



RESEARCH ACTIVITIES

U.S. Department of Health and Human Services | No. 380, April 2012

This publication is provided for historical reference only and the information may be out of date.

AHRQ expert discusses trends and challenges in health information technology

Following is a *Research Activities* interview with Jon White, M.D., health information technology (IT) portfolio director at the Agency for Healthcare Research and Quality (AHRQ), about current trends and challenges in health IT.

RA: At the February Health Information Management Systems Society meeting in Las Vegas, you were on a panel to discuss the Federal response to the Institute of Medicine (IOM) report, *Health IT and Patient Safety: Building Safer Systems for Better Care*. The report notes emerging concerns about safety

hazards introduced by complex health IT systems. What are some of these safety hazards?

JW: There are two sides to the safety issue. First, does health IT improve safety as much as research shows? The answer is when health IT is correctly implemented and used, it has the beneficial effects that we have observed in our research. For example, computerized provider order entry (CPOE) can alert providers to drug-drug interactions, drug-allergy interactions, or drug-condition issues. The alerting system catches the fact that a patient is on drug x and you shouldn't give him drug y with drug x, which helps avoid medication errors. If the provider turns that alert off or gets the alert and ignores it, then you don't stop that problem from happening. That's an example of ineffective or less effective implementation of health IT.

The other side of the coin is, does health IT cause problems or safety issues? This can be a thing like entering orders on the wrong patient. The system says I'm entering them on Mr. Smith, but instead I'm entering them on Mrs. Brown. Or information gets changed as it goes through the



system. For example, I order 1 mg of morphine, but due to a software error the patient is administered 100 mg of morphine. There are issues that people like Dr. Ross Koppel of the University of Pennsylvania have described over time, cognitive problems in information that are presented or are presented in a way that is not obvious or useful. For example, you put all your alerts in red because you think that will call them out to the reader. But someone who is colorblind may not notice the alert, because it's in red. So it's not just implementation. Sometimes it's how the systems are put together and subsequently used.

continued on page 3

Highlights

Topics

Primary Care	5
Patient Safety and Quality	6
Chronic Disease	8
Outcomes/Effectiveness Research	10
Comparative Effectiveness Research	13
Elderly/Long-Term Care	14
Disparities/Minority Health	16

Regular Features

From the Director	2
Agency News and Notes	16
Announcements	18
Research Briefs	21

From the Director



President's 2013 budget proposal released in February directed \$25.6 million to AHRQ's health

information technology (IT) portfolio. Of that, nearly \$19 million is for research grants using health IT to improve care quality. As Dr. White pointed out in the interview in this issue, well-designed health IT systems that are implemented using best practices can improve safety and quality.

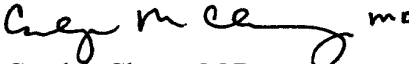
Yet, there is currently little published evidence that attempts to quantify the risk of health IT implementation, according to the recent Institute of Medicine (IOM)

rt, *Health IT and Patient Safety: Building Safer Systems for Better Care*. The U.S. Department of Health and Human Services contracted with the IOM to examine what is currently known about the effect of health IT on patient safety and to make recommendations on the role of AHRQ and other agencies and groups to ensure the safe implementation of health IT.

Improving the safety and quality of all aspects of care remains a core part of AHRQ's mission. Our health IT research projects continue to examine best practices for implementing health IT with the goal of improved quality of care. For example, we have developed a Workflow Assessment for Health IT Toolkit to help small- and medium-sized practices assess and redesign their workflows when transitioning

from paper to electronic records. The goal is to prevent workarounds, inefficiencies, and safety problems. AHRQ's other health IT projects range from use of simulators for clinician training and telemedicine consults in inner city schools and rural locations, to novel approaches to improve medication management, e-prescribing, and electronic health records.

With these and many other projects, AHRQ continues to work to ensure that health IT fulfills its potential to save lives, improve care quality and safety, and reduce health care costs, as well as to make care more patient-centered and accessible.


Carolyn Clancy, M.D.

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:

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

Gail S. Makulowich
Managing Editor

Kevin Blanchet
David I. Lewin
Kathryn McKay
Mark W. Stanton
Contributing Editors

Joel Boches
Design and Production

Farah Englert
Media Inquiries

Also in this issue:

Contraceptive counseling,
page 5

Heart failure hospitalizations,
page 8

Diagnosis of ectopic pregnancy,
page 12

In-home monitoring sensors,
page 14

Obesity and joint pain, page 16

Correction: The March issue cited the incorrect reprint no. for the study on physical therapy that appeared on page 11. The correct reprint no. is 11-R074.

Health IT

continued from page 1

RA: Does the work environment influence the safety impact of health IT?

JW: Absolutely. When you implement a health IT tool in a system that is not working well, it may not improve the situation. A recent example is a pediatric intensive care unit in Pittsburgh that implemented CPOE. Apparently, they were already having communication problems, and after implementation, they documented a short-term rise in their mortality rate. The problem was that people weren't talking to one another, and the order entry tools weren't well integrated into their workflow. As a result, medications were getting to patients slower, as well as other issues. So you don't see improvements in care just by virtuous use of a well-designed product. When you've got problems with a system to begin with, don't expect health IT to fix them, unless you also address underlying workflow and related issues. Health IT is a tool that can help you do a job better, but only if you use the tool correctly.

RA: What actions does the IOM report recommend that AHRQ undertake to improve patient safety in health IT?

JW: The report identifies that health IT can be a safety problem. We don't have a handle on whether it's a big or little problem, medium-sized problem, or if it is happening all the time. We really don't know the scope of the problem. So the IOM report wants AHRQ to use the Patient Safety Organizations (PSOs) and the safe-harbor construct of PSOs as a mechanism for gathering more information on safety issues and medical errors related to health IT. AHRQ has

been asked to work with the HHS Office of the National Coordinator for Health IT (ONC) on this issue, and indeed we have been.

RA: How is this reflected in the work of AHRQ's health IT portfolio?

JW: We've always focused on safety as a component of quality. We've funded a lot of projects over the years in the inpatient and outpatient setting, both demonstrating how health IT can improve safety and how health IT may facilitate unintended consequences or medical errors, as well as constructive ways to address good implementation and good use. For example, in the past AHRQ funded a CPOE evaluation tool, which the Leapfrog Group now uses in its annual survey. Leapfrog used to ask, "Do you have CPOE?" as part of the survey. Now systems that have CPOE are assessed on whether or not they are as effective as they are supposed to be—did the CPOE system catch the mistakes it was supposed to catch.

RA: Health IT, when designed and properly implemented, can markedly improve the quality and safety of care. Have health IT tools like CPOE, clinical decision support systems, and e-prescribing become better over time and how do they still need to improve to fulfill their promise to improve care safety and quality?

JW: They've absolutely improved over time. Anyone who's gone from Windows 3.1 to Windows 7 knows that our computing power capabilities and the sophistication of computing tools have increased, and health IT has similarly improved. You no longer have to have a high degree of comfort with computer systems or even a high degree of training in some cases to



Dr. Jon White, health IT portfolio director at AHRQ.

use them well. Witness the explosive growth of the iPad®. That doesn't mean that we are dumbing down medicine in any way. It's just as complex, but we have better information tools available.

We also have a better understanding of different capabilities within the health care system. There have been some providers who have always been early adopters. They like technology and like to use technology tools in the delivery of their care. Then there are providers who have been waiting to use them but aren't going to actively seek them out. Finally, there are people who stubbornly refuse to use them.

In our world, the early adopters are using health IT. The middle group is being pulled there by meaningful use incentives provided by the Federal government as well as increased appreciation and understanding within the clinical community of the value of these tools. They're starting to feel they are not delivering care as well as they could without the tools, which is good. That's where we've wanted to be for a while. There may sometimes be some very good reasons why some don't want to make a change to use these tools, so it isn't always stubbornness.

RA: Is cost or lack of resources a barrier for some providers?

JW: Cost is becoming less of a barrier as time goes by. It's not necessarily the up-front cost of the

continued on page 4

Health IT

continued from page 3

system per se. There are expensive systems, but there are very inexpensive systems. You can actually buy an electronic medical record system at Costco. So there are lots of different ways to get access to the software, and some are even free. The business model for some companies is not to charge you up front, but to charge you a certain percentage of your billings. So there are different ways to afford the information systems. The real cost to practices is the time it takes to train people to use the system, and an initial decreased productivity for those practices that are fee-for-service and driven by volume. Practices are slower when they start using this system as would happen with any new system or tool. Meaningful use incentives have helped provide people with the resources to get over that initial “entropy hump.” The majority of clinicians then say, “I’d never go back to paper. It’s so clear to me that having the information I need where and when I need it is so useful, I can’t imagine practicing without it.”

RA: Would you say that health IT underlies patient-centered care?

JW: Underlies and underlines. When I talk about patient-centered care, it means making decisions according to the patients’ values for what they want out of their health care and with their engagement and shared participation in the decision-making. You can’t do that unless the patient understands the basis on which they are making decisions. And health information systems are going to drive that.

