



RESEARCH ACTIVITIES

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New snapshots show States vary widely in providing quality health care

The Agency for Healthcare Research and Quality's (AHRQ) annual report of State-by-State quality data continues to give States mixed reviews for the quality of care they provide. As in previous years, AHRQ's 2008 *State Snapshots* show that no State does well or poorly on all quality measures.

Kansas, for example, ranked 3rd among all 50 States and the District of Columbia for its low rate of HIV-related deaths, but 48th because of its high numbers of patients with heart failure who did not receive recommended care while in the hospital. Oregon ranked 1st for its large number of adults age 65 and over who received a pneumonia vaccine, but 46th for the low number of home health patients who got better at walking or moving around. The District of Columbia ranked 1st for its low suicide rate, but 51st for the highest colorectal cancer death rate.

The 2008 *State Snapshots* provide State-specific health care quality information, including strengths, weaknesses, and opportunities for improvement. They summarize health care quality in three dimensions: type of care (preventive, acute, and chronic

care), setting of care (hospitals, ambulatory, nursing homes, and home health care), and clinical areas (cancer, diabetes, heart disease, maternal and child health, and respiratory disease). The *Snapshots* allow users to explore whether a State has improved or worsened compared with other States in several areas of health care delivery.

New features in the 2008 *State Snapshots* provide more ways to analyze the quality of health care for each State compared with all States, as well as States in the same region. Enhanced features include:

- A new Focus on Asthma section: This section includes State-specific information on the prevalence of adult self-reported asthma rates; potentially preventable hospitalizations for children, adults, and the elderly; and potential returns on investment of asthma care quality improvement programs for Medicaid, State employees, and privately insured Americans.
- An expanded Focus on Disparities: This section includes State-specific information on disparities in the quality of care compared with the nation overall

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State Snapshots

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- by looking at care received by various racial/ethnic and socioeconomic groups.
- Enhanced Dashboards: The dashboard for each State now contains revised graphics that succinctly display all of the

summary measures on health care quality and allow a clear view of the range of each State's performance.

AHRQ's annual *State Snapshots* are 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/>. The U.S. Department of Health and Human Services is also releasing State-by-State reports on the health care status quo. The reports are available at www.HealthReform.gov. ■

Patient Safety and Quality

Clinical practice guidelines for cardiology are steeped more in expert opinion than scientific evidence

For more than two decades, the American College of Cardiology (ACC) and the American Heart Association (AHA) have published clinical practice guidelines to let clinicians know which treatments their contemporaries believe are best. A recent study by Judith M. Kramer, M.D., M.S., of the Duke Center for Education and Research on Therapeutics (CERT) and colleagues examined ACC/AHA guidelines issued from 1984 to 2008. It found that many guidelines are still based on expert opinion and not on the results of rigorous trials.

Although the number of recommendations in the guidelines has increased over time, the majority of current recommendations are based on a lower certainty of evidence, the authors found. Overall, just 11 percent of recommendations had level A status,

while 48 percent were at level C, despite the fact that cardiology has a large research pool to draw upon for recommendations. Level A indicates that the recommendations are based on evidence from multiple randomized trials, whereas level C means that the recommendations are less scientifically rigorous and based on expert opinion, case studies, or standards of care.

Even among the 1,305 guideline recommendations that the experts agreed evidence and general agreement existed for a procedure or treatment (class I recommendations), just 245 were given an A level of evidence. In contrast, 481 class I recommendations were given C levels of evidence.

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Research Activities is a digest of research findings that have been produced with support from the Agency for Healthcare Research and Quality. *Research Activities* is published by AHRQ's Office of Communications and Knowledge Transfer. The information in *Research Activities* is intended to contribute to the policymaking process, not to make policy. The views expressed herein do not necessarily represent the views or policies of the Agency for Healthcare Research and Quality, the Public Health Service, or the Department of Health and Human Services. For further information, contact:

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Financial burden of mental health/substance abuse treatment, see page 21

Clinical practice guidelines

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The current system for generating research findings is inadequate for meeting providers' and patients' information needs, caution the authors. They recommend that the medical research community streamline clinical trials to further develop the evidence base and fund research to answer practical clinical questions so that guidelines are not so heavily based on expert opinion. This study was funded in part by the

Agency for Healthcare Research and Quality (HS10548) to the Duke CERT. For more information on the CERTs program, visit <http://certs.hhs.gov/index.html>.

See "Scientific evidence underlying the ACC/AHA clinical practice guidelines," by Pierluigi Tricoci, M.D., M.H.S., Ph.D., Joseph M. Allen, M.A., Dr. Kramer, and others in the February 25, 2009 *Journal of the American Medical Association* 301(8), pp. 831-841. ■

Specialists are less likely than generalists to spot clinically important drug-drug interactions

The pairing of incompatible prescription drugs can cause patients to suffer adverse events leading to emergency department visits or hospital stays. Physicians, as prescribers, are the first line of defense to prevent these potential drug-drug interactions (DDIs). However, of the 316 prescribers who answered survey questions on their information sources for DDIs, 68 percent said pharmacists often alerted them to a potential DDI. Another 16 percent said they relied on personal data assistants for DDI alerts, a new study reports.

Researchers found that generalists such as family practice, internal medicine, and emergency medicine physicians had higher knowledge scores of DDIs than specialists such as psychiatrists,

neurologists, surgeons, and obstetricians/gynecologists. The former group may be more familiar with DDIs because they see a range of patients and have more occasions to prescribe a variety of drugs. Specialists, on the other hand, may deal with fewer drugs and thus may not be as familiar with DDIs, the authors state.

Prescribers who had seen a patient harmed by a potential DDI had higher knowledge scores of DDIs. These prescribers may have spent more time thinking about potential DDIs and educating themselves on this issue. The authors suggest that clinicians, especially specialists, participate in education programs that present case studies. This approach could boost their awareness of DDIs and encourage them to pay close

attention to potential DDIs when prescribing medication.

The authors caution that low response rates, ranging from 6.5 to 18.5 percent, to the 11,000 surveys mailed in 2005 mean that this study's results should not be generalized. They suggest that those who answered the survey could have had high levels of confidence in their ability to answer questions on DDIs correctly. This study was funded in part by the Agency for Healthcare Research and Quality (HS10385).

See "Potential determinants of prescribers' drug-drug interaction knowledge," by Yu Ko, Ph.D., Daniel C. Malone, Ph.D., Jerome B. D'Agostino, Ph.D., and others in the December 2008 *Research in Social and Administrative Pharmacy* 4(4), pp. 355-366. ■

Hospitals with better safety climates have fewer events that can potentially harm patients

Hospitals with a better safety climate—interpersonal, work unit, and organizational safety attitudes and safeguards—have a lower incidence of patient safety problems such as bed sores, postoperative hemorrhage, and health care-associated infections, concludes a new study. The researchers analyzed survey responses from hospital personnel at 91 hospitals in 37 States about the safety climate at their hospitals. Safety climate topics included unit safety norms, senior managers' engagement in safety issues, and

staff fear of blame or shame due to errors or safety problems.

Higher levels of safety climate were associated with higher safety performance, defined as a lower incidence of patient safety indicators (PSIs) developed by the Agency for Healthcare Research and Quality (AHRQ). A higher risk of experiencing PSIs was found for hospitals where employees reported feeling shame and blame for mistakes. Better safety climate

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Safety climates

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perceptions of frontline personnel—but not senior managers—were associated with a decreased risk of hospital PSIs. The researchers also found a strong relationship between a better safety climate in the hospital and lower risk of patients developing decubitus ulcers (bed sores).

Despite hospital efforts to create just and fair work environments, feelings of punishment and low self-

esteem continue to sabotage efforts at improving patient safety in hospitals, note the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS13920).

See “Relationship of safety climate and safety performance in hospitals,” by Sara Singer, M.B.A., Ph.D., Shoutzu Lin, Alyson Falwell, David Gaba, M.D., and Laurence Baker, Ph.D., in the April 2009 *HSR: Health Services Research* 44(2), pp. 399-421. ■

Medicare claims data identify hospital-acquired catheter-associated urinary tract infections with limited accuracy

In October 2008, under Congressional mandate, Medicare revised its payment policy with the intent of reducing reimbursement to hospitals for treating a patient’s urinary tract infection (UTI) when the infection was linked to a catheter inserted during a hospital stay. However, several problems exist that undermine the intended effects of the new policy. Medicare claims may not be able to identify which patients used catheters and which patients had UTIs, note Agency for Healthcare Research and Quality researchers Chunliu Zhan, M.D., Ph.D., Anne Elixhauser, Ph.D., and William B. Baine, M.D.

They used Medicare data to locate the two most common procedure codes for catheter use: “insertion of indwelling urinary catheter” and “replacement of indwelling urinary catheter.” They found that less than 2 percent of catheter use was coded in Medicare claims, making these codes poor indicators of which patients received catheters during their hospital stays. The researchers suggest that treating all patients who undergo major surgery as having a catheter is a good proxy for catheter use, and would identify nearly 50 percent of catheter use.

The positive predictive value (PPV) of Medicare claims data for identifying which patients

contracted UTIs from hospital-inserted catheters was just 30 percent. However, the authors suggest that addition of a present-on-admission code (to identify patients with UTIs at the time of hospital admission) in Medicare claims in October 2007 could boost the PPV up to 86 percent.

See “Identification of hospital-acquired catheter-associated urinary tract infections from Medicare claims: Sensitivity and positive predictive value,” by Drs. Zhan, Elixhauser, Baine, and others in the March 2009 *Medical Care* 47(3), pp. 364-369. Reprints (AHRQ Publication No. 09-R046) are available from AHRQ.* ■

Visit the AHRQ Patient Safety Network Web Site

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

Accurate secondary diagnosis codes improve risk adjustment of inpatient mortality rates

If the completeness and precision of coding secondary diagnoses could be improved, risk adjustment for quality reporting would be considerably more accurate, concludes a new study. Accurate hospital mortality rates depend on proper adjustment of patient risk factors for dying in the hospital, including severity of illness on admission. Anne Elixhauser, Ph.D., of the Agency for Healthcare Research and Quality (AHRQ) and colleagues wanted to see if more complete coding of secondary diagnoses, which are currently underreported because of ICD-9-CM coding rules, would improve the risk adjustment of inpatient mortality rates. They also looked to see if adding laboratory values at the time of admission to claims data would improve predictions of inpatient mortality. They analyzed claims data and abstracted clinical data for 5 medical conditions and 3 surgical procedures from 188 hospitals in Pennsylvania.

They found substantial potential benefits by combining present-on-admission (POA) coding (which describes if diagnoses were present on admission to the hospital or if they originated during the stay) with expanded use of a few currently available secondary diagnosis codes. Current rules preclude the coding of signs and symptoms that affect the risk of inpatient mortality once a final diagnosis is established, even though ICD-9-CM codes are available. For example, once a diagnosis of stroke is established, symptoms

such as coma can no longer be recorded in claims data. The study also found that adding numerical laboratory results to claims data substantially improved predictions of inpatient mortality.

They recommend three steps to improve risk adjustment of inpatient mortality rates. First, claims data should be enhanced by accurately reporting POA for secondary diagnoses for all patients. Second, there should be more consistent and complete use of existing ICD-9-CM secondary diagnosis codes demonstrated to be important predictors of hospital outcomes, such as coma, severe malnutrition, and abnormal vital signs. Finally, traditional claims data should be merged with about two dozen laboratory values that are usually obtained at admission and that are available electronically from most U.S. hospitals. These steps would eliminate costly abstraction of medical records, which contributed little to improving the accuracy of risk-adjusted inpatient mortality rates in this study.

