



Research Activities



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Agency for Healthcare Research and Quality

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AHRQ publishes landmark Federal handbook on the use of patient registries

The Agency for Healthcare Research and Quality (AHRQ) released a new handbook that represents a groundbreaking Federal initiative to help researchers and others use patient registries to evaluate the real-life impact of health care treatments. A patient registry is a database of confidential patient information that can be analyzed to understand and compare the outcomes and safety of health care. The data may originate from multiple sources, including hospitals, pharmacy systems, physician practices, and insurance companies. Some registries include patients who have the same disease. Others are comprised of patients who have undergone a common surgical procedure or received a newly approved medication.

An analysis of patient registry data may offer insights that can improve health care and public health. For example, doctors may use a registry database to monitor disease patterns or identify unexpected adverse events in specific populations. Physician groups may analyze

treatments to identify opportunities for quality improvement. Health insurers may review treatment trends before making coverage decisions. Researchers from academia, industry, and government may use registries to monitor the long-term comparative benefits, safety, and harms of medications or medical devices.

The new 219-page document, *Registries for Evaluating Patient Outcomes: A User's Guide*, is the first government-supported handbook for establishing, managing, and analyzing patient registries. Development of the handbook was cofunded by AHRQ and the Centers for Medicare & Medicaid Services. Thirty-nine contributors from industry, academia, and government collaborated to create the handbook.

Unlike randomized clinical trials, which study patients under strict eligibility and treatment protocols, patient registries document the experiences of patients in everyday clinical

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Patient registries

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practice. Observing those patients' responses to treatment can provide important insights into which health care strategies work best in actual practice.

Many patient registries are already in use. One of the best-known registries is the Surveillance Epidemiology and End Results Program, which is managed by the National Cancer Institute. That registry collects and publishes data on cancer patients, including demographics and information about their tumors, treatment, and followup status. Other registries, meanwhile, are analyzing treatment outcomes for illnesses such as depression, emphysema,

Parkinson's disease, and heart disease.

Overall, the quality of current patient registries varies widely. AHRQ's new handbook identifies the best scientific practices for operating registries. Covered topics include: how registries should be designed, what types of data sources may be accessed, and how to encourage participation among patients and health care providers. Also included are chapters on detecting adverse events, interpretation of data, and how to handle issues related to ethics and publication of research papers. The handbook's summary chapter serves as a checklist for best practices.

The patient registry guide is a product of the DEcIDE

(Developing Evidence to Inform Decisions about Effectiveness) network, an arm of AHRQ's Effective Health Care (EHC) Program. Development and editing of the document was led by Outcome Sciences of Cambridge, Massachusetts, a member of the DEcIDE network. The project's principal investigators were Richard Gliklich, M.D., and Nancy Dreyer, Ph.D., of Outcome Sciences.

The guide is downloadable from the EHC Web site, www.effectivehealthcare.ahrq.gov, and soon will be available in two printed forms—as a full-length document and as a 13-page summary that includes the best practices checklist. Copies may also be ordered from AHRQ.* ■

Patient Safety and Quality

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AHRQ
Office of Communications and Knowledge
Transfer
540 Gaither Road
Rockville, MD 20850
(301) 427-1360

Barbara L. Kass, MPH, CHES,
Managing Editor
Gail Makulowich, Contributing Editor
Joel Boches, Design and Production
Karen Migdail, Media Inquiries

Reduced payments to hospitals may jeopardize patient safety

Hospitals typically try to reduce costs when facing payment cutbacks by insurers such as Medicare and Medicaid. For example, they may shorten hospital stays or provide fewer diagnostic and treatment services for patients whose payers provide low reimbursement. These payment constraints may jeopardize patient safety, suggests a new study. Researchers examined four risk adjusted patient safety indicators (PSIs) at large urban hospitals in 11 States: decubitus ulcer (pressure sores), infection resulting from medical care, postoperative hemorrhage or hematoma, and postoperative pulmonary embolism (PE) or deep vein thrombosis (DVT). These conditions may reflect poor quality of care and, as such, are indicators of threats to patient safety.

The researchers used models to examine changes in hospital PSI rates for various payers (Medicare, Medicaid, self-pay, and private insurance) during a time when both governmental and private payers

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Payments

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implemented more stringent payment policies. The Medicare Balanced Budget Act (BBA) of 1997 cut payments to hospitals, and private payers transferred financial risk to providers via managed care contracts and selective contracting. States enrolled patients in managed care plans to limit Medicaid costs.

Hospital PSI rates for Medicare patients in the same hospital increased significantly (that is, quality of care worsened) during the study period. Private payer PSI rates increased significantly following the BBA for two PSIs, infection due to medical care and postoperative PE/DVT, and when the PSIs were pooled into a single model. The trend was less consistent for

Medicaid and did not exist for self-pay hospital PSI rates, after controlling for organizational and market factors. PSI rates for the two payers that experienced the largest declines in payment-to-cost ratios, Medicare and private payers, generally showed the worse performance. The findings were based on analysis of 1995–2000 data from the Agency for Healthcare Research and Quality (AHRQ) Healthcare Cost and Utilization Project State Inpatient Database. The study was supported by AHRQ (HS13094).

See “Does the patient’s payer matter in hospital patient safety? A study of urban hospitals,” by Jan P. Clement, Ph.D., Richard C. Lindrooth, Ph.D., Askar S. Chukmaitov, M.D., Ph.D., and Hsueh-Fen Chen, M.S., in the February 2007 *Medical Care* 45(2), pp. 131–138. ■

Medication errors are common among patients in psychiatric hospitals

Despite the movement of mental health patients out of psychiatric hospitals, more than a quarter of all hospital admissions are for psychiatric hospitalizations. Adverse drug events (ADEs) and medication errors (MEs) involving psychiatric medications are common among patients at psychiatric hospitals, according to a new study. Of 1,559 patients admitted at 1 psychiatric hospital in 2004 and 2005, mostly for mood disorders and schizophrenia, the rate of ADEs and serious MEs were 10 and 6.3 per 1,000 patient days, respectively. Preventable ADEs accounted for 13 percent of the 191 ADEs. Atypical antipsychotics accounted for over one-third of ADEs (37 percent).

Two-thirds of ADEs were significantly harmful, 31 percent were considered serious, and 2 percent were considered life-threatening events. There were no fatal ADEs. Nonpsychiatric drugs accounted for only 4 percent of nonpreventable ADEs, but were associated with nearly one-third of all preventable ADEs and near

misses. The most common types of MEs were wrong dose (24.6 percent), drug-drug interaction (17.2 percent), and omitted medication (13.8 percent). MEs were most frequently associated with physician orders (68 percent), but 20 percent were attributed to nursing transcription errors and 10 percent to administration errors.

Medication orders were paper-based. Serious MEs in this study could have been prevented by computerized physician order entry (CPOE) with decision support such as drug-drug interaction, and drug-dose checking (44 percent). MEs could have also been prevented by basic CPOE alone to ensure prescription legibility and completeness (16.7 percent) and bar-coded medication administration (15.2 percent). The researchers identified MEs and ADEs from medical charts, progress notes, and test results; nursing and physician reports; and pharmacy intervention reports. The study was supported by the Agency for Healthcare Research and Quality (HS11534).

See “Medication safety in a psychiatric hospital,” by Jeffrey M. Rothschild, M.D., M.P.H., Klaus Mann, M.D., Carol A. Keohane, B.S.N., R.N., and others in the March/April 2007 *General Hospital Psychiatry* 29, pp. 156–162. ■

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Disparities/Minority Health

Information about health plans should be tailored to meet the diverse needs of people with disabilities

Individuals with disabilities, who typically have complex medical needs, often need more information to choose a health plan than people without disabilities. However, they often have a harder time getting the information they need. Getting health plan information to people with disabilities requires multiple methods, such as written materials, audiotapes, videos, hotlines, one-on-one outreach counselors, and the Internet. Steven C. Hill, Ph.D., of the Agency for Healthcare Research and Quality, and Judith Wooldridge, M.A., of Mathematica Policy Research, Inc., surveyed individuals with disabilities enrolled in Tennessee's Medicaid managed care program (TennCare) in 1998 and 1999 about whether they felt they had enough information to choose a health plan.

Some adults had limitations that could affect their ability to obtain information about health plans. For example, 14 percent received help using the telephone; 8 percent had serious difficulty communicating with someone outside the family; 1 percent were hearing impaired; and 2 percent were visually impaired. Also, 15 percent had trouble getting around inside the home, and thus would probably need help traveling to

workshops and health fairs to get information. Thirty-three percent of adults had mental retardation, 31 percent had mental illness, and 24 percent had physical disabilities.

Most individuals with disabilities chose their managed care plan and providers, felt they had enough information to choose a plan, and rated information from their providers as good to excellent. However, a minority did not know they could choose their plans or providers and reported poor or fair communication with providers. Adults with mental retardation were less likely than other adults with disabilities to seek information. Adults with serious difficulty communicating were less satisfied than others with information from providers. Information from nearly every source (health plans, the State, friends, and relatives) was associated with choosing plans.

See "Informed participation in TennCare by people with disabilities," by Dr. Hill and Ms. Wooldridge, in the November 2006 *Journal of Health Care for the Poor and Underserved* 17, pp. 851-875. Reprints (AHRQ Publication No. 07-R045) are available from AHRQ.* ■

Child/Adolescent Health

Parents prefer as much information as possible about the prognosis of their child's cancer

To avoid causing pain or loss of hope to parents of children with cancer, compassionate doctors often avoid the topic of the child's prognosis, disclose vague or overly optimistic information when pressed, or focus on treatment rather than expected outcomes. However, this limited communication can inappropriately alter choices that parents make about treatment. Many parents want to have prognostic information even though they find it upsetting, concludes a new study.

The delivery of detailed information may be a fundamental

part of sensitive care, note the researchers. They surveyed 194 parents whose children were treated for cancer at a Boston medical center (along with their physicians) about how upsetting they found the information about their child's cancer prognosis. The majority of parents (87 percent) wanted as much information about the prognosis as possible, and 85 percent even wanted it expressed numerically. Yet one-third of parents said that the oncologist did not initiate a discussion about prognosis. Also, more than one-fourth of parents said they did not

receive numeric prognostic information, despite considering it important.

Over one-third (36 percent) of parents found the information about prognosis to be extremely or very upsetting. Parents who were upset were more likely to report that the oncologist had never discussed their child's prognosis. Yet these were the parents who were more likely to want additional information about prognosis than those who were less upset. The majority of parents found

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Prognosis communication

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prognostic information important to maintaining hope, even when it was upsetting or the child's prognosis was poor. Parents have the capacity to hope for a cure while

simultaneously preparing for the possibility of death, but they need information to do so, conclude the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS00063).

