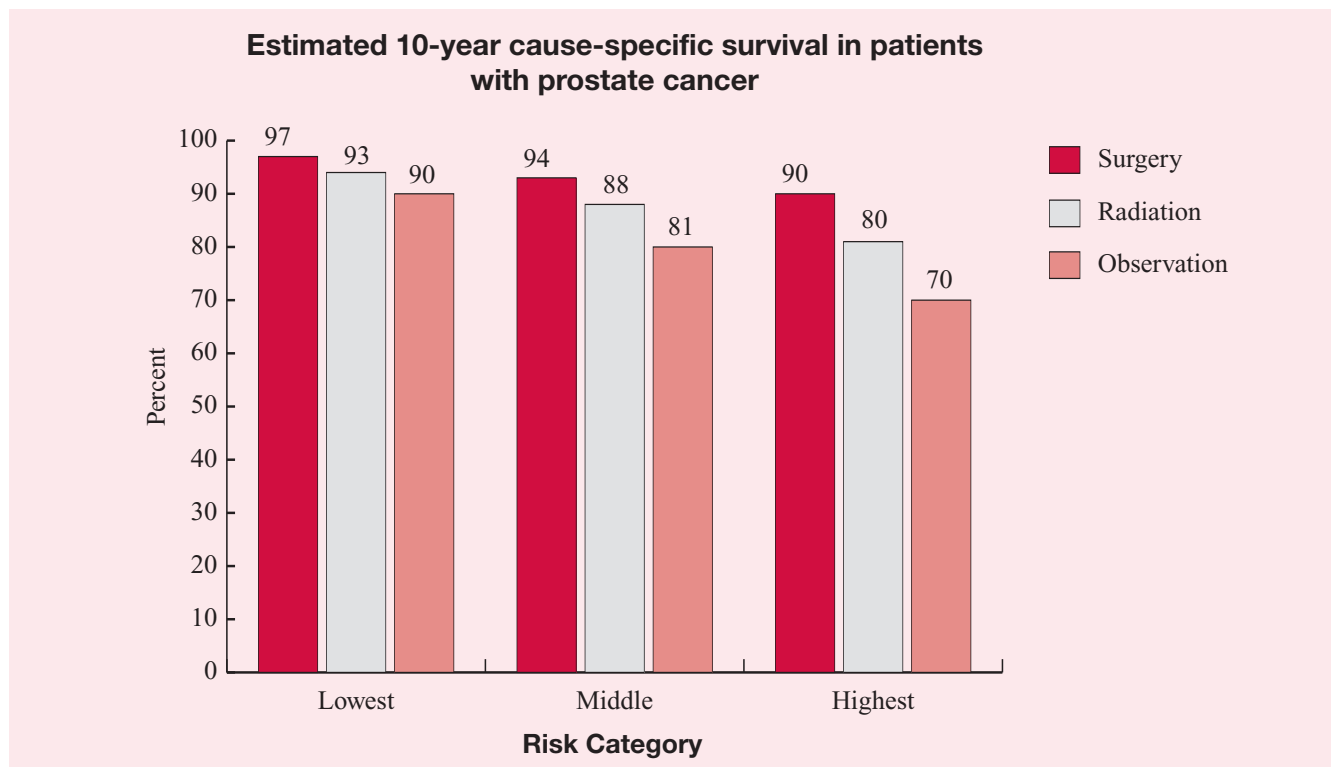
Ten years after diagnosis of localized prostate cancer, men who undergo surgical removal of the prostate (radical prostatectomy) may have a survival advantage over men who undergo radiation or observation, suggests a new study. In addition, this survival advantage for surgery appears to occur in men in all risk categories, including those with high-grade prostate cancer (see figure below). For example, men undergoing radical prostatectomy and classified as being at low, intermediate, or high risk for cancer progression had a 3 percent, 6 percent, and 10 percent mortality rate, respectively, from prostate cancer 10 years later. Men undergoing radiation therapy had a 7, 12, and 20 percent 10-year mortality rate from prostate cancer. Sixteen percent of men who elected observation died from prostate cancer at 10 years.

Superior survival of men undergoing surgery may reflect a selection bias favoring younger, health-conscious men who underwent prostate-specific antigen (PSA) testing. For example, men who underwent surgery were younger, had more favorable histology (tissue structure), and lower pretreatment PSA levels compared with patients undergoing radiation, explains Peter C. Albertsen, M.D., of the University of Connecticut Health Center.

The study results challenge the concept that men with high-grade prostate cancer are less likely to benefit from radical surgery. However, the study did not control for confounding factors that may have affected survival rates, such as percentage of cancer-positive biopsies, pretreatment rise of PSA, and hypogonadism (inadequate functioning of the testes). Also, the men in this trial were not

randomized. The study's findings were based on analysis of data on men (75 years or younger) diagnosed with clinically localized prostate cancer between 1990 and 1992 from the Connecticut Tumor Registry. The researchers obtained information from physician offices about 802 men who underwent surgery, 702 men who underwent external beam radiation therapy, and 114 who underwent observation only, and their subsequent medical outcomes. The study was supported in part by the Agency for Healthcare Research and Quality (HS09578).

See "13-year outcomes following treatment for clinically localized prostate cancer in a population based cohort," by Dr. Albertsen, James A. Hanley, Ph.D., David F. Penson, M.D., M.P.H., and others in the March 2007 *Journal of Urology* 177, pp. 932-936. ■



Low income middle-aged Americans have higher 10-year death rates even after controlling for their worse health at baseline

Older Americans are living longer lives free of disability. However, a new study found that these gains are not equally shared. Researchers analyzed 1992-2002 data from the National Health and Retirement Study to track the health of 9,759 persons aged 51 to 61 years from 1992 until 2002. Americans with lower income, less education, and less wealth in their 50s reported poorer overall health and more chronic conditions and functional difficulties. Those with low incomes had significantly higher mortality rates even after adjusting for these baseline health differences.

The overall 10-year mortality rate was 10.9 percent (13.1 percent for men and 8.9 percent for women). Mortality was closely associated with self-reported health status, ranging from 4.7 percent for those reporting excellent health in 1992 to 35.8 percent for those reporting poor health in that year. The vast majority of the excellent health group also lived in the

highest income households, while most of those in the poor health group lived in the lowest income households.

After accounting for the effects on death rates of respondents' demographic characteristics, baseline health status; behavioral risk factors such as smoking, physical activity; being overweight; and low household income (but not wealth or education) remained significantly associated with a higher likelihood of dying during the 10 years of follow-up. The study was supported in part by the Agency for Healthcare Research and Quality (HS10283).

See "Baseline health, socioeconomic status, and 10-year mortality among older middle-aged Americans: Findings from the health and retirement study, 1992-2002," by Joe Feinglass, Ph.D., Suru Lin, M.D., M.P.H., Jason Thompson, B.A., and others, in the *Journal of Gerontology: Social Sciences* 62B(4), pp. S209-S217, 2007. ■

HIV/AIDS Research

Several factors prompt patients with HIV to voluntarily switch physicians

A new national study reveals that HIV patients tend to switch doctors when they don't sufficiently trust their current doctor or don't believe the doctors are specialized or experienced enough to adequately manage HIV. Hector P. Rodriguez, Ph.D., M.P.H., of Harvard University, and colleagues analyzed results from a three-wave survey (from 1996 to 1998) of the HIV Cost and Services Utilization Study, a longitudinal study of a nationally representative sample of noninstitutionalized HIV-infected individuals receiving care in the United States. They surveyed physicians providing care and care site directors and analyzed the relationship of interpersonal aspects of care, care access and continuity, physician and site characteristics, and other factors to voluntary physician switching.

About 15 percent of patients voluntarily changed their usual clinicians during the 2-year study period. After accounting for multiple factors, patients who trusted their doctors were 26 percent less likely and those who believed their doctor was knowledgeable about antiretroviral medications were 74 percent less likely to switch doctors. Also, patients being cared for at a care site with moderate rather than low or high HIV patient volume were 92 percent less likely and those receiving care at sites with Ryan White Care Act funding were 73 percent less likely to switch doctors.

Physician sociodemographics did not play a significant role in switching. However, physician and site HIV specialization did matter. For example, patients seen by nonexpert generalists or by

physicians caring for fewer than 20 HIV patients were 4.35 and 3.71 times more likely, respectively, to voluntarily switch doctors. Also, patients seen at more specialized sites were generally less likely to voluntarily switch. The results suggest that, for HIV-infected patients, gaining access to physician expertise may be more important than maintaining visit continuity with an individual physician. The study was supported by the Agency for Healthcare Research and Quality (HS10227 and T32 HS00055).