More details are in "Modifying ICD-9-CM coding of secondary diagnoses to improve risk-adjustment of inpatient mortality rates," by Michael Pine, M.D., M.B.A., Harmon S. Jordan, Sc.D., Dr. Elixhauser, and others, in the January/February 2009 *Medical Decision Making* 29, pp. 59-81. Reprints (AHRQ Publication No. 09-R052) are available from AHRQ.* ■

Quality adjusted life years: Looking for consensus

The quality adjusted life year (QALY) is a widely used measure of both quality and quantity of life that is applicable to all individuals and diseases. The QALY concept is important to outcomes researchers who are attempting to evaluate the efficacy and cost of various health care interventions based on their impact on QALYs. To determine the utility of and need for change in the QALY concept, the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) convened a consensus development workshop, "Building a Pragmatic Road: Moving the QALY Forward" in November

2007. The workshop, which was supported in part by the Agency for Healthcare Research and Quality (HS16841), sought to reach consensus among leaders in the field on the need to refine the QALY concept or substitute an alternative. Subsequently, the presenters prepared a series of articles based on the workshop sessions as a March/April 2009 supplement to ISPOR's journal *Value in Health* 12(Suppl 1). The first paper provides a background on the use of QALY and the rationale for change. The next six articles address topics ranging from the basics of quality adjusted survival time and an alternate

approach to health state valuation to the use of QALY in clinical and patient decisionmaking. The journal supplement also contains two independent editorials on the QALY debate, commissioned by the journal's editor. Brief summaries of the articles and editorials follow.

Smith, M. D., Drummond, M., and Brixner, D. "Moving the QALY forward: Rationale for change," pp. S1-S4.

This paper provides information on the consensus workshop, including background on QALY

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and how it is estimated. The authors note that some fundamental assumptions underlying the QALY concept have begun to be questioned, for example, whether the preference weights required for estimating the measure should come from patients or the larger health care community. They also discuss how the QALY concept is used by health policymakers and the differences between its use in the U.K. and the U.S.

Weinstein, M. C., Torrance, G., and McGuire, A. "QALYs: The basics," pp. S5–S9.

The authors of this paper provide a QALY primer, describing the assumptions that underlie the measure and explaining the concept of value in health care. They focus on the types of questions for which QALYs may provide part of the answer, such as societal resource allocation/priority setting, personal clinical decisionmaking, and evaluation of ongoing activities or programs. They also explain what is being valued in each case, who is being asked, what to ask, and how to ask about value. Finally, the authors discuss how the evaluated health outcomes are defined.

Nord E., Daniels, N., and Kamlet, M. "QALYs: Some challenges," pp. S10–S15.

This paper discusses a number of problems in estimating QALY values. One problem is getting different values when using different tools (standard gamble,

time tradeoff, and rating scale) to estimate health state utilities. Other problems include comparing utility values estimated beforehand by a mix of policymakers, caregivers, and consumers, and those obtained from patient experience. The paper also discusses ethical and societal concerns that QALY may value more, for example, increased lifespan gained by preventing accidents for persons in full health over increases in lifespan due to treatment for patients with chronic illnesses.

Kahneman, D. "A different approach to health state valuation," [Summary] pp. S16–S17.

This paper is a summary of a talk by Daniel Kahneman of Princeton University, given at the consensus development workshop, which builds on presentations he gave at prior ISPOR annual meetings. The author questions whether people developing QALY values can identify the problems that undercut its validity. He suggests an alternative approach using "juries of citizens with varied membership" (economists, health statisticians, patients) to jointly develop a linear scale that can be used to compare health states.

Lipscomb, J., Drummond, M., Fryback, D., and others. "Retaining, and enhancing, the QALY," pp. S18–S26.

The authors review a variety of issues related to what they term the "conventional QALY," with the goal of retaining and enhancing this

measure. In particular, they suggest that research be conducted into improving systems that describe health states, valuation methods, and weightings that reduce possible discrimination against the disabled and chronically ill by maximization models using the conventional QALY.

Kind, P., Lafata, J. E., Matuszewski, K., and others. "The use of QALYs in clinical and patient decision-making: Issues and prospects," pp. S27–S3.

The authors discuss the uses of QALY in high-level decisionmaking (for groups of patients or whole populations) and the potential and limitations of its use in decisionmaking for individual patients and their clinicians. At present, QALY is used routinely by payers, managed care organizations, and governmental organizations for making cost-benefit decisions about care for groups of patients, but not in making clinical decisions for (or by) individual patients.

Drummond, M., Brixner, D., Gold, M., and others. "Toward a consensus on the QALY," pp. S31–S35.

This article summarizes eight areas of consensus reached during the workshop, including that QALYs are one (but not the only) health-based input to health and health care decisions, that they can be used at various levels in the health care system, and that

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distributive fairness needs to be addressed in developing QALY measures. The authors also summarize the current use of QALYs, the challenges of using these measures in some health settings, and research priorities concerning the nature and future use of the QALY.

Garrison, L. P., Jr. “Editorial: On the benefits of modeling using QALYs for societal resource allocation: The model is the message,” pp. S36–S37.

In his editorial, the author notes that the workshop articles failed to

explore two related issues. First, measures of life quality based on preferences of unaffected individuals can differ markedly from those of people with a chronic condition. Second, the use of QALYs in allocating public resources can differ depending on how much health care is seen as a “free market” activity.

Johnson, F. R. “Editorial: Moving the QALY forward or just stuck in traffic?” pp. S38–S39.

The author of this editorial is critical of the usefulness of the conventional QALY, in part because it ignores the economic principle of diminishing marginal utility, which

requires nonlinearity of preferences. He cites an alternate approach developed by the German Institute for Quality and Efficiency in Health Care, which concludes that QALYs are both unethical and unconstitutional within the context of that nation’s health care system. ■

Disparities/Minority Health

Individuals living in predominantly white, wealthy, and educated neighborhoods have better melanoma prognosis

Melanoma is a potentially fatal skin cancer whose incidence grew from 7 cases per 100,000 people in 1973 to more than 18 cases per 100,000 in 2003. Melanoma patients who live in predominantly white, wealthy, and educated communities are less likely to have a poor prognosis than those living in less advantaged communities, concludes a new study. A Brown University research team analyzed data from 17,702 melanoma cases reported to the Surveillance Epidemiology and End Results program from 1988 to 1993, which they merged with sociodemographic data from the 1990 U.S. Census.

Melanoma prognosis was significantly associated with neighborhood racial heterogeneity, education, and income. For example, melanoma patients who resided in areas with higher education levels were 60 percent less likely to have a poor prognosis. Patients in predominantly white neighborhoods were 30

percent less likely to have a poor prognosis. Finally, those living in higher income neighborhoods had 60 percent less likelihood of a poor prognosis.

In fact, education explained 3.3 times more variation in prognosis than race and nearly 2 times more variation than income. Sociodemographic factors were also associated with cancer stage and tumor thickness. These findings suggest an important direction for targeting public health efforts to reach at-risk communities, conclude the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00011).

See “Demographic and socioeconomic predictors of melanoma prognosis in the United States,” by Melody J. Eide, M.D., M.P.H., Martin A. Weinstock, M.D., Ph.D., and Melissa A. Clark, Ph.D., in the *Journal of Health Care for the Poor and Underserved* 20, pp. 227-245, 2009. ■

Economically disadvantaged patients may have trouble with patient-provider communication

Patients want their health care providers to listen to them. Critical to the patient-provider interaction is how well providers explain things and how well patients understand their personal health issues. Patients want providers to show them respect during the medical encounter and spend enough time during the visit. Yet certain sociodemographic characteristics may affect whether patients favorably perceive communication with their health care providers, according to a new study. It found, for example, that economically disadvantaged patients may have more difficulty with provider communication.

Jennifer E. DeVoe, M.D., D.Phil., of the Oregon Health & Science University, and colleagues analyzed data from the nationally representative 2002 Medical

Expenditure Panel Survey (MEPS) on 16,700 U.S. adults with a health care visit in the past year. They looked at four MEPS items that shed light on how patients felt about their encounters with providers, as well as their demographic and socioeconomic characteristics. Even when controlling for the effects of all demographic and socioeconomic characteristics, consistent predictors of positive perceived communication were older age, having health insurance and a usual source of care, and being Hispanic.

The poorest patients were found to be less likely to report that their providers always explained things sufficiently. Patients living in cities also felt that their providers didn't listen to them or spend enough time with them. Men were most likely to report that providers spent enough

time during the visit. The researchers were surprised to find no associations between various communication measures and the level of education attained by patients. They call for future studies to determine how these demographic and socioeconomic differences in perception can be incorporated into pay-for-performance policies. The study was supported by the Agency for Healthcare Research and Quality (HS14645 and HS16181).

See "Measuring patients' perceptions of communication with healthcare providers: Do differences in demographic and socioeconomic characteristics matter?," by Dr. DeVoe, Lorraine S. Wallace, Ph.D., and George E. Fryer Jr., Ph.D., in *Health Expectations* 12, pp. 70-80, 2009. ■

Women's Health

Behavioral health carve-outs limit access of women with breast cancer to psychotherapy and related medications

Atumult of emotions typically bombard women diagnosed with breast cancer, ranging from severe anxiety and depression to shock and disbelief. Although 22 to 40 percent of women with breast cancer suffer significant psychological distress, at most only 30 percent of them receive psychotherapy or medication. Women have less access to psychotherapy and psychotherapeutic medications if mental health services are provided by behavioral health carve-outs in their insurance program rather than as integrated services, concludes a new study.

Researchers at the Dana-Farber Cancer Institute and Harvard Medical School analyzed insurance claims, enrollment data, and insurance benefit design data from 1998 to 2002 from the MarketScan Commercial Claims & Encounters Research Database on women 63 years of age and younger with newly diagnosed breast cancer. They compared medication and psychotherapy

use among women whose behavioral health services were provided through carve-outs (which are administered and managed separately from other health services) versus integrated arrangements, during the year after a breast cancer diagnosis.

Women enrolled in carve-outs were 32 percent less likely to receive any psychotherapy visits compared with a matched group of women in integrated arrangements. Conditional on having received psychotherapy, however, women in carve-out arrangements used more psychotherapy visits than women in integrated arrangements. The use of antianxiety/hypnotic drugs was also significantly higher for women in carve-out arrangements versus women in integrated arrangements (36.1 vs. 32.6 percent). Providers who refer women with breast cancer for behavioral health services should realize that some

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Behavioral health carve-outs

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women face more complicated paths into treatment than others. The study was supported by the Agency for Healthcare Research and Quality (HS10803). An editorial accompanies the paper.

More details are in “Behavioral health services for women who have breast cancer,” by Vanessa Azzone, Ph.D., Richard G. Frank, Ph.D., Juliana R. Pakes, M.Ed., and others, in the February 10, 2009 *Journal of Clinical Oncology* 27(5), pp. 706-712. ■

Journal supplement focuses on guidelines for international breast health and cancer control-implementation

The “Global Summit on International Breast Health Implementation,” an international conference convened by the Breast Health Global Initiative (BHGI), a group of breast cancer experts and advocates, was held in Budapest, Hungary in October 2007. The conference was cosponsored by the Agency for Healthcare Research and Quality (HS17218). An October 15, 2008 supplemental issue of *Cancer* 113(Suppl 8) included a series of 15 papers on the conference topics by researchers and constituent groups affiliated with the BHGI.

The first paper introduces the overall aims of BHGI. Four subsequent papers discuss guideline implementation in the context of resource allocation for early detection, diagnosis, and treatment, and breast health care programs. Three papers discuss guideline implementation for breast pathology, breast radiation therapy, and locally advanced breast cancer. Other papers discuss breast cancer prevention, strategic health communication, re-establishing a surgical pathology service, revision surgery for breast cancer, effective but cost-prohibitive drugs in breast cancer treatment, and breast cancer in Latin America. The final paper in the supplement focuses on defining a global research agenda for breast cancer. Brief summaries of the papers follow.

Hortobagyi, G. N. “A time for creative collaboration,” pp. 2217-2220.

BHGI is a group of carefully selected breast cancer and public health professionals and advocates. It has developed a guideline structure that defines the minimal components of a breast health program. Without these basic components, there is no breast health program. In addition, three increasingly sophisticated levels of care are defined that can substitute for or improve the results of the basic level of care. The expertise of the BHGI can provide an impartial assessment of the existing evidence for best practices in the diagnosis, prevention, and treatment of breast diseases. By disseminating their guidelines and principles, the BHGI hopes to recruit a broader constituency around the world that understands that the burden of breast cancer morbidity and mortality does not have to remain unchanged. There are tools and strategies to reduce both, even with relatively limited resources.

Yip, C-H., Smith, R. A., Anderson, B. O., and others. “Guideline implementation for breast healthcare in low- and middle-income countries,” pp. 2244-2256.