RA: Has health IT helped reduce disparities among disadvantaged populations?

JW: Health IT does not “auto-magically” reduce disparities. If you can identify a specific information-related cause or factor in disparity, health IT can help fix that. For example, rural providers don’t have a lot of connection with their peers and patients have to drive long distances for specialty care. In New Mexico we funded a telemedicine intervention called Project Echo that originally focused on hepatitis C and later on a number of other chronic diseases. We created a provider network where providers in Truth or Consequences, New Mexico, can do a teleconsult with the esteemed gastroenterology faculty at the University of New Mexico, Albuquerque.

Rural providers can spend time discussing cases with each other, learning about hepatitis C, and become better connected to other providers. As a result, provider satisfaction and confidence has gone up, and more importantly, patient outcomes improved. The cure rate for hepatitis C, which had been much lower than that of medical centers, rose to the higher cure rate seen at the university.

An area currently under investigation is pushing information to disadvantaged populations. We can’t expect economically disadvantaged people to have the latest and therefore most expensive gadgets, but a common technology such as cell phones can receive texts on how or when to take medicine, or if you are pregnant, information about how to keep you and your baby healthy. That’s a promising route to get individuals the information they need that they would not have access to otherwise.

RA: There remain privacy concerns about the exchange of electronic health record and other health information. Is AHRQ working on projects to remedy this situation?

JW: AHRQ has historically worked in close collaboration with ONC. ONC now has a chief privacy officer that works with the Office of Civil Rights very closely. We provide them with input to help them understand the technological capabilities of health IT products, as well as the information needs of clinicians and patients’ information needs and desires. AHRQ has a lot of work going on looking at patients’ information needs, where and when do they want information, what their attitudes about that information are, and who they need to see it.

For example, if I’m the caregiver for my 95-year-old mother, I need access to that information and chances are she’s going to want me to have access to that information. There shouldn’t be a barrier to my getting access to that information. I’m guessing the clinician will want me to have that information too so I can be fully informed about I need to do. So they are trying to work out those issues to enable better quality. ONC and the Office of Civil Rights convened a March 16 roundtable on mobile apps, privacy, and security, where I moderated one of the panels composed of providers who are using mobile technology to improve the care they deliver.

Editor’s Note: More information on AHRQ’s Health IT program can be found at <http://healthit.ahrq.gov/portal/server.pt/community/about/562>. ■

Primary Care

Majority of conditions treated in emergency departments are treatable in primary care clinics

If patients treated at an emergency department (ED) for a condition treatable or preventable through care from an ambulatory care clinic (ambulatory-care-sensitive conditions, ACSCs) were seen at a clinic instead, cost savings could reach 66 to 84 percent, according to a new study. The researchers examined 2007 data from three primary care safety-net clinics and four EDs that were part of the Carolinas HealthCare System. They found that 59 percent of 191,622 outpatient ED visits in the Charlotte, NC area were for ACSCs, 11.2 percent were for necessary emergency care, and 20.8 percent were related to injury.

Groups most likely to go to an ED for an ACSC were blacks and Hispanics, persons without health insurance or those insured by Medicare or Medicaid, females, children 2 years or younger, and children ages 3–18

years. Total hospital charges (not including physician charges) for ACSC-related visits to the ED were \$124,967,120 (average per-visit charge of \$1,099), with ED costs 320 to 728 percent higher than for care at a primary care clinic.

The researchers suggest that solutions to this complex problem will require payers and hospital systems to design and invest in novel targeted interventions. Their study was funded in part by the Agency for Healthcare Research and Quality (HS16023).

More details are in “Cost analysis of the use of emergency departments for primary care services in Charlotte, North Carolina” by Andrew McWilliams, M.D., M.P.H., Hazel Tapp, Ph.D., Jolene Barker, M.S., and others in the July/August 2011 *North Carolina Medical Journal* 72(4), pp. 265-271. ■ DIL

Primary care providers who provide contraceptive counseling increase patients' contraceptive use

Contraceptive counseling as part of a primary care visit boosts the likelihood of a woman using contraception during her next sexual encounter, according to a new study. Women who received contraceptive counseling from their primary care provider were more than twice as likely as women who did not receive contraceptive counseling to report use of a hormonal contraceptive when they last had sex. Women who were specifically counseled about hormonal contraception were more than four times as likely to use these methods, and

women counseled about highly effective reversible methods such as intrauterine devices or hormonal implants were more than 18 times more likely to use such methods. These findings remained significant after adjustment for demographic factors, pregnancy intentions, and prior pregnancy.

The researchers recruited women aged 18 to 50, who visited one of four primary care clinics in western Pennsylvania between October 2008 and April 2010. Participants completed a 75-question survey between 7 and 30 days after their clinic visit. These

data were linked to each patient's electronic medical record data on contraceptive prescriptions before and after the clinic visit. The study was funded in part by the Agency for Healthcare Research and Quality (HS17093).

More details are in “The impact of contraceptive counseling in primary care on contraceptive use,” by Jessica K. Lee, S.B., Sara M. Parisi, M.S., M.P.H., Aletha Y. Akers, M.D., M.P.H., and others in the *Journal of General Internal Medicine* 26(7), pp. 731-736, 2011. ■ DIL

Primary care visits every 2 weeks linked to better treatment outcomes for patients with diabetes

Most patients with diabetes do not have their blood sugar, blood pressure (BP), or cholesterol under control. Although a variety of studies have shown that patients who visit their physicians more frequently have better outcomes, guidelines do not exist for how frequently patients with diabetes should be seen. A new study finds that people with diabetes who visit their primary care doctors every 2 weeks achieve targets for blood sugar, BP, and low-density lipoprotein-cholesterol (LDL-C) control the fastest.

The Boston-based researchers retrospectively analyzed the relationship between provider encounter frequency and time to blood sugar, BP, and LDL-C control among 26,496 patients with diabetes and elevated hemoglobin A1c (indicating a high blood-sugar level), BP, and/or LDL-C treated by primary care physicians at two teaching hospitals between 2000 and 2009.

As the intervals between encounters lengthened (identified by notes in the electronic medical record),

the proportion of patients who never reached treatment targets also rose steadily. A strong dose-response relationship between encounter frequency and patient outcomes was evident in all the associations analyzed by the researchers. They concluded that for many patients with elevated hemoglobin A1c, BP, or LDL-C, more frequent patient-provider encounters were associated with a shorter time to treatment target, and control was fastest at 2-week intervals. They suggest that visits every 2 weeks may be appropriate for the most severely uncontrolled patients. Their study was supported in part by the Agency for Healthcare Research and Quality (HS17050).

See “Encounter frequency and serum glucose level, blood pressure, and cholesterol level control in patients with diabetes mellitus,” by Fritha Morrison, M.P.H., Maria Shubina, Sc.D., and Alexander Turchin, M.D., in the September 2011 *Archives of Internal Medicine* 171(17), pp. 1542-1550. ■ MWS

Patient Safety and Quality

A “diabetes dashboard” screen helps clinicians quickly and accurately access patient data needed for quality diabetes care

A “diabetes dashboard” on the electronic health record (EHR) screen summarizes a patient’s diabetes and other health problems, allergies, and medications as well as their results on standard eye and foot exams and cholesterol, blood-glucose, and other tests. This dashboard can speed a primary care physician’s (PCP’s) search for key diabetes-related data and improve the accuracy of the data found, according to a new study. In many EHRs, the physician must search many pages of the record to assemble data needed for making decisions to maintain high-quality care for patients with type II diabetes.

Richelle J. Koopman, M.D., M.S., and her colleagues at the University of Missouri Health System developed a diabetes dashboard that appears on a patient’s problem page of the EHR for diagnosed diabetes. They found that 10 PCPs asked to find specific data about the quality of diabetes care in a record without the dashboard took a mean of 5.5 minutes and used a mean of 60 mouse clicks. In contrast, those using an EHR with the dashboard took a mean of 1.3 minutes and 3 clicks to find the same data. In addition, the physicians correctly identified 94 percent of the requested data when searching a standard EHR, but had 100 percent accuracy when searching an EHR

with a diabetes dashboard. A common response in qualitative interviews with the physicians was that if the physician found it too time-consuming to find some data, they would continue without it or reorder that test.

The researchers collaborated with the EHR’s corporate developer to create a diabetes dashboard that would be automatically generated by the EHR to summarize patient-level data important for diabetes care. The researchers conducted the study, a usability evaluation, with 10 health system family and general internal medicine

continued on page 7

Diabetes care

continued from page 6

physicians with outpatient practices, who used a laptop loaded with two mock EHRs (one with and one without the diabetes dashboard). The study was funded in part by the

Agency for Healthcare Research and Quality (HS17035).

More details are in “A diabetes dashboard and physician efficiency and accuracy in accessing data needed for high-quality diabetes

care,” by Richelle J. Koopman, M.D., M.S., Karl M. Kochendorfer, M.D., Joi L. Moore, Ph.D., and others in the September/October 2011 *Annals of Family Medicine* 9(5), pp. 398-405. ■ *DIL*

Patient surveys are an additional useful tool for identifying adverse events occurring during hospital stays

After hospital discharge, many patients can accurately identify adverse events they experienced during a recent hospitalization, concludes a new study. This information can help identify patient safety problems and guide quality improvement efforts, note the researchers. They examined telephone survey responses from 2,582 adult medical and surgical patients discharged between April and October 2003 from 16 Massachusetts hospitals.