More details are in "Voluntary physician switching by human immunodeficiency virus-infected individuals," by Dr. Rodriguez, Ira B. Wilson, M.D., M.Sc., Bruce E. Landon, M.D., M.B.A., and others, in the *March 2007 Medical Care* 45(3), pp. 189-198. ■

Late diagnosis of HIV is a problem for older patients, many of whom aren't diagnosed until they've already developed AIDS

Late diagnosis of HIV infection is a substantial problem, especially for older patients. They are twice as likely as younger patients to have already developed AIDS by the time they are diagnosed with HIV infection, according to a study at Duke University. Individuals whose HIV infection is not diagnosed pose a risk to their sexual partners, and once it has progressed to AIDS (infection-fighting CD4 cells depleted to levels below 200 cell/uL), they do not benefit as much from highly active antiretroviral therapy (HAART). The researchers studied patients (age 17-61 years) with newly diagnosed HIV infection, who were evaluated at the Duke University HIV clinic between 2002 and 2004.

Nearly half (49 percent) of the patients already had developed AIDS at the time of HIV diagnosis. This was in stark contrast to the 12 percent diagnosed at this late stage of HIV disease reported a decade ago in South Carolina. Older patients are twice as likely as younger patients to be diagnosed with AIDS and to be diagnosed during hospitalization. Women were nearly seven times as likely as men to be diagnosed during hospitalization.

Older patients and women, as well as their providers, may perceive that they are at low risk of HIV infection, perhaps making them less likely to be tested. Also, the availability of HAART may reduce the sense of urgency with which people seek HIV testing today, explain the researchers. Their findings support the recent call by the Centers for Disease Control and Prevention for routine, nationwide HIV testing in primary care settings. In line with recent trends, nearly two-thirds (63 percent) of patients diagnosed with HIV infection were minorities and over one-fourth (28 percent) contracted the infection through heterosexual contact. Eighteen percent of those studied had already developed an opportunistic infection such as *Pneumocystis carinii* pneumonia or Kaposi's sarcoma. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00079).

See "Late diagnosis of HIV infection: The role of age and sex," by Michael J. Mugavero, M.D., M.H.S., Chelsea Castellano, B.S., David Edelman, M.D., M.H.S., and Charles Hicks, M.D., in the April 2007 *American Journal of Medicine* 120, pp. 370-373. ■

End-of-Life Care

End-of-life care expenditures and use among Medicare colorectal cancer patients differ more by age than gender

A new study examined age and gender differences in end-of-life care use and expenditures among Medicare-insured patients with colorectal cancer. The differences were larger by age than by gender, although they varied across health services. Acute service (for example, inpatient, outpatient, and physician) expenditures were significantly lower for older groups, while expenditures for social supportive services (for example, skilled nursing facility, home health, and hospice) were generally higher. Average Medicare expenditures were significantly lower in older cohorts (almost \$8,900 less for those aged 85 and older as compared with those aged 68-74).

Although women were more likely to use inpatient services than men, the overall spending on inpatient services in the last year of life did not differ much by gender (less than 10 percent of the mean inpatient stay). Among decedents aged 68 to 74 who used inpatient care, inpatient expenditures were higher for women than men. These differences did not persist for older cohorts. Average end-of-life care expenditures for women were \$1,600 higher than for men, which were due to higher average expenditures on home health and hospice services.

Nearly universal Medicare coverage, which overcomes some of the usual barriers to health care, may partly explain the absence of substantial gender differences in

care use and expenditures in the last year of life among elderly persons with colorectal cancer. Still, remaining gender differences could be attributed to differences in need or treatment patterns. Differences in spending on social supportive services may reflect differences in the availability of informal caregivers at the end of life. The study was supported in part by the Agency for Healthcare Research and Quality (HS10561).

See "Age and gender differences in Medicare expenditures at the end of life for colorectal cancer decedents," by Lisa R. Shugarman, Ph.D., Chloe E. Bird, Ph.D., Cynthia R. Schuster, M.P.P., and Joanne Lynn, M.D., M.S., in the March 2007 *Journal of Women's Health* 16(2), pp. 214-227. ■

Palliative care study challenges assumptions about physician emotional involvement and communication with patients

A new study of doctor-patient relationships and palliative care weighs the consequences of physicians' emotional involvement with patients, dependence on protocols for handling difficult communication issues, and unqualified reliance on consumer empowerment to assure that care is responsive to patients' needs. It also questions the adoption of narrowly defined boundaries between medical and social service systems in caring for patients. Michael J. Yedidia, Ph.D., of Rutgers University, suggests that medical schools should help prepare doctors to appropriately manage their emotions in routine clinical work through personal awareness training, facilitating reflection on the effectiveness of interactions with patients through use of standardized patients and videotapes, and expanding physicians' capacity to address a broad range of patient needs through teamwork training.

He observed the care of 40 patients in the inpatient hospice unit and at home, interviewed patients and family members, and interviewed 22 doctors and 2 nurses providing end-of-life care to these patients. He examined five dimensions of doctor-patient relationships: range of needs addressed, source of authority (for example, for tests or treatments), maintenance of trust, emotional involvement, and expression of authenticity.

He concluded that addressing patients' needs to maintain their identities as their illnesses progress is central to the delivery of effective hospice care, and requires sensitivity to patients' belief systems and models of health and illness. This may entail modifying established procedures to harmonize with particular patient and family expectations. In making clinical decisions, providers rarely relied strictly on their status as experts in asserting authority. Both physicians and patients agreed that belief in the provider's technical competence was essential to establish trust, but not sufficient to maintain it, particularly as care shifted from curative to palliative goals. Patients had to feel they would not be abandoned, regardless of the unpleasantness of the illness or the uncertainties of the therapy. Often, the physician's emotional involvement served as a mechanism for entering the patient's world. Finally, patients' needs are often entangled with complex social problems, are too numerous to address in the course of a normal workday, and require a team approach. The study was supported by the Agency for Healthcare Research and Quality (HS13654).

See "Transforming doctor-patient relationships to promote patient-centered care: Lessons from palliative care," by Dr. Yedidia, in the January 2007 *Journal of Pain and Symptom Management* 33(1), pp. 40-57. ■

Outcomes/Effectiveness Research

Complications following heart valve replacements are prevalent and worsen patient outcomes

Heart valve replacement surgeries account for one in five cardiac procedures and 30 percent of all deaths following cardiac surgeries. Complications contribute substantially to these deaths, according to a new study. Researchers found that over one-third of patients undergoing aortic and mitral valve replacement surgery suffered complications (35.2 and 36.4 percent, respectively). Patients who suffered

any complication had about twice the risk and those with two or more complications had three to four times the risk of dying in the hospital than those without complications.

Complications occurred more often among older patients, those with bioprosthetic valves instead of mechanical valves, and among men after mitral valve replacement. Nearly half of the complications were cardiac-related and one-fourth

involved hemorrhage, hematoma (pooled blood from a leaking blood vessel), or seroma (mass or swelling due to fluid trapped in the surgical wound).

These complications also increased hospital length of stay and charges, even after adjusting for patient and hospital characteristics, notes Marcia M. Ward, Ph.D., of the University of Iowa. Patients with any complications stayed a median

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Heart valve replacement

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of 3 days longer in the hospital and had \$24,000 to \$31,000 higher median hospital charges than those without complications. These findings were based on analysis of data from the Nationwide Inpatient

Sample on hospitalized patients for years 2000-2003. A total of 43,909 patients (most in their sixties) underwent aortic valve replacement and 16,516 underwent mitral valve replacement. The study was supported in part by the Agency for Healthcare Research and Quality (HS15009).

More details are in "Impact of complications on outcomes following aortic and mitral valve replacements in the United States," by Veerasathpurush Allareddy, Ph.D., Dr. Ward, John W. Ely, M.D., and James Levett, M.D., in the June 2007 *Journal of Cardiovascular Surgery* 48(3), pp. 349-356. ■

Evidence of benefit is lacking for many common ways of treating osteoarthritis of the knee

A new scientific review released today by the agency for Healthcare Research and Quality (AHRQ) concludes that evidence of benefit is lacking for many common ways of treating osteoarthritis of the knee, including popular dietary supplement ingredients, a common surgical procedure, and injected preparations. The review found that glucosamine and chondroitin, over-the-counter dietary supplement ingredients that are used widely because of their purported benefits to relieve knee pain caused by osteoarthritis and improve physical functioning, appear to be no more effective than placebos. A placebo is a harmless substance given to selected patients in a clinical trial that looks like the real drug or injection being studied, but which has no medical effect. The review also failed to find convincing evidence of benefit from arthroscopic surgery to clean the knee joint with or without removal of debris and loose cartilage.

Published studies generally report that injections with hyaluronan preparations (substances that are intended to improve lubrication of the knee joint) improve scores on patient questionnaires used to measure pain and function. However, the evidence is uncertain because of variation in study quality and difficulty determining whether changes in scores translate into real clinical improvements for patients.