The objective of BHGI’s third Global Summit held in Budapest in 2007 was to address resource allocation, specifically focusing on guideline implementation in low-

and middle-income countries. The BHGI Early Detection Panel of multidisciplinary experts addressed the implementation of BHGI guidelines for the early detection of disease as they related to resource allocation for public education and awareness, cancer detection methods, and evaluation goals. Public education and awareness are the critical first steps, because early detection programs cannot succeed if the public is unaware of their value. Screening methods, including mammography, clinical breast examination, and breast self-examination, were reviewed for efficiency and effectiveness in the context of resource availability and population-based need. The most critical need may be for carefully designed and conducted studies on barriers to early detection.

Shyyan, R., Sener, S. F., Anderson, B. O., and others. “Guideline implementation for breast healthcare in low- and middle-income countries: Diagnosis resources allocation,” pp. 2257-68.

The BHGI Diagnosis Panel reviewed diagnosis guideline tables. Core implementation issues and process indicators based on the resource allocation guidelines were discussed. The evaluation by the Diagnosis Panel was divided into six parts: (1) clinical assessment, (2) diagnostic breast imaging, (3) tissue sampling, (4) surgical

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pathology, (5) laboratory tests and metastatic imaging, and (6) health care system issues related to diagnosis. Process indicators were developed based on the priorities established in the guideline stratification. For each level of resources (basic, limited, enhanced, and maximal) the panel set forth diagnostic guidelines. For example, pathology tumor marker assays, starting with estrogen receptor testing, should be available to support limited-level treatment, because the test results by immunohistochemistry determine key questions regarding therapy choices for endocrine therapy.

Eniu, A., Carlson, R. W., El Saghir, N. S., and others. “Guideline implementation for breast healthcare in low- and middle-income countries: Treatment resource allocation,” pp. 2269-2281.

The BHGI Treatment Panel expanded on prior guidelines to examine how key therapeutic interventions can be integrated to form a functional treatment program in low- to middle-income countries given differing levels of available resources. The panel expanded previous guidelines to include process metrics that can be used by medical professionals and health care authorities to assess the functionality of their breast health programs. The evaluation of the Treatment Panel was considered in the context of required resources (surgery, radiation therapy, and systemic therapy), which were then stratified based on cancer stage at presentation. The panel provides checklists for a number of different therapies. Each entry consists of a specific therapy (e.g., breast cancer surgery with axillary dissection), its strengths and weaknesses, and

resources required. Also presented is a treatment resource allocation and process metrics table for stage I breast cancer.

Harford, J., Azavedo, E., and Fischietto, M., on behalf of the Breast Health Global Initiative Healthcare Systems Panel. “Guideline implementation for breast healthcare in low- and middle-income countries: Breast healthcare program resource allocation,” pp. 2282-2296.

The Healthcare Systems Panel agreed that it is the responsibility of the health care system (HCS), defined either locally or nationally, to ensure that human resources are appropriate in the areas of early detection, diagnosis, and treatment. The HCS Panel guidelines on human resource allocation include the personnel needed for patient and family education, capacity building, and patient navigation. The HCS Panel guidelines on support systems resource allocation address issues faced by breast cancer program managers who must work within a given HCS to determine which services to provide, records to keep, and facilities to invest in developing. Because all of the guidelines from each of the other panels will need to be implemented in the context of a given HCS, the two guideline tables developed by the HCS Panel, in a sense, must be derivative of the work of the other panels that define the stratified needs in each of their respective thematic areas.

Masood, S., Vass, L., Ibarra, J. A., and others on behalf of the Breast Health Global Initiative Pathology Focus Group. “Breast pathology guideline implementation in low- and middle-income countries,” pp. 2297-2304.

The BHGI designated a number of interested pathologists, breast cancer clinician specialists, and patient advocates to form the Breast Pathology Focus Group (BPFG). The BPFG was charged with assessing how to adapt the previous resource-stratified guideline tables into real world implementation in low- and middle-income countries, to develop process indicators for each of the four levels of resources, and to identify system changes necessary for implementation. The BPFG made specific recommendations on the training of pathology personnel, interdisciplinary coordination and teamwork, and adequate tissue sampling. It also provided guidelines on pathology diagnosis and reporting and the use of immunohistochemical testing. In addition, the group agreed on seven process indicators in breast pathology to be integrated in all anatomic pathology laboratories.

Bese, N. S., Munshi, A., Budrukkar, A., and others on behalf of the Breast Health Global Initiative Radiation Therapy Focus Group. “Breast radiation guideline implementation in low- and middle-income countries,” pp. 2269-2281.

The BHGI’s Radiation Therapy Focus Group reviewed the components needed for implementing a successful radiation therapy program, focusing on specific radiation therapy techniques and strategies for expanding the use of radiation therapy for breast cancer in countries with limited resources. For example, they discussed the advantages and disadvantages of a cobalt-60 machine versus a linear accelerator for countries with limited resources. Their

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recommendations covered whole-breast radiation therapy and accelerated partial breast irradiation for early-stage breast cancer (stages I and II) as well as postmastectomy radiation therapy. There were also recommendations for the treatment of metastatic breast cancer. Finally, the authors discussed quality-assurance and cost issues.

El Saghir, N. S., Eniu, A., Carlson, R. W., and others on behalf of the Breast Health Global Initiative Systemic Therapy Focus Group. "Locally advanced breast cancer: Treatment guideline implementation with particular attention to low- and middle-income countries," pp. 2315-2324.

Systemic therapy for breast cancer incorporates chemotherapy, targeted therapy, and hormone manipulation. It is used for metastatic disease, as postoperative adjuvant therapy for primary breast cancer, and as neoadjuvant (preoperative) therapy for locally advanced breast cancer (LABC). The BHGI's Systemic Therapy Focus Group discussed the management and implementation of primary systemic therapy (PST) for LABC. Systemic therapy for LABC involves the use of a wide range of medications, from tamoxifen to more expensive, targeted agents such as trastuzumab and lapatinib. The Focus Group encourages the conduct of clinical trials in low-resource countries, since breast cancers observed in such countries frequently exhibit different and more aggressive biologic behavior than those found in industrialized countries.

McTiernan, A., Porter, P., and Potter, J. D. "Breast cancer

prevention in countries with diverse resources," pp. 2325-2330.

The authors review several lifestyle factors and interventions that have been shown or are postulated to reduce breast cancer risk. The emphasis is on interventions, including lactation, physical activity, weight control, diet, alcohol use, and avoidance of specific carcinogens, which could be implemented in countries with low or moderate levels of health care resources. This review is not comprehensive, but instead includes studies to illustrate particular issues. For example, 1 collaborative study on breastfeeding with over 147,000 patients found that the risk of developing invasive breast cancer decreased 4.3 percent for every 12 months of breastfeeding. Other studies pertaining to the role of physical activity, weight control, and diet are also discussed. The authors caution that applicability of various strategies to low-income countries has yet to be adequately studied.

Kreps, G. L., and Sivaram, R. "Strategic health communication across the continuum of breast cancer care in limited-resource countries," pp. 2331-2337.

The authors examine strategic health communication factors in developing and implementing effective, evidence-based, economically feasible, and culturally appropriate interventions to improve breast cancer outcomes that can be applied in nations with limited health care resources. They discuss communication across the continuum of care from early detection to diagnosis, treatment, and survivorship and the importance of culturally sensitive health communications programs and policies in limited-resource countries. They note the provision

of social support as an effective communication strategy for moderating negative psychological reactions to breast cancer. The authors also focus on the role of communication campaign interventions at the group, community, and population levels.

Stalsberg, H., Awuah, B., Ibarra, J. A. and Nsiah-Asare, A. "Re-establishing a surgical pathology service in Kumasi, Ghana," pp. 2338-2346.

The authors present a case report about how a hospital in Norway helped a hospital in Ghana re-establish its surgical pathology service. The proposals, the barriers encountered, and the key elements of the final successful collaboration between the low-resource and high-resource country are described. The first proposal to collaborate with a community hospital in the United States did not work out due to legal, technical, and staff capacity issues. The second proposal to the Norwegian hospital was implemented by the following steps: training two Ghanaian technicians at the Norwegian hospital, restarting slide production at the Ghana hospital, sending specimens to the Norwegian hospital, and training two young physicians at the Norwegian hospital. In addition, the Ghanaian hospital acquired a new pathology building and new equipment. Funding support from the Ghanaian hospital was supplemented by support from the Norwegian hospital and government.

Thorat, M. A., Rangole, A., Nadkarni, M. S., and others. "Revision surgery for breast cancer," pp. 2347-2352.

The researchers studied revision surgery for breast cancer at a hospital in Mumbai, India. To their

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knowledge, this subject had not previously been studied. In India, most breast surgeries are done by general surgeons, since breast surgery is not a subspecialty. Forty-five percent of the 424 patients who came to the hospital after receiving breast cancer surgery had received incomplete surgery. Completion revision surgery was performed for 153 patients, while 123 patients had residual axillary lymph nodes. The median number of axillary lymph nodes left behind was 8, and 64 patients had metastatic lymph node(s) left behind. The authors conclude that although this is a single institution's experience, the overall situation in India is not likely to be very different. There are very few specialty cancer treatment centers for India's vast population.

Bines, J., and Eniu, A. "Effective but cost-prohibitive drugs in breast cancer treatment," pp. 2353-2358.

New drugs for early-stage breast cancer are effective, but many are cost-prohibitive in low-income countries. The authors of this paper review new and emerging medical treatment with the potential to improve the cost-effectiveness equation. From a medical perspective, studies of effective shortened treatment duration and intermittent administration are needed. Strategies to improve on existing therapies may be able to take advantage of drug interactions with food and other drugs that increase their bioavailability.

Through the use of multigene arrays and pharmacogenetics, treatment may be selected for the patients who most likely will benefit from it, avoiding unnecessary toxicity and cost. Older drugs may find their way back and assume new roles as they are selected for the right target patient population.

Cazap, E., Buzaid, A. C., Garbino, C., and others. "Breast cancer in Latin America: Results of the Latin American and Caribbean Society of Medical Oncology/Breast Cancer Research Foundation Expert Survey," pp. 2359-2365.

The researchers surveyed 100 breast cancer experts from 12 Latin American countries. The purpose of the survey was to perform an exploratory analysis on the current state of breast cancer care in these regions. The survey asked 65 questions about care at both the country and the center levels. It found that six countries had country-based cancer registries while another six had only provincial or municipal registries. More than 90 percent of respondents stated that there were no national laws or guidelines in their country for mandatory mammography screening. Access to mammography reportedly was available to 66 percent of patients at the country level. At the center and country levels, the overwhelming majority of patients began their treatment in less than 3 months. Almost all patients started chemotherapy during their first 3 months after surgery.

Love, R. R. "Defining a global research agenda for breast cancer," pp. 2366-2371.

Health care strategies that are effective and efficient in high-income countries may be inappropriate for countries with lower breast cancer incidence, fewer resources, and competing demands from high-incidence health problems such as communicable diseases, notes the author of this paper. He provides background critical to development of a research agenda that can support effective and cost-effective allocation of resources to breast cancer globally, as well as the mechanisms through which this agenda may be accomplished. This research agenda should embrace the following priorities: downstaging by clinical breast examination; performing pharmacogenomic studies of systemic adjuvant therapy to establish and increase efficacy and safety of "standard" hormonal therapies in different populations; performing pharmacogenomic studies to establish and increase efficacy of generic drug-systemic therapy approaches in hormone receptor-negative breast cancer; and developing a model for closing the affordability gap for new systemic targeted therapies. Studies on these and related subjects can best be carried out by research partnerships between organizations in high and low-to-medium income countries. ■

Elderly/Long-Term Care

Making medication administration a dedicated activity free of interruptions could improve long-term care drug safety

Long-term care patients, who are often fragile and suffer from complex medical conditions, typically take multiple medications several times a day. Many also have cognitive, behavioral, or swallowing problems that further complicate the task of administering medications to them. Typically, a 20-bed unit has only one nurse per shift, who uses one-third of her shift to administer medications to patients on the unit, according to a new study. Researchers found that even more time is spent by temporary nurses who are not familiar with the patients or their medications. With few nurses available, nurses were often interrupted while doing medication rounds, which has been correlated with medication errors.