See "Communication about prognosis between parents and

physicians of children with cancer: Parent preferences and the impact of prognostic information," by Jennifer W. Mack, M.D., Joanne Wolfe, M.D., M.P.H., Holcombe E. Grier, M.D., and others, in the November 20, 2006 *Journal of Clinical Oncology* 24(33), pp. 5265–5270. ■

The State Children's Health Insurance Program can improve care access, use, and quality for children with special health care needs and adolescents

The State Children's Health Insurance Program (SCHIP) provides health insurance coverage to low-income children and youth who are neither eligible for Medicaid nor covered by private health insurance. In two separate studies supported by the Agency for Healthcare Research and Quality (AHRQ grant HS10450), researchers found that SCHIP improves the care of children with special health care needs (CSHCN) and for adolescents enrolled in the New York SCHIP. A third AHRQ-supported study (HS10463 and HS10465) found that many adolescents newly enrolled in the Florida and New York SCHIP reported unmet health care needs, disparities in care access, and suboptimal care prior to SCHIP enrollment. The three studies are summarized here.

Szilagyi, P.G., Shone, L.P., Klein, J.D., and others. (2007, January). "Improved health care among children with special health care needs after enrollment into the State Children's Health Insurance Program." *Ambulatory Pediatrics* 7(1), pp. 10-17.

Based on interviews with parents, 17 percent of 2,290 children enrolled in New York's SCHIP had special health care needs. Peter G. Szilagyi, M.D., M.P.H., and University of Rochester School of

Medicine and Dentistry colleagues compared CSHCN's access to care and quality of care 1 year before and 1 year during SCHIP enrollment.

Enrollment in SCHIP was generally associated with improved access to care. Unmet needs for prescription medications declined 3-fold for all subgroups (for example, from 36 to 9 percent among previously uninsured children). Also, unmet needs for specialty care declined more than 4-fold among CSHCN who were previously insured (48 to 10 percent) or had mental/behavioral conditions (32 to 2 percent). SCHIP enrollment was also associated with improved continuity of care. CSHCN enrolled in SCHIP were more likely to have a usual source of care and better parent-reported quality of care and less worry, irrespective of prior insurance or the child's type of chronic condition.

The study was part of a larger evaluation of CSHCN who enrolled in New York's SCHIP between 2001 and 2002. The researchers identified CSHCN by need for use of prescribed medications (72 percent of CSHCN), followed by needing or using more medical, mental health, or educational services (45 percent), having an emotional, developmental, or behavioral problem that needs treatment (28 percent), limitations in ability to

engage in age-appropriate activities (23 percent), and needing or getting special therapy (13 percent). More than half of the children had been uninsured for all 12 months prior to SCHIP, and of those with any prior insurance, about half had Medicaid. About one-fifth were deemed less healthy than other children.

Klein, J.D., Shone, L.P., Szilagyi, P.G., and others. (2007, April). "Impact of the State Children's Health Insurance Program on adolescents in New York." *Pediatrics* 119(4), pp. e885-e892.

Among New York youth, 70 percent of whom were uninsured before enrollment, SCHIP insurance was associated with greater access to a usual source of care; more use of preventive care, specialty care, and prescription medications; and fewer unmet care needs. SCHIP also seemed to eliminate preexisting racial disparities in care access. Researchers from the University of Rochester School of Medicine and Dentistry interviewed by telephone a random sample of adolescents who were new enrollees in the New York SCHIP and their parents shortly after enrollment and 1 year later. About 17 percent more adolescents reported having a usual source of care during SCHIP (87.1) than before (69.9 percent). The

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SCHIP

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proportion of those with any unmet health care need diminished from 54.3 to 42.1 percent and the proportion of those with unmet need for preventive care shrunk from 53.8 to 40.6 percent. After SCHIP enrollment, more teens reported having had a preventive care visit (74.2 vs. 65.9 percent), yet emergency department use did not change.

Also, parents worried less about their adolescents' health during SCHIP enrollment, even though neither teens nor their parents reported any changes in teens' health status. Both adolescents and parents reported improved quality of care. Slightly more than half of teens and parents reported that teens had an opportunity to speak privately with their provider. They also reported more preventive counseling on several health topics. Nevertheless, there is room for improvement, with over 40 percent of adolescents still reporting some unmet health care need after SCHIP enrollment.

Klein, J.D., Shenkman, E., Brach, C., and others. (2006, November). "Prior health care experiences of adolescents who enroll in SCHIP." *Journal of Health Care for the Poor and Underserved* 17, pp. 789-807.

A study of adolescent State Children's Health Insurance Program (SCHIP) enrollees in Florida and New York States found that most new enrollees were 12 to 16 years old, black or Hispanic, and lived in poverty. Nearly three-fourths were without health insurance the year before SCHIP. Despite high rates of health care use, 25 percent of Florida SCHIP adolescents and over 40 percent of New York SCHIP adolescents reported having unmet health care needs (especially dental care) during the year before SCHIP. One in five U.S. adolescents had at least one serious illness or handicap, with impoverished minority youth most at risk for health problems.

Nearly 6 percent of surveyed adolescents in Florida and nearly 12 percent in New York reported fair or

poor health status, particularly Hispanic youths. Also, 12 percent of adolescents in Florida and 18 percent of those in New York reported special health care needs. Minority adolescents were more likely than their white counterparts to describe themselves as being in poor or fair health, to have been uninsured the entire year, to have been previously covered by Medicaid, and not to have had a usual source of care. The quality of care received prior to SCHIP enrollment was also suboptimal. States may need to enhance outreach and enrollment efforts to insure older adolescents and design programs and benefits to meet the substantial "catch-up" health needs of newly enrolled adolescents, note the researchers. The study was based on data from Child Health Insurance Research Initiative (CHIRI) surveys of new SCHIP adolescent enrollees and their parents in Florida and New York. Reprints (AHRQ Publication No. 07-R032) are available from AHRQ.* ■

A managed care model and care coordination can reduce emergency department use among children with special health care needs

A managed care model that emphasizes care coordination and does not include strong financial incentives to limit care use can reduce the use of emergency department (ED) care among children with special health care needs (CSHCN). CSHCN require not only disease-specific services, but also more costly care than other children do for common acute pediatric conditions, such as croup and fractures.

Researchers studied chronically ill children who were dually enrolled in Michigan's Title V program for CSHCN and Medicaid, and who were enrolled in a managed care option at some time during the study

period. They compared ED use before and after the children joined the managed care plan. Managed care enrollment was associated with a nearly one-fourth (23 percent) reduction in the incidence of ED use in this population. The authors observed no comparable reduction in ED use within the overall population of CSHCN who did not join the managed care plan.

Under the managed care program, each family selected a principal coordinating doctor and a local care coordinator, who worked with the family to develop an individualized health care plan. This medical home approach may have created an environment for the more

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Note: Only items marked with a single (*) asterisk are available from the AHRQ Clearinghouse. Items with a double asterisk (**) are available from the National Technical Information Service. See the back cover of *Research Activities* for ordering information. Consult a reference librarian for information on obtaining copies of articles not marked with an asterisk.

Managed care model

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effective management of chronic health problems and facilitated early intervention when those problems became acute, thereby reducing ED use.

Reduced ED use is a commonly cited indicator of improved access to more effective or more cost-effective care, note the authors. However, they caution that the study explores the impact of one Medicaid managed care program designed specifically for CSHCN. The results may not generalize to other

organizations and locations, especially rural locations with more limited available resources for care of CSHCN. The study was supported by the Agency for Healthcare Research and Quality (HS10441).

See “The impact of managed care enrollment on emergency department use among children with special health care needs,” by Harold A. Pollack, Ph.D., John R.C. Wheeler, Ph.D., Anne Cowan, M.P.H., and Gary L. Freed, M.D., M.P.H., in the February 2007 *Medical Care* 45(2), pp. 139-145. ■

Incentives combined with peer counseling are a cost-effective way to get adolescents to adhere to a tuberculosis control program

Although the total number of tuberculosis (TB) cases in the United States is decreasing, the proportion of TB cases among foreign-born individuals, including adolescents, is growing. Activation of latent tuberculosis infection (LTBI) is more likely to occur during adolescence due to hormonal changes and altered protein and calcium metabolism associated with adolescent growth. To prevent activation of LTBI, adolescents must complete a full 6-month course of daily isoniazid preventive therapy (IPT). However, adolescents often have to be persuaded to complete

treatment, since LTBI are generally asymptomatic.

Researchers found that offering adolescents incentives such as gifts, money, or outings with friends, combined with peer education counseling increased their completion of TB treatment programs in a cost-effective way, at a cost of \$209 per quality-adjusted life year (QALY). The team randomly assigned 794 adolescents with LTBI to 1 of 4 groups: usual care, peer counseling (PC), contingency contracting (CC, use of incentives), and combined PC/CC.

Average costs were \$199 for usual care, \$277 for peer counseling (PC), \$326 for CC, and \$341 for PC

and CC combined. Only the PC/CC group improved the rate of IPT completion (83.8 percent) relative to usual care (75.9 percent), with an overall cost-effectiveness ratio of \$209 per QALY relative to usual care. The study was supported in part by the Agency for Healthcare Research and Quality (HS00046).

See “Costs and cost-effectiveness of adolescent compliance with treatment for latent tuberculosis infection: Results from a randomized trial,” by Gerald F. Kominski, Ph.D., Sepideh Farivar Varon, Ph.D., Donald E. Morisky, Sc.D., and others, in the *Journal of Adolescent Health* 40, pp. 61–68, 2007. ■

Women's Health

Women's greater risk of dying after coronary artery bypass graft surgery may be due to transfusion-related immunosuppression

Women are more likely to die than men after coronary artery bypass graft surgery (CABG). A new study suggests it may be due to blood transfusion-related immunosuppression. Women tend to have lower hematocrit and hemoglobin than men and therefore are more likely to receive transfusions during surgery. Indeed, the study of Michigan Medicare patients found that women undergoing CABG were 3.4 times as likely to have received blood as men and generally received more units of blood (11.6 vs. 8.1),

after accounting for factors such as age, race, and coexisting medical conditions. Patients who received transfused blood were nearly three times more likely to develop an infection than patients who did not (14.6 vs. 4.9 percent).

The prevalence of infection increased with the number of units received during hospitalization from 13.6 percent for 1 to 4 U and 25.3 percent for 5 to 49 U

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Coronary bypass graft surgery

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to 30.8 percent for 50 to 99 U and 33.3 percent for 100 U or more. The risk of mortality attributable to female sex was 13.9 percent, but was no longer significant when adjusted for blood transfusion. Also, patients who received a transfusion were 5.6 times more likely to die within 100 days after surgery than those who did not receive a transfusion.

The risks of transmission of various infectious agents from allogeneic transfusion (from another individual with compatible blood type) are generally low. However, the presence of foreign leukocytes in donor blood may suppress the immune system of the recipient. Patients who have received nonleukoreduced blood are at increased risk of postoperative infections

and multiorgan failure, explain the Michigan researchers. They note that the United States has not adopted a universal leukoreduction policy and that by 2003, an estimated 70 percent of the nation's blood supply was leukoreduced. However, their findings were based on analysis of Medicare files of 9,218 Michigan patients hospitalized for CABG surgery from July 1, 1997 through September 22, 1998. The study was supported in part by the Agency for Healthcare Research and Quality (HS11540).