More than two-thirds (71 percent) of 1,170 negative effects reported by 29 percent of those surveyed were classified as adverse events by physician researchers. Patients who

reported one or more negative effects were more likely (22 vs. 16 percent) to have spent time in an intensive care unit and to have had a hospital stay of 6 days or longer (35 vs. 25 percent), but less likely to have been admitted through the emergency department (46 vs. 58 percent).

Patient characteristics also were influential. Physicians were 28 percent less likely to classify a negative effect as an adverse event for patients 50 years of age or older and 37 percent less likely to do so if the patient were admitted through the emergency department. Physicians were 39 percent and 37 percent, respectively, more likely to

classify a negative effect as an adverse event if the patient were female or reported being in excellent/very good health. A total of 619 of the adverse events were judged to be significantly severe, serious, or life-threatening. The study was supported by the Agency for Healthcare Research and Quality (HS11928).

More details are in “Can we rely on patients’ reports of adverse events?” by Junya Zhu, M.S., M.A., Sherri O. Stuver, Sc.D., Arnold M. Epstein, M.D., M.A., and others in the October 2011 *Medical Care* 49(10), pp. 948-955. ■ *DIL*

Public reporting of performance data seems to motivate and energize improvements to hospital performance

Publicly reporting a hospital’s performance data appears to motivate and energize hospitals to improve or maintain high levels of performance, concludes a new study. The researchers used focus-group interviews to examine hospital staff and leadership perceptions of the impact of public reporting on quality of care.

The widely expressed themes emerging from the interviews were that publicly reporting data led to increased involvement of leadership in performance improvement; created a sense of accountability to both internal and external customers; contributed to a heightened awareness of performance measure data throughout the hospital; influenced organizational priorities; raised concerns about data quality; and led to questions about consumer understanding of performance reports.

The participants in the focus-group interviews included administrators, physicians, nurses, and other front-line staff from 29 randomly selected Joint Commission-accredited hospitals reporting core performance measure data. The findings suggest that as the health care industry has moved toward greater transparency and accountability, health care professionals have responded by re-prioritizing hospital quality improvement efforts to address gaps in care. The study was supported in part by the Agency for Healthcare Research and Quality (HS16094).

See “The perceived impact of public reporting hospital performance data: Interviews with hospital staff,” by Joanne M. Hafner, R.N., M.S., Scott C. Williams, Psy.D., Rochard G. Koss, M.A., and others in the *International Journal for Quality in Health Care* 23(6), pp. 697-704, 2011. ■ *MWS*

Chronic Disease

Injection of hyaluronic acid, a natural joint lubricant, appears effective in reducing pain from wear and tear on the knee

Some patients with pain from osteoarthritis of the knee may get better pain relief from an injection of hyaluronic acid, a natural lubricant of the joint, than from painkillers or steroids, according to a review of studies. Injection of hyaluronic acid into the knee, a treatment termed intra-articular hyaluronic acid (IAHA), has been used increasingly by clinicians because of IAHA's claimed prolonged effect in reducing symptoms from osteoarthritis.

In this study, researchers examined the results of 54 clinical trials, published between 1983 and 2009, which compared IAHA with placebo. They found that IAHA's

pooled effect size for pain-relief (expressed as a standardized mean difference) was 0.31 at week 4 after treatment, reached its peak effect at week 8 (0.46), and remained detectable at 24 weeks (0.21). An effect size above 0.20 is considered clinically relevant for patients with chronic pain conditions like knee osteoarthritis. These results for relief of osteoarthritis pain were better than the results published for analgesics, which ranged from 0.13 for acetaminophen and 0.29 for nonspecific anti-inflammatory drugs to 0.44 for COX-2 inhibitors.

The pooled data for those studies measuring improvement in joint function and joint stiffness

indicated no effect of IAHA after excluding low-quality trials. Based on these findings, the researchers suggest that IAHA may be useful for knee pain in some patients, or in combination with other treatments. The study was funded in part by the Agency for Healthcare Research and Quality (T32 HS00060 and HS18574).

More details are in "Therapeutic trajectory following intra-articular hyaluronic acid injection in knee osteoarthritis—meta-analysis," by Raveendhara R. Bannuru, M.D., Nikola S. Natov, M.D., Usha R. Dasi, M.D., and others in *Osteoarthritis and Cartilage* 19(6), pp. 611-619, 2011. ■ DIL

Heart failure hospitalization and mortality rates drop between 1998 and 2008

The heart failure (HF) hospitalization rate declined by 29.5 percent between 1998 and 2007, according to a national study by Jersey Chen, M.D., and a team of researchers from Yale and Harvard. The drop in HF hospitalization rates took place in all race and gender categories, with black men having the lowest rate of decline. However, HF hospitalization rates decreased significantly faster than the national mean in 16 States and significantly slower in 3 States.

Overall HF mortality rates, adjusted for patient risk factors such as older age, ischemic heart disease, and hypertension, also declined from 31.7 percent in 1999 to 29.6 percent in 2008. One-year mortality rates declined significantly in four States, but rose in 5 States.

During the study period, there were changes in risk factors and clinical practice patterns that may explain the decline in HF hospitalizations, note the authors. For example, coronary heart disease has declined over time.

Also, control of high blood pressure has improved modestly over time. Changes in secondary prevention (e.g., use of beta blockers or other medications) may reduce HF exacerbations leading to hospitalizations. Finally, trends favoring outpatient rather than inpatient management of HF may also have had an impact.

The study included 55,097,390 fee-for-service Medicare beneficiaries hospitalized between 1998 and 2008 with a principal discharge diagnosis of HF. The study was supported in part by the Agency for Healthcare Research and Quality (HS18781).

See "National and regional trends in heart failure hospitalization and mortality rates for Medicare beneficiaries" by Jersey Chen, M.D., Sharon-Lise T. Normand, Ph.D., Yun Wang, Ph.D., and Harlan M. Krumholz, M.D., in the October 2011 *Journal of the American Medical Association* 306(15), pp. 1669-1678, 2011. ■ MWS

Drug-eluting stents appear safe for older patients with chronic kidney disease

Patients with chronic kidney disease (CKD) make up an increasing percentage of the population undergoing percutaneous coronary intervention (PCI). A new study suggests that most older patients with varying severity of CKD benefit from drug-eluting stents (DES) placed during PCI. Either a bare-metal stent (BMS) or DES may be placed to keep an artery open during PCI. The DES has emerged as the stent of choice in CKD patients in response to the high restenosis (recurrence of blockage) rates of 13 to 35 percent seen with BMS. However, more than fifty percent of DESs are being placed in patient subgroups that were not included in the large randomized controlled trials. Concerns have arisen that increased rates of late

stent thrombosis in older patients with CKD after implantation with a DES may offset any potential benefit of fewer recurrent blockages.

The new study allays some of those concerns. It found that most subgroups of older patients with CKD who received a DES had significantly lower mortality rates throughout 30 months of followup than the patients who received a BMS. Also, the benefits of a DES with regard to myocardial infarction, revascularization, and major bleeding were present in most CKD subgroups.

The study population included 285,593 Medicare patients undergoing PCI who were enrolled in a registry containing information on patients who had received PCIs.

Patients receiving PCI were classified into five groups based on their estimated level of kidney function, as measured by the estimated glomerular filtration rate. The five groups were: normal, mild, moderate, severe CKD, and severe CKD with long-term dialysis. The study was supported in part by the Agency for Healthcare Research and Quality (Contract No. 290-05-0032).

See “Safety and efficacy of drug-eluting stents in older patients with chronic kidney disease,” by Thomas T. Tsai, M.D., John C. Messenger, M.D., J. Mathew Brennan, M.D., and others in the *Journal of the American College of Cardiology* 58(180), pp. 1859-1869, 2011. ■ MWS

Market forces underlie provision of peritoneal dialysis by dialysis facilities

For many patients with end-stage renal disease (ESRD), peritoneal dialysis (PD) offers the promise of a clinically equivalent, convenient, and less expensive alternative to hemodialysis (HD), the dominant form of treatment. Whereas HD is performed by clinical staff in a dialysis clinic three times a week, PD patients self-perform dialysis internally via their peritoneal (abdominal) membrane several times daily and only visit the dialysis clinic monthly for maintenance.

Despite the appeal of PD to patients, payers, and providers, PD use in the United States reached 14 percent in 1985 and declined to 6.2 percent by 2008. A new study shows that market forces may be the driving force behind this. It examined market factors associated with the provision of PD in dialysis facilities between 1995 and 2003 and found that facilities with competitive dialysis markets and/or markets with greater spatially concentrated PD services were less likely to provide PD. New facilities were less likely to

offer PD than existing facilities. Neither disease trends nor patient characteristics associated with PD use explained the provision of PD.