Based on these findings, the researchers recommend that the medication administration process be made a dedicated activity and that nurses receive additional support to manage interruptions during these times. The researchers used time-motion methods to time all steps in the medication administration process among long-term care units at one facility that differed according to case mix (residents needing physical support, behavioral care,

dementia care, or continuing care). They observed a total of 141 medication rounds.

Nurses spent a total of 62 minutes to administer a single round of medication for 20 residents on physical support units, 84 minutes on behavioral care units, and 70 minutes per 20 residents on dementia care units. Regular nurses took an average of 68 minutes per 20 residents to complete the medication administration process, while temporary nurses took an average of 90 minutes per 20 residents. On continuing care units, which are organized differently because of the greater severity of residents' needs, the medication administration process took 9.6 minutes per resident. Interruptions occurred in 79 percent of observed medication rounds and accounted for 11.5 percent of the medication administration process. The study was supported by the Agency for Healthcare Research and Quality (HS10481 and HS15430).

More details are in "Nursing time devoted to medication administration in long-term care: Clinical, safety, and resource implications," by Mary S. Thomson, Ph.D., Andrea Gruneir, Ph.D., Monica Lee, M.Sc., and others, in the February 2009 *Journal of the American Geriatric Society* 57(2), pp. 266-272. ■

Public reporting of nursing home care improves care delivery

Quality of care information is being made increasingly public to aid consumers in choosing health care providers. At the same time, publicly released information encourages providers to improve the care they deliver to the community. For example, in 2002, the Centers for Medicare & Medicaid Services launched a public Web site called Nursing Home Compare, where consumers could evaluate skilled nursing facilities based on quality of care data made public. The Web site improved both unreported and

reported care in skilled nursing facilities, according to a new study.

The researchers looked at nursing home data from 1999 to 2005 related to all postacute care admissions. Three measures of quality were reported on the Nursing Home Compare Web site: pain, delirium, and walking ability. All three quality measures improved after the Web site was launched. The percentage of patients with controlled pain improved by 2.6 percent. The improvement was 0.5 percent for patients not suffering from

delirium. Ability of residents to walk improved by 0.4 percentage points. Unreported measures also improved, including such things as reduced pain, better locomotion, less shortness of breath, and less bladder incontinence. In general, skilled nursing facilities scoring high on reported quality measures also demonstrated improvement on unreported measures.

Similarly, those nursing homes scoring low on reported measures had significantly smaller improvements or had worsening

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Nursing home care

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scores on unreported measures after the Web site was made available to the public. Despite a national decline in professional nurse (registered nurses and licensed practical nurses)-staff ratios, high-

scoring nursing homes had consistently smaller declines in professional nurse hours per resident day than low-scoring nursing homes. The study was supported in part by the Agency for Healthcare Research and Quality (HS16478).

See "Impact of public reporting on unreported quality of care," by Rachel M. Werner, M.D., Ph.D., R. Tamara Konetzka, Ph.D., and Gregory B. Kruse, M.Sc., M.P.H., in the April 2009 *HSR: Health Services Research* 44(2), pp. 379-398. ■

Chronic Disease

Study finds high medication error rates among adults and children receiving outpatient cancer treatment

A growing number of cancer patients are now able to receive treatment in the outpatient setting, including clinics, doctors' offices, and even at home. However, medication error rates are high in both adults and children receiving outpatient chemotherapy for cancer, reveals a new study. Researchers from the HMO Research Network Center for Education and Research on Therapeutics (CERT) reviewed the medical records of patients receiving treatment from one pediatric and three adult oncology clinics. The researchers reviewed 1,262 adult patient visits involving 10,995 medications and 117 pediatric visits involving 913 medications.

The researchers identified 112 medication errors, for an overall rate of 8.1 errors per 100 clinic visits. More than half of chemotherapy errors (57.1 percent) had the potential to cause patient injury. Only 4 percent of errors were stopped before they reached the patient. Most errors involved medication administration (56 percent) and prescribing (36 percent). Administration errors were often due to confusion over two sets of orders, one written at diagnosis and another adjusted dose on the day of administration. This problem could be reduced by improved communication, note the researchers.

In adults, the medication error rate was 7.1 errors per 100 visits. Drugs most commonly associated with errors were zoledronic acid and leuprolide. The majority of errors took place during clinic administration (56 percent); only 7 percent involved home administration. The medication error rate was much higher in children: 18.8 errors per 100 visits. Medications most susceptible to errors were dapsone and ciproheptadine. Errors took place most often in ordering (64 percent) and home administration (27 percent). However, more than half of the pediatric errors that had the potential for patient harm occurred when giving medications in the home. The study was funded in part by a grant from the Agency for Healthcare Research and Quality (HS10391) to the HMO CERT. For more information on the CERT program, please visit <http://certs.hhs.gov/>.

See "Medication errors among adults and children with cancer in the outpatient setting," by Kathleen E. Walsh, M.D., M.Sc., Katherine S. Dodd, Ph.D., R.N., Kala Seetharaman, M.D., and others in the February 2009 *Journal of Clinical Oncology* 27(6), pp. 891-896. ■

The complications and costs of obesity surgery are declining

Complications from bariatric (obesity) surgery dropped 21 percent from 2002 to 2006. The finding comes from a new study by William E. Encinosa, Ph.D., Didem M. Bernard, Ph.D., and Claudia A. Steiner, M.D., M.P.H., at the Agency for Healthcare Research and Quality (AHRQ), and Dongyi Du, Ph.D., at the University of

Maryland, Baltimore. As a result of fewer complications and subsequent hospital readmissions, payments to hospitals slid by as much as 13 percent.

The study compared complication rates in more than 9,500 patients who underwent bariatric surgery at 652 hospitals between 2001 and 2002 and

between 2005 and 2006. During the earlier period, the 180-day risk-adjusted complication rate was 42 percent. This dropped to roughly 33 percent during the most recent period. Postsurgical infection rates also declined 58 percent. Complications ranging from hernias to respiratory failure and

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pneumonia also fell substantially. However, the rate for dumping (including vomiting or diarrhea) did not change significantly (19 percent vs. an earlier 21 percent).

For patients with no complications, hospital payments for the surgery decreased from \$29,563 to \$27,905. When complications did occur, payments still dropped from \$41,807 to \$38,175. Also, hospital payments for readmitted patients fell from \$80,001 to \$69,960.

Such drops in complication rates are especially encouraging, since older and sicker patients are now having bariatric surgery. For example, the proportion of patients over age 50 increased from 28 percent to 44 percent, and the number of underlying illnesses in bariatric patients more than doubled during the period. The 6-month postsurgical death rate between 2005 and 2006 was 0.05 percent, virtually unchanged since 2001 and 2002. Overall, the researchers attribute the reduced complication rate and lower costs to the increased

use of minimally invasive techniques (laparoscopy), an increase in surgeon volume, and the growing popularity of banding procedures over traditional bypass surgery.

More details are in “Recent improvements in bariatric surgery outcomes,” by Drs. Encinosa, Bernard, Du, and Steiner, in the May 2009 *Medical Care* 47(5), pp. 1-5. Reprints (AHRQ Publication No. 09-R050) are available from AHRQ.* ■

A greater number of different chronic conditions increases hospital readmissions and costs

The rate of hospital readmissions and hospital cost per person in a year depends on the number of different chronic conditions a patient may have, concludes a new study. Agency for Healthcare Research and Quality (AHRQ) researchers Bernard Friedman, Ph.D., H. Joanna Jiang, Ph.D., and Anne Elixhauser, Ph.D., reviewed data for approximately 4.4 million adults from AHRQ’s Healthcare Cost and Utilization Project (HCUP) who had been hospitalized in six different States. The initial admissions occurred during January through November 2002.

Twenty percent of all adults were readmitted before the end of the year. Annual hospital costs were more than twice as high for these readmitted individuals. In addition, the percentage of people with five or more different chronic conditions was 50 percent higher among those with readmissions compared with people with no readmissions. Individuals readmitted tended to be older, with more illness severity at the time of their first admission. Congestive heart failure accounted for the highest probability of being readmitted (33.8 percent). Low rates of readmission were found for people with back pain (12.3 percent) and chest pain of unknown cause

(13.9 percent). Hypertension was present in half of all people with three chronic conditions.

The researchers also found that patients covered by Medicare and Medicaid had the highest likelihood of readmission and generated more costs compared with the privately insured. Those paying for their own health care out-of-pocket (self pay) had a lower rate of readmission and lower costs compared with privately insured patients. Costs for hospital care increased as the number of chronic conditions increased. Compared with people with no or only one chronic condition, the total hospital cost was about 11 percent higher for those with two conditions. This increased significantly to 46 percent for people with seven or more conditions. Concentrating new health care services on patients with a high number of different chronic conditions could significantly reduce readmissions and total hospital costs.

See “Costly hospital readmissions and complex chronic illness,” by Drs. Friedman, Jiang, and Elixhauser, in the Winter 2008/2009 *Inquiry* 45, pp. 408-421. Reprints (AHRQ Publication No. 09-R064) are available from AHRQ.* ■

Coronary artery bypass surgery may be better than angioplasty for older patients and those with diabetes

Patients with several blocked coronary arteries (multivessel disease) who also have diabetes or are older may have a significant survival advantage if they select coronary artery bypass graft (CABG) over percutaneous coronary intervention (PCI, angioplasty). That's the finding from an analysis of 10 randomized trials comparing the effectiveness of CABG with PCI (use of a balloon-tipped catheter or metal stent to open a blocked artery) for patients with several blocked arteries. While long-term mortality was similar with both procedures for some patients, researchers found a decided advantage in survival for CABG among patients suffering from diabetes or who were 65 years of age.

Through an extensive literature search, the researchers identified 10 randomized, comparison trials with at least 3 years of followup. Each study's principal investigator was

then asked to join a collaborative analysis of individual patient data on a set of core clinical variables. From information obtained on 7,812 patients, randomly assigned to either CABG or PCI, the researchers determined if survival was modified by patients' baseline clinical characteristics.

During a median followup of 5-9 years, the 3,889 patients who underwent CABG had a 15 percent mortality rate and the 3,923 patients who underwent PCI had a 16 percent mortality rate. The mortality rate was similar between groups in patients without diabetes. Among patients with diabetes, however, the mortality rate was significantly lower in the CABG group (23 percent) compared with the PCI group (29 percent).

Age was found to have a graded effect on mortality after CABG or PCI. For example, in patients age 65 years and older, the mortality

rate was 20 percent for CABG and 24 percent for PCI compared with 10 percent and 8 percent, respectively, for patients younger than 55 years. The interaction between age and treatment effect remained even after the researchers adjusted for such clinical factors as diabetes, smoking, and three-vessel coronary artery disease. The study was supported by the Agency for Healthcare Research and Quality (Contract No. 290-02-0017).

See "Coronary artery bypass surgery compared with percutaneous coronary interventions for multivessel disease: A collaborative analysis of individual patient data from ten randomised trials," by Mark A. Hlatky, M.D., Derek B. Boothroyd, Ph.D., Dena M. Bravata, M.D., and others in the April 2009 *Lancet* 373, pp. 1190-1194. ■

Outcomes/Effectiveness Research

Medicare's end-stage renal disease program seems to have reduced outcome disparities among dialysis patients

Medicare's end-stage renal disease (ESRD) program seems to have eliminated income-based mortality differences among patients receiving hemodialysis, suggests a new study. This has resulted in similar adjusted survival for hemodialysis patients who reside in lower-, middle-, and higher-income areas. Duke Clinical Research Institute investigators, led by Eric L. Eisenstein, D.B.A., evaluated relationships between lower- and higher-income versus middle-income area residence and mortality up to 5 years for 186,424 adults with ESRD. These patients began hemodialysis at stand-alone facilities between 1996 and 1999. Hemodialysis patients who resided in lower- versus higher-income areas had lower unadjusted mortality rates, were younger, and more often black. After adjustment for other factors affecting ESRD survival, such as clinical

factors and dialysis facility, there were no mortality differences among groups at different income levels.

However, blacks in all income level groups had 23, 25, and 19 percent lower adjusted mortality rates than others in the lower-income, middle-income, and higher-income groups, respectively. These results demonstrate the need to fully adjust for patient characteristics and the risks of using race as a surrogate for socioeconomic status, caution the researchers. Their study was supported by the Agency for Healthcare Research and Quality (HS13345).

