



RESEARCH ACTIVITIES

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New AHRQ toolkit on managing lab tests helps make care safer for patients in medical offices

AHRQ has released a toolkit to help doctors, nurses, and medical office staff improve their processes for tracking, reporting, and following up with patients after medical laboratory tests. The toolkit is part of the Agency's effort to make care safer for patients in all settings.

Approximately 40 percent of primary care office visits involve some type of diagnostic medical test, such as a urine sample or blood test, provided on site or at a laboratory. However, if test results are lost, incorrect, or incomplete, the wrong treatment may be

prescribed and patient harm can occur.

"AHRQ has a strong track record of developing tools that have helped hospitals measurably improve the safety of care," said Jeff Brady, M.D., associate director of AHRQ's Center for Quality Improvement and Patient Safety. "This new toolkit is designed to improve safety in office-based settings by giving doctors and their staff a practical, easy-to-use resource to help manage their lab test results and patient followup."

"Improving Your Office Testing Process: Toolkit for Rapid-Cycle Patient Safety and Quality Improvement" (<http://go.usa.gov/WZxH>) offers step-by-step instructions on how to evaluate an office testing process, identify areas where improvement is needed, and address those areas. Practical tools are included that can be used to assess office readiness, plan activities, engage patients, audit efforts, and incorporate electronic health records. The toolkit also includes a template for practices to ensure that laboratory test results are communicated effectively to patients in English or Spanish.



"Clinicians and staff handle a lot of lab test results, and unfortunately mistakes happen."

The toolkit was developed by a team of researchers led by Milton "Mickey" Eder, Ph.D., director of research and evaluation at AccessCommunity Health Network in Chicago, a large network of

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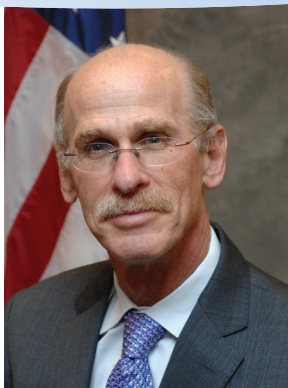
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From the Director



Lost or over-looked results and lack of timely follow-up on laboratory test findings can all

contribute to patient care that doesn't meet quality standards important to both patients and health care providers.

In particular, when test results are abnormal or suggest further testing is required, communication gaps can cause patient harm due to missed or late diagnoses or treatment. In fact, nearly a quarter of all medical errors in ambulatory care settings are due to inadequate followup of abnormal test results (www.ncbi.nlm.nih.gov/pubmed/18519626).

Unfortunately, errors in managing laboratory tests are frequent, and researchers are still learning about

the impact this has on patient care. AHRQ's toolkit, "Improving Your Office Testing Process: Toolkit for Rapid-Cycle Patient Safety and Quality Improvement," aims to remedy the problem by increasing the reliability of the testing process in medical offices. The toolkit (<http://go.usa.gov/WZxH>), described on this month's cover, was developed by a team of researchers led by Milton "Mickey" Eder, Ph.D., director of research and evaluation at Access Community Health Network in Chicago, a large network of Federally Qualified Health Centers.

The toolkit includes seven tools to help health care teams assess and improve how medical tests are managed in their offices, from the moment tests are ordered until patients are notified of the test results and monitored during appropriate followup care.

This toolkit is part of AHRQ's efforts to expand its successful safety improvement initiatives in the hospital setting to ambulatory

care settings and to produce evidence-based tools for use in activities such as the Department of Health and Human Services' (HHS) Partnership for Patients (PfP). The PfP initiative is a public-private partnership working to improve the quality, safety, and affordability of health care for all Americans.

As part of the initiative, doctors, nurses, hospitals, employers, patients, and Federal and State governments have joined together to implement strategies to reduce healthcare-acquired conditions and avoidable readmissions to hospitals. Lessons learned from PfP have important implications for care in other settings, including medical offices. For example, an increased focus on medical test management can help to reduce hospital readmissions by bridging gaps in care coordination.

Improving the quality and safety of health care requires using a variety of tools across all settings of care—work that AHRQ in tandem with HHS and others remains committed to achieving.

A handwritten signature in black ink that reads "Richard Kronick".

Richard Kronick, Ph.D.

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New AHRQ toolkit

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community health centers. A national panel of primary care experts contributed, and the toolkit was tested in the Access network.

“The toolkit was developed in a network of federally qualified health centers, but studies indicate that all types of primary care offices experience problems managing tests. Clinicians and staff handle a lot of lab test results, and unfortunately mistakes happen,” said Dr. Eder. “Results can get lost or misreported or patients may not

understand how to follow up, and sometimes these mistakes can have serious consequences. This toolkit has already been demonstrated to make processes safer at Access, and we’re confident that doctors nationwide will see similar results by using the toolkit.”

To order a free copy of the toolkit, contact the AHRQ Clearinghouse at 800-358-9295 or email

AHRQpubs@ahrq.hhs.gov and ask for publication number 13-0035. ■

“This toolkit has already been demonstrated to make processes safer at Access, and we’re confident that doctors nationwide will see similar results by using the toolkit.”

Patient Safety and Quality

Unmet information needs of patients recently discharged home from the hospital may play a role in readmissions

Up to 25 percent of hospital discharges result in the patient being readmitted within 30 days. When patients are discharged from the hospital to home, difficulties in the care transition, particularly patient information needs, may play an important role in readmission to the hospital, suggests a new survey of home care nurses. Researchers from the University of Pittsburgh Medical School surveyed 119 home care nurses about their perceptions of post-hospitalization information needs and communication problems of older patients.

The survey respondents identified a number of patients’ communication needs, including information about medication regimens (reason for taking, side effects, costs, brand vs. generic names, and risks of non-compliance), the severity of their conditions, hospital discharge management process, non-medication care regimens such as wound care, use of durable medical equipment and home safety, the extent of care needed, and which providers are best suited to provide that care.

Several of the needs identified in this survey were not previously discussed in the literature, such as the need for more information about medication regimens, the severity of the patient’s condition, post-discharge procedures, non-medication care regimens unrelated to medications, and the need for ongoing care with appropriate providers. These findings may inform interventions that improve information sharing among clinicians, patients, and caregivers during care transitions that may improve patient outcomes, keep patients safer at home, and prevent unplanned hospital readmissions, suggest the authors. Their study was supported in part by AHRQ (HS18721).

See “Home-care nurses’ perceptions of unmet information needs and communication difficulties of older patients in the immediate post-discharge period,” by Katrina M. Romagnoli, M.S., M.L.I.S., Steven M. Handler, M.D., Ph.D., Frank M. Ligonis, M.S., and Harry Hochheiser, Ph.D., in *BMJ Quality and Safety* 22, pp. 324-332, 2013. ■ MWS

Simulation exercises can improve patient safety

The old adage “practice makes perfect” applies to medicine just as it does to other fields. With today’s technically advanced patient simulators, clinicians can practice procedures before performing them on a patient. A recent literature review found that various simulation interventions do improve the technical performance of clinicians and health care teams during critical events and can be viewed as an effective patient safety strategy.

A total of 38 studies were included in the study, with 22 of them being randomized clinical trials. Another 11 were prospective observational studies. The remaining 5 consisted of a retrospective analysis of a previous simulation.

Six studies showed that physicians performed colonoscopy and upper gastrointestinal endoscopy better on real patients after receiving training with a simulator. In the case of laparoscopic surgery, procedure times were no faster after training with virtual reality simulators versus the traditional video approach. However, simulation training for gall bladder removal resulted in threefold fewer errors and an eightfold decreased variation in errors. There was also improved performance and a greater respect for tissue during surgery.

One particular study described 11 dimensions that need to be considered when designing and setting up simulation exercises. The objectives of implementation must be aligned with learners’ needs as well as the trainers’ goals for a particular procedure. There must also be adequate time set aside for

debriefing. Costs vary dramatically depending on the type of exercise, equipment, and personnel. Overall, simulation-based exercises increase technical and procedural performance at the physician and team level across multiple medical specialties and procedures. While simulation can improve patient safety, more research is needed to determine how simulation actually contributes to differences in patient safety outcomes at the health system level. The study was supported by AHRQ (Contract No. 290-07-10062).

See “Simulation exercises as a patient safety strategy,” by Eric Schmidt, B.A., Sara N. Goldhaber-Fiebert, M.D., Lawrence A. Ho, M.D., and Kathryn M. McDonald, M.M., in the March 5, 2013 *Annals of Internal Medicine* 158(5) (part 2), pp. 426-432. KB



Checklist boosts clinician adherence to quality care for conditions common in hospitalized general medicine patients

A checklist that requires providers to address the four most common and expensive-to-treat health care-associated conditions observed in hospitalized general medicine patients boosts adherence to appropriate care processes, according to a new study.

Checklists, used to improve safety in other industries such as aviation, have recently been introduced into hospital care, resulting in reduced complications among surgery and intensive care unit patients. Checklist developers have identified up to 30 quality indicators related to general hospital care, resulting in variable rates of adherence to many of these measures.