More details are in "Allogeneic blood transfusions explain increased mortality in women after coronary artery bypass graft surgery," by Mary A.M. Rogers, Ph.D., M.S., Neil Blumberg, M.D., Sanjay K. Saint, M.D., M.P.H., and others in the December 2006 *American Heart Journal* 152, pp. 1028–1034. ■

Elderly/Long-Term Care

A fall management program in nursing homes improves care and reduces use of physical restraints

About half of the 1.6 million nursing home (NH) residents in the United States fall each year, and 30 to 40 percent of them fall 2 or more times. These falls can result in painful and costly injuries, fear of falling, less participation in activities, and lower quality of life. Implementing a fall management program (FMP) can keep fall rates stable and substantially decrease restraint use among nursing home residents, according to a new study. Emory University researcher Kimberly Rask, M.D., Ph.D., and colleagues examined nursing homes in Georgia that were owned and operated by a single nonprofit organization.

A convenience sample of 19 nursing homes implemented the FMP. The FMP falls assessment targets five common risk factors:

medications (for example, use of antianxiety drugs or hypnotics), gait and mobility problems, vision problems, orthostatic hypotension (very low blood pressure that can cause dizziness), and unsafe behavior. The assessment leads to a fall intervention plan to minimize the risk of falling. A flow chart guides staff through the process, from entering a resident into the FMP through followup assessments.

The researchers examined documentation of 24 process of care items related to fall prevention. Successful implementation of the FMP was associated with improvements in the documentation of recommended care processes for fall prevention. Restraint use decreased 44 percent from 7.9 to 4.4 percent in the FMP NHs, but

only 30 percent from 7 to 4.9 percent in the non-FMP NHs during the study period. Fall rates remained stable in the FMP NHs during the study period (from 17.3 to 16.4 falls/100 residents per month). However, fall rates increased 26 percent in the NHs not implementing the FMP (from 15 to 18.9 falls/100 residents per month). The study was supported in part by the Agency for Healthcare Research and Quality (Contract No. 290-00-0011).

See "Implementation and evaluation of a nursing home fall management program," by Dr. Rask, Patricia A. Parmelee, Ph.D., Jo A. Taylor, R.N., M.P.H., and others in the March 2007 *Journal of the American Geriatrics Society* 55, pp. 342–349. ■

Chronic Disease

Better outpatient care processes can improve the quality of life for patients with chronic disease

When clinicians use appropriate processes of care, they can improve the quality of life of managed care outpatients suffering from chronic disease, according to a new study. For example, regular foot and eye inspections for patients with diabetes, regular lung exams for patients with asthma, and use of beta-blockers for those who have suffered a heart attack are all important processes of care that can improve patient quality of life. Researchers found that applying the best quartile of process of care to patients who were not receiving recommended diagnostic, monitoring, and treatment (worst quartile of process of care) was associated with a 4.24 increase in physical functioning scores.

This improvement was comparable to eradicating 3 years of aging and underscores the importance of efforts to improve the process of care, notes Diana M. Tisnado, Ph.D., of the University of California, Los Angeles. Dr. Tisnado and fellow researchers examined patient self-reports and medical records of 963 patients with at least 1 of the following chronic health

problems: ischemic heart disease, asthma and/or emphysema, or diabetes. The patients were enrolled in managed care plans from three West Coast States.

The researchers correlated receipt of 120 generic and disease-specific processes of care with patient changes in health-related quality of life scores across 30 months as measured by changes in the SF-12 physical component scores. After adjusting for patients' burden of illness, the researchers found an improvement of 4.24 points in the SF-12 physical component scores from 1996 to 1998 as process of care changed from the worst quartile to the best quartile of care process scores. The study was supported in part by the Agency for Healthcare Research and Quality (HS00046).

See "Does ambulatory process of care predict health-related quality of life outcomes for patients with chronic disease?" by Katherine L. Kahn, M.D., Dr. Tisnado, John L. Adams, Ph.D., and others, in the February 2007 *HSR: Health Services Research* 42(1), pp. 63–83. ■

Outcomes/Effectiveness Research

Prophylactic antibiotics given to prevent surgical site infections are more timely if given in the operating room

Patients who suffer from surgical site infections (SSIs) have twice the mortality, are 60 percent more likely to spend time in an intensive care unit, and are five times more likely to be readmitted to the hospital than patients without SSIs. From 40 to 60 percent of SSIs are estimated to be preventable with proper administration of prophylactic antibiotics (PA). However, the practice of giving patients PA on the inpatient ward before operations is not as timely as PA given in the operating room.

Among patients undergoing major surgical procedures at 108

Veterans Affairs hospitals in 2005, timely PA occurred in 76.2 percent of patients. However, 18.2 percent of patients received antibiotics too early, and 5.4 percent received them too late.

Timely PA is administration of PA within 60 minutes before incision (120 minutes for vancomycin and fluoroquinolone antibiotics due to longer infusion times). PA administration occurred in the operating room for 63.5 percent of patients. When patients received PA in the operating room, they were timely in 89 percent of patients compared with 54 percent

of patients who received PA outside the operating room.

The researchers examined PA administration to patients undergoing cardiac, hip and knee arthroplasty, colon, arterial vascular, and hysterectomy procedures. They observed differences in PA timeliness, which varied by procedure type (from 68 to 87 percent), admission status (67 to 80 percent), and antibiotic class (65 to 89 percent). For example, patients who received vancomycin as the PA were more likely to receive timely antibiotics than those who received another

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Prophylactic antibiotics

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antibiotic (88.8 vs. 72.8 percent), perhaps because of the 2-hour infusion window for vancomycin. Also, more same-day operation patients had timely PA

administration compared with patients admitted before the operation (80.4 vs. 66.9 percent). The study was supported by the Agency for Healthcare Research and Quality (HS13852).

See “Timely administration of prophylactic antibiotics for major

surgical procedures,” by Mary T. Hawn, M.D., M.P.H., F.A.C.S., Stephen H. Gray, M.D., Catherine C. Vick, M.S., and others, in the December 2006 *Journal of the American College of Surgeons* 203, pp. 803–811. ■

Patients find it difficult to adhere to warfarin therapy even when monitored at anticoagulation clinics

Patients find it difficult to always take the anticoagulant warfarin as directed, which can have potentially dire consequences, according to a new study. Patients who missed 1 to 2 doses a week doubled the likelihood that their blood would not be thinned enough to prevent potentially life-threatening clots from forming. Patients taking warfarin must have regular blood tests to make sure that their International Normalized Ratio (INR) is in the target range of 2.0 to 3.0. This range means that the blood is not too thin to cause internal bleeding, but not too thick to form dangerous blood clots.

Ideally, these patients are monitored in specialized anticoagulation clinics, which emphasize the importance of strictly following the warfarin regimen, note researchers at the University of Pennsylvania School of Medicine. They used an electronic bottle cap to monitor when patients took their warfarin for an average of 32 weeks among 136 adults, who visited one of three specialized anticoagulation clinics to initiate warfarin therapy. Overall, 92 percent of the time, patients missed at least one or took one extra dose of warfarin; 36 percent of the time, they missed more than 20 percent of their doses; and 4 percent of the time, they took extra doses.

After accounting for several other factors affecting blood coagulation (for example, vitamin K intake, alcohol consumption, and weight change), there was a significant association between underadherence and inadequate blood thinning (underanticoagulation). For each 10 percent increase in missed pill bottle openings, there was a 14 percent increase in the odds of underanticoagulation. Participants with more than 20 percent missed bottle openings (1 to 2 missed days each week) had more than a two-fold increased odds of underanticoagulation. Adults who had extra pill bottle openings on more than 10 percent of days had a 73 percent significant increase in overanticoagulation (overly thinned blood that can lead to internal bleeding). These findings were based on regular INR monitoring and questionnaire responses during clinic visits. The study was supported in part by the Agency for Healthcare Research and Quality (HS11530).

See “The influence of patient adherence on anticoagulation control with warfarin,” by Stephen E. Kimmel, M.D., M.S.C.E., Zhen Chen, Ph.D., Maureen Price, R.N., and others, in the February 12, 2007 *Archives of Internal Medicine* 167, pp. 229-235. ■

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Access to Care

Multidisciplinary programs increase patient access to comprehensive melanoma care

Providers for any given melanoma patient may include dermatologists, medical oncologists, radiation oncologists, primary care doctors, and a variety of surgeons. Providers affiliated with multidisciplinary melanoma programs seem better positioned to facilitate patient access to comprehensive melanoma care than providers who do not have such affiliations, concludes a new study. Researchers found, for example, that solo practitioners were less likely to perform lymph node biopsy and excision and were less likely to have access to clinical trials than other providers.

However, coordination of care varied, note Karyn B. Stitzenberg, M.D., M.P.H., and University of North Carolina coinvestigators.

They surveyed North Carolina dermatologists and surgeons. Of the survey respondents,

dermatologists were significantly less likely to be affiliated with a hospital-based cancer center or community clinical oncology program than surgeons (14 vs. 57 percent and 4 vs. 16 percent). Dermatologists varied from seeing 0 to 150 melanoma patients per year (median of 12), and surgeons saw from 0 to 1200 patients per year. High-volume dermatologists and surgeons saw 20 or more melanoma patients per year.

Although 75 percent of dermatologists said they or a partner performed the definitive primary tumor excision, 48 percent frequently referred patients to surgeons, depending on depth and location of the tumor. Seventy percent of surgeons performed lymphatic mapping and sentinel lymphadenectomy (LM/SL) and 32 percent referred patients to other surgeons for the procedure.

Dermatologists ranged in their referral of patients with thick tumors for nodal staging, with 86 percent referring 90 to 100 percent of these patients and 1 percent referring less than 10 percent of these patients. Dermatologists and surgeons usually referred patients to a medical oncologist for interferon alpha 2 b, if necessary. Most providers had access to consultants within 1 hour of their own practice for LM/SL and for medical oncology services. The study was supported by the Agency for Healthcare Research and Quality (HS00032).

See "Influence of provider and practice characteristics on melanoma care," by Dr. Stitzenberg, Nancy E. Thomas, M.D., Ph.D., and David W. Ollila, M.D., in the *American Journal of Surgery* 193, pp. 206–212, 2007. ■

Certain medical education programs may reinforce physicians' goals to practice in disadvantaged communities

One in five Americans lives in an area with a shortage of physicians. These disadvantaged, usually impoverished, areas are often not attractive to new physicians. However, medical education programs that select candidates for their commitment to caring for the underserved may reinforce physicians' goals to practice in disadvantaged communities, concludes a new study. Researchers found that twice as many graduates of the University of California Los Angeles (UCLA) School of Medicine/Drew Medical Education Program from 1985 to 1995 were working in medically disadvantaged areas 10 years later than graduates the UCLA School of Medicine alone (53 vs. 26 percent).