See "Do income level and race influence survival in patients receiving hemodialysis?" by Dr. Eisenstein, Jie L. Sun, M.S., Kevin J. Anstrom, Ph.D., and others, in the February 2009 *American Journal of Medicine* 122(2), pp. 170-180. ■

Hospital system type affects mortality rates

Most U.S. hospitals belong to one of five main types of health systems: centralized, centralized physician/insurance, modern centralized, decentralized, and independent. Hospitals belonging to a centralized health system (CHS) have the lowest mortality rates for acute myocardial infarction (AMI, heart attack), congestive heart failure, and pneumonia, concludes a new study. A CHS centrally organizes hospital services, physician arrangements, and insurance product development, and provides them at the system level. Most often, such systems are found in cities and other areas where hospitals are in close proximity to each other, notes Gloria J. Bazzoli, Ph.D., of Virginia Commonwealth University.

She and fellow researchers gathered 6 years of data from 11 states and a variety of sources. The researchers used four clinical Agency for Healthcare Research and Quality (AHRQ) Inpatient Quality Indicators: specific risk-adjusted in-hospital mortality rates for AMI, congestive heart failure, pneumonia, and stroke. All are leading causes of death in the United States.

Hospitals affiliated with a CHS had lower mortality rates for the first three conditions. Independent hospital systems had better heart attack quality outcomes than centralized physician/insurance systems and moderately centralized health systems. The researchers found no difference in inpatient mortality for stroke among the five different system types. However, stroke mortality rose as the hospital size increased. Hospitals with increased pneumonia mortality rates were those with for-profit ownership status.

According to the researchers, a CHS is more likely to provide higher quality inpatient care than any other system type. CHS hospitals tend to be larger, associated with medical schools, and less likely to operate as a for-profit institution. The study was supported by the Agency for Healthcare Research and Quality (HS13094).

See "Variations in inpatient mortality among hospitals in different system types, 1995 to 2000," by Askar S. Chukmaitov, M.D., Ph.D., Dr. Bazzoli, David W. Harless, Ph.D., and others, in the April 2009 *Medical Care* 47(4), pp. 466-473. ■

Public Health Preparedness

Common definitions and reverse triage can help hospital planners meet surge capacity demands during emergencies

Surge capacity is a health care system's ability to expand quickly beyond normal services to meet an increased demand for medical care during a large-scale public health emergency. Hospitals are expected to be able to operate with no outside help for up to 4 days during an emergency. Two new studies, funded in part by the Agency for Healthcare Research and Quality (HS14533) and summarized here, explore concepts associated with surge capacity. The first offers a taxonomy that refines definitions to assist planners both in preparing for emergencies and collecting data. The second explains

how reverse triage can make beds available to meet peak demands during crises.

Hick, J.L., Barbera, J.A., and Kelen, G.D. (2009, June). "Refining surge capacity: Conventional, contingency, and crisis capacity." *Disaster Medicine and Public Health Preparedness* 3(Suppl 1), pp. S59-S67.

Noting the lack of definitions common to surge capacity, the authors developed a taxonomy that details space, staffing, and supply requirements during three levels of surge capacity. Conventional

capacity is used to describe normal operations, contingency capacity is out-of-the ordinary demand that only minimally affects patient care, and crisis capacity requires adapting resources to provide care during an emergency. Common terminology not only permits hospitals to collect data consistently, it also creates a framework for developing aids, like worksheets, that may help staff members whose hospitals are called upon to increase capacity quickly. The authors stress that well-thought-out plans and system

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components, including command, control, communication, continuity of operations, and community infrastructure, are all vital for ensuring a hospital can properly respond to public health emergencies.

Kelen, G.D., McCarthy, M.L., Kraus, C.K., and others. (2009, June). "Creation of surge capacity by early discharge of hospitalized patients at low risk for untoward events." *Disaster Medicine and Public Health Preparedness* 3(Suppl 1), pp. S1-S7.

Hospitals may be able to provide extra patient beds during a public health emergency by using reverse

triage. This method evaluates inpatients to see which ones can be safely discharged to free up beds for other patients in more immediate need of medical care. Researchers studied the records of 3,491 inpatients at 3 Maryland hospitals to determine how many patients required critical interventions (CIs), such as major surgery, airway management, cardiopulmonary resuscitation, or intravenous medication, which would preclude discharge during an emergency.

Those who did not require CIs could be discharged if their beds were needed, the researchers theorized. Forty-four percent of patients needed no CIs, and 40, 47, and 59 percent of patients from the three respective hospitals could

have been safely discharged to meet surge demands. If these patient beds were made available during an emergency, gross surge capacity ranged from 77 to 103 percent for the three hospitals. Patient beds could have been available within 24 to 48 hours.

The authors suggest that a system that predicts risks of CIs could be incorporated into the Hospital Available Beds for Emergencies and Disasters (HAvBED) System. Funded by the Agency for Healthcare Research and Quality, the HAvBED system is a national real-time hospital-bed tracking system being developed to address patient surge during a mass casualty event. ■

Emergency Medicine

Only a few academic emergency departments have dedicated pharmacists

The presence of clinical pharmacists can do much to increase patient safety, improve health outcomes, and reduce health care costs. Recently, the Institute of Medicine (IOM) has drawn attention to the value of clinical pharmacists in emergency departments (EDs). Yet, in 2003, only 3 percent of EDs had dedicated pharmacists present. This situation is improving somewhat, but not by much, suggests a new study by University of Rochester researchers led by Rollin J. Fairbanks, M.D., M.S. The researchers developed a survey questionnaire that asked about the availability of pharmacy services in EDs. The Web-based survey was then sent to 135 emergency medicine residency programs in 2006; 99 responded.

Only 8 percent of responding residency programs said they had a dedicated pharmacist on duty 24 hours a day in the ED. Less than a quarter (22 percent) of programs reported having partial pharmacy coverage. The vast majority (70 percent), however, said they had no clinical pharmacy coverage in their EDs. When coverage was available, the most common service provided by the pharmacist was

modification of inventory according to drug formulary status. Other common services included providing drug or toxicology information and adverse drug event reporting.

While nearly one-third of residency programs had some type of clinical pharmacy service available to the ED, such expertise was not being utilized to its fullest advantage. Only a few EDs asked the pharmacist to provide drug therapy recommendations, advice on cost-effectiveness, or patient counseling. They also did not use these clinical pharmacists very much in the education of medical students and residents in the ED. The study was supported in part by the Agency for Healthcare Research and Quality (HS15818).

See "Survey of physicians regarding clinical pharmacy services in academic emergency departments," by Jillian M. Szczesiul, Pharm.D., Rollin J. Fairbanks, M.D., M.S., James M. Hildebrand, B.A., and others, in the March 15, 2009 *American Journal of Health-System Pharmacy* 65, pp. 576-579. ■

Laparoscopic colon surgery is just as good as open surgery for emergencies

Most patients undergoing elective surgery of the colon are operated on with a minimally invasive technique called laparoscopy. In fact, it is now the gold standard of care in nonemergency cases. However, very little is known about how this approach compares with open surgery in emergency and urgent situations. A new study finds that there are advantages to laparoscopic surgery for these emergency cases, provided the surgeon is skilled in this approach.

In laparoscopy, a laparoscope is inserted through a small incision in the abdomen to view internal organs. Surgical instruments are also inserted through the same small incision to perform the operation. In this study, the researchers used a

database to identify 94 patients who underwent emergency colon surgery over an approximately 3-year period. A total of 42 patients underwent laparoscopic surgery. Another 25 patients who qualified for this approach received open surgery instead.

The mean surgical time was 21 minutes less for laparoscopic patients, who lost significantly less blood (118 mL) compared with open surgery patients (205 mL). They also had shorter hospital stays of 8 days compared with 11 days for patients undergoing the open procedure. In addition, laparoscopic patients spent less time in intensive care after surgery. Mortality rates were similar between both groups.

According to the researchers, more studies are needed to evaluate the role of laparoscopic surgery in certain emergency situations. There is a steep learning curve surgeons must overcome before mastering this type of surgical technique. Hence, any laparoscopic emergency procedure must be performed by surgeons highly skilled in this area of surgery. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00059).

See "Emergency laparoscopic colectomy: Does it measure up to open?" by Jonah J. Stulberg, M.P.H., Brad J. Champagne, M.D., Zhen Fan, M.D., and others, in the March 2009 *The American Journal of Surgery* 197, pp. 296-301. ■

Acute Care/Hospitalization

More education is needed to improve delirium and sedation management in intensive care units

Patients in intensive care units (ICUs) can develop delirium due to factors ranging from ICU stress, multiple drugs, interrupted sleep, and their fragile state. Delirium can include inattention, disorganized thinking, hallucinations, and other altered mental states. Since delirium can increase the risk of mortality, longer hospital stays, and other negative outcomes, its management is important. Although ICU providers believe delirium can adversely affect patient outcomes, they often do not manage the condition properly, reveals a new study.

Researchers surveyed 1,384 health care professionals working in ICUs about their beliefs and practices regarding ICU delirium and sedation management. These included physicians, nurses, respiratory care practitioners, and others. They compared results with an older 2001 survey, in which providers considered delirium a serious problem.

The current study found that the majority (59 percent) of providers surveyed estimated that one in four patients on a ventilator experienced delirium. A similar percentage of doctors (59 percent) screened for

delirium. Although only a third (33 percent) of those screening patients used a specific screening tool, this was nearly 3 times the 12 percent of doctors who used a specific screening tool in the earlier survey.

Unlike the 2001 survey, this new study also inquired about sedation methods and the use of spontaneous awakening trials (SATs) where patients are taken off sedation drugs for a day. Nearly a third (29 percent) of respondents said they did not use a specific sedation protocol. Although the majority (76 percent) had written policies on SATs in place, less than half (44 percent) implemented these awakening trials on more than half of the days the patient was in the ICU. The study was supported in part by the Agency for Healthcare Research and Quality (HS15934).

See "Delirium and sedation in the intensive care unit: Survey of behaviors and attitudes of 1384 healthcare professionals," by Rina P. Patel, S.B., Meredith Gambrell, B.A., Theodore Speroff, Ph.D., and others, in the 2009 *Critical Care Medicine* 37(3), pp. 825-832. ■

Performance obstacles negatively affect how ICU nurses perceive the quality and safety of care they deliver

Problems with work system design in the intensive care unit (ICU) affect not only nurses' workload, but also how nurses perceive the quality and safety of care they deliver, reveals a new study. Ayse P. Gurses, Ph.D., of Johns Hopkins University School of Medicine, and coinvestigators surveyed 265 nurses working in 17 ICUs at 7 hospitals throughout the country. Nurses were asked about 12 performance obstacles, and were asked to respond based only on their experiences from the shift they were just completing. Performance obstacles ranged from accompanying a patient during intrahospital transport to delay in getting medications from the pharmacy and equipment-related problems.

Ten of the 12 performance obstacles were significantly associated with workload. Examples include a poor physical work environment, dealing with too many family issues, poorly stocked patient rooms, and searching for patient charts. Nurses confronting these obstacles reported higher workloads, which were negatively associated with both perceived quality and safety of care and the quality of working life.

These nurses also suffered higher levels of stress and fatigue. Admitting a patient to the ICU during one's shift was also associated with higher workload, even when other obstacles were taken into account. Nurses who were female and 60 years or older

reported providing higher quality and safety of care. Those working the night shift were most likely to suffer high levels of fatigue and stress. Redesigning the ICU work system to reduce performance obstacles may reduce nurses' workload and quality and safety of care, suggest the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS14517).

See "Impact of performance obstacles on intensive care nurses' workload, perceived quality and safety of care, and quality of working life," by Dr. Gurses, Pascale Carayon, Ph.D., and Melanie Wall, Ph.D., in the April 2009 *HSR: Health Services Research* 44(2), pp. 422-443. ■

Diagnostic codes alone may misclassify bacterial infections among hospitalized patients with rheumatoid arthritis

Bacterial infections are common among patients suffering from rheumatoid arthritis (RA). However, RA patients receiving biologic therapies are reporting a growing number of serious infections. Therefore, it is important not to misclassify infections and thus mask the risks related to use of particular arthritis medications, caution the authors of a new study. They found that diagnostic (ICD-9) codes alone may misclassify bacterial infections in hospitalized RA patients, although the level of misclassification varied depending on the codes used and the strength of evidence required to confirm these infections. Combining ICD-9 codes with validated medical records-based infection criteria identified infections with the greatest accuracy.