In this study, the researchers limited the checklist to care measures for four common, easily prevented problems with substantial financial impact: pneumococcal immunization (I); pressure ulcers/bedsores (B); catheter-associated urinary tract infections or CAUTIs (C); and deep venous thrombosis/venous

thromboembolism or DVT/VTE (D). They had attending physicians fill out the IBCD checklist once per patient, as part of the post-call morning rounds for new admissions.

Immunization with pneumococcal polysaccharide vaccine can prevent half of hospital deaths from pneumococcal infections and 15–24 percent of hospital patients develop bedsores (at a treatment cost of \$2.2–3.4 billion annually). CAUTIs are responsible for some 40 percent of hospital-associated infections, while DVT/VTEs are the commonest reason for death in hospitals (occurring in up to 60 percent of patients in the absence of preventive care).

In a large urban medical center, 66 general medicine teams (70 percent) voluntarily used the IBCD checklist



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Checklists

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for 1,168 of new patients during the 9-month study period. Average adherence to the four checklist items rose significantly, from 68 percent on admission to 82 percent after checklist use. In the 6 weeks after the checklist was transitioned to the electronic medical record, IBCD was noted in documentation of 59 percent of patients admitted to general medicine. This study was funded in part by AHRQ (HS16967) to the University of Chicago Center for Education and Research on

Therapeutics (CERT). For more information on the CERTs program, visit www.certs.hhs.gov.

More details are in “IBCD: Development and testing of a checklist to improve quality of care for hospitalized general medicine patients,” by Andrew M. Davis, M.D., M.P.H., Elizabeth M. Schulwolf, M.D., M.A., Valerie G. Press, M.D., M.P.H., Vineet M. Arora, M.D., M.P.P., and others in the April 2013 *The Joint Commission Journal on Quality and Patient Safety* 39(4), pp. 147-156. ■ DIL

Having surgical interns on call from home rather than at the hospital does not increase postoperative complications

Postoperative complications are not increased when surgical interns are on call from home rather than at the hospital, concludes a new study. It found no rise in overall postoperative morbidity or mortality rates between 1999–2003, when interns had to be on call at the hospital, and 2004–2010, when they could be on call from home.

These findings are important, because the Accreditation Council for Graduate Medical Education (ACGME) forbade surgical intern home calls as of July 2011 as part of its new guidelines on resident work hours. The researchers conducted the study at a single Veterans Affairs (VA) Medical Center to test the impact of the intern home call schedule.

During 1999–2003, the first call for all patients went to an in-hospital surgical intern; during 2004–2010, the first call went to an intern on call from home. The new ACGME work-hour restrictions assume that having surgical interns on call from home, outside of standard working hours, would be associated with increased postoperative morbidity and mortality rates. Instead, the researchers found a significant decrease in unadjusted overall morbidity rates from the 1999–2003 to the 2004–2010 period (from 12.14 percent to 10.19 percent).

When they looked at the ratio of observed-to-expected risk-adjusted morbidity in these two time periods, a uniform annual percentage decrease of 6.03 percent was observed. The unadjusted overall mortality rates also declined

between the hospital on-call and home on-call periods (from 1.76 percent to 1.26 percent), but no significant change was found in the risk-adjusted mortality ratios. The findings were based on data from the VA National Surgical Quality Improvement Program—including all patients whose surgery was performed by the general, vascular, urologic, or cardiac surgery services. The study was funded in part by AHRQ (T32 HS00028).

More details are in “The influence of intern home call on objectively measured perioperative outcomes,” by Zachary J. Kastenberger, M.D., Kim F. Rhoads, M.D., M.S., M.P.H., Marc L. Melcher, M.D., Ph.D., and others in the April 2013 *Journal of the American Medical Association—Surgery* 148(4), pp. 347-351. ■ DIL

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.

Stealth alerts improve rate of warfarin monitoring for patients starting an interacting medication

A patient on warfarin is sometimes given another medication that could interact with the anticoagulant. When this happens, an alert that goes to an interdisciplinary anticoagulation management service is more effective than alerting the prescribing physician in ensuring anticoagulation monitoring is completed within 5 days of the new prescription, according to a new study. Such monitoring is important to ensure that warfarin stays within effective levels in the presence of the new medication.

The researchers tested the stealth alert in a pre-intervention/post-intervention study. A total of 1,553 patients were seen in the pre-intervention period and 1,709 in the post-intervention period. Before the stealth alerting system was implemented, 34 percent of anticoagulant patients completed monitoring within 5 days of being prescribed a medication that had the potential to interact with warfarin. After the stealth alert intervention was introduced, 39 percent of the patients

completed their monitoring within the 5-day goal, a significant increase of 24 percent. Significantly increased odds of completing monitoring were found at 3, 4, and 7 days (31 percent, 25 percent, and 27 percent, respectively).

The researchers used data from the electronic health record of a large, multispecialty group practice. This study was funded in part by a grant from AHRQ (HS21094) to the Brigham and Women's Hospital Center for Education and Research on Therapeutics (CERT), which focuses on health information technology. For more information on the CERTs program, visit www.certs.hhs.gov.

More details are in "'Stealth' alerts to improve warfarin monitoring when initiating interacting medications," by Kate E. Koplan, M.D., M.P.H., Alan D. Brush, M.D., Marvin S. Packer, M.D., and others in the December 2012 *Journal of General Internal Medicine* 27(12), pp. 1666-1673. ■ DIL

Links found between nursing homes and hospitals in spread of MRSA

Individual hospitals or hospital systems may not consider the role of patients who transfer in and out of the hospital from nursing homes when planning their infection control strategies. That may be a mistake, suggests a new study. It found that the presence of nursing homes substantially increased the effects of a hospital outbreak of methicillin-resistant *Staphylococcus aureus* (MRSA). This led to a relative average increase of 46.2 percent above and beyond the impact of infection when only hospitals were considered in outbreak estimates in Orange County, CA. A MRSA outbreak in the largest nursing home had effects on many Orange County hospitals. It boosted MRSA prevalence in directly connected hospitals by an average of 0.3 percent and in

hospitals not directly connected through patient transfers by an average of 0.1 percent after 6 months.

The researchers used a model to simulate MRSA outbreaks among all hospitals and nursing homes in Orange County. For their study, the researchers used different experimental scenarios simulating sustained and 6-month MRSA outbreaks in selected hospitals and nursing homes based on an absolute increase in MRSA prevalence of 10 percent in hospitals and 20 percent in nursing homes.

They found that, despite their much smaller size and less frequent turnover compared to hospitals, nursing homes had a substantial impact on MRSA outbreaks that could extend for many miles. This

may be due in part to the relatively high prevalence of MRSA in nursing homes, averaging 25 percent in Orange County, note the researchers. They recommend that hospitals include nursing homes in their infection control measures. There may be a benefit in applying the same rigor in infection control seen in many hospitals to nursing homes. This study was funded by AHRQ (Contract No. 290-05-0033).

See "The importance of nursing homes in the spread of methicillin-resistant *Staphylococcus aureus* (MRSA) among hospitals," by Bruce Y. Lee, M.D., Sarah M. Bartsch, M.P.H., Kim F. Wong, Ph.D., and others in the March 2013 *Medical Care* 51(3), pp. 205-215. ■ MWS

Contact precautions should be extended to all MRSA carriers in a nursing home

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a growing problem in hospitals and nursing homes. Current guidelines include recommendations for the use of contact precautions to prevent MRSA transmission in nursing homes. These include moving MRSA carriers to single rooms and using gowns and gloves when handling residents. However, these precautions are usually limited to patients with clinically apparent MRSA infections in the form of wounds or uncontained secretions.

A new study finds that there can be substantial benefit when contact precautions are extended to all known MRSA carriers in nursing homes, not just those with evident infection. Researchers used a computational model that included virtual representations of 71 nursing homes and 29 hospitals to compare three strategies: not applying contact precautions to any nursing home residents, applying contact precautions to individuals with clinically apparent MRSA infections, and using contact precautions for all known MRSA carriers identified by hospital screening.

Implementing contact precautions for those with clinically apparent infection had a minimal effect of less than 1 percent on MRSA prevalence in hospitals, which continued 5 years after starting the practice. The strategy did result in a median 0.4 percent decrease in MRSA prevalence in nursing homes. Using contact precautions on all known MRSA carriers resulted in a 14.2 decrease in MRSA prevalence in nursing homes



and a 2.3 percent decrease in hospitals 1 year after implementation. According to the researchers, the findings support a more comprehensive approach to contain and prevent MRSA infection. They suggest that nursing homes include measures to help residents deal with the isolation requirement of contact precautions. The study was supported in part by AHRQ (Contract No. 290-05-0033).