Osteoarthritis is a widespread, costly disease that wears away the cartilage cushioning the knee joint, causing pain and reducing mobility. Arthritic diseases, which include osteoarthritis, affect an estimated 46

million people in the United States, and at age 64 and older, one in 10 Americans is estimated to have osteoarthritis of the knee. Osteoarthritis and related arthritic conditions cost more than \$81 billion a year in medical care, lost wages, and other expenses.

The authors, who were led by David J. Samson, M.S., associate director of the AHRQ-supported Blue Cross and Blue Shield Association Evidence-based Practice Center in Chicago, reviewed findings from 53 randomized clinical trials of glucosamine, chondroitin, and injections with hyaluronan preparations and 23 studies of arthroscopy. The review, which was requested and funded by the Centers for Disease Control and Prevention, scrutinized individual studies concerned with these treatments' effects as well as meta-analyses that analyzed the combined evidence of groups of studies.

According to the authors, better quality randomized clinical trials are needed to clarify whether these treatments are beneficial. However, given the aging of the population and increasing prevalence of obesity—both risk factors for osteoarthritis of the knee—research on new approaches to prevention and treatment of osteoarthritis of the knee should be a high priority.

A copy of *Treatment of Primary and Secondary Osteoarthritis of the Knee* (AHRQ Publication No. 07-E012) is available from AHRQ.* The report is also available on AHRQ's Web site at www.ahrq.gov/downloads/pub/evidence/pdf/oaknee/oaknee.pdf. ■

Diagnosing coronary heart disease prior to a heart attack improves the chance of lowering the risk of future coronary events

Coronary heart disease (CHD) is the leading killer of men and women in the United States. The time before the first heart attack or other coronary event is potentially the most important period in which primary care doctors can prevent coronary events and death, explains Barbara P. Yawn, M.D., of the Olmsted Medical Center. Dr. Yawn and colleagues used data from the medical records of all providers in Olmsted County, Minnesota for a random sample of patients with a first heart attack (150 women and 148 men). The researchers reviewed data from the 10 years prior to the first heart attack. They compared the timing of first CHD diagnosis and its relation to recognition and treatment of potentially modifiable CHD risk factors such as smoking, obesity, hypertension, and elevated glucose and lipid levels.

CHD diagnosis and risk factors varied by age and gender. On average, women were older than men at the time of first heart attack (74.7 vs. 65.9 years), and women were more likely to have a diagnosis of CHD prior to the first heart attack. A total of 30.4 percent of men and 52 percent of women received a diagnosis of CHD prior to the heart attack. Women over age 70 and men over age 60 were more likely to have a CHD diagnosis prior to the heart attack than younger women and men. Women may be more likely to be diagnosed

due to more symptomatic CHD, as has been suggested by the higher rate of angina in women than in men prior to heart attack.

However, unrecognized and untreated CHD risk factors were present in 45 percent of men and 22 percent of women 5 years prior to the first heart attack. When CHD risk factors were assessed, not all abnormal tests resulted in diagnoses. Furthermore, not all recognized risk factors or diagnosed CHD risk factors were treated in either men or women. For example, 80.8 percent of women and 69.3 percent of men diagnosed with hypertension were receiving antihypertensive therapy. Assessment and treatment rates for hyperlipidemia were even lower.

Earlier CHD diagnosis may provide greater opportunities to address undiagnosed and minimally treated CHD risk factors, perhaps preventing or delaying a cardiac event, note the researchers. This study was supported by the Agency for Healthcare Research and Quality (HS10239).

See “The gender specific frequency of risk factor and CHD diagnoses prior to incident MI: A community study,” by Dr. Yawn, Peter C. Wollan, Ph.D., Roy A. Yawn, M.D., and others, in the April 2007 *Family Practice* 8(18), available online at www.biomedcentral.com/1471-2296/8/18. ■

Surgery is more likely than angioplasty to relieve pain for patients with coronary artery disease

Patients with mid-range coronary artery disease are more likely to get relief from painful angina and less likely to have repeat procedures if they get bypass surgery rather than balloon angioplasty with or without a stent, according to a new report by the Agency for Healthcare Research and Quality (AHRQ). The analysis drew on 23 randomized controlled trials that compared treatments for patients with mid-range coronary disease treatable with either angioplasty or bypass surgery. As defined by the report, mid-range disease may occur in three ways: a single blockage of the vital left anterior descending artery, blockage of two arteries or some

forms of less-severe blockage of three arteries.

Coronary artery disease, a common type of heart disease, affects about 15 million Americans and is the leading cause of death for men and women. It occurs when cholesterol and fibrous tissue clog arteries that supply blood to the heart. When arteries narrow, diminished blood flow may starve the heart muscle of oxygen and nutrients. Intense and potentially disabling chest pain, called angina, occurs when the blood supply to the heart muscle is insufficient during exercise or stress. If blood flow through a coronary artery is stopped, a heart attack—the death

of a small part of the heart muscle—may result.

In cases where drug therapy does not adequately relieve symptoms, patients have two choices. In bypass surgery, surgeons use a blood vessel harvested from the chest, leg, or arm to reroute blood flow around narrowed heart arteries. In angioplasty, a catheter is used to inflate a balloon inside the plaque-narrowed artery. A mesh tube called a stent is usually inserted to keep the artery open.

For many patients, the best treatment choice is clear. For those with most extensive disease that limits blood flow in several

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Coronary artery disease

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arteries, bypass surgery is typically used. For those with the least extensive disease, less-invasive angioplasty is the standard choice. The new Federal study, funded by AHRQ's Effective Health Care program and completed by the Agency's Stanford-UCSF Evidence-based Practice Center, compared the outcomes and risks of the procedures in patients with mid-range coronary disease, where either procedure might be chosen.

Among the conclusions:

- The odds of surviving either procedure are high: about 98.5 percent of patients survive beyond 30 days for both bypass surgery and angioplasty (with or without a stent).
- Long-term survival rates are likely to be comparable. About 96 percent of patients live at least 1 year following both

procedures. About 90 percent live 5 years or more. Further research is needed to clarify survival benefits for patients at either extreme of the mid-range spectrum.

- About 84 percent of patients who undergo bypass surgery are free of angina pain 1 year after the procedure, compared with about 75 percent of patients who receive angioplasty. The difference narrows but remains substantial 5 years after treatment.
- About 4 percent of patients who have bypass surgery undergo a repeat procedure within 1 year, and 10 percent within 5 years. The need is significantly higher among patients who receive angioplasty – 24 percent more at 1 year and 33 percent more at 5 years.
- About 0.6 percent more patients receiving bypass have a stroke during the first 30

days after the procedure than patients receiving angioplasty.

- Studies that measured patients' quality of life 6 months to 3 years after undergoing the procedures found significantly more improvement for bypass surgery patients than for balloon angioplasty patients. The difference, which equalizes after 3 years, was attributed to angina relief.

The new report, *Comparative Effectiveness of Percutaneous Coronary Interventions and Coronary Artery Bypass Grafting for Coronary Artery Disease*, is available on the AHRQ Web site at <http://effectivehealthcare.ahrq.gov>. This report is the latest analysis from AHRQ's Effective Health Care program, which compares alternative treatments for significant health conditions and makes the findings public. It is intended to help patients, doctors, nurses, and others choose the most effective treatments. ■

Pharmaceutical Research

Study confirms link between intravenous bisphosphonates and jaw infection or surgery

Highly potent intravenous (IV) bisphosphonates are used to treat cancer-related bone lesions, severe osteoporosis (thin and fragile bones), and other conditions. Although these medications reduce bone loss and fractures, they have been linked in small studies and case reports to the previously rare osteonecrosis (dissolution) of the jaw and facial bones. A new study of 16,073 cancer patients confirms a strong link between IV bisphosphonate therapy and jaw inflammation and infection, as well as surgery of the jaw and facial bones.

Researchers matched 28,598 bisphosphonate nonusers at a 2:1 ratio to 14,349 bisphosphonate users (pamidronate and/or zoledronic acid) between 1993 and 2003 based on cancer type, age, sex, risk factors for osteonecrosis (such as diabetes and smoking), bone

metastasis, and geographic region. They followed patients until the end of 2003. Users of IV bisphosphonates had triple the risk of jaw or facial bone surgery than nonusers. They also had an 11.5-fold higher risk of being diagnosed with inflammatory conditions or infections of the jaw.

In addition, IV bisphosphonate users had an absolute risk at 6 years for any jaw toxicity of 5.48 events per 100 patients compared with 0.30 events per 100 patients not using such drugs. The risk of each adverse outcome increased as the medication dose increased. For example, 4 to 8 infusions increased the risk of jaw or facial bone surgery nearly fourfold, which jumped to ninefold for more than 21 infusions.

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Biphosphonates

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The researchers suggest promoting oral hygiene and avoiding tooth extractions to avoid oral infections and jaw complications in patients on IV bisphosphonates. The study was funded in part by the Agency for Healthcare Research and Quality (HS11618).