The researchers at the Center for Education and Research on Therapeutics (CERT) of Musculoskeletal Disorders, University of Alabama at Birmingham, reviewed the medical records of 162 RA patients with and 50 RA patients without any ICD-9 code(s) for bacterial infection. Positive and negative predictive values (probability that disease is really present when the test is positive or not present when the test is

negative) of ICD-9 codes ranged from 54 to 85 percent and 84 to 100 percent, respectively.

Positive predictive values of the medical records-based criteria were 84 and 89 percent for "definite" and "definite or empirically treated infections," respectively.

The positive predictive value of infection criteria increased by 50 percent as disease prevalence increased, using ICD-9 codes to enhance the likelihood of identifying infections. The study was supported in part by the Agency for Healthcare Research and Quality by a grant (HS10389) to the University of Alabama at Birmingham CERT of Musculoskeletal Disorders. For more information on the CERT's program, visit <http://certs.hhs.gov/index.html>.

More details are in "Administrative codes combined with medical records based criteria accurately identified bacterial infections among rheumatoid arthritis patients," by Nivedita M. Patkar, M.D., M.P.S.H., Jeffrey R. Curtis, M.D., M.P.H., Gim Gee Teng, M.D., M.B.B.S., and others, in the *Journal of Clinical Epidemiology* 69, pp. 321-327, 2009. ■

Mental Health

Availability of primary care results in better mental health for rural residents

Each year, one in four Americans suffers from a mental disorder. Although much is known about the link between individual factors and mental illness, there is little information on how people's surroundings affect their mental health. A new study focusing on rural and urban environments has identified some striking contextual associations with mental health status. Researchers analyzed data from the 1998 Ohio Family Health Survey of households in rural and urban counties. They also examined Mental Component Summary (MCS) scores of mental health status and used multiple data sources to obtain relevant contextual data. Overall, the study looked at 6,311 individuals residing in 49 rural counties and 9,950 individuals living in 39 urban counties.

In rural areas, an increase in MCS scores (better mental health) was associated with the availability of primary care providers. Decreased MCS scores were associated with the proportion of individuals living in poverty or being unemployed, the degree of income inequality, and the proportion of female-headed households. None of these factors were associated with MCS scores in urban settings.

In urban communities, an increase in MCS score was associated with average educational attainment and the availability of psychiatrists. More hospital-based psychiatric services were associated with a decrease in MCS score. Among socioeconomic variables, only the proportion of unemployed was significantly associated with MCS scores. The association

between better mental health and the number of primary care providers in rural areas may reflect the front-line role these practitioners play in mental health care. Likewise, the association between better mental health status and the number of psychiatrists in urban areas may reflect the preference of these providers to practice in the city, note the researchers. The study was supported in part by the Agency for Healthcare Research and Quality (HS00059).

See "Rural-urban comparison of contextual associations with self-reported mental health status," by Lars E. Peterson, Ph.D., Alexander C. Tsai, M.D., Ph.D., Stephen Petterson, Ph.D., and David G. Litaker, M.D. in *Health & Place* 15, pp. 125-132, 2009. ■

Southerners have higher financial burden for mental health/substance abuse treatment

About 11 percent of people using outpatient mental health and substance abuse (MH/SA) treatment in the South used more than 5 percent of their family's annual income to cover their out-of-pocket treatment costs from 2001 to 2005, according to a new study. Southerners paid the highest percentage of treatment costs out of their own pockets because they were most likely to use prescription medications for their treatment and they paid the greatest share (39 percent) of the costs of these medications, according to Agency for Healthcare Research and Quality researcher Samuel H. Zuvekas, Ph.D.

For other regions of the country, between 8 and 10 percent of MH/SA treatment recipients spent more than 5 percent of their family's annual income, and 10 percent did nationwide. Patient out-of-pocket costs included fees for psychiatrists, psychologists, social

workers, and other specialty providers; MH treatment provided by primary care physicians; and medications.

Dr. Zuvekas and Chad Meyerhoefer, Ph.D., of Lehigh University, also found that prescription medications accounted for almost two-thirds of out-of-pocket spending for outpatient MH treatment. The out-of-pocket costs of medications are generally beyond the scope of recently enacted Federal parity laws that will require equal coverage for MH services in most private health plans and Medicare, limiting the extent to which parity laws will reduce the financial burden of MH treatment.

See "State variations in the out-of-pocket spending burden for outpatient mental health treatment," by Drs. Zuvekas and Meyerhoefer, in the May/June 2009 *Health Affairs* 28(3), pp. 713-722. Reprints (Publication No. 09-R056) are available from AHRQ.* ■

Health Care Costs and Financing

Varied Medicare reimbursement for bone density scans may be due to lack of clear diagnostic codes for test indications

More guidance and transparency in diagnostic coding are needed to ensure that Medicare patients with appropriate indications for central dual-energy x-ray absorptiometry (DXA) and other bone mass measurement tests are reimbursed for them, so that access to this important service is not compromised, recommends a new study. The Bone Mass Measurement Act (BMMA) of 1997 authorizes reimbursement for DXA and other bone mass measurement testing for five indications for U.S. Medicare beneficiaries. These include primary preventive screening for estrogen-deficient women, long-term glucocorticoid therapy, and hyperparathyroidism (conditions that all lead to loss of bone mass). Other indications are bone abnormalities such as vertebral fractures and assessment of patient response to

approved medications for osteoporosis.

In 2005, DXA was covered as part of the “Welcome to Medicare” exam and may be repeated as a reimbursable exam as often as every 23 months, or more often for medical necessity. Yet many of these indications don’t map to specific ICD-9 diagnosis codes, note the study authors.

They analyzed Medicare claims data from 1999 to 2005 for a 5 percent national sample of elderly beneficiaries with part A and B coverage who were not in HMOs.

Denial of Medicare reimbursement for these covered indications varied significantly by sex, time since previous DXA, diagnosis code submitted, place of service (office vs. DXA facility), and local Medicare carrier. For individuals who had no DXA in 1999 or 2000 and who had one in 2001 or 2002, the proportion of

DXA claims denied was 5.3 percent for women and nearly twice that (9.1 percent) for men. About 19 percent of claims for repeat DXAs (for men or women) performed within 23 months were denied. Reimbursement varied based on what diagnosis code was submitted. For repeat DXAs performed within 23 months from the most recent DXA, the proportion of claims denied ranged from 2 to 43 percent, depending on the Medicare carrier. The study was supported in part by the Agency for Healthcare Research and Quality (HS16956).

See “Regional variation in the denial of reimbursement for bone mineral density testing among U.S. Medicare beneficiaries,” by Jeffrey R. Curtis, M.D., M.P.H., Andrew J. Laster, M.D., C.D.D., David J. Becker, Ph.D., and others, in the *Journal of Clinical Densitometry: Assessment of Skeletal Health* 11(4), pp. 568-574, 2008. ■

Agency News and Notes

Many young adults have no health insurance and no regular doctor

Approximately 5 million adults aged 19 to 23 in the United States had no health insurance in 2006 for the entire year and 30 percent of them said they didn’t think it was worth the cost, according to data from the Agency for Healthcare Research and Quality (AHRQ). The analysis found that 46 percent (2.2 million) of uninsured young adults worked full time and 26 percent (1.3 million) worked part time. The report by AHRQ also shows that in 2006:

- Young adults who were uninsured for the entire year were only about half as likely as those who had insurance part of the year to have a usual source of care, such as a family doctor (36 percent vs. 70 percent).

- More than two-thirds of young adults without insurance for the entire year did not see a doctor.
- Young men were more likely than young women to be uninsured all year (30 percent vs. 18 percent).

The data are taken from the Medical Expenditure Panel Survey (MEPS), a detailed source of information on the health services used by Americans, the frequency with which they are used, the cost of those services, and how they are paid. For more information, go to *Characteristics of Uninsured Young Adults: Estimates for the U.S. Civilian Noninstitutionalized Population 19-23 Years of Age, 2006*, MEPS Statistical Brief #246 at www.meps.ahrq.gov/mepsweb. ■

Childbirth injuries fall sharply but more could be prevented

Injuries to mothers during childbirth decreased significantly between 2000 and 2006, according to data from the Agency for Healthcare Research and Quality (AHRQ). The number of mothers who experienced injuries while giving birth vaginally without the use of forceps or other instruments dropped by 30 percent. For mothers giving birth vaginally with the use of instruments and by cesarean section, injuries declined about 20 percent.

Despite the declines, nearly 158,000 potentially preventable injuries occurred to mothers and infants during childbirth in U.S. hospitals in 2006. Specifically:

- Women covered by Medicaid were less likely to be injured while giving birth than privately insured mothers (127 vs. 185 injuries per 1,000 vaginal deliveries with instruments, respectively).
- Mothers ages 25 to 34 had the highest rate of injury during vaginal delivery with instruments (193 per 1,000 such deliveries) and mothers ages 15 to 17 had the highest rate of injury during vaginal delivery

without instruments (48 per 1,000). Mothers ages 35 to 54 had the highest rate of injury during cesarean section (5.5 per 1,000).

- Mothers living in the highest income communities suffered 44 percent more obstetric injuries during vaginal delivery than those from the poorest communities. Black and Hispanic mothers experienced fewer childbirth-related injuries than whites (108, 130, and 162 per 1,000 vaginal deliveries with instruments, respectively). Asian-American mothers had the highest rate of childbirth-related injuries (203 per 1,000 vaginal deliveries with instruments).

AHRQ had more limited data on injuries to newborns during childbirth. The Agency found that:

- Injuries were highest to infants born in rural areas (2 per 1,000 deliveries for rural areas vs. 1.5 per 1,000 for large metropolitan areas) and the Northeast (2 injuries per 1,000) vs. the West (1.4 per 1,000).

- White infants had higher injury rates than other racial groups (1.9 per 1,000 vs. 1.4-1.5 per 1,000).
- Injury rates were higher for infants with Medicaid coverage than those with private insurance (1.7 per 1,000 vs. 1.5 per 1,000).

For more information, see *Potentially Avoidable Injuries to Mothers and Newborns During Childbirth, 2006*, Statistical Brief #74 (www.hcup-us.ahrq.gov/reports/statbriefs/sb74.pdf). The report uses statistics from the 2006 Nationwide Inpatient Sample, a database of hospital inpatient stays that is nationally representative of inpatient stays in all short-term, non-Federal hospitals. The data are drawn from hospitals that comprise 90 percent of all discharges in the United States and include all patients, regardless of insurance type, as well as the uninsured. The report also uses statistics from a special disparities analysis file created from the Healthcare Cost and Utilization Project 2006 State Inpatient Databases. ■

AHRQ report finds value of genetic testing for preventing blood clots unproven

There is insufficient evidence to conclude that genetic testing for two gene mutations in adults with a history of blood clots helps to prevent a condition known as deep-vein thrombosis or to improve other clinical outcomes, concludes a new report by the Agency for Healthcare Research and Quality (AHRQ). The report also failed to find any benefit from genetic testing of family members of patients who have at least one of the two mutations — known as Factor V Leiden (FVL) and prothrombin G20210A — as well as a history of deep-vein thrombosis.

As many as 600,000 Americans each year may have deep-vein thrombosis — blood clots that form in the legs or pelvis. These clots can travel to the lungs (pulmonary embolism), which is sometimes fatal. Deep-vein thrombosis occurs most commonly in people who are sedentary for a long period of time, such as when recovering from surgery or traveling long distances. The report, *Outcomes of Genetic Testing in Adults with a History of Venous Thromboembolism*, was

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Genetic testing

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authored by Jodi Segal, M.D., and colleagues at the AHRQ-supported Johns Hopkins Evidence-based Practice Center in Baltimore.

The authors failed to find any studies that directly addressed the effect of genetic testing on patient outcomes. However, they did find research indicating that keeping patients who have a genetic tendency to develop blood clots on blood-thinning drugs such as warfarin reduced the chance of a future clot. This benefit appears to be similar to that seen in patients

who do not have the genetic tendency to develop blood clots, but who have a history of clots.