See “The potential regional impact of contact precaution use in nursing homes to control methicillin-resistant *Staphylococcus aureus*,” by Bruce Y. Lee, M.D., M.B.A., Ashima Singh, M.S., Sarah M. Bartsch, M.P.H., and others in the February 2013 *Infection Control and Hospital Epidemiology* 34(2), pp. 151-160. KB



Study seeks to develop a clinical tool predicting mortality risk for severely injured older patients with complications

Geriatric trauma patients experience poorer survival and greater complication rates when severely injured compared with younger patients with comparably severe injuries. In a national dataset of 285,000 hospitalized patients with moderate-to-severe traumatic injury, researchers found that nearly all infections in the post-injury hospital course were associated with at least double the risk of death for older (65 and older) versus younger (18 to 64 years old) patients. These infections ranged from pneumonia, abscess, wound infection, urinary tract infections, and aspiration pneumonia.

Certain noninfectious complications also were identified with greater mortality among older patients, including failure of reduction/

fixation, pressure ulcer, deep venous thrombosis, pneumothorax, pulmonary embolism, and compartment syndrome (when excessive pressures build up inside an enclosed space, usually after bleeding or swelling after an injury, which can lead to permanent injury).

Because current guidelines recommend risk stratification at the time of admission for older patients, the researchers aimed to identify the complications most associated with mortality and to develop a simple clinical risk nomogram (line chart) to predict patients at greatest risk for mortality-associated geriatric complications (MGCs).

A clinical risk nomogram would allow clinicians to assess the risk of a MGC or death. By categorizing

the level of preexisting condition burden based on age, comorbidity, and sex, the researchers were able to develop a nomogram to identify risk of MGCs or death at the time of admission. They suggest that their nomogram, when validated by prospective and population-based studies, may lead to targeted interventions tailored to older patients. This study was supported by AHRQ (HS19979).

See “A simple clinical risk nomogram to predict mortality-associated geriatric complications in severely injured geriatric patients,” by Lillian Min, M.D., Sigrid Burruss, M.D., Eric Morley, M.P.H., and others in the *Journal of Trauma Acute Care Surgery* 74, pp. 1125-1132, 2013. ■ MWS

Trauma surgery resident experience declined over a decade prior to the 2003 work-hour reform

General surgery medical residents need to participate in a minimum of 10 operative trauma cases during their training. In 2003, the Accreditation Council for Graduate Medical Education (ACGME) implemented new work-hour rules for U.S. residency programs that limited all house staff to working 80 hours each week.

A study exploring the impact of this reform on operative trauma cases found that overall trauma cases per year declined from 78.28 per surgical resident to 38.73 between 1990 and 2010 by 3.41 cases per year. However, during the period following the work-hour change (2003–2010), overall trauma cases increased by 0.36 cases per year. The percentage of junior surgical residents involved in trauma operative cases had risen from 67 percent in 1990 to 79 percent in 2010, meaning that chief residents (residents in their final year of training) were less likely to be participating in trauma cases.

As part of this trend, the percentage of total trauma vascular cases experienced by a junior resident



increased from 47 percent in 1990 to 62 percent in 2003–2004, to 75 percent in 2010 and, for thoracic cases, from 60 percent in 1990 to 69 percent in 2003–2004 to 75 percent in 2010.

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Trauma surgery

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The researchers conclude that secular trends before the 2003 work-hour reform caused a 50 percent decrease in operative trauma experience among general surgery residents. After work-hour reform, operative trauma case volumes stabilized, although cases were

increasingly transferred to junior residents. This study was supported by AHRQ (HS13833).

See “Twenty-year analysis of surgical resident operative trauma experiences,” by Mayur B. Patel, M.D., M.P.H., Oscar D. Guillamondegui, M.D., M.P.H., Addison K. May, M.D., and Jose J. Diaz, M.D., in the *Journal of Surgical Research* 180, pp. 1911-1915, 2013. ■ MWS

Oral antibiotics and bowel preparation reduce hospital stays and 30-day readmissions in patients undergoing colectomy procedures

Surgical site infections (SSIs) complicate approximately 15 percent of colectomies (partial or total removal of the colon) and have been linked to increased hospital length of stay (LOS) as well as readmissions. A new study reveals that oral antibiotics and bowel preparations (OABPs) before colorectal surgery is associated with both shorter LOS and fewer 30-day readmissions, primarily because of fewer readmissions for SSIs. The study included 8,180 patients, who underwent elective colorectal surgery between 2005 and 2009 in Veterans Administration hospitals.

In the study, an OABP, whose use has waned in recent years, was prescribed to 3,575 of the 8,180 patients.

SSIs occurred in 1,192 (14.6 percent) patients and significantly differed by bowel preparation category: OABP (8.6 percent), mechanical bowel preparation alone (19.5 percent), and no bowel preparation (18.6 percent). Thirty day readmission occurred in 1,161 (14.2 percent) patients, ranging from 12.7 percent for OABP, and 15.0 percent for mechanical preparation, to 16.1 percent for no

preparation. The researchers believe that efforts to improve adherence with use of OABP can improve the efficiency of care for colorectal surgery. This study was supported in part by AHRQ (T32 HS13852).

See “Oral antibiotic bowel preparation reduces length of stay and readmissions after colorectal surgery,” by Galinan D. Toneva, B.S., Rhaianon J. Deierhoi, M.P.H., Laura K. Altom, M.D., M.S.P.H., and others in the *Journal of the American College of Surgeons* 216, pp. 765-763, 2013. ■ MWS

Health Insurance

Based on the Massachusetts experience, consumers will need help navigating health insurance exchanges

With the passage of the Affordable Care Act, some U.S. consumers will soon be joining health insurance exchanges (HIEs). These HIEs allow people to select from a variety of commercial health plans offering different levels of coverage generosity, benefit structures, and monthly premiums. Since 2006, Massachusetts has offered its own version of an HIE called the Health Connector. A new study analyzes the Massachusetts experience as an example of how people will deal with enrolling in health plans via HIEs.

Researchers from the Harvard School of Public Health, Harvard Pilgrim Health Care Institute, and Harvard

Medical School surveyed Massachusetts consumers enrolling in the Massachusetts Exchange in 2010. Nearly half of respondents had significant difficulty understanding plan information. In addition, a majority of respondents either needed help selecting the appropriate plan or solicited assistance with plan selection, most often from friends and family.

Consumers enrolled in an HIE plan for 6 months or more were eligible to participate in the survey. Questions were asked about their satisfaction and experience with selecting a health plan and after they

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Health insurance exchanges

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enrolled. The survey also collected information about socioeconomic and clinical characteristics of the subscribers and their families.

Overall, more than 40 percent of enrollees found their plan information difficult to understand. In addition, one-third reported that they recruited someone to help them narrow down their plan choices. Another 20 percent wished they had had assistance in this process. More than a quarter of respondents (28 percent) felt that selecting a plan would have been easier if they had fewer plan options. Even after they were enrolled in a particular plan, nearly a quarter (23 percent) said they still found their plan difficult to understand. Forty-five percent reported that their out-of-pocket expenses were higher than expected.

Those more likely to be dissatisfied with the affordability of plan options were respondents with

incomes less than 400 percent of the Federal poverty level. These consumers also reported having higher-than-expected out-of-pocket costs. While all respondents were enrolled in unsubsidized plans, the researchers discovered that 30 percent of respondents had incomes that would have qualified them for a subsidized Connector plan. As HIEs emerge and become active, they will need to provide resources and decision support to consumers in a variety of ways to reduce confusion and help people choose the best plan for them, suggest the researchers. Investigators participating in this study are supported in part by AHRQ (HS10391).

More details are in “The experience of Massachusetts shows that consumers will need help in navigating insurance exchanges,” by Anna D. Sinaiko, Ph.D., Dennis Ross-Degnan, Sc.D., Stephen B. Soumerai, Sc.D., and others, in the January 2013 *Health Affairs* 32(1), pp. 78-86. ■ KB

Disparities/Minority Health

Study of Asian Americans identifies subsets of socially disadvantaged workers at risk of poor mental health

A well-documented finding is that individuals of the highest socioeconomic status (SES) have better health, particularly mental health, than those at the bottom and all intermediary levels. Yet, there is increasing evidence from studies of racial/ethnic minorities and immigrants in the United States showing more complex links between SES and health.

This is sometimes referred to as an “epidemiological paradox” (higher SES not associated with better health) or an “immigrant health paradox” (health-protective effect of being foreign-born despite lower SES than their U.S.-born counterparts). In an effort to understand whether such a phenomenon exists in the fast-growing, heterogeneous Asian

American population, researchers investigated the associations of nativity and occupational class with subjective health and 12-month mental disorders.

They found that occupational class was not strongly associated with subjective health and mental disorder for Asian Americans, including immigrants. Though they found an overall protective effect of being foreign-born for any mental disorder and anxiety, factors associated with migration and adaptation were independently associated with negative outcomes.

For example, limited English proficiency was associated with all five outcomes studied (self-rated physical health, self-rated mental health, any 12-month mental disorder, any 12-month anxiety

disorder and any 12-month depressive disorder). Material and psychosocial factors were associated with some outcomes—perceived financial need with self-rated physical and mental health, uninsurance with self-rated mental health and depression, social support, perceived discrimination, and acculturative stress with all or most mental health outcomes.