More details are in “Intravenous bisphosphonate therapy and inflammatory conditions or surgery of the jaw: A population-based analysis,” by Gregg S. Wilkinson, Ph.D., Yong-Fang Kuo, Ph.D., Jean L. Freeman, Ph.D., and James S. Goodwin, M.D., in the July 4, 2007 *Journal of the National Cancer Institute* 99(13), pp. 1016-1024. ■

Insurers save with incentive-based formularies, but consumers pay more out of pocket

Insurers are increasingly offering incentive-based formularies to curb prescription drug costs. These formularies offer health plan members financial incentives, such as lower copayments, to choose drugs the insurer prefers. In turn, the insurer has bargaining power to negotiate rebates from drug manufacturers by promising an increased volume of prescriptions. When drug formularies are organized into three tiers, health plan enrollees pay the lowest copayment for generic drugs (first tier), a higher copay for brand-name drugs the insurer prefers (second tier), and the highest copay for brand-name drugs not endorsed by the payer (third tier, nonformulary drugs).

Bruce E. Landon, M.D., M.B.A., of Harvard Medical School, and colleagues studied the impact an incentive-based formulary in the Mid-Atlantic and Northeast had on a health maintenance organization and its 1.25 million enrollees from

January 1, 2000, to December 31, 2001. Changing from a single or two-tier formulary to a three-tier formulary reduced total drug spending by about 20 percent for the insurer. However, enrollees' out-of-pocket expenses rose anywhere from 20 to more than 100 percent because of higher copays for medications that fell in the second and third tiers. These results confirm earlier studies that suggest incentive-based formularies shift costs from the insurer to the enrollee. The study is notable for examining a large and diverse number of benefit changes that varied according to the number of tiers and co-payment amounts, including one that lowered copayments, and for using carefully matched concurrent comparison groups selected from the large cohort of enrollees.

Changing to an incentive formulary with higher copayments or more tiers also caused a modest 1 to 4 percent decrease in the use

of nonformulary drugs.

Researchers noted an increase in generic and formulary-preferred drugs. However, generic substitutions may not have been significantly higher, because the difference in copayments between generic and formulary-preferred drugs was generally small (usually \$5). Mail-order prescription subscriptions doubled during the study because the plan offered incentives, such as receiving three months of medication for just two months of copayments. This study was funded in part by the Agency for Healthcare Research and Quality (HS14774).

See “Incentive formularies and changes in prescription drug spending,” by Dr. Landon, Meredith B. Rosenthal, Ph.D., Sharon-Lise T. Normand, Ph.D., and others in the June 2007 *The American Journal of Managed Care* 13(6), pp. 360-369. ■

Studies examine prescribing of antibiotics for respiratory infections in hospital emergency departments

National efforts to reduce inappropriate use of antibiotics are having some success. From 1995 to 2002, inappropriate antibiotic prescribing for acute respiratory infections, which are usually caused by viruses and thus are not responsive to antibiotics, declined from 61 to 49 percent. However, the use of broad-spectrum antibiotics such as the fluoroquinolones, jumped from 41 to 77 percent from 1995 to 2001. Overuse of these antibiotics will eventually render them useless for treating antibiotic-resistant infections, for which broad-spectrum antibiotics are supposed to be reserved.

A new study found that antibiotic prescribing for upper respiratory infections (URIs) in the emergency department (ED), a common source of antibiotic overuse, declined from 55 to 35 percent between 1993 and 2004. A second study revealed lower ED prescribing of fluoroquinolone antibiotics for acute respiratory infections (ARIs) when hospital formularies restricted their use. Both studies were supported by the Agency for Healthcare Research and Quality (HS13915) and are briefly discussed here.

Vanderweil, S.G., Pelletier, A.J., Hamedani, A., and others. (2007, April). "Declining antibiotic prescriptions for upper respiratory infections, 1993-2004." *Academic Emergency Medicine* 14, pp. 366-269.

This study used data from the National Hospital Ambulatory Medical Care Survey to examine ED antibiotic prescriptions for

URIs between 1993 and 2004. The authors also examined sociodemographic and geographic factors associated with receipt of an antibiotic for URIs. There were about 23.4 million ED visits diagnosed as URIs between 1993 and 2004. Although the proportion of URI diagnoses remained relatively stable, ED antibiotic prescriptions for URIs declined from 55 percent to 35 percent during the 12-year period.

Patients who were prescribed antibiotics were more likely to be white than black (73 vs. 62 percent) and to have been treated in EDs located in the southern United States (43 vs. 36 percent) and from a nonurban area (78 vs. 71 percent). Despite the improvement in ED antibiotic prescribing for URIs, there is room for further improvement. Future efforts to reduce inappropriate antibiotic prescribing should focus on patients and doctors in southern U.S. EDs, as well as race-related disparities in prescribing, suggest the researchers.

Aspinall, S.L., Metlay, J.P., Maselli, J.M., and Gonzales, R. (2007, May). "Impact of hospital formularies on fluoroquinolone prescribing in emergency departments." *American Journal of Managed Care* 13(5), pp. 241-248.

Hospital formulary policies that restrict the use of fluoroquinolones (FQs) can lead to more appropriate prescribing, according to this study. Researchers analyzed data from nine Veterans Affairs medical centers and seven non-Federal U.S. hospitals. At each hospital, the

researchers randomly sampled 200 adult ARI visits for nonspecific URIs, acute bronchitis, pharyngitis, sinusitis, and pneumonia over a 4-month period.

Researchers found that FQs (such as levofloxacin, gatifloxacin, and moxifloxacin) accounted for 14 percent of hospital ED prescriptions for ARIs in 2003 and 2004. However, at hospitals where at least one FQ was unrestricted on the hospital formulary, the average FQ prescription rate for ARIs was 17 percent compared with 6 percent at hospitals where FQ access was restricted by the hospital formulary.

Restricted FQs were prescribed for many ARIs that are commonly nonbacterial, such as nonspecific URIs and acute bronchitis. In other words, they were more likely to be inappropriate, note the researchers. Patients who were admitted to the hospital were nearly twice as likely to receive an FQ. The likelihood of receiving an FQ was 2.3, 2.6, and 6.4 times greater for patients diagnosed with acute bronchitis, acute exacerbations of chronic bronchitis, or pneumonia, respectively. The percentage of ARI visits where a restricted FQ was prescribed was lower when the patient was evaluated by a nurse practitioner or physician assistant (4 percent) compared with house staff (20 percent) or an attending physician (74 percent). Hospital formulary policies appear to affect outpatient antibiotic prescribing patterns, even though ED physicians do not need to comply with formulary policies for prescriptions filled in outpatient pharmacies. ■

Adults who arrive at the emergency department with acute cough and vital sign abnormalities may have pneumonia

Only a small group of adults who arrive at the hospital emergency department (ED) with acute cough will have community-acquired pneumonia (CAP). These are individuals who have vital sign abnormalities along with their cough, according to a new study. Ralph Gonzales, M.D., M.S.P.H., of the University of California, San Francisco, and colleagues examined a random sample of adult visits for acute cough to 15 Veterans Administration (VA) and non-VA EDs during 2 winters.

Of the 4,464 patient medical charts reviewed, 421 had a diagnosis of CAP. Age greater than 50 years and vital sign abnormality were the only significant predictors of CAP. Vital sign abnormalities included fever, low blood-oxygen levels (hypoxemia), rapid heart beat (tachycardia), and tachypnea (rapid breathing). Hypoxemia increased 3.5 times the likelihood of CAP diagnosis. A greater number of vital sign abnormalities

were associated with a higher prevalence of CAP, from 12 percent with one abnormality to 69 percent with four vital-sign abnormalities. Most vital sign abnormalities were predictive of CAP regardless of patient age.

These results are consistent with previous studies. They also support the recommendation to order a chest x-ray to evaluate possible CAP in adults who arrive at the ED with acute cough and vital sign abnormalities and/or advanced age. The predictive value of abnormal vital signs was not diminished in elderly patients. The study was supported in part by the Agency for Healthcare Research and Quality (HS13915).

See “Vital-sign abnormalities as predictors of pneumonia in adults with acute cough illness,” by Brendon R. Nolt, M.D., Dr. Gonzales, Judy Maselli, M.S.P.H., and others, in the July 2007 *American Journal of Emergency Medicine* 25, pp. 631-636. ■

Access to Care

Mexicans' access to primary care is limited overall, but worse in nonmetropolitan areas

A growing number of Latinos in the United States are moving to nonmetropolitan areas. Findings from a new study of the Medical Expenditure Panel Survey (2002-2003) indicate that nonmetro Mexicans face even more barriers to obtaining timely health care compared with their metropolitan counterparts. After controlling for other factors affecting health care access, such as income and insurance, Mexicans in metro areas were no less likely to have a usual source of care than whites living in metro areas. However, Mexicans living in nonmetro areas were 45 percent less likely than metro whites and 49 percent less likely than metro Mexicans to have a usual source of care. The measure of physician visits in the past year did not show as clear a geographic pattern, with Mexicans in both metro and nonmetro areas having 33

percent fewer outpatient visits than whites.