These findings suggest that PD may not be available to all patients who would benefit from it and there may be insufficient demand, economies of scale, or incentives for facilities to provide PD, note the study authors. Their findings were based on data from 4,436 Medicare-participating outpatient dialysis facilities, of which between 44 and 50 percent offered PD in the period 1995-2008. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00032).

See “Longitudinal analysis of market factors associated with provision of peritoneal dialysis services,” by Virginia Wang, Ph.D., Shouou-Yih D. Lee, Ph.D., Uptal D. Patel, M.D., and others in *Medical Care Research and Review* 68(5), pp. 537-558, 2011. ■ MWS

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

Outcomes/Effectiveness Research

Blood pressure control persists after physician-pharmacist intervention ends

One of the most successful strategies for controlling blood pressure (BP) is a team-based approach using a physician-pharmacist collaborative model. Patients treated with this approach sustain blood pressure control as long as 18 months after the intervention ends, according to a new study. The Iowa-based study found significantly higher BP control in the 82 patients receiving the physician-pharmacist intervention than the 146 patients in the control group up to 18 months after the intervention. At the end of the 6-month intervention, the overall difference in BP control

between the 2 groups was 32 percent; after 18 months, this difference remained at 31 percent.

In the intervention group, pharmacists were encouraged to assess medications and BP at baseline, at one month, by telephone at 3 months, and more frequently as necessary. For patients whose BP was not controlled, pharmacists recommended to the physician an adjustment to their antihypertensive medication. Pharmacists did not provide additional care to the patients in the control group.

At 18 months after the intervention, 67.1 percent of the intervention

patients and 36.3 percent of the control patients had blood pressure control. The researchers conclude that there is prolonged benefit on BP from a pharmacist intervention. The study was supported in part by the Agency for Healthcare Research and Quality (HS16094).

See “Sustained blood pressure control following discontinuation of a pharmacist intervention,” by Danielle M. Wentzlaff, Pharm.D., Barry L. Carter, Pharm.D., Gail Ardery, Ph.D., and others in the *Journal of Clinical Hypertension* 13, pp. 431-437, 2011. ■ MWS

Physician personality factors do not seem to influence whether patients with symptoms undergo extended diagnostic evaluations

A primary care clinician's degree of risk tolerance and stress from uncertainty do not affect whether patients with possible symptoms of heart attack, breast cancer, or colorectal cancer undergo extended clinical evaluation, a new study finds. These three conditions are among the most commonly misdiagnosed in primary care, often leading to delay in proper treatment. The researchers collected information on attitudes towards risk taking and uncertainty-related stress from 193 clinicians (62 percent physicians and 38 percent nurse practitioners or physician assistants) and how the clinicians handled 700 patients complaining of chest pain, 630 seen because of a breast lump, and 470 seen for rectal bleeding.

After adjusting for relevant demographic and clinical factors, neither of the clinician's personality factors was associated with their patients receiving an extended clinical evaluation. Nearly half (49 percent) of the patients seen for chest pain received extended

examinations, as did 93 percent of those seen for breast lumps and 63 percent of patients seen for rectal bleeding.

The researchers conducted the study in a large, multi-specialty group practice in eastern Massachusetts, whose 15 ambulatory health centers used the same electronic health record. All primary care physicians in the group practice were surveyed in 2008 about attitudes towards risk taking and in 2009 about degree of stress felt from uncertainty. The researchers assessed the correlation between extended clinical examination and composite scores on the two surveys. The study was funded in part by the Agency for Healthcare Research and Quality (HS17075).

More details are in “Clinician personality and the evaluation of higher-risk patient symptoms,” by Adrienne S. Allen, M.D., Endel John Orav, Ph.D., Thomas H. Lee, M.D., and others in the September 2011 *Journal of Patient Safety* 7(3), pp. 122-126. ■ DIL

C-reactive protein testing is not more effective than an educational intervention to decrease antibiotic prescriptions for patients seen for acute cough

Combining measurement of blood levels of C-reactive protein (CRP) with use of an accepted clinical algorithm on antibiotic treatment of acute cough illness is no better than the clinical algorithm alone in supporting clinicians to not prescribe antibiotics for acute bronchitis, concludes a new study. Despite evidence from numerous studies and subsequent physician education campaigns that routine antibiotic treatment is not generally called for to treat acute cough illness, 50 to 80 percent of adults seen for acute cough are prescribed antibiotics in the absence of coordinated programs to reduce overuse of antibiotics. This over-prescribing of antibiotics increases the risk of bacteria developing drug resistance.

Blood levels of CRP, an inflammation-associated protein

produced by the liver, can help identify bacterial infections in patients. The researchers tested whether combining data from a point-of-care CRP test and an algorithm, which estimates the probability a patient has pneumonia based on the physical examination, would reduce the inappropriate use of antibiotics in patients with acute cough.

They randomly assigned 131 patients seeking emergency department (ED) treatment for an acute cough to either an experimental (CRP-plus-algorithm) or control (algorithm only) group. In both groups, the antibiotic prescription rates were substantially lower than previous year levels. The researchers found no significant difference between the two interventions in antibiotic use (37 percent and 31 percent,

respectively). The findings were based on 286 patients seen for acute cough at a large, urban ED with an emergency medicine residency program, of whom 131 were eligible and enrolled in the study. The study was funded in part by the Agency for Healthcare Research and Quality (HS13915).

More details are in “C-reactive protein testing does not decrease antibiotic use for acute cough illness when compared with a clinical algorithm,” by Ralph Gonzales, M.D., M.S.P.H., Eva A. Aagaard, M.D., Carlos A. Camargo, M.D., Dr.P.H., and others in the July 2011 *Journal of Emergency Medicine* 41(1), pp. 1-7. ■ DIL

Accuracy of ultrasound for ectopic pregnancy in the emergency department is not helped by measuring a key pregnancy hormone

Measuring serum levels of beta-human chorionic gonadotropin (beta-hCG), a pregnancy-related hormone, is not helpful to bedside pelvic ultrasound imaging (ultrasonography) in diagnosing ectopic (outside-the-uterus) pregnancy among women who come into the emergency department (ED) with abdominal pain or vaginal bleeding, according to a new study. Ectopic pregnancy, observed in 2 percent of all pregnancies and up to 13 percent of pregnancies with symptoms, is a major cause of maternal illness or even death.

Traditionally, a beta-hCG discriminatory zone (a serum hormone level of 3,000 mIU/mL) has been used in combination with diagnostic ultrasonography in the radiology department to identify women likely to have

an abnormal pregnancy, including embryonic demise and ectopic pregnancy. The researchers found that bedside pelvic ultrasonography, done by trained emergency physicians, had an overall sensitivity of 71 percent and specificity of 99 percent in detecting normal or abnormal intrauterine pregnancy. However, there was no level of b-hCG at which emergency physicians visualized an intrauterine pregnancy with certainty. Therefore, use of the beta-hCG discriminatory zone with indeterminate bedside ultrasound findings did not allow for the differentiation between intrauterine pregnancies and abnormal pregnancies.

continued on page 12

Ectopic pregnancy

continued from page 11

The researchers found that the serum-hormone discriminatory zone had a specificity of 35 percent and specificity of 58 percent for patients with symptoms and an indeterminate bedside imaging result. Based on these findings, the researchers do not recommend using the traditional beta-hCG discriminatory zone, developed for use with more sensitive radiology ultrasound imaging, with bedside ultrasound imaging in

the ED. The study was conducted with patients seen in the ED of a large, urban teaching hospital for possible ectopic pregnancy. The study was funded in part by the Agency for Healthcare Research and Quality (HS15569).

More details are in “Use of a beta-hCG discriminatory zone with bedside pelvic ultrasonography,” by Ralph Wang, M.D., Teri A. Reynolds, M.D., Hugh H. West, M.D., and others in the July 2011 *Annals of Emergency Medicine* 58(1), pp. 12-20. ■ DIL

Performance measures for gastroenterology can lead to improved accountability

In a trio of papers published over 3 months, Spencer D. Dorn, M.D., M.P.H., of the University of North Carolina School of Medicine, outlines the growing impact of accountability through performance measurement on gastroenterologists and the health care organizations in which they work. He notes that, culminating in the Patient Protection and Affordable Care Act, the medical profession is moving from a “golden age” in which physicians were completely trusted by their patients and had a great deal of autonomy in how they practiced medicine to an era of assessment and accountability. This occurs through how gastroenterologists are credentialed, how patients evaluate their care, and how the physicians are paid. The three papers, supported by the Agency for Healthcare Research and Quality (HS19468), are described here.

Dorn, S.D. (2011, July). Gastroenterology in a new era of accountability: Part 1. An overview of performance measurement. *Clinical Gastroenterology and Hepatology* 9(7), pp. 563–566.