The researchers caution against using terms like “immigrant health paradox,” which oversimplify complex patterns. They conclude that their findings identify subgroups of Asians at risk for worse mental health who might be targeted through culturally centered policies and programs to provide language,

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Mental health

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social, and health services and to promote health. The findings were based on analysis of data from 1,530 Asian respondents in the labor force to the National Latino and Asian American Study of 2002–2003. The study was partially

supported by AHRQ (T32 HS13853).

See “Does an immigrant health paradox exist among Asian Americans? Associations of nativity and occupational class with self-rated health and mental disorders,” by Dolly A. John, Ph.D., A.B. de Castro, Ph.D., Diane P. Martin,

Ph.D., Bonnie Duran, Ph.D., and David T. Takeuchi, Ph.D. in *Social Science & Medicine* 75, pp. 2085–2098, 2012. ■ MWS

Chronic Disease

Individuals living with chronically ill household members have lower health-related quality of life

Caring for a chronically ill family member can have negative effects, not only on the caregiver, but on others living in the household as well. This “spillover of illness” can result in family members reporting less than optimal health, according to a new study. This lower health-related quality of life affects both adults and children living in the household.

Researchers analyzed 4 years of data from the Medical Expenditure Panel Survey (MEPS), which collects information on individuals at 5 time points over a period of 2.5 years. Of particular interest was data on the medical conditions of each household member. Chronic conditions were defined as those lasting 12 months or more or those resulting in lasting physical

impairment. The sample included 24,188 adults and children.

Nearly one-third of adults suffered from a chronic condition and 38 percent of adults were living with another adult who had a chronic condition. Among adults, the most common chronic conditions were hypertension, diabetes, joint diseases, and depression. Asthma and allergies were the most common chronic conditions for children.

Several conditions were associated with significantly lower health-related quality of life scores among household members living with someone having a chronic condition. These included mental disorders and respiratory conditions in adults and children; in just adults, musculoskeletal and nervous/sensory system diseases. There was a 30 percent reduction in odds of a person reporting perfect health from a household where a chronic condition was present. The largest reduction was found for family members living with children with newly occurring



mental health conditions. The study was supported in part by AHRQ (HS14010).

See “Evidence of spillover of illness among household members: EQ-5D scores from a US sample,” by Eve Witttenberg, Ph.D., Grant A. Ritter, Ph.D., and Lisa A. Prosser, Ph.D., in the February 2013 *Medical Decision Making* 33, pp. 235–243. KB



Patients with advanced cancer who watch a video of CPR less likely to opt for CPR

Video decision aids are designed to help patients make more informed decisions by illuminating alternative treatments for serious conditions. A new study shows that patients with advanced cancer who viewed a video of cardiopulmonary resuscitation (CPR) were less likely to opt for CPR than those who listened to a verbal narrative. Angelo E. Volandes, M.D., M.P.H., of Massachusetts General Hospital, and colleagues enrolled 150 patients with advanced cancer in the study.

Eighty patients listened only to a verbal description of the CPR process and the likelihood of successful resuscitation. Seventy intervention patients listened to the verbal narrative and watched a 3-minute video of a patient on a ventilator and of CPR being performed on a simulated patient. Among participants who heard only the verbal narrative, 48 percent opted for CPR if necessary, 51 percent wanted no CPR, and 1 patient was uncertain. Among participants who heard the verbal narrative and saw the video, 20 percent opted for CPR if needed, 79 percent opted for no CPR, and 1 person was uncertain. Mean knowledge scores were significantly higher for those viewing the video than for those who only heard the verbal narrative. The study was supported in part by AHRQ (HS18780).



More details are in “Randomized controlled trial of a video decision support tool for cardiopulmonary resuscitation decision making in advanced cancer,” by Dr. Volandes, Michael K. Paasche-Orlow, M.D., Susan L. Mitchell, M.D., and others in the *Journal of Clinical Oncology* 31(3), pp. 380-386, 2012. DIL



Sleep-disordered breathing boosts risk of heart disease in patients with asymptomatic type 2 diabetes

Adults with type 2 diabetes mellitus (T2DM) have a two to four times greater risk of heart disease-related mortality than their nondiabetic counterparts. Sleep-disordered breathing (SDB) has been associated with T2DM and impaired glucose tolerance, independent of other coexisting conditions, including obesity. A recent study found a greater risk of new-onset cardiac disease in asymptomatic patients (with normal exercise

results on echocardiogram) with T2DM and SDB than in those without SDB.

SDB was associated with a greater risk of incident coronary artery disease (CAD) even after controlling for risk factors, including age, sex, hypertension, smoking, lipid profile, family history of cerebrovascular disease, medical treatment, standard of care-related risk factors, or overweight/obesity. SDB was also

associated with more than twice the risk of incident atrial fibrillation (AF) in patients with T2DM. In addition, there was a positive association of SDB with heart failure (HF).

Patients were considered to have SDB if the diagnosis was made using polysomnography or if a comprehensive sleep evaluation identified the patient to be at high

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Type 2 diabetes

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risk of SDB but the patient did not undergo polysomnography. All patients were treated at a single, large center in Ohio and were followed for a period of up to 7.8 years. The study included 869 asymptomatic patients with T2DM, of whom 188 had SDB. The researchers believe that the

association of SDB with incident CAD, AF, and HF in patients with T2DM justifies more liberal screening for SDB in patients with T2DM, given that SDB is a potentially modifiable risk factor. This study was supported by AHRQ (T32 HS00059).

See “Sleep disordered breathing as a risk of cardiac events in subjects

with diabetes mellitus and normal exercise echocardiographic findings,” by Sinziana Seicean, M.D., Kingman P. Strohl, M.D., Andreea Seicean, M.P.H., and others in the *American Journal of Cardiology* 111, pp. 1214-1220, 2013. ■ MWS

Primary Care

Regular primary care physicians are more likely to intensify medication for patients with diabetes

Patients with diabetes cared for by a regular primary care physician (PCP) are more likely to receive medication intensification (prescriptions for higher or more frequent doses of current drugs or addition of new medication) or lifestyle counseling on diet or exercise than patients treated by covering physicians (who filled in for the patient's regular PCP) or other medical providers (nurse practitioners or physician assistants), a new study finds.

As a result, patients seen more often by PCPs are likely to more quickly get their diabetes under control, that is, lower levels of blood sugar (glycated hemoglobin, HbA1c), and to more quickly lower their blood pressure and/or blood levels of low-density lipoprotein cholesterol than those seen frequently by covering physicians or midlevel practitioners.

During periods in which one or more of these measures were uncontrolled, patient encounters were mostly with PCPs (83 percent), less often with covering physicians (13 percent), and least often with midlevel providers (5 percent). Nearly half of the encounters (49 percent) were face-to-face visits rather than remote (telephone) consultations, and 19 percent involved an acute complaint (acute pain or infection). For all encounters, 11 percent resulted in medication intensification and 40 percent involved lifestyle counseling.

Using a model that controlled for patient demographics and clinical factors, the researchers determined that the

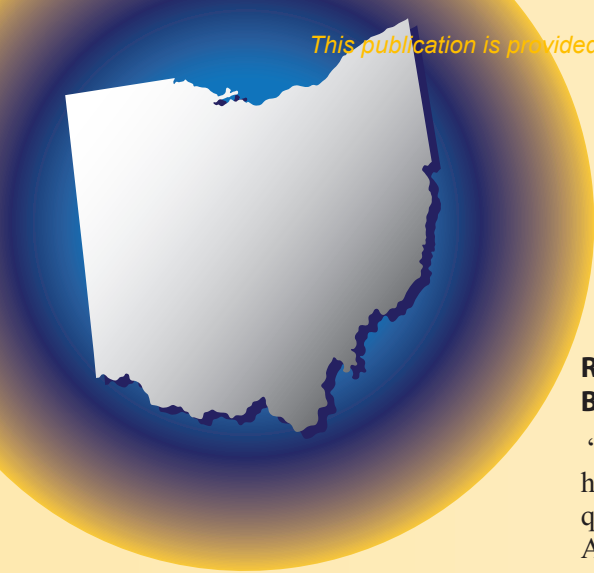
probability of medication intensification and lifestyle counseling during nonacute encounters was 49 percent and 92 percent higher, respectively, for PCPs than for covering physicians and 27 percent and 22 percent higher, respectively, than for midlevel providers.

For encounters involving acute complaints, covering physicians were 50 percent less likely than PCPs to intensify medications, but midlevel providers were not significantly less likely to do so. Although midlevel practitioners were 39 percent less likely to give lifestyle counseling during an acute encounter, covering physicians were not significantly less likely to provide counseling.

The findings were based on data from 584,587 patient encounters documented via electronic medical records of 27,225 adults with diabetes treated for at least 2 years at primary care practices affiliated with two large teaching hospitals in Boston. The study was funded in part by AHRQ (HS17030).

More details are in “Performance of primary care physicians and other providers on key process measures in the treatment of diabetes,” by Fritha Morrison, M.P.H., Maria Schubina, Sc.D., Saveli I. Goldberg, Ph.D., and others in the May 2013 *Diabetes Care* 36(5), pp. 1147-1152. ■ DIL





State Spotlight

Ohio

Drivers refer to their dashboards to check data on speed and distance. Data-driven researchers and clinicians rely on AHRQ's online dashboards from State Snapshots to gauge the overall status of health care in their State.