Nonmetropolitan areas have seen an unprecedented growth in the Latino population, particularly in areas of the Midwest and South. Given these recent demographic trends, providers may be less prepared to provide adequate services to them than those in metro areas, note Terceira A. Berdahl, Ph.D., and James B. Kirby, Ph.D., of the Agency for Healthcare Research and Quality. For example, nonmetro providers may be less likely to speak Spanish or provide interpreters for their patients. This may make it more difficult for Mexicans to find a usual source of care compared with whites and urban Mexicans. Mexicans may also face more marginalization in smaller nonmetro communities, where their social positions are tenuous and they have fewer ethnic connections, explain the researchers.

Along with Rosalie Torres Stone, Ph.D., of the University of Massachusetts Medical School, they analyzed nationally representative data on working-aged adults from the 2002-2003 Medical Expenditure Panel Survey. The researchers examined individuals' reports of having a provider from whom they usually obtained medical care (potential care access), and reports of having a physician visit during the year (realized care access). They also studied English language proficiency and time spent in the United States, factors that affect health care access for Latinos.

See “Access to health care for nonmetro and metro Latinos of Mexican origin in the United States,” by Drs. Berdahl, Kirby, and Stone, in the July 2007 *Medical Care* 45(7), pp. 647-654. Reprints (AHRQ Publication No. 07-R059) are available from AHRQ.* ■

California Medicaid managed care plans would like to increase chronic disease care management programs

Chronic disease care management (CDCM) programs for low-income vulnerable populations will be critical to providing quality care, as States continue to enroll disabled beneficiaries, many with chronic illnesses, into Medicaid managed care (MMC) plans. California MMC health plans are very interested in CDCM and would like to increase these programs, concludes a new study. The researchers conducted a Web-based survey of 23 eligible California MMC health plan executives in 2005. Nineteen executives, representing 2.5 million Medi-Cal beneficiaries, responded to the survey.

Overall, 95 percent of MMC plans had implemented one or more elements of CDCM. Most implemented provider awareness

activities such as offering clinical guidelines or disease-specific feedback to physician groups. More than half of the plans were interested in expanding CDCM to include more active interventions such as disease registries; pay for performance; proactive, automated telephone counseling services; and other self-management support programs. A number of MMC plans also used mailed patient reminders (95 percent) and disease self-management support programs (53 percent) and connected patients to community resources (47 percent).

Although most plans targeted CDCM strategies for diabetes (84 percent) and asthma (100 percent), few of them targeted CDCM strategies for congestive heart failure (21 percent), coronary artery disease (21 percent), or

depression (21 percent). Also, few plans tailored their CDCM to vulnerable groups such as those with limited literacy or limited English proficiency. The most commonly cited barriers to expanding CDCM faced by MMC plans were prohibitive cost, absence of physician leadership support, and lack of information technology in physician offices. The study was supported in part by the Agency for Healthcare Research and Quality (HS14864).

See “Current and future directions in Medi-Cal chronic disease care management: A view from the top,” by L. Elizabeth Goldman, M.D., M.C.R., Margaret Handley, Ph.D., Thomas G. Rundall, Ph.D., and Dean Schillinger, M.D., in the May 2007 *American Journal of Managed Care* 13(5), pp. 263-268. ■

Patients who were uninsured use more medical services once they enroll in Medicare

Previously uninsured adults, especially those with chronic conditions, visit doctors and end up in hospitals more often once they enroll in Medicare. Those diagnosed with high blood pressure, diabetes, heart disease, or stroke had more doctor visits, hospital stays, and care costs once they enrolled in Medicare than adults with the same conditions who had medical insurance before their Medicare eligibility, according to a new study by Harvard Medical School researchers.

Using data from the Health and Retirement Study, which has tracked the same 9,760 adults and their spouses since 1992, they looked at 5,158 study participants who were 65 years and older by 2004. Nearly three-fourths (73 percent) had private insurance before Medicare, while 27 percent did not. Previously uninsured adults, especially those with cardiovascular disease or diabetes, reported greater use of health care services after age 65. Because the uninsured group lacked regular care before turning 65, they were likely undertreated for conditions like high blood pressure

and high cholesterol, resulting in poor health and a need for services once they enrolled in Medicare, the researchers suggest.

The cost of permitting uninsured adults to purchase Medicare coverage before they hit 65 may improve this group's health. It could also reduce Medicare use and expenses once that population reaches 65, especially if cardiovascular disease or diabetes are factors. These conditions, if left uncontrolled, can cause life-threatening heart attacks or strokes or lead to kidney disease or congestive heart failure. All of these problems magnify the need for hospitalizations, ambulatory care, medications, and procedures. This study was funded in part by the Agency for Healthcare Research and Quality (T32 HS00020).

See “Use of health services by previously uninsured Medicare beneficiaries,” by J. Michael McWilliams, M.D., Ellen Meara, Ph.D., Alan M. Zaslavsky, Ph.D., and John Z. Ayanian, M.D., M.P.P., in the July 12, 2007 *New England Journal of Medicine* 357(2), pp. 143-153. ■

Fewer dentists and different care preferences may contribute to lower use of dental care in rural Kansas

Dentists are not inclined to practice in rural areas due to the sparse population, resulting in 40 percent more dentists in metropolitan than rural counties. Fewer dentists as well as weaker preference for oral care among residents of rural Kansas may contribute to their lower use of dental care compared with those who live in urban Kansas, concludes a new study. R. Andrew Allison, Ph.D., of the Kansas Health Policy Authority, and Richard J. Manski, D.D.S., M.B.A., Ph.D., of the Agency for Healthcare Research and Quality, examined dental supply, use of care, and self-reported unmet need for dental care among Kansas residents in rural counties,

metropolitan counties, and counties adjacent to metropolitan counties.

They found that 75 percent of metropolitan residents visited the dentist in the past year compared with 71 percent of residents in adjacent counties and 66 percent of rural county residents. Similarly, 73 percent of metropolitan residents, 66 percent of adjacent metropolitan residents, and 61 percent of rural residents had had a dental cleaning within the past year. Finally, 95 percent of metropolitan, 93 percent of adjacent metropolitan, and 90 percent of rural residents had some natural teeth remaining.

Despite lower use of care, only 5 percent of rural residents reported unmet need for dental care compared with 8 percent of

residents of metropolitan and adjacent metropolitan counties, after adjusting for demographic and dentist supply factors. The researchers conclude that there is a potentially dynamic relationship between rural residents' preferences for dental care and dentists' decisions about where to practice. They recommend that rural educational efforts emphasize the importance of oral health.

More details are in "The supply of dentists and access to care in rural Kansas," by Drs. Allison and Manski, in the Summer 2007 *Journal of Rural Health* 23(3), pp. 198-206. Reprints (AHRQ Publication No. 07-R073) are available from AHRQ.* ■

Agency News and Notes

AHRQ launches a new series of advice columns

Carolyn Clancy, M.D., director of the Agency for Healthcare Research and Quality (AHRQ), has prepared brief, easy-to-understand advice columns for consumers to help navigate the health care system. The columns will address important issues such as how to recognize high-quality health care; how to be an informed health care consumer; and how to choose a

hospital, doctor, and health plan. Posted on the AHRQ Web site, the columns are designed to help consumers navigate the health care system and make decisions about their health care.

The columns will appear bi-weekly on AHRQ's Consumer & Patients Web site (www.ahrq.gov/consumer), and will build on AHRQ's ongoing work to help consumers make informed

decisions and seek services that are appropriate for them and their families.

To read Dr. Clancy's first column, "Recognizing High-Quality Health Care," go to <http://www.ahrq.gov/consumer/cc.htm>. Like the other columns that will follow, it draws on existing information produced by AHRQ in publication, brochure, or pod cast formats. ■

AHRQ awards four contracts to help improve hospital quality measurement

The Agency for Healthcare Research and Quality (AHRQ) has awarded contracts totaling \$1 million to four Statewide data organizations for pilot projects that are designed to help make it easier for hospitals to link administrative data with electronic clinical data, such as lab results and information about co-existing illnesses at the time of admission. The 2-year contracts are part of AHRQ's new "Joining Forces" initiative, which will enable experts to more accurately measure the quality of hospital care. More detailed clinical information on patients at the time of admission is important because it helps researchers control for severity of illness when assessing in-hospital mortality and provide better information to clinicians and others who are working to improve the quality of care in hospitals. Three pilot project contracts were awarded to the Florida Agency for Health Care Administration's Center for Health Information and Policy Analysis, the Minnesota Hospital Association, and Virginia Health Information. In addition, AHRQ awarded a planning contract to the Washington State Department of Health's Center for Health Statistics. ■

AHRQ announces the next phase of its Evidence-based Practice Center program

The Agency for Healthcare Research and Quality (AHRQ) has announced the 14 institutions that will comprise the third iteration of its Evidence-based Practice Centers (EPCs) program. AHRQ's EPCs conduct research syntheses and analyses of the scientific literature on clinical and other health care delivery issues and produce reports and technology assessments on the evidence. The resulting reports are used by Federal and State agencies, private-sector professional societies, health delivery systems, providers, payers, and others committed to evidence-based health care. Since the program was created in 1997, the EPCs have produced and published nearly 200 evidence reports on a variety of health care topics.