The UCLA/Drew Medical Education Program was developed to train physicians and allied health professionals to provide excellent and compassionate

care, especially for underserved populations.

Applicants are selected each year for their commitment to this mission. The researchers defined a medically disadvantaged area (MDA) as either a federally designated primary care health professional shortage area; or medically underserved area; rural area; high minority area; or high poverty area.

Of a total of 1,071 medical school graduates studied, 88 percent graduated from the UCLA School of Medicine and 12 percent from the UCLA/Drew program. Twenty-three percent were minorities and 44 percent were practicing in a primary care specialty. Overall, 29 percent of active graduates were located in one of the types of MDAs. Over 50 percent of UCLA/Drew graduates were located in MDAs in

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Disadvantaged communities

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contrast to 26 percent of UCLA graduates, a result consistent across all types of disadvantaged areas, with the exception of rural areas. After controlling for educational and other factors, the only factor associated with practice in an MDA was the UCLA/Drew program. Part of the program's success may be due to an admissions process that emphasizes the applicant's commitment to serve and clinical

experiences in the target community. The study was supported in part by the Agency for Healthcare Research and Quality (HS14022 and HS00046).

More details are in "The role of medical education in reducing health care disparities: The first ten years of the UCLA/Drew medical education program," by Michelle Ko, M.D., Kevin C. Heslin, Ph.D., Ronald A. Edelstein, Ed.D., and Kevin Grumbach, M.D., in the May 2007 *Journal of General Internal Medicine* 22(5), pp. 625–631. ■

Acute Care/Hospitalization

Risk factors can help predict which patients with hospital-acquired urinary tract infections will develop blood infections

Urinary tract infection (UTI) is the most frequent type of hospital-acquired (nosocomial) infection in the United States, and is usually related to use of urinary catheters. Some patients who develop UTIs eventually develop blood infections (bacteremia), and 1 in 10 of these patients die within a week. A new study reveals several factors that place patients with UTIs at risk of developing bacteremia. Patients who had undergone immuno-suppressant therapy within 14 days of developing the UTI were over 8 times as likely to develop a blood infection. Men and patients with a history of cancer were nearly twice as likely to develop a blood infection.

In addition, patients who had smoked cigarettes in the past 5 years were 26 percent more likely,

but those who had used antibiotics within 3 days of developing a UTI were 24 percent less likely to develop a blood infection. Finally, among patients who were younger than 70 years, those who had used corticosteroids within 7 days of a UTI (which may lower resistance to infection) were over 14 times more likely and those who had diabetes (which increases susceptibility to infection) were over 6 times more likely to develop a blood infection.

Knowing these risk factors could help clinicians target high-risk individuals for specific interventions to decrease their risk of blood infections from UTIs, notes Sanjay Saint, M.D., M.P.H., of the University of Michigan. Dr. Saint and colleagues examined 95 case patients and 142 control patients with UTIs, who were hospitalized within a Veterans

Affairs health care system between 1984 and 1999. The case patients had a urine culture and a blood culture that grew the same bacterium within 48 or more hours after hospital admission, and the control patients did not have a positive blood culture (no bacteremia). The study was supported in part by the Agency for Healthcare Research and Quality (HS11540).

See "Risk factors for nosocomial urinary tract-related bacteremia: A case-control study," by Dr. Saint, Samuel R. Kaufman, M.A., Mary A.M. Rogers, Ph.D., and others, in the September 2006 *American Journal of Infection Control* 34(7), pp. 401–407. ■

Agency News and Notes

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

New *State Snapshots* released today by the Agency for Healthcare Research and Quality (AHRQ) show that States have made promising gains in health care quality while identifying needed improvements in areas ranging from cancer screening to treatments of heart attack patients. AHRQ's *State Snapshots Web tool* was launched in 2005. It is an application that helps State health leaders, researchers, consumers, and others understand the status of health care quality in individual States, including each State's strengths and weaknesses.

The 51 *State Snapshots* – every State plus Washington, D.C. – are based on 129 quality measures, each of which evaluates a different segment of health care performance. While the measures are the products of complex statistical formulas, they are expressed on the Web site as simple, five-color “performance meter” illustrations.

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

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

The *State Snapshots* provide summaries that measure health care quality in three different contexts: by types of care (such as preventive, acute, or chronic

care), by settings of care (such as nursing homes or hospitals), and care by clinical area (such as care for patients with cancer or respiratory diseases). After selecting a State on a national map, users may view whether that State has improved or worsened compared to other States in a particular area of health care delivery. The 129 measures range from preventing bed sores to screening for diabetes-related foot problems to providing antibiotics quickly to hospitalized pneumonia patients. The *State Snapshots* also allow users to compare a State's performance against other States in the same region, plus how a State compares against “best performing States.”

The *State Snapshots* Web site also offers these options for data searches:

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

AHRQ's annual *State Snapshots* is based on data drawn from more than 30 sources, including government surveys, health care facilities, and health care organizations. To access this year's *State Snapshots* tool, go to <http://statesnapshots.ahrq.gov/>.

Editor's note: The release of this year's *State Snapshots* is complemented by the launch of NHQRnet and NHDRnet, a pair of new, interactive Web-based tools for searching AHRQ's storehouse of national health care data. These online search engines allow users to create spreadsheets and customize searches of information in the 2006 *National Healthcare Quality Report* and the 2006 *National Healthcare Disparities Report*. To access AHRQ's new NHQRnet, go to <http://nhqrnet.ahrq.gov>. For NHDRnet, go to <http://nhdrnet.ahrq.gov>. ■

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

With rising interest in information about the quality of care delivered by health care providers, the Agency for Healthcare Research and Quality (AHRQ) has developed a new Web tool demonstrating a variety of approaches for health quality report cards. The new *Health Care Report Card Compendium* is a searchable directory of over 200 samples of report cards produced by a variety of organizations. The samples show formats and approaches for providing comparative information on the quality of health plans, hospitals, medical groups, individual physicians, nursing homes, and other providers of care. The Health Care Report Card Compendium can be found at www.talkingquality.gov/compendium/.

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

Public reporting regarding the performance of health care providers and plans is expanding as standards for measuring quality grow, and reports of the quality of health care providers and services are increasingly being made available to consumers. Public reporting about quality of care is also a central feature of Secretary Leavitt's *Value-Driven Health*

Care Initiative. Last August, President Bush committed Federal health programs to make quality information available to all enrollees. Under Secretary Leavitt's initiative, other private and public employers are likewise committing to quality reporting for enrollees in their health plans, as well as to public reporting on the costs of care. More information about Secretary Leavitt's *Initiative on Value-Driven Health Care* is available at www.hhs.gov/transparency.

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

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

New resource offers suggestions for improving the safety in health care environments

The Agency for Healthcare Research and Quality (AHRQ) recently released a new resource of mistake-proofing tools, examples, and practical applications to help providers improve the delivery of care within their settings. The resource is titled *Mistake-Proofing the Design of Health Care Processes*.

Tips for simple and inexpensive mistake proofing, leveraging the benefit of root causes analysis, and creative methods for using non-medical products in health care

environments are highlighted. Specific examples include:

- Marking floors to delineate quiet zones that reduce interruptions to nurses that could result in medication errors.
- Using a pen, microchip, and wristband to minimize the chances of wrong-site surgery.
- Attaching chemical light sticks to intravenous tubes for fluid identification.

Written by AHRQ researcher John Grout, Ph.D., newly appointed dean of Berry College's Campbell School of Business, this resource is a helpful reference point for those responsible for delivering care and for those who instruct or coach others that deliver care. *Mistake-Proofing the Design of Health Care Processes* includes 150 examples, most with photographs, and is now available online at www.ahrq.gov/qual/mistakeproof.

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Mistake-proofing

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In addition, AHRQ's Healthcare 411 audio podcast features comments on mistake-proofing in health care from Dr. Grout at

<http://healthcare411.ahrq.gov/>. You can listen to the audio program directly through your computer if it has a sound card and speakers and can play MP3 audio files, or you can download it to a portable audio

device. In any case, you will be able to listen at your convenience.

Limited copies of the print version (AHRQ publication no. 07-0020) or CD-ROM (AHRQ publication no. 07-0020-CD) are available from AHRQ.* ■

Rate of childbirth-related hospital stays decreases for girls under age 18

The rate of teenage and younger girls giving birth in U.S. hospitals dropped by a quarter between 1997 and 2004—from 55 to 41 admissions per 100,000 girls under age 18—a 25 percent decrease, according to a new report by the Agency for Healthcare Research and Quality. Despite the decline, the United States continues to have the highest teen pregnancy and birth rates in the industrialized world. Of the 4 million childbirth-related hospitalizations that occurred in 2004, about 148,400 were for girls under 18 years of age, resulting in nearly \$465 million in

aggregate hospital costs. Medicaid was billed for nearly three of every four teen childbirths—with total costs of about \$348 million. Private insurers got the bill for 21 percent; 2 percent went to other payers, such as Tricare; and in 3 percent of the cases, the girls had no health insurance.

For more information, see *Childbirth-Related Hospitalizations among Adolescent Girls, 2004*, HCUP Statistical Brief #31 at www.hcup-us.ahrq.gov/reports/statbriefs.jsp. ■

Announcements

Agency for Healthcare Research and Quality (AHRQ) 2007 Annual Meeting

AHRQ patient safety researchers and other stakeholders are invited to attend the AHRQ 2007 Annual Meeting to be held September 26–28 at the Bethesda North Marriott Hotel and Conference Center, 5701 Marinelli Road, Bethesda, Maryland 20852.

The agenda for the 2007 meeting will include a welcome plenary address by Carolyn M. Clancy, MD, Director of AHRQ, and concurrent sessions on a variety of topics related to improving the quality and safety of health care in the United States with an emphasis on implementing research findings into practice and policy. Patient safety programming is scheduled throughout the three days of the meeting. Participants will have the opportunity to attend patient safety-focused sessions on such topics as:

- Patient Safety Reporting Tools
- Implementing Medication Safety Tools and Medication Reconciliation
- Patient Safety Culture Assessment and Improvement
- Safety and Quality by Design

- Team Training and Simulation
- Human Factors
- Redesigning Work Processes to Improve Patient Safety and Quality
- High Reliability Organizations
- Working Conditions, Organizational Culture, and Health Care Quality
- Patient Perspectives on Quality of Care

A variety of sessions also will be offered on the use of health information technology, including such topics as e-prescribing and clinical decision support systems, health information exchange, and privacy and security. Friday, September 28, will include sessions on driving health care improvement through value-driven health care. Finally, AHRQ's 2007 Annual Meeting will include an Innovations Café with posters and tabletop presentations on September 27 and 28.