In this article, the author explains that gastroenterologists and other physicians are being held accountable for the quality and costs of care. He highlights the definition

of quality of the Agency for Healthcare Research and Quality as “doing the right thing, at the right time, in the right way, for the right person—and having the best possible result.” He explains the nature and differences between the four principal types of quality measures: structural measures (e.g., the use of electronic health records), process measures (e.g., immunization of patients with inflammatory bowel disease [IBD]), outcome measures (e.g., IBD-related hospitalizations or surgery), and patient experience measures (e.g., patient satisfaction with care). Cost of care and challenges in performance measurement conclude the article.

Dorn, S.D. (2011, August). Gastroenterology in a new era of accountability: Part 2. Developing and implementing performance measures. *Clinical Gastroenterology and Hepatology* 9(8), pp. 660–664

In this paper, the author explains the lifecycle of performance measures, beginning with the setting of national priorities by organizations that represent multiple stakeholders, such as the National Quality Forum. Next is the development of performance measures by consortia or clinical specialty organizations such as the American

Gastroenterology Association, followed by the evaluation and endorsement of the measures. Once endorsed, measures are prioritized for implementation and data is collected and eventually reported publically. Consumers can use reported performance data to make better decisions about care, and insurers can tie incentives to the level of performance. Further cycles of reporting allow hospitals and physicians to work to improve care.

Dorn, S.D. (2011, September). Gastroenterology in a new era of accountability: Part 3. Accountable Care Organizations. *Clinical Gastroenterology and Hepatology* 9(9), pp. 750–753.

This article discusses Accountable Care Organizations (ACOs) as an effort to control costs while improving quality of care and outcomes. The author defines ACOs as organizations that are designed to vertically integrate groups of health care providers to jointly assume responsibility for cost and quality of all care delivered to a defined population. If an ACO meets its quality and cost targets, it will be rewarded with a portion of the money it saved. The author then discusses how such organizations might form and operate under the Affordable Care Act, and how specialists fit into ACOs. ■ DIL

Clinical algorithm can identify and locate serious internal bleeding related to oral anticoagulant use

The use of oral anticoagulants to prevent abnormal blood clotting is growing. However, the benefits of these medications must be balanced against the risk of bleeding complications. A clinical case-definition algorithm may help identify this risk among clinical populations, according to a new study. The researchers developed an algorithm that accurately identified 89 percent of 186 clinically confirmed, treatment-related serious bleeding and 99 percent of 205 hospitalizations involving clinically confirmed or possible bleeding in patients receiving oral anticoagulants. The algorithm also accurately classified the anatomical site of bleeding in 99 percent of 163 hospitalizations for which there was adequate information.

However, the percentage of concordance between the algorithm and patient chart review varied by bleeding location (89 percent for upper gastrointestinal sites and 91 percent for lower gastrointestinal sites). The researchers believe this algorithm will allow investigators to conduct epidemiologic studies of bleeding complications in ordinary patients taking

anticoagulants, rather than only the much smaller population of clinical trial participants.

The researchers developed the automated case-definition algorithm from information collected as part of an ongoing study of the effect of antimicrobial drugs on bleeding risk in patients being treated with the anticoagulant warfarin. Clinical validation of the algorithm involved trained nurse-abstractors reviewing hospital charts to determine whether algorithm cases met the clinical definition of a bleeding-related hospitalization unrelated to major trauma. This study was funded by a grant from the Agency for Healthcare Research and Quality (HS16974) to the Vanderbilt Center for Education and Research on Therapeutics (CERT). For more information on the CERTs program, visit www.certs.hhs.gov.

More details are in “An automated database case definition for serious bleeding related to oral anticoagulant use,” by Andrew Cunningham, M.D., M.B.A., C. Michael Stein, M.D., Ceilia P. Chung, M.D., M.P.H., and others in *Pharmacoepidemiology and Drug Safety* 20(6), pp. 560-566, 2011. ■ DIL

Comparative Effectiveness Research

Self-measured blood pressure monitoring to manage hypertension may offer a small benefit

Self-measured blood pressure (SMBP) monitoring to manage hypertension may offer a small benefit, but its sustainability and long-term consequences remain uncertain, conclude two new research summaries published by the Agency for Healthcare Research and Quality (AHRQ). The reports examine monitoring options available for measuring high blood pressure (hypertension). The consumer and clinician summaries are based on the research review,

Self-Measured Blood Pressure Monitoring: Comparative Effectiveness.

The consumer summary, *Measuring Your Blood Pressure at Home: A Review of the Research for Adults*, describes hypertension and how blood pressure is monitored. The summary can assist patients to understand the importance of measuring blood pressure, and how to choose a home blood pressure monitor. The clinician summary, *Effectiveness of Self-Measured*

Blood Pressure Monitoring in Adults with Hypertension, provides background information on hypertension, conclusions of the research review, and the clinical bottom line of SMBP.

Hypertension is a common chronic health condition, especially for adults over 65 years of age. Approximately, 76.4 million Americans have hypertension. And an estimated seven million people

continued on page 14

Blood pressure

continued from page 13

die each year in the United States from illnesses caused by hypertension. Related serious health problems range from heart failure and heart attacks to kidney failure. Lowering high blood pressure can reduce these risks.

This research review, consumer summary, and clinician summary are accompanied by a continuing medical education activity and faculty slide set for health care professionals interested in receiving education credits. To access this review and other materials that

explore the effectiveness and risks of treatment options for various conditions visit AHRQ's Effective Health Care Program Web site, www.effectivehealthcare.ahrq.gov. ■

Not enough evidence to recommend fecal DNA testing for adults at average risk for colorectal cancer

While some clinical recommendations include fecal DNA testing as a screening method for colorectal cancer, there is insufficient evidence that the currently available fecal DNA test can be used to accurately screen adults at average risk who show no symptoms of colorectal cancer, according to a new research review from the Effective Health Care Program of the Agency for Healthcare Research and Quality (AHRQ).

Colorectal cancer is the third most common cancer in both men and women and the third leading cause of cancer deaths in the United States. Among other risk factors, being over the age of 50, having a family history of the disease, and eating a diet high in red meat are linked to a higher risk of colorectal cancer.

There are multiple tests to screen for colorectal cancer, including colonoscopies and computerized tomographic scans. Most U.S. health organizations recommend that individuals should begin regular screening at age 50. Still, many people are not regularly screened for the cancer.

The review, *Fecal DNA Testing in Screening for Colorectal Cancer in Average Risk Adults*, calls for further research about the accuracy of fecal DNA testing, especially given recent scientific advances in this area. Studies comparing the acceptability and adherence to fecal DNA testing versus other stool-based screening tests are also needed. To access this review and other AHRQ products, visit www.effectivehealthcare.ahrq.gov. ■

Elderly/Long-Term Care

Elders and families find it difficult to interpret data from passive sensors that help monitor elderly activity

Elderly residents in independent living facilities are frail, typically vulnerable to decline, and often require some nursing care. The use of technology such as nonwearable sensors to monitor their activity levels can provide earlier detection of changes like reduced activity in an elder's apartment and alert providers to intervene earlier. However, when given the

opportunity to interpret data collected from these sensors, elder residents and family members, unlike providers, had difficulty interpreting clinical data and graphs. They also experienced information overload and did not understand terminology, according to Gregory L. Alexander, Ph.D., and a team of researchers from the Sinclair School of Nursing.

In order to detect motion, location, falls, and functional activity, a variety of passive infrared sensors were installed in the apartments of 34 residents of an independent living facility. The sensors can track if the resident spends some time during the day in the kitchen and uses the stove, is frequently up and

continued on page 15

Passive sensors

continued from page 14

out of bed during the night using the bathroom, and, while in bed, experiences some periods of restlessness.

Once the data from the sensors were collected, the researchers used a data-sensor interface with the capability to illustrate sensor data in different formats such as histograms, line graphs, and pie charts. Three scenarios using actual resident data were developed to present to four groups of users: elderly residents, their family members, registered nurses, and physicians. The situations depicted in the scenarios involved

hospitalization after an acute illness at home, a period when a resident was not feeling well and had decreased activity, and a restless resident moving back and forth at night between bed and a chair to get more comfortable.

Each of the participants, after being given training on the user interface, was given the three scenarios to complete by using the sensor data interface. Although elderly residents and their families experienced some difficulties interpreting the data, all four groups found the interface useful for identifying activity levels of the residents. The researchers conclude that the effectiveness of clinical information systems to

provide useful information for clinical decisionmaking is dependent on the usability of the system, data presentations, the match between the real world of end users and the system, and the satisfaction of users during interactions. This study was supported in part by the Agency for Healthcare Research and Quality (HS16862).

See “Passive sensor technology interface to assess elder activity in independent living” by Gregory L. Alexander Ph.D., R.N., Bonnie J. Wakefield Ph.D., R.N., Marilyn Rantz Ph.D., R.N., and others in the September/October 2011 *Nursing Research* 60(5), pp. 318-325. ■ MWS

Improving quality of care for falls and urinary incontinence also improves quality of life in elderly patients

Urinary incontinence (UI) and falls, conditions common in the elderly, can produce considerable disability, morbidity, and decreased quality of life. When recommended care is used for these two conditions, patients report better quality of life outcomes, according to a new study that used data from a practice-based educational intervention to improve recommended care.