The EPCs will develop reports of the scientific literature in the following focus areas:

- U.S. Preventive Services Task Force, where they will conduct systematic reviews of the evidence on specific topics in clinical prevention and provide technical support that will serve as the scientific basis for Task Force recommendations;
- AHRQ's Technology Assessment Program, where they will assess the clinical utility of medical interventions to assist the Centers for Medicare & Medicaid Services make informed decisions regarding its Medicare program;
- The Generalist Program, for which they will continue producing numerous reports each year with private and Federal partners on a range of

clinical, behavioral, economic, and health care delivery topics;

- The Effective Health Care Program, for which they will provide high-quality, reliable data in the form of comparative effectiveness reviews to help patients, clinicians, and policymakers make the best health care decisions; and,
- The Scientific Resource Center, through which they will provide scientific and methodologic technical support to the Generalist and Effective Health Care programs.

Of the 14 five-year contracts awarded, the University of Connecticut and Vanderbilt are new to the EPC program. The EPCs and their directors are as follows:

- Blue Cross and Blue Shield Association Technology Evaluation Center; Naomi Aronson, Ph.D.
- Duke University; Douglas C. McCrory, M.D.
- ECRI Institute; Karen M. Schoelles, M.D., S.M.
- Johns Hopkins University; Eric B. Bass, M.D., M.P.H.
- McMaster University; Parminder Raina, Ph.D.
- New England Medical Center Hospitals; Joseph Lau, M.D.
- Oregon Health & Science University; Mark Helfand, M.D., M.S., M.P.H.

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- RAND Corporation; Paul Shekelle, M.D., Ph.D.
- RTI International; Meera Viswanathan, Ph.D.
- University of Alberta; Terry P. Klassen, M.D., M.Sc., and Brian Rowe, M.D., M.Sc.
- University of Connecticut, C. Michael White, PharmD.

- University of Minnesota; Robert L. Kane, M.D. and Timothy J. Wilt, M.D., M.P.H.
- University of Ottawa, David Moher, Ph.D.
- Vanderbilt University Medical Center, Katherine Hartman, M.D., Ph.D.

For more about the Evidence-based Practice Center program, go to www.ahrq.gov/clinic/epcix.htm. ■

Research Briefs

Auerbach, A.D., Landefeld, S., Shojania, K.G. (2007, September) “The tension between needing to improve care and knowing how to do it.” AHRQ grant HS11416. *New England Journal of Medicine* 357(6), pp. 608-13.

The authors present seven arguments for and against the rapid dissemination of quality improvement interventions. The arguments for proceeding quickly include: many thousands of patients are injured or killed annually by medical errors; any harms from quality improvement are likely to be less than those from preserving the status quo; and the nature of quality improvement exempts it from the usual strategies of assessment. Several arguments caution against proceeding quickly and for taking the time for thorough evaluation. For example, in the treatment of disease, where the need to improve is equally urgent, we demand rigorous evidence that a therapy works before recommending it widely. Knowing the harms and opportunity costs of quality improvement is important to understanding the net benefit to patients, which may be small. Finally, given the complexity of quality and safety problems and their causes, rigorous study designs are needed to properly evaluate them. The authors suggest resisting the temptation to circumvent traditional models of evidence in the case of quality improvement. They assert that in

pursuing quality and safety improvement, we should not blind ourselves to harms, squander scarce resources, or be deluded about the effectiveness of our efforts.

Cohen-Mansfield, J. and Lipson, S. (2006, Summer). “To hospitalize or not to hospitalize? That is the question: An analysis of decision making in the nursing home.” (AHRQ grant HS09833). *Behavioral Medicine* 32(2), pp. 64-70.

A survey of 6 physicians and a nurse practitioner at 1 nursing home of 52 residents asked about the medical event leading to consideration of hospitalization, the decisionmaking process, factors involved in making treatment decision, and the role of advance directives. Hospitalized residents had fewer treatments considered (1.8 vs. 3.5) and fewer treatments chosen (1.3 vs. 1.8) than those who were not hospitalized. The physicians rated general treatment practice of the condition in question as important or very important in 68 percent of hospitalized residents, but in only 31.6 percent of nonhospitalized residents. Cost and quality of life were rated as more important for nonhospitalized residents (48 and 76 percent, respectively) than for hospitalized residents (17.4 and 43.5 percent, respectively). Advance directives for “no hospitalization”

were associated with fewer hospitalizations.

Ditto, P.H., Jacobson, J.A., Smucker, W.D., and others. (2006, August). “Context changes choices: A prospective study of the effects of hospitalization on life-sustaining treatment preferences.” (AHRQ grant HS08180). *Medical Decision Making* 26, pp. 313-322.

Researchers analyzed responses of 401 elderly individuals, who participated in 3 annual interviews about advance directives. A subsample of 88 individuals, who were hospitalized for more than 48 hours during the course of the study, participated in an additional “recovery” interview conducted about 2 weeks after their release from the hospital. At each interview, people indicated their desire to receive four life-sustaining medical treatments: cardiopulmonary resuscitation (CPR) for cardiac arrest; artificial nutrition and hydration (ANH) for inability to eat or drink; gall bladder surgery for a life-threatening gall bladder infection; and antibiotics for life-threatening pneumonia. The treatments were for four serious illness scenarios: Alzheimer’s disease; terminal cancer with pain; coma with no chance of recovery; and stroke with a slight chance of recovery.

Among patients who had been hospitalized, CPR refusal decisions

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remained highly stable across all three interviews. However, 56 percent of all decisions to receive CPR at the prehospitalization interview changed to decisions to refuse treatment at the recovery interview, and 56 percent of those initially unstable decisions changed back to wanting CPR by the time of the posthospitalization interview several months later. Thus, physicians and family members should be sensitive to the possibility that decisions to receive life-sustaining treatment stated by healthy individuals may be particularly susceptible to changing circumstances, advise the researchers.

Fleishman, J.A. and Zuvekas, S. H. (2007, July). "Global self-rated mental health: Associations with other mental health measures and with role functioning." *Medical Care* 45(7), pp. 602-609.

The purpose of this research was to compare results from the global self-reported mental health (SRMH) item in the Medical Expenditure Panel Survey (MEPS) with other measures of emotional well-being or psychological distress. Two of these measures, the mental health component summary (SF-MCS) and the mental health subscale (SF-MH), were drawn from the SF-12 (a survey measuring eight domains of physical and mental health). The other two measures were the K6 scale (a 6-item scale of psychological distress) and the Patient Health Questionnaire-2 (PHQ-2), a 2-item screener for depression. The authors found that responses to the SRMH were moderately associated with other measures of mental health. However, the other measures assessing emotional well-being and psychological distress were more strongly correlated with each other than with the SRMH. With regard to role functioning, SRMH scores were correlated with physical and

emotional role functioning, but not as strongly as were the other mental health measures. The authors recommend further research, possibly including cognitive interviewing techniques, into the factors affecting responses to the SRMH. The authors also recommend that the self-reported mental health (SRMH) item not be used as the sole indicator of emotional well-being or psychological distress.

Gorawara-Bhat, R., Cook, M. A., and Sachs, G. A. (2007). "Nonverbal communication in doctor-elderly patient transactions (NDEPT): Development of a tool." (AHRQ grant HS14088). *Patient Education and Counseling* 66, pp. 223-34.

The authors developed a new tool, the NDEPT, for observing and coding nonverbal communications in doctor-elderly patient interactions in exam rooms. For purposes of the study, the authors divided nonverbal communication into two major dimensions: the physical setting of exam rooms enclosing interaction and the body language of the physician unfolding within the exam room. The NDEPT was developed based on 50 videotapes of routine exam room visits between physicians and their elderly patients. The researchers measured static, dynamic, and kinesic attributes. Static attributes include furniture and equipment. Dynamic attributes include the interaction distance, vertical height distance, angle of interaction, and physical barriers between doctor and patient. Kinesic attributes of the physician include stance, eye contact, facial expression, gesture, and touch. One conclusion was that the spatial configuration of the exam room either facilitated or impeded the manifestation of the physician's kinesic attributes. The authors recommend testing and validation with larger samples.