For additional information on the meeting agenda, lodging, and how to register, visit: <http://www.blsmeetings.net/2007ahrqannual/>. ■

AHRQ awards grants for health services research dissertation (R36)

The Agency for Healthcare Research and Quality (AHRQ) supports dissertation research undertaken as part of an academic program to earn a research doctoral degree. Through this program, AHRQ seeks to expand the number of researchers who address its mission “to improve the quality, safety, efficiency and effectiveness of health care for all Americans.” Recently, the Agency for Healthcare Research and Quality awarded the following dissertation grants to individuals from universities throughout the country:

Emily Shelton
R36HS16939-01
University of Michigan, Ann Arbor
Payment Systems, Market Factors and Long Term
Care Hospitals
Advisor: Richard Hirth, Ph.D

Susan Newman
R36-HS 16941-01
Medical University of South Carolina (T32 trainee)
Community Integration after Spinal Cord Injury:
using Photovoice to identify barriers and facilitators
Advisor: Carolyn M. Jenkins, Dr.PH, APRN-BC-
ADM, CDE, FAAN

Jeanette Ziegenfuss (Amended)
R36HS16565-01A1
University of Minnesota
Encouraging eligible children’s participation in
public health insurance: the role of national
awareness campaigns
Advisor: Lynn A. Blewett, Ph.D. ■

Research Briefs

Albrecht, S.J., Fishman, N.O., Kitchen, J., and others. (2006, June). “Reemergence of gram-negative health care-associated bloodstream infections.” (AHRQ grant HS10399). *Archives of Internal Medicine* 166, pp. 1289–1294.

Gram-positive organisms have been the predominant cause of primary health care-associated bloodstream infections (PHA-BSIs) since the 1970s. Recently, gram-negative organisms have reemerged as a cause of PHA-BSIs.

Researchers identified all PHA-BSIs among adults hospitalized at the University of Pennsylvania hospital from 1996 through 2003. They calculated the annual proportion of PHA-BSIs accounted for by each of the 10 most common bacterial and fungal organisms, and the following specific organisms or organism groups: *Staphylococcus aureus*, coagulase-negative staphylococci (CNS), enterococci, gram-negative organisms, and

Candida species. They identified a total of 3,662 PHA-BSIs caused by 4,349 bacterial and fungal isolates. From 1999 to 2003, the proportion of PHA-BSIs due to gram-negative organisms (mostly *Klebsiella pneumoniae*, *E. coli*, *Pseudomonas aeruginosa*, and *Enterobacter cloacae*) increased from 16 to 24 percent. This increase was accompanied by a decline in the proportion of PHA-BSIs from CNS (from 33.5 to 29.9 percent) and *S. aureus* (from 18.8 to 11.8 percent).

Apter, A.J., Kinman, J.L., Bilker, W.B., and others. (2006, April). “Is there cross-reactivity between penicillins and cephalosporins?” (AHRQ grant HS10399). *American Journal of Medicine* 119(4), pp. 354–363.

The risk of anaphylaxis, a severe allergic reaction that can lead to shock, is low for patients with penicillin allergy who take cephalosporins. Researchers retrospectively studied

the United Kingdom General Practice Research Database to identify patients who received a prescription for a penicillin followed by a prescription for a cephalosporin and compared this group with patients who received a prescription for penicillin followed by a prescription for a sulfonamide antibiotic, which can also cause allergic reactions in those who are allergic to penicillin. A total of 3,375 patients received a penicillin. The 15 percent of these patients who received a subsequent cephalosporin had 10 times the risk of developing an allergic reaction compared with those who had no prior allergic reaction to penicillin, unadjusted for other factors. However, cross-reactivity was not an adequate explanation for the increased risk of subsequent allergic reactions, and the absolute risk of anaphylaxis after a cephalosporin was less than 0.0001 percent. The unadjusted risk of an

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allergic reaction to a subsequent sulfonamide antibiotic after a prior allergic reaction to penicillin was 7.2 times that of those with no prior allergic reaction to penicillin.

Baker, D.W., Feinglass, J., Durazo-Arvizu, R., and others. (2006, November). "Changes in health for the uninsured after reaching age-eligibility for Medicare." (AHRQ grant HS10283). *Journal of General Internal Medicine* 21, pp. 1144–1149.

Researchers analyzed data on 3,419 middle-aged people who transitioned from private insurance or being uninsured to having Medicare coverage at the 1996, 1998, 2000, or 2002 interviews of the Health and Retirement Study. Those who were uninsured during the 2 years prior to gaining Medicare insurance were more likely than those who had been privately insured to have a decline in their self-reported overall health (17 vs. 9 percent), to have their mobility worsen (29 vs. 20 percent), and to develop new agility difficulties (36 vs. 27.5 percent) during that period. The health of the previously uninsured, who had been on Medicare for less than 1 or 2 years at the time of their followup interview, was not significantly different from that prior to Medicare coverage. However, 2 years after obtaining Medicare coverage, this group no longer had a greater risk of deteriorating health compared with their previously insured counterparts. These findings underscore the importance of expanding insurance to those in late middle age, especially those with diabetes, hypertension, and heart disease, suggest the researchers.

Bolcic-Jankovic, D., Clarridge, B.R., Fowler Jr., F.J., and Weissman, J.S. (2007, January). "Do characteristics of HIPAA consent forms affect the response rate?" (AHRQ grant HS11928). *Medical Care* 45(1), pp. 100–103.

Researchers are required to obtain written authorization from patients to gain access to protected health information. However, what the forms ask may affect the likelihood of patient consent, according to this study. Forms requesting patients' permission for access to their medical records and other personal health information should be clear about the institution from which they come, easy to understand, and should not ask for social security number or other highly sensitive information unrelated to health care, suggest the study authors. They surveyed previously hospitalized patients from 16 Massachusetts hospitals, who were asked to provide authorization for review of their medical records and were sent a copy of the hospital's form to sign and return. Only half the patients returned signed forms. The likelihood of return was significantly affected by the requirement of the social security number and the clarity of the hospital name.

Clancy, C.M. (2007, February). "Emergency departments in crisis: Opportunities for research." *HSR: Health Services Research* 42(1), pp. xiii–xx.

In this paper, the Director of the Agency for Healthcare Research and Quality (AHRQ) notes that U.S. emergency departments (EDs) are in crisis. They can barely handle the current everyday demand for their services, let alone respond to public health disasters such as Hurricane Katrina. She describes some AHRQ research in this area, such as the

Center for Safety in Emergency Care. This consortium addressed the cognitive psychology of human behavior and error, clinical epidemiology of adverse events, use of technology to improve performance and reduce errors, and the application of human factors engineering to improve safety.

AHRQ also supports the State Emergency Department Databases (which researchers can use to identify trends and develop strategies to enhance emergency care services), projects to improve ED patient flow and monitor crowding, and information technology to improve the safety and quality of ED care. Reprints (AHRQ publication no. 07-R041) are available from AHRQ.*

Culler, S.D., Atherly, A., Walczak, S., and others. (2006, Summer). "Urban-rural differences in the availability of hospital information technology applications: A survey of Georgia hospitals." (AHRQ grant HS11918). *Journal of Rural Health* 22(3), pp. 242–247.

A survey of Georgia community hospitals suggests that rural hospitals have not incorporated health information technology (HIT) to the extent that urban hospitals have, especially in certain clinical areas. On average, Georgia hospitals had 59 percent of 97 functional HIT applications and technological devices available. More than 40 percent of rural hospitals and 47 percent of urban hospitals had over 70 percent of all HIT applications available. However, over 40 percent of rural hospitals reported less than 50 percent of HIT applications available compared with only 16 percent of urban hospitals. Also, 26 percent of rural hospitals had adopted less than 30 percent of the HIT applications.

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Urban hospitals had significantly more HIT applications available than rural hospitals in 4 areas: emergency room services (7 of 10), surgical/operating room (8 of 12), laboratory (7 of 12), and radiology (5 of 11). Some of these urban-rural differences may be due to the narrow scope of laboratory, radiology, emergency room, and surgery services provided by rural hospitals.

de Pablo, P., Losina, E., Mahomed, N., and others. (2006, June). "Extent of followup care after elective total hip replacement." (AHRQ grant HS09775). *Journal of Rheumatology* 33, pp. 1159–1166.

Researchers found that less than half of elderly adults who underwent total hip replacement (THR) had consistent radiographic followup. The researchers analyzed Medicare claims data to identify a group of 622 elderly patients in 3 States (Ohio, Pennsylvania, and Colorado), who received elective primary THR in 1995. They surveyed the patients 3 and 6 years after the surgery. Overall, 15 percent of patients had no followup radiographs, 43 percent had early followup only, and 42 percent had consistent followup radiographs over 6 years. After accounting for other factors, older patients were 24 percent less likely to have radiographic followup than younger patients per each 5-year increase in age. Patients with no college education were 42 percent less likely to have radiographic followup than those with more education, and those with lower income were 50 percent less likely to have followup than those with a higher income.

Dunn, S.L., Corser, W., Stommel, M., and Holmes-Rovner, M.

(2006). "Hopelessness and depression in the early recovery period after hospitalization for acute coronary syndrome." (AHRQ grants HS10531 and HS09514). *Journal of Cardiopulmonary Rehabilitation* 26, pp. 152–159.

Researchers found that a considerable number of people suffer from hopelessness and depression during the early recovery period after hospitalization for acute coronary syndrome (ACS). They administered a depression and hopelessness scale to 525 post-ACS patients at 5 hospitals in Michigan and found that 36 percent of the post-ACS patients studied suffered frequent and moderate to severe depression symptoms. Another 27 percent suffered from frequent and moderate to severe symptoms of hopelessness.

Some patient characteristics were more predictive of depression, while others were more predictive of hopelessness. For example, women were more likely to become depressed, but not more hopeless than men, and people with less education were more likely to feel hopeless than their more educated counterparts. Having had coronary artery bypass graft or coronary angioplasty was also predictive of hopelessness.

Fiscella, K., Holt, K., Meldrum, S., and Franks, P. (2006, September) "Disparities in preventive procedures: Comparisons of self-report and Medicare claims data." (AHRQ grant HS13173). *BMC Health Services Research* 6(122), available at www.biomedcentral.com.

Researchers found that with the exception of prostate specific antigen (PSA) testing for prostate cancer, racial/ethnic disparities in use of preventive procedures were generally larger when using Medicare claims data than when

using elderly patients' self-report. They analyzed self-report and matching claims data from elderly Medicare beneficiaries who participated in the Medicare Current Beneficiary Survey, 1999–2002. Six preventive procedures were included: PSA testing, influenza vaccination, Pap smear testing, cholesterol testing, mammography, and colorectal cancer testing.