Lillian C. Min, M.D., M.S.H.S., of the University of Michigan Medical School, and colleagues analyzed care and outcomes for 133 ambulatory care patients with urinary incontinence and 328 patients with falls or fear of falling. All were 75 years of age or older and participants in the Assessing the Care of Vulnerable Elders Study-2. The intervention to improve recommended care for the conditions at two large medical practices included physician education, structured visit notes that guided physicians to provide recommended care, and community resource and education handouts for participants. Both practices included intervention and control groups.

The researchers examined the association between quality of care patients received for the two conditions and their outcomes. Quality-of-care indicators for UI included taking a UI-specific history, examination, and urinalysis, and checking postvoid residual, discussing treatment options, and recommending behavioral interventions before medication treatment. Quality

indicators for fall patients were also studied. Patients who had fallen twice in the past year or once with an injury requiring medical attention should receive a fall-specific history and a gait and balance exam. Those who feared falling should have a gait and balance examination. Those with poor balance should be considered for physical therapy or assistive device and those with abnormal gait should be considered for physical therapy.

For every 10 percent increase in the receipt of quality care for UI, there was an improvement of 1.4 points on the Incontinence Quality of Life score, indicating fewer bothersome symptoms. There was also a small improvement in falls or fear of falls when better quality of care for falls was implemented. These findings should encourage primary care practices to pay more attention to providing effective interventions for UI and fall prevention in order to improve patients' quality of life. The study was supported in part by the Agency for Healthcare Research and Quality (HS17621).

See “Does better quality of care for falls and urinary incontinence result in better participant-reported outcomes?” by Lillian C. Min, M.D., M.S.H.S., David B. Reuben, M.D., John Adams, Ph.D., and others in the August 2011 *Journal of the American Geriatric Society* 59, pp. 1435-1443. ■ KB

Disparities/Minority Health

Lower flu vaccination rates for black nursing home residents a cause for concern

The average flu vaccination rate among nursing home residents nationwide was 72 percent during the 2005–2006 flu season. This was well below the Healthy People 2010 goal of 90 percent. A new study found that black nursing home residents have lower flu vaccination rates than their white counterparts. It found that over three consecutive flu seasons (2006–07, 2007–08, and 2008–09), the odds of being vaccinated were 14–16 percent lower for blacks than for whites within the same facility. This difference persisted even after excluding residents who were either offered but declined vaccination, or were vaccinated outside the facility.

The Brown University researchers also found that nursing homes with high proportions of black residents had lower vaccination rates for both blacks and whites than did facilities with lower proportions of black residents. These facilities generally have a high proportion of Medicaid residents. Therefore, they have less revenue and fewer opportunities to cross-subsidize care with income from more profitable Medicare and private-pay patients. The researchers suggest that low revenue, insufficient staffing, and poor-quality performance may all contribute to the lower vaccination rates in these facilities.

They also point out that blacks are consistently more likely than whites

to refuse flu vaccinations when offered.

To completely eliminate racial differences in flu vaccination rates, educational programs that focus on elderly blacks and their families may be necessary, suggest the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS16094).

See “Despite small improvement, black nursing home residents remain less likely than whites to receive flu vaccine” by Shubing Cai, Ph.D., Zhanlian Feng, Ph.D., Mary L. Fennell, Ph.D., and Vincent Mor, Ph.D., in *Health Affairs* 30(10), pp. 1939–1946, 2011. ■ MWS

Agency News and Notes

Six in 10 obese adults have joint pain

Fifty-eight percent of obese and nearly 69 percent of extremely obese adults age 20 or older reported suffering from joint pain in 2009, according to the latest News and Numbers from the Agency for Healthcare Research and Quality (AHRQ).

The Federal agency found that among obese adults, nearly 42 percent reported having a heart condition, 42 percent said they had elevated cholesterol, and 15 percent said they suffered from diabetes. The percentages of those with a heart condition or diabetes were typically higher among those who were considered extremely obese (having a body mass index of 40 or more).

AHRQ’s analysis of the prevalence of obesity in 2009 also found that:

- One in four American adults was considered obese and another 5 percent were considered extremely obese.
- Black Americans were more likely than other racial or ethnic groups to be obese (31 percent) or extremely obese (8 percent) compared with Hispanics, whites, and all other races, which were primarily Asian.
- Adults with a college degree were less likely to be obese (20 percent) or extremely obese (3 percent)

continued on page 17

Obese adults

continued from page 16

compared with high school graduates and those with less than a high school degree.

The data in this AHRQ News and Numbers summary 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 Statistical Brief # 364: *Obesity in America: Estimates for the U.S. Civilian Noninstitutionalized Population Age 20 and Older, 2009*. (http://meps.ahrq.gov/mepsweb/data_files/publications/st364/stat364.pdf).

For more information, or to speak with an AHRQ data expert, please contact Linwood Norman at Linwood.Norman@ahrq.hhs.gov or call (301) 427-1248. ■

Hospital readmissions higher for chronic conditions

The readmission rate following a hospital stay for a chronic condition such as congestive heart failure or diabetes can be substantially higher than for an acute condition like pneumonia or a heart attack, according to the latest News and Numbers from the Agency for Healthcare Research and Quality.

The Federal agency's analysis of 30-day hospital readmissions in 2008 found that:

- Among patients age 65 and older covered by Medicare, the readmission rate following a nonsurgical hospitalization was higher for chronic conditions

(23 percent) than for acute conditions (19 percent).

- For adults age 18 to 44 covered by Medicaid, the readmission rate following a nonsurgical hospitalization was about one-third higher for chronic conditions (26 percent) than for acute conditions (19 percent).
- The 30-day readmission rate was higher for a nonsurgical hospitalization (1 in 5) compared with a surgical hospitalization (1 in 8).

This AHRQ News and Numbers summary is based on data from Statistical Brief #127: *30-Day Readmissions Following*

Hospitalizations for Chronic vs. Acute Conditions, 2008

(www.hcup-us.ahrq.gov/reports/statbriefs/sb127.pdf). The report uses data from the State Inpatient Databases for 15 States that represents 42 percent of the total U.S. population. For information about this AHRQ database, go to www.ahrq.gov/data/hcup/datahcup.htm.

For more information, or to speak with an AHRQ data expert, please contact Linwood Norman at linwood.norman@ahrq.hhs.gov or call (301) 427-1248. ■

Midwest hospitals lead in newborn male circumcision rates

More than 75 percent of male infants born in Midwest hospitals are circumcised—three times the number circumcised in hospitals in the West, according to a new statistical brief from the Agency for Healthcare Research and Quality, *Circumcisions Performed in U.S. Hospitals, 2009* (www.hcup-us.ahrq.gov/reports/statbriefs/sb126.jsp). This brief looks at trend data

since 1993, circumcision rates by payer, income, and location, and average length of stay for babies who are circumcised. The data are from the Nationwide Inpatient Sample, a database of the AHRQ-administered Healthcare Cost and Utilization Project (www.ahrq.gov/data/hcup/datahcup.htm). ■

Announcements

New resources available for comparing osteoarthritis pain medications

AHRQ has released new clinician and consumer summaries and continuing medical education activities in support of a recent updated research report comparing the effectiveness and safety of analgesics in the treatment of osteoarthritis. Overall, the report found no clear differences in the

effectiveness of different nonsteroidal anti-inflammatory drugs, but did find potentially important differences in the risk of serious harms.

The updated report, *Analgesics for Osteoarthritis—An Update of the 2006 Comparative Effectiveness Review*, includes new research that

better addresses the comparative effectiveness and safety of oral and topical medications. These and many other evidence-based decisionmaking resources are available on AHRQ's Effective Health Care Program Web site, www.effectivehealthcare.ahrq.gov. ■

Register for the Healthcare Cost and Utilization Project (HCUP) Data Users' Workshop

The Agency for Healthcare Research and Quality (AHRQ) is conducting a full-day, instructor-led, hands-on workshop to provide experience in working with Healthcare Cost and Utilization Project (HCUP) resources. The workshop will provide in-depth exposure to several HCUP databases and related tools. Faculty will be available for consultation on how HCUP data can support participants' research interests. Instructional and reference materials will be distributed and discussed.

This is an intermediate-level workshop designed for health services researchers and analysts who want to learn how to use or improve their use of HCUP databases and products. Individuals interested in State and/or local health care analyses or clinical research using administrative health care data would benefit from its content. Given the nature and pace of this course, some prior familiarity with health care administrative data and a statistical software product such as SAS, SPSS, or Stata are recommended.

The course will begin with a brief overview of HCUP products, including a demonstration of HCUPnet—a free on-line querying tool that provides instant access to HCUP statistics. Following the brief introductory material, faculty will present step-by-step instruction on working with HCUP databases to conduct revisit

analyses with HCUP data. Attendees will use computers loaded with subsets of the HCUP State Inpatient Databases, State Emergency Department Databases, and State Ambulatory Surgery Databases. Attendees will run SAS programs (to be provided) on the HCUP databases. Faculty will cover the basics of loading datafiles and progress to more advanced topics.