The dashboard at the top of each Snapshot provides a needle gauge ranging from weak to strong, which summarizes more than 100 quality measures. Scrolling down the page, researchers and clinicians can compare how a State is doing in types of care, settings of care, common clinical conditions, and specific areas, including diabetes, asthma, and Healthy People 2020.

Research Activities shines a spotlight on how individual States use AHRQ data on health care quality and disparities. Our first columns profiled Iowa and New York. This month we turn to Ohio where AHRQ data is informing ideas to reduce disparities.

Ohio has more than 12 million residents and is the seventh most populous State in the nation. The State contains major urban areas, including Columbus, Cleveland, and Cincinnati, and a large Appalachian area. It is also home to one of the largest Somali populations in the country.

Real-world frustration in the Buckeye State

"We are in the top quartile for health care spending and the bottom quartile for outcomes," says Mary Applegate, M.D. "That doesn't make sense to me, but it does make sense that we have wide disparities."

Applegate dealt with disparities on a regular basis—first as a pediatrician and internist in rural Ohio and then as deputy coroner for the State. She became medical director for Ohio Medicaid because of what she calls "real world frustration" with disparities.

Health care leaders throughout the State share Applegate's frustration—and her commitment to reduce disparities. "Our State understands that we can no longer afford to do business the way we have been," says Johnnie (Chip) Allen, M.P.H., director of health equity in the Ohio Department of Health and a leader in the National Academy for State Health Policy Leaders. "We have no other choice but to change, but in order to change we have to begin with, 'What is our baseline information?'"

For Allen, many of those answers come from AHRQ. "The AHRQ data is very specific with good research availability. Even if AHRQ has a measure and we don't have a large enough sample, that provides us with insight to enhance our data collection efforts," says Allen. "We want to eliminate disparities. The AHRQ data helps us with what needs to be done. We are working on the how."

A collaborative approach

"About a year and a half ago, a number of State agencies in Ohio, including the Commission on Minority Health, Ohio Medicaid, and our Department of Health met as a collaborative to address health care disparities, particularly as related to the Affordable Care Act," explains Allen. "The AHRQ data provided the opportunity for us to look at the same metrics even though our work is spread across many agencies in the State."

The collaborative approach is changing the way Ohio looks at disparities. For example, Allen says, "We put language in our insurance contracts to address disparities. Prior to that, we didn't have specific language to address disparities."

Another member of the group, Carol Ware, senior program administrator of the Ohio Department of Medicaid, says, "Often states—and I'm not just speaking of Ohio—look for guidance from the Federal level that would help us develop policy. The ACA (Affordable Care Act) and the National Stakeholder Strategy for Achieving Health Equity provided useful information to assist us by giving us a foundation. The fact that we finally could put health equity in our managed care contractual documents is a huge achievement." Applegate, Allen, Ware, and others are continuing their collaboration by establishing a new group. "Our health equity workgroup will have representatives from managed care, staff from our agency, and partners

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AHRQ data--reports States use

Every year since 2003, AHRQ has released the *National Healthcare Quality Report* and the *National Healthcare Disparities Report*. These Congressionally mandated reports gauge the state of health care in the United States. More than 250 measures relating to quality of care and access to health services are factored in and reported by racial, ethnic, and socioeconomic groups.

In 2005, AHRQ began compiling data from the reports to develop an annual State Snapshots, which provides State-specific health care quality information, including strengths, weaknesses, and opportunities for improvement. Every State and the District of Columbia can compare their own health care statistics with the nation as a whole.

The State Snapshots can help State officials and their public- and private-sector partners better understand health care quality and disparities in their State.

Ultimately, the goals of these reports, combined with other Department of Health and Human Services initiatives such as the National Quality Strategy and the Disparities Action Plan, is to make the lives of patients and families better.

To view the quality and disparity reports, visit www.ahrq.gov/research/findings/nhqrd. To view the State selection map and explore the quality of your State's health care against national rates or best performing States, visit statesnapshots.ahrq.gov.

State spotlight

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representing the Commission on Minority Affairs," says Ware. "We have the brains and the willpower, but we all have to come together."

The time is right

"We finally have focused alignment in Federal initiatives, including the HHS Action Plan to Reduce Racial and Ethnic Health Disparities, the National Stakeholder Strategy to Achieve Health Equity, AHRQ data resources, and the Affordable Care Act," says Angela Dawson, executive director of the Ohio Commission on Minority Health and one of the health equity group's leaders. "In other words, Jupiter is finally aligned with Mars."

Dawson should know. "The Ohio Commission on Minority Health was the first State agency set aside in the nation to look at minority health disparities," she says. "We've been on the battlefield for 26 years helping to push efforts toward policies that drive down minority health disparities and raise awareness of health disparities while improving the health of racial and ethnic minorities."

"What's different now", says Dawson, is that "Ohio recognizes that we can't afford to do business the same old way. Rather we must begin to use data to drive our policy, allocation, and implementation decisions. Our exorbitant spending forces us to both challenge and change the historical approach of scattering money across the State

without the real means to assess the impact of our investments."

Dawson sees this opportunity as the "greatest time for growth in the history of health care disparities since the release of the 1985 Heckler report." (<http://go.usa.gov/WB3C>).

Champions in Ohio

"The best data can only help identify key problems," says Ernest Moy, M.D., senior research scientist at AHRQ. "Champions are essential to lead the hard work of improving quality and reducing disparities."



Malpractice claim rates not significantly different between physicians who use electronic health record systems and nonusers

Incidence of malpractice claims for physicians using electronic health records (EHRs) between 1999 and 2009 was not significantly different from that of physicians who did not use EHR systems, after adjusting for other factors affecting such claims. The researchers conducted the study among all office-based physicians in Colorado to determine whether EHR use was associated with reduced malpractice claims. If true, this would help justify the Federal authorization of \$27 billion to support physician adoption of EHR systems, and argue for a credit against liability insurance premiums for physicians using EHRs.

However, the likelihood of malpractice claims for EHR users was a nonsignificant 12 percent

lower than for nonusers. When the researchers compared the likelihood of claim incidence for users before introducing an EHR system and afterwards, EHR introduction was associated with a nonsignificant 27 percent decline in the likelihood of a malpractice claim. During the period before EHR use, 633 physicians cumulatively had 6 plausibly EHR-sensitive claims in contrast to 251 physicians having 2 such claims when their EHR was in use. This came to equivalent incidence of 0.01 plausibly EHR-sensitive malpractice claims per physician EHR users per 10 years of liability coverage, whether or not an EHR system was in use.

The findings were based on responses to surveys sent to 3,502

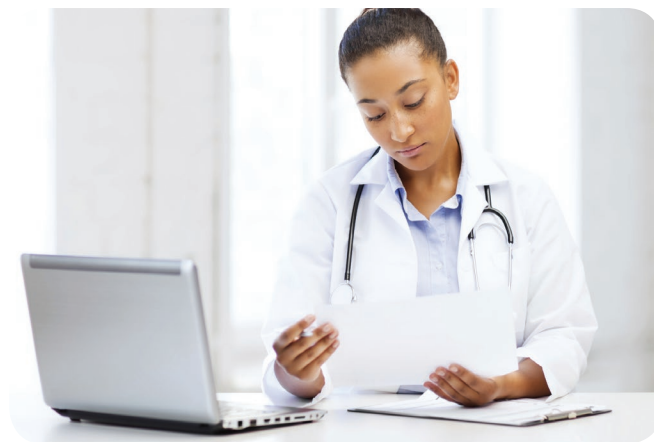
office-based physicians during November and December 2009 and analysis of 1,627 malpractice claims filed and electronically available from 1999 through 2009. The study was funded in part by AHRQ (HS19464).

More details are in “Impact of electronic health records on malpractice claims in a sample of physician offices in Colorado: A retrospective cohort study,” by Michael S. Victoroff, M.D., Barbara M. Drury, B.A., Elizabeth J. Campagna, M.S., PStat®, and Elaine H. Morrato, Dr.P.H., M.P.H., C.P.H., in the May 2013 *Journal of General Internal Medicine* 28(5), pp. 637-644. ■ DIL

Survey finds significant barriers to use of health information technology to report adverse events in nursing homes

Each year, at least 8 million adverse events occur in nursing home settings. The most commonly used method of reporting, and subsequently analyzing, an adverse event in a nursing home is through incident reporting. One strategy to reduce adverse events is through the use of health information technology (IT) to enhance incident reporting processes. A recently published survey found several barriers to the use of health IT for this purpose. The survey asked 399 nursing home administrators about the factors that either promote or prevent health IT for reporting adverse incidents.

Two of the top three most important barriers identified by nursing home administrators were related to fears of reporting. The three barriers were: (1) lack of recognition that an adverse event had occurred, (2) fear of liability, lawsuits, or sanctions, and (3) fear of disciplinary action, which was tied to fear of being blamed.