Minorities were more likely than whites to self-report preventive procedures in the absence of billing claims, after adjusting for several sociodemographic factors. For Pap testing, some were up to twice as likely to report Pap smear testing in the absence of claims. Self-report differences in receipt of preventive care procedures by minority status (majority vs. minority) ranged from -2.4 percent for cholesterol testing to 17.9 percent for influenza vaccination. In contrast, differences based on claims data ranged from 5.1 percent for cholesterol testing to 19.9 percent for influenza vaccination.

Grant, R.W., Wald, J.S., Poon, E.G., and others. (2006, October). "Design and implementation of a Web-based patient portal linked to an ambulatory care electronic health record: Patient gateway for diabetes collaborative care." (AHRQ grant HS13660). *Diabetes Technology & Therapeutics* 8(5), pp. 576–586.

This paper describes the conceptual framework, design, implementation, and analysis plan for a Web-based diabetes patient portal linked directly to the electronic health record (EHR) of a medical center via secure Internet access. The Web portal, called Patient Gateway, allows patients to interact directly with their EHR. The portal maximizes patient

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engagement by importing the patients' current clinical data in an educational format, providing patient-tailored decision support, and enabling the patient to author a diabetes care plan. The study authors are assessing the impact of this advanced informatics tool for collaborative diabetes care in a study involving 14 primary care practices.

Gresenz, C.R., Rogowski, J., and Escarce, J.J. (2007, February). "Health care markets, the safety net, and utilization of care among the uninsured." (AHRQ grant HS10770). *HSR: Health Services Research* 42(1), pp. 239–264.

Facilitating transport to safety net providers and increasing the number of such providers are likely to increase use of care among the rural uninsured. Use of care could also be improved among uninsured persons living in areas with substantial managed care presence, especially where managed care competition is limited, concludes this study. The researchers analyzed data from 1996 to 2000 of the Medical Expenditure Panel Survey and other sources to analyze medical expenditures among uninsured adults living in urban and rural areas. Distances rural uninsured persons had to travel to safety net providers were significantly associated with care use. In urban areas, higher percentages of uninsured individuals in the area, pervasiveness and competitiveness of managed care, limited primary care physician supply, and limited safety net capacity were significantly related to less health care use.

Harrold, L.R., Saag, K.G., Yood, R.A., and others. (2007,

February). "Validity of gout diagnoses in administrative data." (AHRQ grants HS10391 and HS10389). *Arthritis & Rheumatism* 57(1), pp. 103–108.

Use of administrative data alone in epidemiologic and health services research on gout may lead to misclassification of patient diagnosis. Medical record reviews for validation of claims data may provide an inadequate gold standard to confirm gout diagnoses, according to this study. The researchers identified patients from four managed care plans who had at least two ambulatory claims for a diagnosis of gout between 1999 through 2003. Trained medical record reviewers and two rheumatologists reviewed the medical records of a random sample of 200 patients. Based on record reviews, patients were also classified according to standard gout criteria. There was low agreement between physician assessments and established gout criteria.

Hartz, A., Kent, S., James, P., and others. (2006). "Factors that influence improvement for patients with poorly controlled type 2 diabetes." (AHRQ grant HS13581 and HS14410). *Diabetes Research and Clinical Practice* 74, pp. 227–232.

Improved blood-sugar control among people with poorly controlled type 2 diabetes depends largely on patient self-care behaviors, concludes this study. The researchers examined 69 patients with type 2 diabetes from 7 practices who had 2 glycosylated hemoglobin (HbA1c) levels of at least 8 percent in the past 6 months (uncontrolled blood sugar levels). After at least 1 year of follow-up, 26 patients became well controlled, 14 had intermediate control, and 29 remained in poor control. Achieving blood-sugar control was

positively associated with patients' understanding of diabetes, adherence to recommended meal plans, and glucose monitoring. It was not significantly associated with patient gender, age, duration of diabetes, body mass index, or HbA1c levels prior to baseline.

Hughes C.M. and Lapane, K.L. (2006, August). "Nurses' and nursing assistants' perceptions of patient safety culture in nursing homes." (AHRQ grant HS11835). *International Journal for Quality in Health Care* 18(4), pp. 281–286.

A survey of 367 nurses and 636 nursing assistants employed at 26 nursing homes in Ohio indicates that about 40 percent of nursing staff find it difficult to make changes to improve patient safety most or all of the time. Although 40 percent of nursing staff reported that management seriously considered staff suggestions to improve resident safety, only half of nurses reported management discussions with staff to prevent recurrence of mistakes. One in five reported feeling punished for reporting medical errors, and two in five noted that reporting errors was often seen as a "personal attack" against a staff member or management. U.S. nursing homes that do not meet the regulations may be subject to a number of penalties, the most severe being closure of the facility. Thus, staff may feel reluctant to report safety issues that may draw attention to individuals and to the nursing home. Despite these consequences, at least 60 percent of nursing assistants and 80 percent of nurses reported a safety problem at least once in the previous month. Yet, only two in five staffers reported that they were told what happens as a result of incident reports most or all of the time.

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Keenan, G., Yakel, E., and Marriott, D. (2006). "HANDS: A revitalized technology supported care planning method to improve nursing handoffs." (AHRQ grant HS15054). *Consumer-Centered Computer-Supported Care for Healthy People: IOS Press, 2006.*

Each day, nurses create and file care plans in medical records. However, current forms of care plans do little to either enhance the flow of clinical information or communicate shared patient goals. This paper introduces the theoretical model underpinning the HANDS care planning method. It also presents findings on the first year of a 3-year multisite study in which this method and a new health information technology application supporting the process were introduced. The HANDS model focuses on the handoff as a focal point for information transfer and reinforcing shared meaning and goals. Early findings show the method has the potential for revolutionizing nursing practice.

Malek, M.A., Curns, A.T., Holman, R.C., and others. (2006, June). "Diarrhea- and rotavirus-associated hospitalizations among children less than 5 years of age: United States, 1997 and 2000." *Pediatrics* 117(6), pp. 1887–1892.

Severe rotavirus disease is estimated to account for 4 to 5 percent of all hospitalizations and about 30 percent of hospitalizations for diarrhea among U.S. children under 5 years of age, according to a new study. A newly approved rotavirus vaccine, RotaTeq, should substantially reduce this burden. Claudia A. Steiner, M.D., of the Agency for Healthcare Research and Quality, and colleagues at the Centers for Disease Control and Prevention analyzed data from a national sample of pediatric

hospital discharges from the Kids' Inpatient Database. They estimated the number and rate of diarrhea- and rotavirus-associated hospitalizations among U.S. children under 5 years of age in 1997 and 2000.

They calculated that diarrhea was the cause of 13 percent of childhood hospitalizations in 1997 and 2000 by age 5. One-third (35 percent) of these diarrhea-related hospitalizations were coded as viral. Rotavirus was the most common pathogen recorded for 18 percent of diarrhea-associated hospitalizations in 1997 and 19 percent in 2000. The researchers estimated that rotavirus was associated with 4 to 5 percent of all childhood hospitalizations, and that 1 in 67 to 1 in 85 children will be hospitalized with rotavirus infection by 5 years of age. Reprints (AHRQ publication no. 07-R004) are available from AHRQ.*

McConnochie, K.M., Conners, G.P., Brayer, A.F., and others. (2006, July). "Differences in diagnosis and treatment using telemedicine versus in-person evaluation of acute illness." (AHRQ grant HS10753). *Ambulatory Pediatrics* 6(4), pp. 187–195.

Children seen by their usual physician for an acute problem at a medical center were randomly assigned to be seen either by an in-person study physician or a telemedicine study physician. An ear-nose-throat endoscope/camera and all-purpose digital camera captured tympanic membrane, eye, nose, throat, and skin images. An electronic stethoscope captured heart and lung sounds. The study telemedicine physician guided the telemedicine assistant in obtaining digital images and audio files, and eliciting information that required tactile sensation, such as palpable

attributes of a skin rash or presence of tender lymph nodes.

Telemedicine and in-person study physicians differed in diagnosis from usual physicians for 13.8 percent and 8.3 percent, respectively, of the 492 visits studied. The differences in rate of disagreement with usual physicians about prescriptions were similar (32.2 vs. 27.4 percent). However, telemedicine evaluation for children with upper respiratory tract infection (URI)-ear symptoms involved unique technical requirements and clinical judgments. Thus, for the 202 URI-ear visits, telemedicine physicians disagreed with usual physicians on diagnosis more than twice as often as the in-person study physicians (16.6 vs. 6.3 percent). However, for the remaining 290 visits, telemedicine and in-person study physicians disagreed with usual physicians on diagnosis about equally (11.5 vs. 9.9 percent).

McConnochie, K.M., Conners, G.P., Brayer, A.F., and others. (2006). "Effectiveness of telemedicine in replacing in-person evaluation of acute childhood illness in office settings." (AHRQ grant HS10753). *Telemedicine and e-Health* 12(3), pp. 308–316.

This study randomly assigned 253 children to in-person evaluation by study physicians and 239 children to evaluation by study physicians via telemedicine. Children were seen in a pediatric primary care practice or pediatric emergency department of a university-affiliated medical center. Using a base telemedicine model, telemedicine study physicians completed 74.1 percent of visits (that is, made a diagnosis) compared with 76.7 percent for in-person study physicians and 76 percent for usual physicians.

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The simple telemedicine model (use of simple office laboratory tests and albuterol administration) increased completion rates substantially. Using this model, telemedicine study physicians completed 84.9 percent of visits compared with 86.6 percent for in-person study physicians and 85.2 percent for usual physicians. Using the extended telemedicine model (use of a complete set of tests and procedures), study physicians completed 97.1 percent of visits compared with 96.8 percent for in-person study physicians and 100 percent for usual physicians.

Mold, J.W., Woolley, J.H., and Nagykaldi, Z. (September, 2006). "Associations between night sweats and other sleep disturbances: An OKPRN study." (AHRQ grant HS13557). *Annals of Family Medicine* 4(5), pp. 423–426.

Night sweats are more prevalent than previously thought, according to a recent study of adults seen at 10 network primary care offices. One-third (34 percent) of 363 patients interviewed reported night sweats. Symptoms such as daytime tiredness, legs jerking during sleep, and awakening with pain in the night were associated with nearly twice the likelihood of having night sweats. Snoring, snore frequency or loudness, having fallen asleep while driving in the past year, or body mass index were not associated with night sweats.

O'Malley, A.J., Landon, B.E., and Guadagnoli, E. (2007, February). "Analyzing multiple informant data from an evaluation of the health disparities collaboratives." (AHRQ grant HS13653). *HSR: Health Services Research* 42(1), pp. 146–164.

The authors of this study used multiple informant data to evaluate Health Disparities Collaboratives. They surveyed executive directors, medical directors, and providers from 65 community health centers (176 informants) who participated in an evaluation of the Health Disparities Collaboratives. Multiple informants' analysis of both Collaborative participation and quality improvement efforts found significant effects and differences between informants that traditional methods failed to find. Executive directors and medical providers were the most discrepant in their analyses. Different informants may have different insights or experiences. Thus, it is important that differences among informants be measured, and ultimately understood by health services researchers.