Johnson, M.D., Meredith, L.S., Hickey, S.C., and Wells, K.B. (2006, September-October). "Influence of

patient preference and primary care clinician proclivity for watchful waiting on receipt of depression treatment." (AHRQ grant HS08349). *General Hospital Psychiatry* 28, pp. 379-386.

Primary care patients with depression who prefer watchful waiting to treatment are less likely to receive treatment for their depression, especially those with subsyndromal depression (depressive symptoms only), according to a new study. Brief established questionnaires can help providers distinguish depressive disorders from symptoms only and patients should be involved in decisions about the types of treatments available, such as medication and/or therapy. Researchers found that patient knowledge about depression and its treatment was also significantly associated with the likelihood of receiving treatment. The clinicians' general tendency toward watchful waiting was not significantly associated with the likelihood that their individual patients received treatment for depression.

Katzan, I., Dawson, N.V., Thomas, C.L., and others. (2007, May). "The cost of pneumonia after acute stroke." (AHRQ grant HS09969). *Neurology* 68, pp. 1938-1943.

This study found that hospitalization costs for stroke patients who develop pneumonia (\$21,043) are nearly \$15,000 more than for patients who require treatment for stroke alone (\$6,206). Patients who develop pneumonia after stroke are also 70 percent more likely to need extended care once they are discharged from the hospital, further adding to costs. When study data were extrapolated to the 553,000 similar patients admitted to U.S. hospitals each year, the cost for pneumonia complications in this group approached \$460 million. Researchers studied 11,286 Medicare beneficiaries

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in 29 hospitals in the Cleveland area who were admitted after suffering strokes. Nearly 6 percent of patients developed pneumonia in the hospital. Patients who were admitted from nursing homes or who were more severely ill were more likely to develop pneumonia. The rate of pneumonia infections was similar for teaching and nonteaching hospitals.

Lee, J.Y., Rozier, R. G., Lee, S. D., and others. (2007, Spring). “Development of a word recognition instrument to test health literacy in dentistry: The REALD-30—a brief communication.” (AHRQ grant 13233). *Journal of Public Health Dentistry* 67(2), pp. 94-98.

This study explored dental health literacy by developing and testing a screening instrument for dental word recognition, the Rapid Estimate of Adult Literacy in Dentistry (REALD-30). The REALD-30 contains 30 words covering etiology, anatomy, prevention, and treatment that are commonly used in brochures and written materials provided to dental patients. In order to test its internal reliability and its relationship to two dental outcomes (perceived dental health status and oral health-related quality of life), it was administered to a convenience sample of 202 English-speaking patients. Several other tests on adult literacy in medicine, functional health literacy, and an oral health profile were given at the same time. The REALD-30 had good internal reliability; however, results on validity were mixed. Test results correlated with the two literacy tests. The REALD-30 results were associated with oral health-related quality of life, but were not associated with perceived dental health status. The authors recommend research going beyond word recognition to include a future focus on developing a comprehensive

dental health literacy instrument that includes comprehension, numeracy, and verbal components.

Localio, A. R., Margolis, D.J., and Berlin, J.A. (2007). “Relative risks and confidence intervals were easily computed indirectly from multivariable logistic regression.” (AHRQ grants HS10399 and HS11481). *Journal of Clinical Epidemiology* 60, pp. 874-882.

The authors performed simulations on two hypothetical groups of patients at a single center to assess alternative statistical methods for estimating relative risks and their confidence intervals when outcomes are common. Confidence intervals are essential to support estimates of relative risk of treatment or exposure from multivariable regression models. The authors’ simulations demonstrate why a method of substitution commonly used in leading journals fails when baseline risk and relative risk are not small—the very situations for which it was designed. The confidence intervals are too narrow and therefore precision of estimates is overstated. By contrast, other regression models seem to work better. For example, confidence intervals based on either bootstrapping resampling or the delta method demonstrate appropriate coverage when outcomes are common. In general, the bootstrap method seems to perform somewhat better. The authors conclude that estimates of risks and their ratios should be based on a regression model that best fits the data.

MacMullen, N.J., Tymkow, C., and Shen, J.J. (2006, July/August). “Adverse maternal outcomes in women with asthma: Differences by race.” (AHRQ grant HS13506). *American Journal of Maternal Child Nursing* 31(4), pp. 263-268.

This study found that minority pregnant women with asthma have significantly higher rates of preterm

labor, gestational diabetes, and infection of the amniotic cavity than pregnant white women. Black women were the youngest (24 years old) and had the highest incidence of preterm labor (5.5 percent) and pregnancy-induced hypertension (5 percent). Asian/Pacific Islander women had the greatest occurrence of gestational diabetes (7.2 percent) and were over three times more likely than white women to have infection of the amniotic cavity (5.7 vs. 1.8 percent). Black and Hispanic women also had more infections of the amniotic cavity than white women (3.1 and 2.7 vs. 1.8 percent, respectively). Otherwise, pregnancy outcomes of Hispanic women were similar to those of white women, except that postdate pregnancy was less likely to be over 42 weeks. The findings were based on examination of 11 adverse maternal outcomes across 4 ethnic groups of 13,900 pregnant women with asthma, who gave birth between 1998 and 1999. Their data came from AHRQ’s Healthcare Cost and Utilization Project National Inpatient Sample of hospitalized patients.

Main, D. S., Henderson, W. G., Pratte, K., and others. (2007, June). “Relationship of processes and structures of care in general surgery to postoperative outcomes: A descriptive analysis.” (AHRQ grant HS0119). *Journal of the American College of Surgery* 204 (6), pp. 1157-65.

The National Surgical Quality Improvement Program (NSQIP) offers participating hospitals the opportunity to learn more about the quality of their surgical care through collection and feedback of institution-level information on risk-adjusted morbidity and mortality. In order to systematically collect quantitative data on structures and processes of surgical care (not previously a focus of the NSQIP), the authors developed the Structures and Processes of

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Surgical Care Survey and administered it at 123 Veterans Administration (VA) hospitals. The final response rate was 73 percent, with 90 VA hospitals self-reporting full data. Fourteen of the 35 structure and process characteristics were correlated with the hospital's observed-to-expected ratio (O/E) for morbidity; however, only four characteristics were correlated with the hospital's O/E ratio for mortality. For example, risk-adjusted morbidity was higher in centers with lower monthly surgical volume per full-time equivalents (FTE) in surgery, anesthesia, and nursing. Risk-adjusted mortality was higher in centers with a smaller percentage of patients whose anesthesia provider was the same during pre-, intra-, and post-operative care. The authors believe that their results support the feasibility and utility of measuring structure and process measures using a self-report survey.

Mercer, S.L., DeVinney, B.J., Fine, L.J., Green, L.W., and Dougherty, D. (2007). "Study designs for effectiveness and translation research. Identifying tradeoffs." *American Journal of Preventive Medicine* 33(2), pp. 139-154.

This article reports on a conference of research experts and federal and foundation funders, which considered the applicability of different study designs to examining the effectiveness and translation of complex, multilevel health interventions. They considered the strengths and limitations of nine different types of randomized and nonrandomized study designs, as well as natural experiments. The choice of study design is shaped by the specific research question; the level of understanding and certainty about the underlying theory, mechanisms, and efficacy of an intervention; the possibility of

randomizing individuals or groups; and the availability of natural experiments. It is also influenced by the level of available resources; the extent of generalization required; and the views of intended users of the research and study subjects. Symposium participants supported the need for replication of studies and the use of alternative study designs, since no one study can demonstrate causality. They also highlighted the importance of reviewing studies across disciplines and traditions that contribute to causal inference within health, including epidemiology, economics, and medical anthropology, among others. Reprints (AHRQ publication no. 07-R071) are available from AHRQ.*

Muller, K.E., Edwards, L. J., Simpson, S.L., and others. (2007, March). "Statistical tests with accurate size and power for balanced linear mixed models." (AHRQ Grant HS13353). *Statistics in Medicine* 26, pp. 3639-60.

In the analysis of Gaussian data from medical imaging research and other fields, linear mixed models have been widely used due to their convenience. However, the standard mixed model tests, when used in small samples, frequently have greatly inflated test size. Mixed models are not required for many applications with correlated outcomes in medical imaging. If special cases are stated as a general linear multivariate model, they can then be analyzed with either the univariate (UNIREP) or multivariate (MULTIREP) approach to repeated measures. Since both of these test types always control test size and have good power approximation, mixed model tests should never be used when either a UNIREP or MULTIREP tests applies. The researchers ran simulations to demonstrate that new power approximations for all four UNIREP

tests eliminate most inaccuracy in existing methods.

Pelton, S.I., Huot, H., Finkelstein, J.A., and others. (2007, June). "Emergence of 19A as virulent and multidrug resistant pneumococcus in Massachusetts following universal immunization of infants with pneumococcal conjugate vaccine." (AHRQ grant HS10247). *Pediatric Infectious Disease Journal* 26(6), pp. 468-472.