The researchers believe that health IT structures can help improve incident reporting by minimizing staffs' fear of reporting events. For example, computerized

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Adverse events in nursing homes

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incident reporting systems have the potential for staff to anonymously report safety concerns and adverse events. The last ranked barrier in area of importance, “lack of a readily available adverse event reporting system,” is an important finding, since nursing home administrators might not see the importance that health IT plays in incident reporting.

Researchers found very few health IT-related facilitators present in nursing homes to enhance reporting. About 15 percent of nursing homes had computerized entry by the nurse on the unit and almost 18 percent used no

computer technology to track, monitor, or maintain adverse event data. One third of nursing directors conducted data analysis by hand. The researchers call for the use of a more standardized system to assess, analyze, and disseminate adverse event data to facilitate adverse event reporting. This study was supported by AHRQ (HS16547, HS18721).

See “Use of HIT for adverse event reporting in nursing homes: Barriers and facilitators,” by Laura M. Wagner, Ph.D., R.N., Nicholas G. Castle, Ph.D., and Steven M. Handler, M.D., M.S., in *Geriatric Nursing* 34, pp. 112-115, 2013. ■ MWS

Health Care Costs and Financing

Urological surgery rare, more expensive at rural critical access hospitals

Critical access hospitals (CAHs)—small, rural hospitals with a maximum of 25 acute care beds—are significantly less likely to perform inpatient urological surgery than are other acute care hospitals, according to a new study. The designation of a hospital as “critical access” allows it to receive cost-plus reimbursement from Medicare as well as more flexibility in physician and nurse staffing. In rural areas, most acute care is performed at CAHs. The researchers compared data on urologic surgery admissions at CAHs and non-CAHs from the

AHRQ Healthcare Cost and Utilization Project – Nationwide Inpatient Sample (HCUP–NIS).

They found a total of 333,925 urological surgery admissions for both types of hospitals for the period 2005 through 2009, including 2,286 (0.7 percent) admissions at CAHs. Fewer than half of CAHs (45 percent) had at least 1 inpatient urological operation performed compared with 91 percent of non-CAHs. CAHs had a greater prevalence of operations for benign indications (such as benign prostatectomy), while major cancer operations constituted a smaller proportion of CAH than non-CAH urologic surgeries (16 percent vs. 33 percent).

There were no meaningful differences in in-hospital deaths

and length of hospital stays between patients treated at CAHs and non-CAHs for six common inpatient urological surgeries. However, the costs at CAHs were universally higher. The findings were based on analysis of data from the American Hospital Association and the AHRQ HCUP–NIS. The study was funded in part by AHRQ (HS18346).

More details are in “Inpatient urological surgery at critical access hospitals in the United States,” by Adam J. Gadzinski, M.D., M.S., Justin B. Dimick, M.D., M.P.H., ZaoJin Ye, M.S., and others in the April 2013 *The Journal of Urology* 189(3), pp. 1475-1480. DIL



Clinical Cases

The pains of chronic opioid usage

The spotlight case of AHRQ's September Web M&M is that of a 42-year-old man with a history of asthma and chronic lower back pain, who was admitted to the hospital with community-acquired pneumonia and an asthma exacerbation. His primary care physician (PCP) had been prescribing high doses of long-acting morphine (MS Contin), oxycodone, and gabapentin for his low back pain. He was marginally housed and often slept in shelters.

On admission to the hospital, he was treated with nebulizers, antibiotics, and prednisone. Due to some odd behavior and suspicion for substance abuse, a urine toxicology test was sent on admission and was positive for benzodiazepines, methadone, and opiates. The hospitalist confronted the patient, who admitted selling his prescribed opiates and buying diazepam and methadone on the street, because they could "control [my] pain better."

The hospital's pain service changed his medications to methadone, hydromorphone, clonazepam, and venlafaxine. The morphine and oxycodone were discontinued. With this regimen, the patient had reasonable pain relief at the time of discharge. He was discharged with a prescription for a 2-week supply of medications and had a followup appointment with his PCP 10 days after discharge. Unfortunately, as it was a weekend the discharging hospitalist was not able to speak directly with the PCP but sent her an email with the medication changes. Five days after discharge, the patient was found unconscious

at a subway station and pronounced dead at a local hospital following unsuccessful resuscitation. Based on the clinical presentation and details at the scene, the cause of death was likely from unintentional opiate/benzodiazepine overdose.

In reviewing his medications, the patient had refilled his long-acting morphine and oxycodone 1 day before admission. Unfortunately, this information was not available to the discharging hospitalist, and the patient stated that he had not gotten any recent refills of his opiates. The patient filled the new prescription for methadone, hydromorphone, and clonazepam on the day of discharge.

It is unclear whether the patient's unexpected death could have been prevented, but the scenario acts as a powerful reminder of the risks of opioid prescribing, notes the accompanying commentary by Laxmaiah Manchikanti, M.D., medical director of the Pain Management Center of Paducah, Paducah, KY, and clinical professor of anesthesiology and perioperative medicine at the University of Louisville, KY, and Joshua A. Hirsch, M.D., vice chief of interventional care at Massachusetts General Hospital and associate professor at Harvard Medical School.

They suggest the first error was prescribing both long-acting

morphine and oxycodone in a patient with comorbid respiratory disorders, and who was marginally housed and lacked support systems. It might have been more appropriate to start with a single short-acting agent to determine adherence and tolerance. This patient had significant abuse patterns and should have been considered as high risk and, consequently, should never have been initiated on high-dose opioid therapy, should have been appropriately monitored, and should have been weaned off opioids or referred to addiction management.

A picture speaks 1,000 words

A 62-year-old man with a past medical history of hypertension, hyperlipidemia, and type A aortic dissection repair presented with chest pain at a community hospital. An aortic protocol computed tomography for dissection was ordered and performed, and the preliminary reading from the on-call resident was "no acute changes." Since the dissection was believed to be stable and a higher level of care appeared unnecessary, the patient was admitted to the medicine service of the hospital for further workup.

Six hours after the patient arrived to the medical floor, he developed increasing migratory chest pain, dyspnea, and diaphoresis. The medical team arrived to find him hypotensive, tachycardic, and minimally responsive, with unequal blood pressures in his arms. Despite intensive care unit transfer and aggressive life-saving interventions, he died a few hours later. Autopsy

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Clinical cases

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revealed proximal progression of the false lumen of his known type A dissection with rupture into the pericardial sac.

The hospital that cared for the patient was a Federal facility affiliated with a large academic medical center, which had no in-house radiology services at night. Thus, nighttime studies were sent electronically to on-call residents at the academic medical center. A data firewall had been constructed to “improve information security” at the Federal facility, which rendered the radiology residents unable to access previous study images, only the text reports of the studies. The barrier, which had initially blocked both text reports and actual radiology studies, was well known to the on-call radiology residents, and they had developed a workaround to allow them to access the text reports.



In this particular case, the overnight read by the resident was based on a comparison of the current study with the results on the text report of the prior dissection. The following morning, an attending radiologist determined that a comparison of the new study and the prior images clearly demonstrated proximal progression of the dissection. Following this case, data safety and monitoring policies were changed. Access to stored imaging was

facilitated and the firewall was disabled.

In the accompanying commentary, Robin R. Hemphill, M.D., chief safety and risk awareness officer at the Veterans Health Administration (VA) and director of the VA National Center for Patient Safety, notes the inadequacy of comparing a written report of a prior film with the current images to make a proper assessment of the patient's status. He notes that the culprit in this case was not the security system, but rather the workaround and the failure to address the broader system's flaw before it led to a tragic outcome.

DRESSed for failure

A 60-year-old woman who uses a wheelchair arrived at the emergency department (ED) with right hand cellulitis and an uncomplicated urinary tract infection. The patient had a complicated medical history that included poly-substance abuse, hepatitis C, a mitral valve replacement, and multiple strokes, which left her non-verbal and fully dependent on caretakers for tasks of daily living. In the ED, she was treated with a dose of intravenous ceftriaxone and sent home with a prescription for oral cephalexin. One week later, the patient returned to the ED critically ill with hypotension, altered mental status, and an erythematous rash on her upper extremities. She was admitted to the intensive care unit and treated presumptively for sepsis.

When dermatology was consulted, they noted a previous diagnosis of drug rash with eosinophilia and systemic symptoms (DRESS) associated with cephalexin. High-dose steroids were administered and the patient's condition rapidly improved. She ultimately returned



to her baseline condition and was discharged home with her caretaker.

In root cause analysis of the error, the patient's history of cephalexin-induced DRESS was only documented as an “allergy” in the previous electronic health record (EHR). The medical center recently transitioned to a new EHR, and the institution made a deliberate decision to have clinicians review all patient allergies “from scratch” rather than simply transfer the information over from the old system. However, despite a few ambulatory visits for this patient since transition to the new EHR, the allergy list was never updated to include cephalexin.