AHRQ's evidence report is available at www.ahrq.gov/clinic/tp/fvltpt.htm. For more AHRQ information on deep-vein thrombosis, see *Preventing Hospital-Acquired Venous Thromboembolism: A Guide for Effective Quality Improvement*, at www.ahrq.gov/QUAL/vtguide/ and *Your Guide to Preventing and Treating Blood Clots*, available in both English and Spanish at www.ahrq.gov/consumer/bloodclots.htm. Free, single copies of all AHRQ publications are available from AHRQ.* ■

Announcements

AHRQ uses multimedia tools to educate consumers

During the past 2 years, AHRQ has crafted high-profile public awareness campaigns and multi-media outreach efforts to inform the health care decisions of millions of Americans. These range from the Agency's "Questions Are The Answer" campaign and a biweekly column by AHRQ's Director, Carolyn M. Clancy, M.D., to use of radiocasts, podcasts, and Twitter to educate broad groups about a variety of health care topics.

To help consumers take a more proactive role in their health care, AHRQ joined with The Advertising Council in 2007 to launch a national public service advertising campaign called "Questions Are The Answer" to encourage consumers to ask questions of their medical team.

The campaign includes TV, radio, print, and Web advertising. It also includes a toll-free number and a Web site (www.ahrq.gov/questionsaretheanswer/) with an interactive "question builder" that lets consumers create a customized list of questions they can bring to their medical appointment.

In the 2 years since the launch, the campaign has generated more than one-half million total visitors (548,200) to the "Questions Are The Answer" section of AHRQ's Web site. Ad spots appeared on radio, network and local cable TV, newspapers, Web sites, and outdoor billboards and bus shelters.

In 2007, AHRQ also launched Dr. Clancy's biweekly columns written for consumers on topics ranging from how to recognize quality to how to find a doctor, hospital, or nursing home. These columns appear on AHRQ's Web site at www.ahrq.gov/consumer/cc.htm. Last year, the 35-million member American Association of Retired Persons began running Dr. Clancy's columns on its *Bulletin Today* Web site. The columns appear under the heading "Finding Your Way" (www.bulletin.aarp.org/yourhealth/healthyliving). As of September 2008, the column generated about 4,000 page views per day – readership that is expected to grow.

Consumer-oriented, timely topics on health care quality, safety, and efficiency are also the focus of

Healthcare 411 (<http://healthcare411.ahrq.gov/>), a podcast news series produced by AHRQ. Weekly 60-second radiocasts now air on nearly 300 radio stations nationwide and are featured on 9 worldwide shortwave frequencies. In addition, a 10-minute podcast produced by AHRQ on a biweekly basis is shared with more than 500 professional organizations such as the National Business Coalition on Health and the National Quality Forum.

For the growing legions of Twitter fans, a Healthcare 411 page has been created at www.twitter.com/Healthcare411. It contains more than 70 radiocasts and newscasts and is updated weekly. Since January 2009, Healthcare 411's Twitter page has gained 212 followers.

For more details, see "AHRQ uses tools to educate consumers," by Allan Lazar, Director of AHRQ's Office of Communications and Knowledge Transfer, in the April 1, 2009 *Managed Healthcare Executive*. Reprints (AHRQ publication no. 09-R063) are available from AHRQ.* ■

Research Briefs

AcademyHealth Roundtable Panels. (2009, April).

“Roundtable on expanding capacity for comparative effectiveness research in the United States.” *HSR:Health Services Research* 44(2), pp. 327–342.

This discussion took place on June 2, 2007, at the AcademyHealth Annual Research Meeting in Orlando, FL. The facilitator was Sean Tunis, M.D., director of the Center for Medical Technology. The panelists were Carolyn Clancy, M.D., director of the Agency for Healthcare Research and Quality, W. David Helms, Ph.D., president of AcademyHealth, J. Michael McGinness, M.D., senior vice president at the Robert Wood Johnson Foundation, and Steven D. Pearson, M.D., president of the Institute for Clinical and Economic Review at Harvard Medical School. The discussion focused on clarifying what falls under the umbrella of clinical effectiveness. It began with an effort to define “comparative effectiveness.” This, in turn, led to a discussion about what is being compared: Are comparisons only about drugs, devices, and surgical procedures, or the many different and sequential options embedded in the choices that clinicians have to make? The extent to which cost and cost effectiveness should be considered in comparisons was also discussed. In addition, attention was given to the methods to be used in comparative effectiveness research.

Brown, J. S., Kulldorff, M., Petronis, K. R., and others. (2009). “Early adverse drug event signal detection within population-based health networks using sequential

methods: Key methodologic considerations.” (AHRQ grant HS10391). *Pharmaco-epidemiology and Drug Safety* 18, pp. 226–234.

The authors report on the use of active surveillance of HMO patient records to detect patterns of adverse drug events (ADEs) associated with specific drugs, and how changes in the study specifications change the ability to prospectively detect signals of such patterns. The study drew on patient records from nine geographically diverse health plans involved in the Agency for Healthcare Research and Quality-funded HMO Research Network’s Center for Education and Research on Therapeutics from the beginning of 2000 to the end of 2005. The authors found that relaxing the exclusion criteria for ADEs resulted in earlier detection of an ADE signal by 10–16 months. They did this by either including HMO members with prior outpatient diagnoses used as ADE signals for a drug of interest or reducing to 90 days the time before a patient was started on a drug of interest.

Clancy, C. M. (2009). “CMS’s hospital-acquired condition lists link hospital payment, patient safety.” *American Journal of Medical Quality* 24(2), pp. 166–168. Reprints (AHRQ Publication No. 09-R054) are available from AHRQ.*

A change in policy by the Center for Medicare & Medicaid Services means that hospitals are no longer paid the additional costs incurred when patients develop certain “hospital-acquired conditions,” such as treatment-related infections, pressure ulcers, and falls. In this commentary, Agency for Healthcare Research and Quality (AHRQ)

Director Carolyn M. Clancy, M.D., discusses the history and rationale for the new policy. She notes that the excluded conditions are also related to the list of “never events” developed by the nonprofit National Quality Forum. The commentary notes the possibility of negative impacts of this policy, especially on the treatment of the elderly. It also highlights the recent AHRQ-funded study on reducing catheter-related infections that saw a 66 percent decrease in the rate of such infections because of the use of safer procedures during an 18-month study period. Dr. Clancy concludes that the momentum for linking hospital payments with prevention of adverse events will only increase over time.

Clarke, J. L. (2009). “The accountability conundrum: Staying focused, delivering results. A report on the UHC 2008 Quality and Safety Fall Forum.” *American Journal of Medical Quality* 24(Suppl.), pp. 5S–43S. (AHRQ Director Carolyn M. Clancy participated, pp. 8S–10S). Reprints (AHRQ Publication No. 09-R055) are available from AHRQ.*

Dr. Clancy spoke at the University HealthSystem Consortium’s 2008 Quality and Safety Fall Forum on “Partnering with External Regulators to Advance Quality and Safety.” She described the Agency’s efforts in knowledge creation, including initiatives in reducing methicillin-resistant *Staphylococcus aureus* (MRSA) and the Effective Health Care Program. Synthesis and dissemination activities include the actions of the U.S. Preventive

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Services Task Force, which is revisiting its recommendations to address not just “Does the test work?” but also “Does it detect the disease early enough to make a difference?” To foster implementation and use of knowledge funded by the Agency, AHRQ is encouraging collaboration between multiple stakeholders at the local community level across organizations and aligning metrics across settings. Dr. Clancy noted that ideally we should have a health care system we can count on wherever we go—“like tap water.”

Coleman, L. A., Kottke, T. E., Rank, B., and others (2008). “Partnering care delivery and research to optimize health.” (AHRQ grant HS17518). *Clinical Medicine & Research* 6(3/4), pp. 113–118.

In this paper, a report on a clinical leadership panel held at the 14th Annual Health Maintenance Organization Research Network Conference, speakers discuss five principles that have been proposed to optimize care through research. Key among these is that the needs of patients and populations should determine the research agenda and that the research agenda must determine the research methods (rather than vice versa). The research agenda must also address context and implementation issues, such as development of care delivery and accountability systems. While generally in agreement, the speakers—who came from large integrated health care systems that conduct research—differed on how to achieve the goals.

Dalal, P. G., Murray, D., Messner, A. H., and others (2009). “Pediatric laryngeal dimensions:

An age-based analysis.” (AHRQ grant HS16652) *Pediatric Anesthesiology* 108(5), pp. 1475–1479.

Decisions on airway management in children have relied on the belief that the pediatric larynx is funnel-shaped, with the widest part near the glottis and the narrowest part at the level of the cricoid cartilage. This belief is based on a limited number of autopsy measurements. However, the authors of this paper used video bronchoscopy to measure the dimensions of the larynx in 135 anesthetized children, aged 6 months to 13 years. As part of the study, the children were placed on ventilation while their upper airway muscles were temporarily paralyzed. In contrast to the postmortem findings, the current study found that the airway shape was more cylindrical than funnel-shaped, as is typical of the adult larynx. The authors suggest that future studies should investigate the dynamics of the larynx in vivo, with and without an endotracheal tube.

Dintzis, S. M. and Gallagher, T. H. (2009). “[Editorial] Disclosing harmful pathology errors to patients.” (AHRQ grant HS16506) *American Journal of Clinical Pathology* 131, pp. 463–465.

In this editorial, the authors set out the problems in disclosing harmful errors in diagnostic pathology. In particular, they present a problem in which the pathologist recognizes a previous mistake in pathology and communicates it to the patient’s primary physician, but the physician decides not to inform the patient. In this case, what is the responsibility of the pathologist to the patient? The authors discuss this issue in light of recent movements

by the Joint Commission on Accreditation of Healthcare Organizations and the National Quality Forum toward requiring greater transparency of health care organizations and the increase in patient safety event reporting systems.

Greenlee, R. T., Coleman, L. A., Nelson, A. F., and Selby, J. V. (2008). “Partnerships in translation: Advancing research and clinical care. The 14th Annual HMO Research Network Conference, April 13–16, 2008, Minneapolis, Minnesota.” (AHRQ grant HS 17518) *Clinical Medicine & Research* 6(3/4), pp. 109–112.

In this paper, the authors provide an overview of the 14th Annual Health Maintenance Organization (HMO) Research Network Conference. They outline the background of the HMO Research Network, which has grown to 15 organizations in locations from Hawaii to Massachusetts, and describe the topics discussed at the conference’s plenary and scientific sessions. In a table, the authors list the nine large, federally funded research collaborations that use the HMO Research Network, including three with the Agency for Healthcare Research and Quality: the Centers for Education and Research in Therapeutics; the Developing Evidence to Improve Decisions about Effectiveness Network; and the Integrated Delivery Systems Research Network. These collaborations allow specific research questions in health care delivery to be investigated in real-world patient populations.

Kelly, C. Y., and Clancy, C. M. (2009). “Pharmacists emerge as key stakeholders in quality,

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patient safety efforts.” *Journal of the American Pharmacists Association* 49(2), pp. 146–150. **Reprints (AHRQ Publication No. 09-R057) are available from AHRQ.***

In this commentary, Agency for Healthcare Research and Quality (AHRQ) Director Carolyn M. Clancy, M.D., and AHRQ colleague Carmen Y. Kelly, Pharm.D., discuss the emerging role of pharmacists in ensuring quality and safety of patient care. They note that medication errors represent nearly 20 percent of adverse events, affecting 4 percent of all hospital stays. A 2006 Institute of Medicine study put the number of preventable medication adverse events in emergency departments at 3.6 million annually. The authors focus in their article on the role of pharmacists in medication therapy management for patients with chronic illnesses, the role of emergency pharmacists in reducing ED drug-related errors, and the importance of raising awareness among pharmacy staff about patient health literacy problems. They suggest that pharmacists and pharmacy staff work with other stakeholders to address quality and safety problems.

Lorch, S. A., Silber, J. H., Even-Shoshan, O., and Millman, A. (2009, April). “Use of prolonged travel to improve pediatric risk-adjustment models.” (AHRQ grant HS09983). *HSR: Health Services Research* 44:2 (Part I), pp. 519–541.