Although the pneumococcal conjugate vaccine (PCV7) has reduced infection with *Streptococcus pneumoniae* serotypes targeted by the vaccine, it has increased infection with some nonvaccine serotypes (NVT) among children in Massachusetts. Three years after the vaccine's introduction, children under 2 years in that State suffered a significant increase in pneumonia due to a multidrug-resistant (MDR) strain of the NVT 19A.

The MDR NVT 19A has emerged as the most frequent cause of IPD in Massachusetts. Serotype 19A was identified from nearly 30 percent of all invasive pneumococcal disease episodes among children younger than 5 years between 2001 and 2005, but 44 percent of cases in 2005. From 2002 to 2004, the majority of isolates of serotype 19A demonstrated intermediate susceptibility to penicillin and full susceptibility to the antibiotics ceftriaxone and amoxicillin. However, by 2005, serotype 16A had become resistant to these and other antibiotics. Clearly, in Massachusetts, the *S. pneumoniae* strains colonizing healthy children have undergone substantial shifts subsequent to introduction of the PCV7.

Prosser, L. A. and Wittenberg, E. (2007, May-June). "Do risk attitudes differ across domains and respondent types?" (AHRQ

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grant HS14010). *Medical Decision-Making*, 27(3), pp. 281-287.

Patient attitudes toward risk can affect their treatment choices. Current practice assumes risk neutrality; however, little is known about whether patients exhibit different attitudes toward risk than nonpatients or whether people have different risk preferences for different goods such as money or health. Prospect theory suggests that the patient could be predicted to make riskier or less risky choices than a community member, because the patient faces possible outcomes from a different point of reference. The authors evaluated the risk attitudes of patients with multiple sclerosis (MS) and a community sample over a health gamble and two money gambles. They administered a survey to 56 adult patients with relapsing-remitting MS and 57 adult members of the general public. The health gamble asked patients and community members to choose between two drugs of differing effectiveness in reducing or ending a projected 30-relapse. Patients and community members did not differ consistently by risk attitudes. Both were predominately risk neutral with respect to health outcomes and predominately risk averse with respect to money. Risk preferences may depend more on the characteristics of the choice than on respondent type.

Schneeweiss, S. (2007, August). "Developments in post-marketing comparative effectiveness research." (AHRQ grant HS10881). *Clinical Pharmacology and Therapeutics* 82(2), pp. 143-56.

Research on the comparative effectiveness of new drugs against existing drugs is of importance to physicians seeking the best treatment for patients and to health plans seeking to combine quality care with effective but less costly medicines.

Since the initiation of Medicare Part D prescription drug coverage, it is also of great interest to the U.S. government, which now has a much larger stake in finding the best evidence on the comparative effectiveness of medications. Nonrandomized postmarketing comparative effectiveness research assessing the relative value of two or more drugs under conditions of routine care is needed to supplement randomized controlled trials of drugs under ideal conditions. A valuable source of comparative effectiveness information is the large administrative databases containing claims data compiled by Medicare and major private insurers. However, nonrandomized studies utilizing claims databases or other sources may yield different results than randomized trials because of a confounding bias due to insufficient clinical information or to differing patient characteristics that are not adjusted for by the study. To reduce confounding bias with respect to observed patient characteristics, two fundamental strategies, restriction and stratification, can make patient groups more comparable and therefore comparisons less biased.

Schneeweiss, S. (2007). "Understanding secondary databases: a commentary on 'Sources of bias for health state characteristics in secondary databases.'" (AHRQ Grant HS010881). *Journal of Clinical Epidemiology* 60, pp. 648-50.

This article is a commentary on another article in the same journal issue on sources of bias for health state characteristics in secondary databases such as electronic medical records and health insurance claims. The author makes a number of key points. First, it is critical to fully understand the process that has generated a database, not simply official documentation and guidelines but also the realities of how health

care encounters translate into standardized codes. Second, coded information can be understood and analyzed as a set of proxies that indirectly describe the health status of patients through the lenses of health care providers and coders operating under the constraints of a specific health care system. Furthermore, these issues have serious implications for the internal validity of studies as well as their generalizability to specific patient subgroups, health care systems, or jurisdictions. Finally, changes in coding patterns or differences in the codes themselves introduce difficulties in comparing health services use and health outcomes over time and between jurisdictions and health plans.

Schoenman, J.A., Sutton, J.P., Elixhauser, A., and others. (2007, August). "Understanding and enhancing the value of hospital discharge data." (AHRQ contract 282-98-0024). *Medical Care Research and Review* 64(4), pp. 449-68.

The authors of this paper document the range of uses of hospital discharge data, present examples of its uses, and identify ways to improve both the data and how it is used in the future. They conducted a systematic review of the published literature to identify research studies using discharge data. The aim was to capture the most prevalent uses of discharge data. These included public safety and injury surveillance and prevention; public health, disease surveillance, and disease registries; community health assessments and health planning; quality assessment and performance improvement; public reporting for informed purchasing and comparative reports; health services and health policy research applications; and private sector and commercial applications. They identified the following strengths of

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hospital discharge databases: they are already centrally collected and readily available; they are more reliable than data collected through other means; and they are larger and more representative of the population than other databases. Discharge data limitations include problems with the quality of included data elements, missing data elements, and excluded populations. For example, race and ethnicity data are sometimes missing or unreliably reported. The authors recommend including new data elements to improve the discharge databases, building more comprehensive data systems, and providing technical assistance to improve the use of existing databases. Reprints (AHRQ publication no. 08-R001) are available from AHRQ.*

Setoguchi, S., Solomon, D. H., Glynn, R. J., and others. (2007). "Agreement of diagnosis and its date for hematologic malignancies and solid tumors between Medicare claims and cancer registry data." (AHRQ grant HS10881). *Cancer Causes Control* 18, pp. 561-69.

Large databases are needed to study rare outcomes, such as the risk of certain cancers due to use of the new biological immunomodifying drugs such as tumor necrosis factor- α antagonists. However, neither the SEER-Medicare dataset nor cancer registry data typically include pharmacy information. The alternative is to use large health care utilization databases to identify incident cancers. To determine the agreement between Medicare claims data and cancer registry data on the diagnosis and date for certain cancers, the authors of this study linked Pennsylvania Medicare claims and drug benefit program data on

cancer patients with the state cancer registry. Their goal was to examine the accuracy of claims-based definitions for lymphoma, leukemia, and four other cancers. The researchers concluded that claims data can identify the hematological malignancies and solid tumors with high specificity but with low to moderate sensitivity and positive predictive values. Also, they found sufficient agreement in the first dates of diagnosis between the two databases. They caution that, due to the possibility of bias, the utility of the claims-based definitions has to be assessed for each study setting.

Terris, D.D., Litaker, D. G., and Koroukian, S. M. (2007). "Health state information derived from secondary databases is affected by multiple sources of bias." (AHRQ HS00059). *Journal of Clinical Epidemiology* 60, pp. 734-41.

Patient encounters with the health care system may lead to sources of bias for health state characteristics derived from secondary databases. These biases may come from organizational and environmental factors. This article describes sources of bias encountered during the generation and recording of data in an individual health care encounter, through processing and storage in a secondary database. The authors offer a conceptual framework integrating theory and empirical evidence to illustrate the ways in which the validity of health state information may be influenced by multiple dynamic factors. These include the patient's propensity to access services, community and system-based factors, characteristics of the health care encounter, and the provider's propensity to detect, treat, and record. Finally, there are the factors influencing the processing and storage of health state information in a secondary database. These are the origin, purpose, input

structure, and system-level efficiencies of the database. The authors believe that a greater awareness of these biases may lead to innovative strategies to reduce the limitations inherent in analyses of secondary databases and improve the accuracy and application of insights derived from this work.

Thomas, M.B., Simmons, D., Graves, K. and others. (2007, June). "Practice/regulation partnerships: The pathway to increased safety in nursing practice, health care systems, and patient care." (AHRQ grant HS11544). *Nurse Leader* 5(3), pp. 50-54.

There is a need for a program that documents adverse medical errors and addresses human performance and systems factors in hospital care. This paper describes the Healthcare Alliance Safety Partnership (HASP), a nonpunitive reporting program, based on the airline industry's successful Aviation Safety Action Partnership program. With the support of the Board of Nursing Examiners (BNE), a Texas State agency, three Texas hospitals implemented HASP as a pilot program. There are three stages to the HASP program evaluation method: discovery, analysis, and resolution. In the discovery phase, a report is received from a nurse or there is a referral from the nurse's institutional peer review committee or the BNE. Interviews are conducted with the nurse and other involved parties. In the analysis phase, HASP nurse analysts identify and cluster causal factors of the event and an event review committee (ERC) crafts an action plan. In the resolution phase, the nurse and the hospital respond regarding prescriptive recommendations until resolution is complete and approved by the ERC. ■

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