In the accompanying commentary, Erika Abramson, M.D., M.S., assistant professor of pediatrics and Rainu Kaushal, M.D., M.P.H., chief of the Division of Quality and Medical Informatics at Weill Cornell Medical College, note that transitioning to new EHR systems can pose important safety threats

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Clinical cases

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for patients. The decision not to transfer old allergy data to the new EHR resulted in the unintended consequence of a life-threatening drug allergy prescribing error in a high-risk patient when the historical

data allergy information was not transferred between systems or updated by treating providers.

While most transitions will be from paper to EHR, EHR-to-EHR transitions occur and pose unique challenges, including determining data migration (moving from the

old system to the new) and mapping needs. Drug allergy information should strongly be considered for data migration. You can find more cases and commentaries, as well as safety perspectives on AHRQ's Web M&M Web site at www.webmm.ahrq.gov. ■

Women's Health

Biennial screening mammography for women over age 65 just as effective as annual screening

A new study looked at whether the benefits (detection of early-stage disease) and harms (false-positive mammography or biopsy recommendation) differ by screening interval and coexisting illness among older women who are screened in community practices. The researchers found that screening every 2 years for women aged 66 to 89 years, irrespective of coexisting illness, resulted in a similar risk of presenting with advanced-stage disease as screening once a year. Thus, annual screening for women without any coexisting conditions would not lead to a better balance of benefits versus harms, suggest the researchers.

Their analysis found no association between comorbidity, screening interval, and tumor stage at diagnosis. The study included 2,993 older women with breast cancer and 137,949 older women without breast cancer who were screened at facilities that allowed a data linkage between the Breast Cancer Surveillance Consortium and Medicare claims. The database used is the largest available screening mammography dataset that links both cancer diagnoses from tumor registries



and administrative data from Medicare claims. This study was supported by AHRQ (HS19482).

For further details, see “Screening outcomes in older U.S. women undergoing multiple mammograms in community practice: Does interval, age, or comorbidity score affect tumor characteristics or false positive rates?” by Dejana Braithwaite, Ph.D., Weiwei Zhu, M.S., Karen J. Wernli, Ph.D., and others in the March 6, 2013 *Journal of the National Cancer Institute* 105(5), pp. 334-341. *MWS*



News and Notes

New AHRQ protocol helps hospitals reduce MRSA and bloodstream infections

A new protocol released by AHRQ provides instructions for implementing universal decolonization in hospital intensive care units (ICUs) that treat adult patients. “Universal ICU Decolonization Toolkit: An Enhanced Protocol” is based on materials successfully used in the REDUCE MRSA Trial, results of which were published in the May 29, 2013 issue of the *New England Journal of Medicine*. The trial found that universal decolonization is the most effective intervention when compared with routine care or targeted decolonization, reducing MRSA clinical cultures by 37 percent and all-cause bloodstream infections by 44 percent.

The protocol provides:

- Decisionmaking tools and a rationale to help hospital leaders understand the effectiveness of ICU decolonization with mupirocin and chlorhexidine gluconate and decide if this strategy represents the best course of action for their facility.
- Instructions on how to garner institutional support from key stakeholders to support the adoption of a universal ICU decolonization strategy within ICUs.
- Tools to assess adherence to the decolonization protocol and reinforce training.

The protocol also describes the role of unit-based physician and nursing champions who oversee decolonization intervention and provide training and materials for frontline staff. You can access the protocol at <http://go.usa.gov/WZ8d>.

AHRQ and PCORI Partner on Uterine Fibroid Project

AHRQ and the Patient-Centered Outcomes Research Institute (PCORI) have issued a Request for Applications (RFA) for a research project on the effectiveness of different treatments for uterine fibroids. In a first-time partnership with AHRQ, PCORI will commit up to \$20 million to develop a national registry of women who have been treated for uterine fibroids, fund studies on the comparative effectiveness of medical and surgical therapies, and to better understand patient preference in informing treatment decisions using data from the registry. The RFA calls for development of a large, multi-center, practice-based registry that must include women from diverse backgrounds, including those who traditionally have been less involved in health research. Letters of intent may be submitted

to AHRQ by November 15, 2013 and applications are due by December 16. You can access the RFA at <http://grants.nih.gov/grants/guide/rfa-files/RFA-HS-14-006.html>.

New CHIPRA evaluation highlight focuses on elevating children on State policy agendas

AHRQ has released its 4th Evaluation Highlight from the national evaluation of the Children’s Health Insurance Program Reauthorization Act of 2009 (CHIPRA) Quality Demonstration Grant Program. The latest highlight, “How the CHIPRA Quality Demonstration Elevated Children on State Health Policy,” gives concrete examples of activities in five States—Maine, Maryland, Massachusetts, Vermont, and Oregon—and explains how these States used their CHIPRA quality demonstration grants to advance children’s health care on their States’ health policy agendas. This highlight also describes how States have aligned their efforts with and used their CHIPRA quality demonstration project experiences to directly inform broader Federal and State health reform initiatives. You can access the Evaluation Highlight at <http://go.usa.gov/WZ8F>.



Research Briefs

Boatright, D.H., Byyny, R.L., Hopkis, E., and others. (2013). "Validation of rules to predict emergent surgical intervention in pediatric trauma patients." (AHRQ grant HS19464). *Journal of the American College of Surgeons* 216, pp. 1094-1102. Trauma centers use guidelines to determine when a trauma surgeon is needed in the emergency department on patient arrival. This study tested a decision rule from Loma Linda University and found it to be insufficiently accurate to recommend its routine use; however, the study had a small number of outcomes.

Cronholm, P.F., Shea, J.A., Werner, R.M., and others. (2013). "The patient centered medical home: Mental models and practice culture driving the transformation process." (AHRQ grant HS19150). *Journal of General Internal Medicine* 28(9), pp. 1195-1201. The authors characterize the key constructs describing role transformation related to the patient-centered medical home (PCMH) paradigm that participants associated with perceptions of improved clinical care in a large multi-payer PCMH demonstration project. They concluded that practice redesign focusing on

patient-centered care and improved quality requires shifts in practice culture and the mental models of individuals.

Davidoff, A.J., Zuckerman, I.H., Pandya, N., and others. (2013). "A novel approach to improve health status measurement in observational claims-based studies of cancer treatment and outcomes." *Journal of Geriatric Oncology* 4, pp. 157-165. Reprints (AHRQ Publication No.13-R038) are available from AHRQ.* The researchers developed and provided initial validation for a multivariate, claims-based prediction model for disability status (DS) among older adults. Their results demonstrate that health care service use indicators from administrative claims can be used to predict DS, and that the resulting predicted value is associated with survival in an older adult Medicare population.

Gawron, A.J., and Pandolfino, J.E. (2013). "Ambulatory reflux monitoring in GERD—which test should be performed and should therapy be stopped?" (AHRQ grant T32 HS00078). *Current Gastroenterology Reports* 15, p. 316-318. This review focuses on the limitations of the current diagnostic paradigm and highlights how reflux testing can be helpful in the diagnosis and management of patients with poor response to proton pump inhibitor (PPI) therapy. The researchers conclude that ambulatory reflux monitoring, when used appropriately, is useful

in distinguishing etiologies driving a lack of response to PPI therapy.

Glance, L.G., Dick, A.W., Osler, T.M., and others. (2012). "The association between nurse staffing and hospital outcomes in injured patients." (AHRQ grant HS16737). *BMC Health Services Research* 12(247), [online only] 8 pp. Replacing care by registered nurses (RNs) of patients at level I and level II trauma centers with care by licensed practical nurses (LPNs) can result in increased rates of mortality and sepsis in these patients, the researchers report. An increase of 1 percent in LPN hours per patient day (hppd) compared to total nursing hppd (LPN hours plus RN hours) was associated in the study with a statistically significant 4 percent increased risk of mortality.

Goode, A.P., Carey, T.S., and Jordan, J.M. (2013). "Low back pain and lumbar spine osteoarthritis: How are they related?" (AHRQ grant HS19479). *Current Rheumatology Reports* 15, pp. 305-310. The relationship between low back pain and lumbar spine osteoarthritis (OA), both very common conditions, is complex and poses many clinical and research challenges. Specific conservative treatments for spine degeneration have not been established. However, there is emerging interest in the use of exercise therapy because of some moderate benefits in treating chronic low back pain.

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Govindarajan, P., Dickert, N.W., Meeker, M., and others. (2013). “Emergency research: Using exception from informed consent, evaluation of community consultations.” (AHRQ grant HS17965). *Academic Emergency Medicine* 20, pp. 98-103.

These researchers assessed the views of community consultation (CC) meeting attendees regarding the CC process, their understanding and views of exception from informed consent research relating to the specific research trial under discussion, and their level of trust in physician-investigators. Overall, community members had relatively high levels of support for the study and trust in physician-investigators.

Hartling, L., Milne, A., Hamm, M. P., and others. (2013). “Testing the Newcastle Ottawa Scale showed low reliability between individual reviewers.” (AHRQ Contract No. 290-07-1002). *Journal of Clinical Epidemiology* 66, pp. 982-993.