Phillips, R.L., Dovey, S.M., Graham, D., and others. (2006, September). "Learning from different lenses: Reports of medical errors in primary care by clinicians, staff, and patients." (AHRQ grant HS11584). *Journal of Patient Safety* 2(3), pp. 140–146.

A new study found that physicians, clinic staff, nurse practitioners (NPs), physician assistants (PAs), and resident physicians in family physician offices will all report medical errors, their consequences, and their potential remedies. The different perspectives provided by various staff of family medicine practices improve understanding of the factors contributing to errors, error cascades, the broader ways that errors affect people, and potential solutions, note the study authors. Clinicians, staff, and patients of 10 family medicine clinics reported errors they observed through anonymous reports submitted via a

Web site, paper forms, and a voice-activated phone system.

A total of 401 clinicians and staff reported 935 errors within 717 events. Staff completed 53 percent of reports, clinicians completed 47 percent of reports, resident physicians completed 6 percent, and NPs and PAs 3 percent. Patients submitted 126 reports, 18 of which included errors. Most (96 percent) errors reported were process errors, not related to knowledge or skill. Most of the health consequences of these errors placed the patient at elevated risk for harm (49 percent) or made the patients, their families, or their clinicians upset (33 percent).

Platt, R. (2007). "Speed bumps, potholes, and tollbooths on the road to panacea: Making best use of data." (AHRQ grant HS10391). *Health Affairs* 26(2), pp. w153–w155.

Electronic health databases promise to transform both the assessment of health care delivery and our understanding of treatments' safety and effectiveness, assert the authors of this paper. However, to achieve these goals, it will be necessary to recognize limits on inferring causality, protect confidentiality while allowing important societal gain, and link health data back to the individual patient. It will also be necessary to obtain additional information from medical records, understand ways in which electronic data can misrepresent reality, and create the infrastructure, expertise, and resources to use the data. However, realizing databases' potential will require long-term commitment and investment beyond the maintenance of the databases themselves.

Poon, E.G., Cina, J.L., Churchill, W., and others. (2006, September). "Medication

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dispensing errors and potential adverse drug events before and after implementing bar code technology in the pharmacy.” (AHRQ grant HS14053). *Annals of Internal Medicine* 145, pp. 426–434.

Implementing bar code technology can substantially decrease dispensing errors and potential harm to patients due to adverse drug events (ADEs). Researchers examined medication dispensing errors and potential ADEs before and after implementing bar code technology in the hospital pharmacy of an academic medical center. The bar code-assisting dispensing system was implemented in three configurations. In two configurations, all doses were scanned once during the dispensing process. In the third configuration, only one dose was scanned if several doses of the same medication were being dispensed.

In the pre- and post-bar code implementation periods, the researchers observed 115,164 and 253,984 dispensed medication doses, respectively. Overall, the rates of target potential ADEs (dispensing errors that often harm patients, such as wrong medication, wrong dose, or wrong formulation errors) and all potential ADEs decreased by 74 and 63 percent, respectively. The two configurations that required staff to scan all doses had a 93 to 96 percent relative reduction in incidence of target dispensing errors and 86 to 97 percent relative reduction in the incidence of potential ADEs. However, the configuration that did not require scanning of every dose had only a 60 percent relative reduction in target dispensing errors and a 2.4-fold increased incidence of target potential ADEs.

Poulose, B.K., Speroff, T., and Holzman, M.D. (2007, January). “Optimizing choledocholithiasis management: A cost-effectiveness analysis.” (AHRQ grant HS13833). *Archives of Surgery* 142, pp. 43–48.

Endoscopic retrograde cholangiopancreatography (ERCP, radiographic examination of the bile ducts and pancreas) is both less costly and more effective than laparoscopic common bile duct exploration (LCBDE) for gall stone management, concludes this study. Factors important to choosing the best strategy for gall stone (choledocholithiasis, CDL) management included the cost of a potential case lost due to LCBDE performance and cost of ERCP hospitalization, note the authors. They performed a cost-effectiveness analysis to compare ERCP with LCBDE using a decision model. The base case patient evaluated was a woman 18 years of age or older with symptomatic cholelithiasis (gall stones in the gallbladder or bile duct) and incidental CDL discovered at the time of intraoperative cholangiogram.

Rask, K., Hawley, J., Davis, A., and others. (2006, September). “Impact of a statewide reporting system on medication error reduction.” (AHRQ grant HS11918). *Journal of Patient Safety* 2(3), pp. 116–123.

A hospital patient safety program, established in Georgia in 2001, includes the Safe Medication Use (SMU) program, a voluntary annual self-improvement program in acute care hospitals. Researchers analyzed survey responses of hospitals in 2001, 2002, and 2003 about their program participation, evidence of reduced medication errors, and program effectiveness. More than 90 percent of eligible

hospitals in the State participated in the SMU program each year. Omitting a medication dose was the most common type of error cited by the hospitals. Human factors, frequent interruptions, and communications issues were cited as the most common contributors to medication errors. Most hospitals relied on incident reports to identify errors. However, a small but growing number of hospitals had begun using automated or computer-generated reports.

Most hospitals reduced their medication errors after 2001, with a mean error reduction of 28 percent in 2002 and 34 percent in 2003. Improvements were seen across all types of hospitals—urban, rural, large, small, or academic. Overall participation in the SMU program was the only significant predictor of reduction in medication errors.

Schootman, M., Fuortes, L., and Aft, R. (2006, September). “Prognosis of metachronous contralateral breast cancer according to stage at diagnosis: The importance of early detection.” (AHRQ grant HS14095). *Breast Cancer Research and Treatment* 99, pp. 91–95.

A new study reveals that early detection of primary cancer in a second breast following a first primary breast cancer (FPBC) also greatly affects survival. Researchers analyzed 1990–2000 data from the National Cancer Institute’s Surveillance, Epidemiology and End Results (SEER) Program. The researchers examined women at risk for developing metachronous contralateral breast cancer (MCBC), that is, those diagnosed with stage 0–III FPBC during 1990–2000. Among the 170,453 women who had been diagnosed

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with stage 0–III FPBC, 3,243 women developed a MCBC during the study period. Of the 2,904 women whose stage of MCBC was known, 329 died from breast cancer, 194 died from other causes, and 2,381 were still alive by December 2000, the end of the study period. The 70 percent of women diagnosed with stage 0–I MCBC had 81 percent better survival than women diagnosed with stage II–IV MCBC.

Sharek, P.J., Horbar, J.D., Mason, W., and others. (2006, October). “Adverse events in the neonatal intensive care unit: Development, testing, and findings of an NICU-focused trigger tool to identify harm in North American NICUs.” (AHRQ grants HS13698 and HS11583). *Pediatrics* 118(4), pp. 1332–1340.

Researchers tested a neonatal intensive care unit (NICU) trigger tool by reviewing 749 randomly selected patient charts from 15 NICUs. This revealed 2,218 triggers or 2.96 per patient, and 554 adverse events (AEs) or 0.74 per patient. Forty percent of the AEs were serious enough to warrant prolonged hospitalization, and 23 percent resulted in permanent harm, including death. The most common AEs identified were hospital-acquired infections (27.8 percent), catheter infiltrates (15.5 percent), and abnormal cranial imaging (10.5 percent). AE rates were higher for infants less than 28 weeks gestation and who weighed less than 3.3 lbs at birth. Over half (56 percent) of all AEs were deemed preventable; 16 percent could have been identified earlier, and 6 percent could have been mitigated more effectively. Only 8 percent of AEs were identified in existing hospital-based occurrence reports, and only 6

percent of the identified AEs did not have a trigger associated with them.

Singh, H., Thomas, E.J., Khan, M.M., and others. (2007, February). “Identifying diagnostic errors in primary care using an electronic screening algorithm.” (AHRQ grant HS11544). *Archives of Internal Medicine* 167, pp. 302–308.

Diagnostic errors are the leading basis for malpractice claims in primary care. However, these errors are underidentified and understudied. Electronic screening has the potential to identify records that may contain diagnostic errors in primary care, according to this study. The researchers used an algorithm to screen the electronic medical records of patients at a single hospital using a Structured Query Language-based program to screen for a primary care visit followed by a hospitalization in the next 10 days (screen 1) or a primary care visit followed by one or more primary care, urgent care, or emergency department visits within 10 days (screen 2). Among screen 1 and 2 positive visits, 16.1 and 9.4 percent, respectively, were associated with a diagnostic error. The most common diagnostic errors were failure or delay in eliciting information and misinterpretation or suboptimal weighing of critical pieces of data from the patient’s medical history and physical examination.

Sloane, P.D., MacFarquhar, J.K., Sickbert-Bennett, E., and others. (2006, July). “Syndromic surveillance for emerging infections in office practice using billing data.” (AHRQ grant HS13521). *Annals of Family Medicine* 4(4), pp. 351–358.

A pilot study indicates that primary care practices may be able to provide more timely surveillance

of emerging infections such as West Nile virus and bird flu at low cost and minimal staff. Researchers compared billing data on infection-related syndromes from medical visits at one rural North Carolina family medicine office with emergency department (ED) records in the same rural area over a 1-year period. The most frequently recorded syndromes were respiratory illness, gastrointestinal illness, and fever. Syndromes that most commonly exceeded the threshold of two standard deviations for the practice were lymphadenitis (inflammation of one or more lymph nodes), rash, and fever. During the 2003–2004 influenza season, the trend line patterns of the ED visits reflected a pattern consistent with that of the State. However, the trend line in primary care practice cases was less consistent, reflecting the variation expected in data from a single clinic. Still, spikes of activity that occurred in the practice before the ED suggest that the practice may have seen patients with influenza earlier.

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

Establishing a culture of learning, while providing care, will take collaboration among the participants in the U.S. health system, asserts the author of this paper. She discusses activities that are necessary for developing a rapid-learning health system, such as recognition of the central role that patients play. Understanding the trade-offs of using a less controlled form of research to inform health care decision making and making necessary investments in methodology and translation will help secure the success of

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continuous-learning research. Major public policy interest in promoting health information technology and in getting more value for health care spending creates a framework for moving ahead. Reprints (AHRQ publication no. 07-R040) are available from AHRQ.*

Smetana, G.W., Landon, B.E., Bindman, A.B., and others. (2007, January). "A comparison of outcomes resulting from generalist vs. specialist care for a single discrete medical condition." *Archives of Internal Medicine* 167, pp. 10–20.