Prior experience with HCUP databases or prior attendance of the HCUP webinar series, HCUP overview presentations, or HCUP on-line overview course is encouraged. Information regarding the HCUP webinar series is available on HCUP-US at: http://hcup-us.ahrq.gov/hcup_workshop.jsp.

Registration Fee: No charge

Date & Time: Wednesday, April 25, 2012 from 9 a.m. – 4 p.m. eastern

Location: AHRQ Conference Center – 540 Gaither Road, Rockville, MD, 20850

Registration Deadline: April 16, 2012 or until the maximum number is reached. Registration details are available on HCUP-US at: http://hcup-us.ahrq.gov/hcup_workshop.jsp. ■

Register for HCUP webinar series

The Agency for Healthcare Research and Quality is hosting a two-part webinar series on the Healthcare Cost and Utilization Project (HCUP) databases, products, and tools. The first 1-hour session, which will take place Wednesday, April 11, 2012 at 2 p.m. eastern, will introduce HCUP databases and related

resources. Health services and policy researchers will learn how HCUP can enhance their research studies.

The second 1-hour session will focus on HCUP products and tools that facilitate research, with particular emphasis on HCUPnet, the free online data query system. This webinar will take place on

Wednesday, April 18, at 2 p.m. eastern.

The registration deadline is April 6, 2012 (or until the maximum number is reached). Registration details are available on the HCUP User Support Website at: http://hcup-us.ahrq.gov/hcup_workshop.jsp. ■

AHRQ offers public reporting organizations communications tips

Promoting Your Public Report: A Hands-on Guide, (www.ahrq.gov/qual/value/pubrpthandson/pubrpthandson.pdf) an AHRQ tool originally developed for Chartered Value Exchanges, details a communications strategy that can help any organization promote report use by consumers. One of the reasons online public reporting Web sites are underused is that employees and other potential users are unaware of their existence. The 40-page, Web-based guide includes sections on

strategic considerations, a communications plan template, opportunities for marketing, and advice for engaging stakeholder partners. The guide also describes developing and using key messages and working with traditional and social media. It includes sample newsletter articles, press releases, and email pitches, as well as ways to evaluate the results of the communication strategy. ■

Free TeamSTEPPS® training opportunities

Free training opportunities are available using TeamSTEPPS® (Team Strategies and Tools to Enhance Performance and Patient Safety), a set of evidence-based, practical tools that helps hospitals and other health care providers strengthen teamwork with the goal of improving patient safety. The Agency for Healthcare Research and Quality (AHRQ) and the Department of Defense designed the TeamSTEPPS® program for health care providers for use in a

variety of care settings. Free TeamSTEPPS® master trainer courses will be offered at six regional training centers starting in April.

The six regional training centers are NorthShore Long Island Jewish Health System (Roslyn Harbor, NY); Duke University (Durham, NC); Tulane University (New Orleans, LA); University of Minnesota (Minneapolis, MN); Presbyterian St. Luke's (Denver, CO); and University of

Washington (Seattle, WA). Standard training is available, as well as specialized trainings on simulation, interprofessional education, and teaching TeamSTEPPS® to patients and families. Advanced trainings are designed for individuals who already have a strong background in TeamSTEPPS® and an interest in the special topic. To register for training, go to <http://register.rcsreg.com/r2/hret2012/ga/top.html>. ■

AHRQ announces funding opportunity on patient-centered outcomes research dissemination

The Agency for Healthcare Research and Quality (AHRQ) has issued a new Funding Opportunity Announcement (FOA) on Patient-Centered Outcomes Research — Dissemination by Health Professionals Associations (PCOR-DHPA) (R18). Applications by health professional associations are intended to develop dissemination programs that integrate patient-centered outcomes research into clinical practice using

innovative methods. Methods could include education, credentialing, scientific programs, or social media platforms. AHRQ anticipates funding between 25 and 50 awards for up to \$2.5 million annually for 3 years. The deadline to submit applications is April 25, 2012. You can access the FOA at <http://grants.nih.gov/grants/guide/rfa-files/RFA-HS-12-006.html>. ■

AHRQ solicits measures of children's health care quality for CHIPRA 2013

The Agency for Healthcare Research and Quality (AHRQ) is soliciting measures of children's health care quality for potential inclusion in the Children's Health Insurance Program Reauthorization Act (CHIPRA) 2013. These measures could become part of an Improved Core Set of Health Care Quality Measures for potential voluntary use by State Medicaid and Children's Health Insurance Programs, or be used for other potential purposes under

CHIPRA. Deadline for submissions is April 24, 2012 to Denise Dougherty, Ph.D., at denise.dougherty@ahrq.hhs.gov or by mail to Dr. Dougherty at AHRQ, 540 Gaither Road, Rockville, MD 20850. You can find out more information on the CHIPRA Pediatric Quality Measures Program at www.ahrq.gov/chipra. Access the Federal Register notice at www.gpo.gov/fdsys/pkg/FR-2012-02-24/html/2012-4267.htm. ■

Subscribe to AHRQ's Electronic Newsletter

AHRQ's free notification service brings news and information to your email inbox! This service allows subscribers to receive automatic email updates about AHRQ's research, data, publications, events and meetings, and many other announcements.

You also can **customize your subscription** and receive other AHRQ topics of interest.

To subscribe:

1. Go to www.ahrq.gov and select "Email Updates" next to the red envelope icon.
2. Enter your email address.
3. On the "Quick Subscribe" page, select *AHRQ Electronic Newsletter* under the "AHRQ News and Information" heading.

Questions? Please send an email to Nancy.Comfort@ahrq.hhs.gov.



Research Briefs

Andr , S.E., Simas, .A.M., Boudreau, D., and others. (2011). "Validation of algorithms to ascertain clinical conditions and medical procedures used during pregnancy." (AHRQ Contract No. 290-05-0033).

Pharmacoepidemiology and Drug Safety 20, pp. 1168-1175.

This study evaluated the validity of health plan administrative and claims data to identify two conditions prevalent during pregnancy, diabetes (pre-gestational and gestational) and obesity, as well as one medical procedure, ultrasound, performed during pregnancy. The data were valid for both forms of diabetes and for ultrasound, but not for obesity, which was not consistently coded.

Beasley, J.W., Wetterneck, T.B., Temte, J., and others. (2011).

"Information chaos in primary care: Implications for physician performance and patient safety." (AHRQ grants HS17115, HS17899). *Journal of the American Board of Family Medicine* 24, pp. 745-751.

The authors explore the concept of information chaos as it applies to issues of patient safety and physician workload in primary care. They conclude that information chaos is experienced routinely by primary care physicians and that additional research is needed to define methods to measure and eventually reduce information chaos.

Bimberg, J.M., Drum, M.L., Huang, E.S., and others. (2011). "Development of a safety net

medical home scale for clinics." (AHRQ grant T32 HS00084).

Journal of General Internal Medicine 26(12), pp. 1418-1425.

The authors developed a Safety Net Medical Home Scale to evaluate Patient-Centered Medical Home (PCMH) interventions in safety-net clinics. They tested the scale for reliability and convergent validity and used it to describe PCMH adoption in safety-net clinics beginning a PCMH intervention. Finally, the authors determined clinic-level factors associated with PCMH adoption.

Cheng, Y.W., Eden, K.B., Marshall, N., and others. (2011). "Delivery after prior Cesarean: Maternal morbidity and mortality." (AHRQ Contract No. 290-07-10057). *Clinical Perinatology* 38, pp. 297-309.

The appropriate use and safety of cesarean and vaginal birth after cesarean (VBAC) are of concern not only at the individual and clinician level, but they also have far-reaching public health and policy implications at the national level. Building on a recent systematic evidence review, two meta-analyses on prediction of VBAC and associated perinatal outcomes, this paper emphasizes the information that clinicians and patients need to make decisions.

Clancy, C. (2012). "Patient-centered outcomes research and nurse practitioners' role in shared decisionmaking." *Journal of the American Academy of Nurse Practitioners* 24, pp. 59-61. Reprints (AHRQ Publication No.

12-R034) are available from AHRQ.*

The author, director of the Agency for Healthcare Research and Quality (AHRQ), offers a brief overview of AHRQ's Effective Healthcare Program. This program supports patient-centered outcomes research and pursues a stepwise approach to addressing basic questions about treatment options. Through this program, AHRQ is building a resource of unbiased, evidence-based clinical information comparing medical interventions for a variety of conditions.

Curtis, J.R., Baddley, J.W., Yang, S., and others. (2011).

"Derivation and preliminary validation of an administrative claims-based algorithm for the effectiveness of medications for rheumatoid arthritis." (AHRQ grant HS18517). *Arthritis Research and Therapy* 13, R155.

The use of administrative data to study the clinical effectiveness of medications for inflammatory arthritis, such as rheumatoid arthritis, has been limited by the lack of a validated algorithm to serve as a proxy for clinical improvements. The researchers derived and tested a claims-based algorithm and found that administrative claims data may be useful in this context.