The researchers sought to determine whether the time and distance sick children travel to get to the hospital could explain previously reported differences in length of stay (LOS), readmission,

or death at children’s hospitals versus other hospital types. They used claims data on children aged 1-17 years admitted to acute care hospitals in Pennsylvania between 1996 and 1998. They identified 19 common, unscheduled medical conditions from the ICD-9-CM codes. Prior work had suggested that children’s hospitals have longer LOS, higher readmission rates, and higher mortality rates compared with other types of hospitals. The researchers found that the addition of a travel variable to a traditional risk-adjustment model—whether geocoded travel times or nongeocoded travel distances—reduced these systemic differences. Their analysis suggests that the severity adjustment of the models improves when these travel variables are factored in, because patients who travel further to receive care are sicker by all available measures.

Parente, S. T., and McCullough, J. S. (2009). “Health information technology and patient safety: Evidence from panel data.” (AHRQ grant HS15001). *Health Affairs* 28(2), pp. 357–360.

Extensive literature shows the value of health information technology (IT) at leading academic institutions; however, its broader value remains unknown. Using a large, nationally representative sample of Medicare patient data, the researchers sought to determine the impact of three health IT applications—electronic medical records (EMR), nurse charts, and picture archiving and communications systems (PACS)—on patient safety indicators. The indicators were infections due to medical care, postoperative hemorrhage or hematoma, and postoperative pulmonary embolism or deep vein thrombosis. The study found that EMRs were the only

health IT application to have a clear and statistically significant effect on patient safety. The use of EMRs resulted in about two averted infections per year at an average hospital. However, the authors conclude that the evidence base is not yet sufficient to draw definite conclusions about the value of health IT. A major reason is that the nationally available patient safety metrics are less than comprehensive.

Pincus, H. A. (2009, April). “Challenges and pathways for clinical and translational research: Why is this research different from all other research?” (AHRQ grant HS16097). *Academic Medicine* 84(4), pp. 411–412.

The author’s commentary on three articles in the same issue addresses four questions about clinical and translational research that should be considered by policymakers at a national level, by academic institutions, and by individual scientists: what, who, how, and why. Most of his comments are directed at the first two questions. The author perceives ambiguity in the differing definitions of clinical and translational research (C/T research) offered by the groups discussed in the articles. This ambiguity means that policymakers are not providing a clear target for institutions and researchers. Future C/T researchers will be determined by issues of recruitment, training, mentoring, social supports, the institutional reward system, and the impact of Federal and other programs. Given the rapid evolution of new tools and methodologies in C/T research, the author believes that it is important to consider each of these issues across the full

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developmental pathway of a C/T researcher. He also provides a list of the roles and tasks of the C/T researcher.

Politi, M. C., Schleinitz, M. D., and Col, N. F. (2008, June). "Revisiting the duration of vasomotor symptoms of menopause: A meta-analysis." (AHRQ grant HS13329). *Journal of General Internal Medicine*, 23(9), pp. 1507–1513.

Researchers conducted an extensive literature review of 410 studies to determine how long hot flashes and night sweats, called "vasomotor symptoms," are thought to occur during menopause. The studies showed that these symptoms peak 1 year after the final menstrual period, with 50 percent of women experiencing symptoms 4 years after their last periods. If these durations are accurate, the researchers suggest they should affect clinical guidelines so that the risks of hormone therapy are balanced with the woman's quality of life. Further, more studies need to be conducted that address the duration of hot flashes and night sweats so true timelines can be determined and treatments developed. Finally, risk factors for vasomotor symptoms should also be researched.

Ross, L. E., Hall, I. J., Fairley, T. L., and others. (2008, October). "Prayer and self-reported health among cancer survivors in the United States National Health Interview Survey, 2002." (AHRQ grant HS13353). *Journal of Alternative and Complementary Medicine* 14(8), pp. 931–938.

Many cancer patients seem to find solace in prayer, according to a new study. Using data from the 2002 National Health Interview

Survey, researchers from Shaw University in North Carolina found that almost 70 percent of 2,262 cancer patients prayed for their own health and 72 percent reported their health as good. Groups who most often used prayer for health included individuals who were 35 and older, women, married, or who reported having never served in the military. Conversely, individuals who were age 18 to 34, men, unmarried, or veterans did not report using prayer for health often. Blacks (80.5 percent) and Hispanics (72.9 percent) used prayer for health more than non-Hispanic whites (68.2 percent). However, whites (72.9 percent) were more likely to report better health than blacks (55.1 percent) and Hispanics (59.3 percent). The authors found no link between socioeconomic status and prayer. Patients with breast, colorectal, prostate, and short-survival cancers (lung, liver, esophagus, pancreas, and stomach) were more likely to use prayer than patients with skin cancer.

Schadow, G. (2009, March/April). "Structured product labeling improves detection of drug-intolerance issues." (AHRQ grant HS13577). *Journal of the American Medical Informatics Association* 16(2), pp. 211–219.

The researcher compared the performance of drug-intolerance issues detection by a new method using structured product labeling (SPL) and its public knowledge sources with an older method (the Regenstrief Institute's Gopher computerized provider order entry system). Both methods were applied to a large set of drug-intolerance (allergy) records, drug orders, and medication dispensing records covering more than 50,000 patients between 1977 and 2008. The new approach detected four times as many drug-intolerance

issues on twice as many patients. The SPL method outperformed the Gopher method because it is more systematic and complete. For example, it is capable of resolving a substance class to all drugs that include any ingredient of that class. Another reason SPL outperformed Gopher is the deeper structure of the systematic chemical class terminology that is used together with the SPL method.

Scholle, S. H., Roski, J., Dunn, D. L., and others. (2009, January). "Availability of data for measuring physician quality performance." (AHRQ grant HS16277). *The American Journal of Managed Care* 15(1), pp. 67–72.

Administrative data for single health plan may not provide enough information for benchmarking performance of individual physicians, conclude the authors of this paper. They report that most primary care physicians do not have enough patients experiencing quality measure events to give accurate measures of their quality of care. The researchers estimated 30 eligible patients as the minimum number of patients needed to allow comparisons on an individual measure. In fact, using claims data from 9 health plans (a total of 170,168 primary care physicians) over 2 years, the authors found that the proportion of physicians who had at least 30 patients eligible for any of 27 quality measures ranged from near 0 to 18 percent. For example, only 6 percent of the physicians had seen at least 30 patients who were eligible for glaucoma screening one or more times. The authors also found that requiring the physician to have provided at least 50 percent of the patient's care visits reduced the

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mean number of quality measure events per physician by a third (from 8.9 to 5.9 events).

Setoguchi, S., Wang, P. S., Brookhart, M. A., and others. (2008, September). "Potential causes of higher mortality in elderly users of conventional and atypical antipsychotic medications." (AHRQ Contract no. 290-05-0016). *Journal of the American Geriatrics Society* 56(9), pp. 1644–1650.

Researchers analyzed data of 37,241 elderly patients in British Columbia who were prescribed conventional or atypical antipsychotic medications (APMs) from 1996 to 2004. Almost 13 percent of patients who received conventional APMs died from non-cancer causes within 180 days after they began taking the drugs compared with 9 percent of patients who were prescribed atypical APMs. Forty-nine percent (3,821) of the patients who died within 6 months of starting conventional APMs died from cardiovascular (CV) causes. The most frequently used conventional APM was loxapine (69 percent), followed by haloperidol (11 percent) and chlorpromazine (7 percent). The most frequently used atypical APM was risperidone (75 percent) followed by quetiapine fumarate (15 percent) and olanzapine (10 percent).

Shea, J. A., Guerra, C. E., Weiner, J., and others. (2008, October 2008). "Adapting a patient satisfaction instrument for low literate and Spanish-speaking populations: Comparison of three formats." (AHRQ grant HS10299). *Patient Education and Counseling* 73, pp. 132–140.

A study comparing an interactive voice format for the Consumer

Assessment of Healthcare Providers and Systems Survey (CAHPS®) with illustrated and print formats found that the voice format was no more effective for soliciting responses from low literacy consumers than the other two formats. Researchers asked 2,015 primary care adult patients to complete demographic information, a test of functional health literacy, and 1 of 3 CAHPS formats. A second sample of 4,800 patients was randomized to receive the illustrated or interactive voice formats.

Independent of survey format, low literacy predicted worse CAHPS satisfaction scores. Response rates for the illustrated (31.3 percent) and print (30.4 percent) formats were significantly higher than for the interactive voice format (18.1 percent). Results of the illustrated format were comparable to the traditional text version, but required about 2 minutes more to complete by both low and high literacy groups. There were almost no invalid responses for the interactive voice format, but the format was associated with lower CAHPS satisfaction scores.

Thrasher, A. D., Earp, J. L., Golin, G. E., and Zimmer, C. R. (2008, September). "Discrimination, distrust, and racial/ethnic disparities in antiretroviral therapy adherence among a national sample of HIV-infected patients." (AHRQ grant HS00032). *Journal of Acquired Immune Deficiency Syndrome* 49(1), pp. 84–92.

This study found that minorities with HIV have poorer adherence to antiretroviral therapy than whites (40 versus 50 percent); however, discriminatory health care experiences and related provider distrust did not seem to be the underlying link to poorer adherence. More than 40 percent of

the 1,886 patients surveyed reported they had experienced discrimination in a health care setting since they were diagnosed with HIV. Yet, minority patients were less likely than whites to report discrimination. Although minorities' experience with discrimination led to distrust of their providers and their belief that drug therapy was not worthwhile, it did not affect their medication adherence. Both white and minority patients with HIV tended to trust their care providers. Patients who reported distrust of their medical provider nevertheless tended to adhere to antiretroviral therapy. The authors suggest that distrust may actually fuel patients' vigilance in taking their drugs because these patients believe they are solely responsible for their health.

Unruh, L., Russo, C. A., Jiang, H. J., and Stocks, C. (2009). "Can state databases be used to develop a national, standardized hospital nurse staffing database?" *Western Journal of Nursing Research* 31(1), pp. 66–88. Reprints (AHRQ Publication No. 09-R040) are available from AHRQ.*

The authors survey the usefulness of existing State nursing databases for studies of nurse staffing. They find that 25 States collect some form of nurse staffing data, but only 12 of these make complete, usable data available. Because of the differences in data collection among the States, especially for measures of registered nurses (RNs), they propose continued improvement of State-level nurse staffing databases. They also propose the creation of a standardized, multistate database with uniform data elements. Another issue that makes staffing research difficult is that the State

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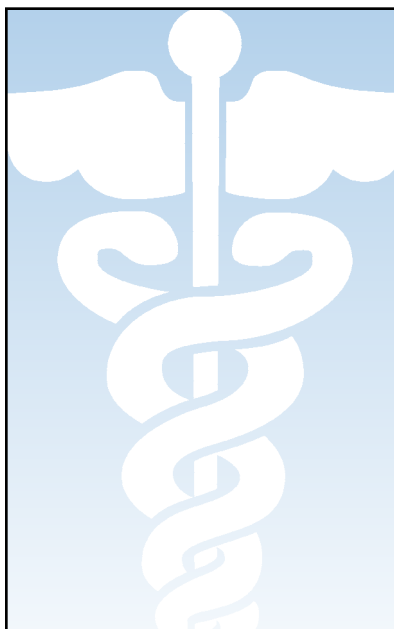
databases typically collect data at the hospital level, making it difficult to do comparisons or analyses for different types of hospital units, the authors note.

Zaydfudim V., Wruight, J. K., and Pinson, C. W. (2009, April). "Liver transplantation for iatrogenic porta hepatic transaction." (AHRQ grant T32

HS13833). *The American Surgeon* 75(4), pp. 313–316.

The authors describe two cases in which damage during surgery to the main vein, artery, and bile duct in the liver (iatrogenic porta hepatis injury) was successfully treated by liver transplant. This serious problem can occur during minimally invasive removal of the gallbladder (laproscopic cholecystectomy). Attempts to reconstruct the bile duct or manage arterial injuries without

transplantation rarely result in return to a normal health-related quality of life. The authors report on 2- and 6-year follow-ups of two patients treated by liver transplantation. Both patients were alive and well at the time of writing. The authors suggest that two-state total liver removal with portocaval shunting followed by liver transplantation be considered for patients suffering this surgery-related injury. ■



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