Studies comparing patient outcomes from generalist versus specialist care for a single medical condition have methodological shortcomings, concludes this comprehensive review of studies. Of 49 studies that met inclusion criteria, only 8 studies reported physician integration into health delivery systems, 4 considered physician experience, 3 documented information technology support, and 2 considered the impact of care management programs. Selection bias was adequately addressed in 58 percent of studies that favored specialty care and 71 percent of studies that found no difference or favored generalist care. Studies that favored specialty care were less likely to consider four key, potentially confounding physician or practice characteristics, compared with studies that found no difference or favored generalist care. Reprints (AHRQ publication no. 07-R035) are available from AHRQ.*

Stommel, M., Olomu, A., Holmes-Rovner, M., and others. (2006, October). "Changes in practice

patterns affecting in-hospital and post-discharge survival among ACS patients." (AHRQ grants HS10531 and HS09414). *BMC Health Services Research* 6 (140), available online at www.biomedcentral.com.

Researchers compared the survival of patients with acute coronary syndrome (ACS) at the same five community hospitals during three periods: 1994–1995, 1997, and 2002–2003. A quality improvement (QI) project to implement ACS care guidelines was implemented at these hospitals in 2001, 1 year prior to the last period studied. The guidelines emphasized the use of aspirin, beta-blockers and angiotensin-converting enzyme inhibitors during and after hospital discharge for ACS patients, as well as use of invasive procedures for eligible patients.

The 2003 ACS group had 84 percent less risk of hospital mortality than ACS patients in the same hospitals 10 years earlier, after controlling for demographics, disease severity, and coexisting conditions. This was accomplished with shorter hospital stays than in earlier years. Also, in-hospital mortality improvements were sustained in the first year after hospital discharge. The researchers conclude that the QI initiative substantially improved survival of ACS patients due to increased use of effective treatments.

Stroupe, K.T., Manheim, L.M., Luo, P., and others. (2006, October). "Tension-free repair versus watchful waiting for men with asymptomatic or minimally symptomatic inguinal hernias: A cost-effectiveness analysis." (AHRQ grant HS09860). *Journal of the American College of Surgeons* 203, pp. 458–468.

Researchers conducted a cost-effectiveness analysis of a trial at

six medical centers to examine outcomes of men with asymptomatic or minimally symptomatic inguinal hernias. The men were randomized to standard open tension-free repair (TFR) surgery with mesh or to watchful waiting (WW). Although WW is less costly initially, patients who delay hernia repair may have greater need for more costly care later. Thus, the researchers compared the total 2-year health care costs of 317 patients randomized to TFR and 324 patients randomized to WW.

At 2 years, TFR patients had \$1,831 higher average total costs than WW patients (\$7,875 vs. \$6,044), with 0.031 higher quality-adjusted life years (QALYs). The cost per additional QALY for TFR patients was \$59,065. The probability that TFR was cost-effective at the \$50,000 per QALY level (considered the cost-effectiveness standard for medical interventions) was 40 percent. Increased quality of life for those assigned to TFR, although significant, was very modest. Given the marginal cost-effectiveness of TFR, both TFR and WW are reasonable approaches from the viewpoint of cost-effectiveness, conclude the researchers.

Taylor, B.J., Robbins, J.M., Gold, J.I., and others. (2006, October). "Assessing postoperative pain in neonates: A multicenter observational study." (AHRQ grant HS13698). *Pediatrics* 118(4), pp. 992–1000.

Researchers found that while management of postoperative neonatal pain is well accepted, the practice is highly variable, with deficiencies in the assessment and management of postoperative pain in neonates treated at NICUs in 10 hospitals. The neonates studied had

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a birthweight of 2.4 kg and gestation age of 36 weeks. Participating hospitals used 7 different numeric pain scales; nursing pain assessments were documented for 88 percent of the infants; and physician pain assessments were documented for 9 percent of the infants. Opioids (84 vs. 60 percent) and benzodiazepines (24 vs. 11 percent) were used more commonly after major surgery than minor surgery. Also, a small proportion of infants (7 percent major surgery, 12 percent minor surgery) received no analgesia. Physician pain assessment (not postnatal age or surgery type) was the only significant predictor of postsurgical analgesic use.

Wasson, J.H., Ahles, T., Johnson, D., and others. (2006, July). "Resource planning for patient-centered collaborative care." (AHRQ grant HS10264). *Journal of Ambulatory Care Management* 29(3), pp. 207-214.

Researchers suggest three strategies that a practice can use to better customize care management of patients with chronic conditions. The strategy chosen is based on the patient's condition, psychosocial problems, confidence in self-care, and financial status. A low-intensity self-care strategy consists of standard assessment, feedback to the physician from patients so that they are on the "same page," and tailored information from the physician for patients. Most patients who are relatively good at self-care management benefit from this approach. A small percentage of patients need a second strategy that adds an average of three telephone calls from a nurse, who coaches patients in problem solving related to their conditions. However, the telephone approach

alone is not sufficient to overcome problems of patients with either low self-confidence for self care, or low financial status and the added burden of pain and psychosocial problems. A third strategy would provide these patients with the addition of a problem-solving coach. This strategy would focus on health literacy and remedying social needs.

Wasson, J.H., Johnson, D.J., Benjamin, R., and others. (2006, July). "Patients report positive impacts of collaborative care." (AHRQ grant HS10264). *Journal of Ambulatory Care Management* 29(3), pp. 199-206.

A survey of 24,609 adult Americans who had common chronic diseases or significant dysfunction revealed that only 1 out of 5 (21 percent) received good collaborative care (both physician information and patient confidence). A total of 36 percent obtained fair collaborative care (either physician information or patient confidence), and 43 percent experienced poor collaborative care (neither one). Good collaborative care was associated with better control of blood pressure, blood glucose level, serum cholesterol level, and treatment effectiveness for pain and emotional problems. For example, 31 percent of patients with diabetes who received good collaborative care reported their blood glucose levels were always in the range of 80–150 (normal) compared to 20 percent of patients receiving fair and 14 percent receiving poor collaborative care. Also, 35 percent of patients receiving good collaborative care had treatments that made pain much better compared with 25 percent of patients receiving fair and 10 percent receiving poor collaborative care. One-third (35 percent) of patients receiving good collaborative care said past

treatment had made emotional problems much better compared with 23 percent receiving fair and 13 percent receiving poor collaborative care.

Yang, Z., Olomu, A., Corser, W., and others. (2006, October). "Outpatient medication use and health outcomes in post-acute coronary syndrome patients." (AHRQ grants HS10531 and HS09414). *The American Journal of Managed Care* 12(10), pp. 581-587.

Medications that are recommended to prevent health problems among patients with acute coronary syndrome (ACS) include angiotensin-converting enzyme inhibitors (ACEIs) or angiotensin receptor blockers (ARBs), beta-blockers, lipid-lowering medications, and aspirin. Researchers surveyed 433 patients by telephone on their medication use after hospital discharge 8 months after hospitalization for ACS at 5 Michigan hospitals. Taking at least one type of beta-blocker or ACEI/ARB within 3 months of hospital discharge significantly reduced the probability of hospital readmission 3 months after discharge. Once patients were readmitted during this critical period, they were more likely to be admitted to the hospital a second time or more. After hospitalizations, ACS patients may add, switch, or drop their discharge medications due to transfer of care to another doctor, change in health condition, medication side effects, or changes in insurance coverage. Thus, outpatient physicians could be as important as the hospital physicians who write the discharge prescriptions in promoting use of effective medications for ACS patients, note the researchers. They found that most changes to medication regimens occurred

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within 3 months after discharge, with fewer changes in the subsequent 5 months.

Zhang, L., Kao, W.H., Berthier-Schaad, Y., and others. (2006). "Haplotype of signal transducer and activator of transcription 3 gene predicts cardiovascular disease in dialysis patients." (AHRQ grant HS08365). *Journal*

***of the American Society of Nephrology* 17, pp. 2285–2292.**

Signal transducer and activator of transcription 3 (STAT3) protein has been linked to cardiovascular disease (CVD) through multiple pathways in experimental and animal studies. These researchers examined STAT3 gene variation as a predictor of incident CVD in a group of 529 white dialysis patients. They genotyped 15 single-nucleotide polymorphisms of the STAT3 gene. Compared with common haplotype C-1, C-3 was

associated with twice the risk for CVD events. Associations were independent of inflammation markers, interleukin-6 (IL-6), and C-reactive protein (CRP). However, IL-6 levels were 14 percent lower per copy of haplotype A-3 compared with haplotype A-1 in block A after adjustment for CRP and other risk factors. Variation in the STAT3 gene is associated with the risk for CVD among white dialysis patients independent of serum IL-6 and CRP levels, conclude the authors. ■

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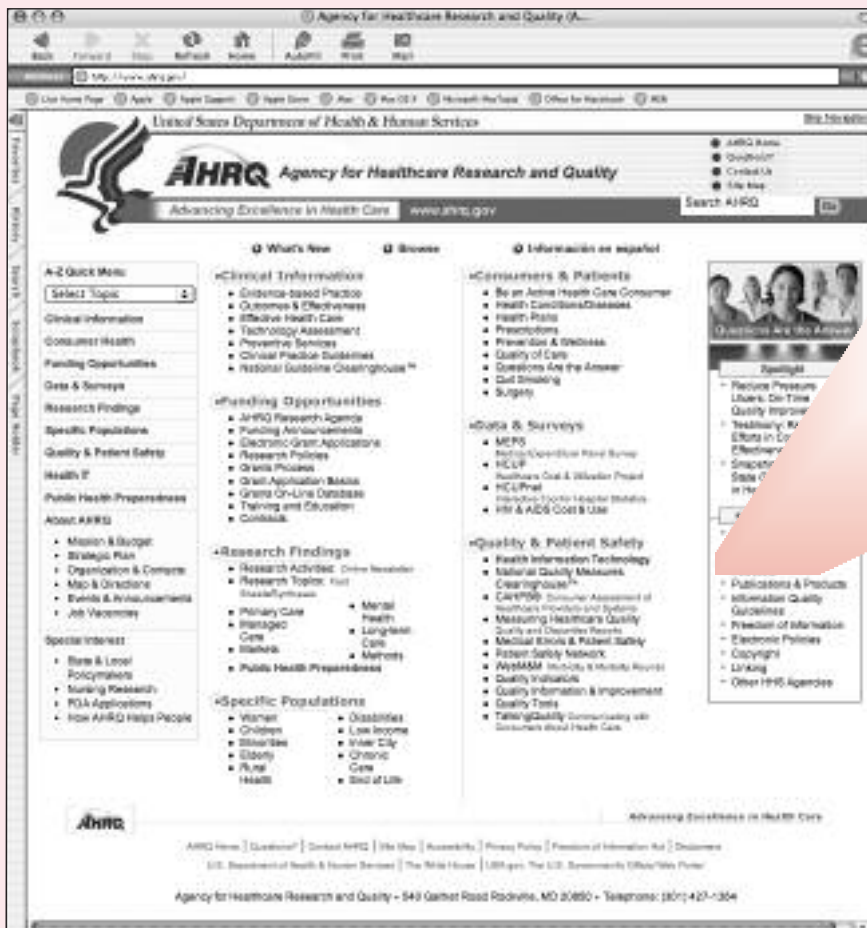
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