Davies, S., Romano, P.S., Schmidt, E.M., and others. (2011). "Assessment of a novel hybrid Delphi and Nominal Groups technique to evaluate

continued on page 22

Research briefs

continued from page 21

quality indicators.” (AHRQ Contract No. 290-04-0020). *HSR: Health Services Research* 46(6) Part I, pp. 2005-2018.

In order to improve the evaluation of quality indicators, the researchers sought to develop a method that could incorporate the advantages of both Delphi and Nominal Group (NG) techniques and thereby minimize the disadvantages of each. Their paper describes a hybrid Delphi/NG method and presents an evaluation of this method as applied during an assessment of quality indicators.

Du, J., Park, Y.-T., Theera-Ampornpant, N., McCullough, J.S., and Speedie, S.M. (2012). “The use of count data models in biomedical informatics evaluation research.” (AHRQ grant HS16115). *Journal of the American Medical Informatics Association* 19, pp. 39-44.

The researchers review and discuss count data models and illustrate their value in comparison to ordinary least squares using an example from their study of the impact of an electronic health record on laboratory test orders. They conclude that comprehensive model checking is highly recommended to identify the most appropriate analytic model when the dependent variable being examined contains count data.

Fernald, D.H., Coombs, L., DeAlaume, L., and others. (2012). “An Assessment of the Hawthorne Effect in practice-based research.” (AHRQ Contract No. 290-07-10008). *Journal of the American Board of Family Medicine* 25, pp. 83-86.
As part of a larger practical

intervention designed to improve the clinical management of skin and soft tissue infections (SSTIs), the researchers examined the potential for a Hawthorne Effect from the extra attention some clinicians received when completing followup case reviews with the research team. They found no difference in the clinical management of SSTIs between clinicians who participated in followup case reviews versus those who did not.

Go, M.D.A., Emeis, C., Guise, J.-M., and Schelonka, R.L. (2011). “Fetal and neonatal morbidity and mortality following delivery after previous cesarean.” (AHRQ Contract No. 290-07-10057). *Clinical Perinatology* 38, pp. 311-318.

The researchers examine data from a recent systematic evidence review on term deliveries, a meta-analysis of associated perinatal outcomes, and subsequent related publications. They then present a summary of fetal and neonatal outcomes emphasizing information that clinicians and patients need to make decisions regarding the mode of delivery after prior cesarean.

Marquard, J.L., and Zayas-Caban, T. (2012). *Commercial off-the-shelf consumer health informatics interventions: Recommendations for their design, evaluation, and redesign.*” *Journal of the American Medical Informatics Association* 19, pp. 137-142. Reprints (AHRQ Publication No. 11-R075) are available from AHRQ.*

The goal of this paper is to apply a case-based human factors evaluation approach to evaluate patient and provider proxies’ use of inexpensive, commercial off-the-

shelf consumer health informatics interventions. These interventions were aimed at supporting two lay populations—individuals with diabetes and high blood pressure as well as post-bariatric surgery patients.

Newcomer, S.R., Steiner, J.F., and Bayliss, E.A. (2011). “Identifying subgroups of complex patients with cluster analysis.” (AHRQ grant HS15476). *American Journal of Managed Care* 17(8), pp. e324-e332.

The researchers demonstrate the use of cluster analysis as a method for identifying clusters of patients with high health care use that may suggest opportunities for enhanced care management in a managed care setting. Ward’s algorithm identified ten clinically relevant clusters grouped around single or multiple “anchoring conditions.” Mental health conditions were prevalent in all clusters.

O’Neill, S.M., Hempel, S., Lim, Y.-W., and others. (2011). “Identifying continuous quality improvement publications: What makes an improvement intervention ‘CQI’? *BMJ Quality and Satisfaction* 20, pp. 1011-1019.

In order to improve continuous quality improvement (CQI) evidence reviews, the authors used expert panel methods to identify key CQI definitional features and to develop and test a screening instrument for reliably identifying articles with the key features. In the final step, the researchers operationalized the highest-scoring consensus-based CQI features as an assessment form and applied it to the quality improvement intervention article set.

continued on page 23

Research briefs

continued from page 22

Sege, R., Flaherty, E., Jones, R., and others. (2011). "To report or not to report: Examination of the initial primary care management of suspicious childhood injuries." (AHRQ grant HS10746). *Academic Pediatrics* 11, pp. 460-466.

This is the first study to examine the validity of decisions by primary care health providers (PCHPs) to suspect child abuse as the etiology of an injury and their decisions to report a suspicious injury to child protective services (CPS). The study found that PCHPs reported one-third fewer cases than the expert reviewers would have recommended. Patients did not appear to be lost to followup after CPS reports by their PCHPs.

Shiffman, R.N., Michel, G., Rosenfeld, R.M., and Davidson, C. (2012). "Building better guidelines with BRIDGE-Wiz: Development and evaluation of a software assistant to promote clarity, transparency, and implementability." (Co-operative agreement between AHRQ and the National Library of Medicine). *Journal of the American Medical Informatics Association* 19, pp. 94-101.

The authors describe a novel software application intended to support and facilitate the development of clinical practice guidelines. They describe the need for such an application and the environment in which its development and testing occurred, present key design objectives, describe the function of the BRIDGE-Wiz application, report the evaluation of the program's usefulness, and discuss lessons

learned from the deployment of the application.

Song, X., and Zhou, X.-H. (2011). "Evaluating markers for treatment selection based on survival time." (AHRQ grant HS13105). *Statistics in Medicine* 30, pp. 2251-2264.

In the case of colon cancer patients who may be treated by surgery alone or surgery plus chemotherapy, the c-myc gene expression level may be used as a biomarker for treatment selection. In order to quantify directly the potential impact on the population of using this marker to select treatment, the selection impact (SI) curve proposed by Song and Pepe for binary outcomes is a useful tool. In this paper, the authors extend the SI curve for general outcomes, with a specific focus on survival time.

Thompson, C.A., Charlson, M.E., Schenkein, E., and others. (2010, November). "Surveillance CT scans are a source of anxiety and fear of recurrence in long-term lymphoma survivors." (AHRQ grant T32 HS00066). *Annals of Oncology* 21, pp. 2262-2266.

In this study of long-term survivors of aggressive lymphoma, the researchers found a 37 percent incidence of clinically significant anxiety symptoms and a fear of recurrence that became especially prevalent in the time leading up to surveillance scans, based on qualitative interviews of 30 patients. They recommend strategies to minimize followup imaging and to improve doctor-patient communication.

Thompson, D.O., Hurtado, T.R., Liao, M.M., and others. (2011).

"Validation of the simplified motor score in the out-of-hospital setting for the prediction of outcomes after traumatic brain injury." (AHRQ grants HS18123, HS17526). *Annals of Emergency Medicine* 58, pp. 417-425.

The Glasgow Coma Scale (GCS), widely used to assess patients with head injury, has been criticized for its complexity and poor interrater reliability. These researchers chose to externally validate a less complex alternative, the Simplified Motor Score (SMS), in the out-of-hospital setting. Since the SMS performed similarly and is much simpler, the researchers suggest that it can replace the GCS.

Vesco, K.K., Whitlock, E.P., Eder, M., and others. (2011, November 15). "Risk factors and other epidemiologic considerations for cervical cancer screening: A narrative review for the U.S. Preventive Services Task Force." (AHRQ Contract No. 290-2007-10057). *Annals of Internal Medicine* 155(10), pp. 698-705.

This review aims to inform decisions about when cervical cancer screening should begin and end. It finds that the available evidence suggests that cervical cancer screening should not begin before 21 years of age, because cervical cancer is rare in this age group and the potential for harm due to treatment is not trivial. The evidence also suggests that discontinuation of screening can be considered for women aged 65 years or older without a history of cervical intraepithelial neoplasia or cervical cancer and have had a recent negative cervical cancer screening. ■

**U.S. Department of
Health and Human Services**

Agency for Healthcare Research and Quality
P.O. Box 8547
Silver Spring, MD 20907-8547

Official Business
Penalty for Private Use \$300



AHRQ Pub. No. 12-RA007
April 2012

ISSN 1537-0224

Ordering Information

Most AHRQ documents are available free of charge and may be ordered online or through the Agency's Clearinghouse. Other documents are available from the National Technical Information Service (NTIS). To order AHRQ documents:

**(*) Available from the AHRQ
Clearinghouse:**

Call or write:

AHRQ Publications Clearinghouse

Attn: (publication number)

P.O. Box 8547

Silver Spring, MD 20907

800-358-9295

703-437-2078 (callers outside the

United States only)

888-586-6340 (toll-free TDD service;

hearing impaired only)

To order online, send an email to:

ahrqpubs@ahrq.hhs.gov



Scan with your mobile
device's QR Code Reader
to access or subscribe
to AHRQ's *Research
Activities*.

**For a print subscription to *Research
Activities*:**

Send an email to ahrqpubs@ahrq.hhs.gov with "Subscribe to *Research Activities*" in the subject line. Be sure to include your mailing address in the body of the email.

**Access or subscribe to *Research Activities*
online at www.ahrq.gov/research/resact.htm.**