The researchers assessed the reliability of the Newcastle Ottawa Scale (NOS) for cohort studies between individual raters. It also assessed the validity of the NOS by examining whether effects vary according to quality. They found that interrater reliability between reviewers ranged from poor to substantial, but was poor to fair for most domains. No associations were found between individual quality domains or overall quality score and effect estimates.

Huang, S.S., Septimus, E., Kleinman, K., and others. (2013). “Targeted versus universal decolonization to prevent ICU infection.” (AHRQ and CDC

cooperative agreement). *New England Journal of Medicine* 368(24), pp. 2255-2265.

The researchers tested three ways to prevent intensive care unit infection: targeted decolonization, universal decolonization, and MRSA screening and isolation. They found that, in routine practice, universal decolonization was more effective than either of the other two methods in reducing rates of MRSA clinical isolates and bloodstream infection from any pathogen.

Huesch, M.D., and Doctor, J.N. (2013). “Cesarean delivery on maternal request” [Letter to the Editor]. (AHRQ grant HS21868). *Journal of the American Medical Association* 310(9), p. 978.

In response to the article by J. Ecker on cesarean delivery on maternal request, the authors raise several larger concerns, including the importance of parsimonious medicine, personal accountability, and the risk of spillovers to other physician decisions in other patients. They point to the difficulty in upholding a standard of adherence to medical indications in the more complex intrapartum situation, while relaxing those standards in the simpler pre-partum situation.

Hundt, A.S., Adams, J.A., Schmid, J.A., and others. (2013). “Conducting an efficient proactive risk assessment prior to CPOE implementation in an intensive care unit.” (AHRQ grant HS15274). *International Journal of Medical Informatics* 82(1), pp. 25-38.

The researchers describe the use of a proactive risk assessment (PRA) prior to implementation of computerized physician order entry in an intensive care unit. Prioritizing

the vulnerabilities allowed those with the potentially most negative consequences to be corrected prior to or promptly after implementation. Results from the various evaluations demonstrate the value of developing an efficient PRA method that meets organizational and contextual requirements and constraints.

Johnson, T.J., and King, C. (2013). “An 11-year-old girl with right-sided weakness secondary to cerebral abscess.” (AHRQ grant T32 HS17587). *Pediatric Emergency Care* 29(3), pp. 360-363.

This case report reviews the clinical presentation, evaluation, and management of a child with a brain abscess, an unusual but potentially life-threatening condition.

Jonnalagadda, S.D., Del Fiol, G., Medlin, R., and others. (2013). “Automatically extracting sentences from Medline citations to support clinicians’ information needs.” (AHRQ grant HS18352). *Journal of the American Medical Informatics Association* 20, pp. 995-1000.

The researchers assessed the feasibility of automatically generating knowledge summaries for a particular clinical topic composed of relevant sentences extracted from Medline citations. Their approach, combining information retrieval and semantic extraction techniques, was tested in two case studies on the treatment alternatives for depression and Alzheimer’s disease.

Kistler, C.E., and Goldstein, A.O. (2012, December). “The risk of adverse cardiovascular events from varenicline balanced

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against the benefits in mortality from smoking cessation” (AHRQ grant HS19468). *Nicotine & Tobacco Research* 14(12), pp. 1391-1393.

A meta-analysis published in 2011 reported a higher annual rate of adverse cardiovascular events (ACEs)—but not mortality—in smokers given the smoking cessation drug varenicline than those given placebo (1.06 vs. 0.82 percent), but the authors of a new commentary on the meta-analysis say that varenicline (currently the most effective smoking cessation drug) will actually save lives.

Kruse, G.B., Polsky, D., Stuart, E.A., and others. (2012, December). “The impact of hospital pay-for-performance on hospital and Medicare costs.” (AHRQ grant HS18409). *HSR: Health Services Research* 47(6), pp. 2118–2134.

For patients hospitalized for acute myocardial infarction (AMI), their hospital’s participation in the Centers for Medicare & Medicaid Services’ pay-for-performance demonstration program (260 hospitals) did not significantly affect hospital revenues, costs, and margins, or Medicare payments (for the index hospitalization and 1 year after admission) when compared with AMI patients treated at 780 matched, nonparticipating hospitals.

Lannon, C.M., and Peterson, L.E. (2013). “Pediatric collaborative improvement networks: Background and overview.” (AHRQ grant HS21114). *Pediatrics* 131, pp. S189-S195.

The authors describe how pediatric collaborative improvement networks can serve to close the quality gap

and accelerate the translation of evidence into practice, resulting in improved care and outcomes for children. The specific topics discussed include: developing a framework for subspecialty maintenance of certification, the Children’s Oncology Group, additional support for the value of the network model, and additional needs of mature networks.

Lannon, C.M., and Miles, P.V. (2013). “Pediatric collaborative improvement networks: Bridging quality gaps to improve health outcomes.” (AHRQ grant HS21114). *Pediatrics* 131, pp. S187-S188.

This article introduces a group of papers that summarize and expand on several key presentations from a national meeting on Collaborative Improvement Networks in Children’s Healthcare sponsored by the American Board of Pediatrics Foundation.

Lannon, C.M., Miles, P.V., and Stockman, J.A. (2013). “The path forward: Collaborative networks and the future for children’s health care.” (AHRQ grant HS21114). *Pediatrics* 131, pp. S226-S227.

The authors discuss the value of collaborative networks for the future of children’s health care and the importance of accelerating the spread of this model. Various challenges are also mentioned, such as the lack of robust evidence in certain areas to develop recommended care processes, the need for more basic research, the usefulness of a data infrastructure, and the need for financial support for transactional costs such as human subjects review.

Margolis, P.A., Peterson, L.E., and Seid, M. (2013). “Collaborative chronic care networks (C3Ns) to transform chronic illness care.” (AHRQ grants HS2111, HS20024). *Pediatrics* 131, pp. S219-S223.

Given that the overall U.S. system of chronic illness care does not work well, a new paradigm is needed: a Collaborative Chronic Care Network (C3N). A C3N is a network-based production system that harnesses the collective intelligence of patients, clinicians, and researchers and distributes the production of knowledge, information, and know-how over large groups of people. The authors also discuss the social, technical, and scientific operating systems and policy implications.

Miles, P.V., Conway, P.H., and Pawlson, G. (2013). “Physician professionalism and accountability: The role of collaborative improvement networks.” (AHRQ grant HS21114). *Pediatrics* 131, pp. S204-S209.

The authors discuss the need for physicians to demonstrate professionalism and accountability in a different way that includes quality and clinical outcomes, but also resource utilization, appropriateness, and patient-centeredness of recommended care, and the responsibility to improve systems of care. Physician participation in pediatric collaborative improvement networks will be an important part of this process of transforming care.

Miller, M. (2013). “Roles for children’s hospitals in pediatric collaborative improvement networks.” (AHRQ grant

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HS21114). *Pediatrics* 131, pp. S215-S218.

The author believes that children's hospitals and their associated subspecialty clinics are uniquely positioned to achieve significant outcomes and cost savings through coordinated quality-improvement efforts. Large-scale pediatric collaborative improvement networks can link children's hospitals in networks to build the evidence for what works for children.

Mody, L., Bradley, S.F., and Huang, S.S. (2013). "Keeping the 'home' in nursing home." (AHRQ grant HS19979). *JAMA Internal Medicine* 173(10), pp. 833-834.

To maintain a home-like environment and enhance the quality of life for older long-stay residents in nursing homes (NHs), NH residents are being given greater autonomy in determining their daily care and other activities. Close relationships between residents, families, and staff are encouraged. The author discusses the dichotomy between these valuable changes and the need to reduce healthcare-associated complications in higher-acuity short-stay residents.

Mueller, S.K., Kripalani, S., Stein, J., and others. (2013, August). "A toolkit to disseminate best practices in inpatient medication reconciliation: Multi-Center Medication Reconciliation Quality Improvement Study (MARQUIS)." (AHRQ grant HS19598). *Joint Commission Journal on Quality and Patient Safety* 39(8), pp. 371-382.

Medication errors are common during transitions of care such as

those that occur at hospital admission and discharge. Medication reconciliation is a strategy to reduce the occurrence of medication discrepancies than may occur during care transitions. The authors describe the development of a toolkit of the best-practice recommendations for medication reconciliation and a multihospital quality improvement project in which each site adapts and implements the tools for its own environment.

Nuckols, T.K., Escarce, J.J., and Asch, S.M. (2013). "The effects of quality of care on costs: A conceptual framework." (AHRQ grant HS17594). *Milbank Quarterly* 91(2), pp. 316-353.

To describe how care quality influences cost, the authors developed the Quality-Cost Framework, drawing from the work of Donabedian, the RAND/UCLA Appropriateness Method, reports by the Institute of Medicine, and other sources. The Framework describes how health-related quality of care (aspects of quality that influence health status) affects health care and other costs.

Nundy, S., Razi, R.R., Dick, J.J., and others. (2013). "A text messaging intervention to improve heart failure self-management after hospital discharge in a largely African-American population: Before-after study." (AHRQ grant T32 HS00084). *Journal of Medical Internet Research* 15(3), p. e53.

This study assessed the feasibility and acceptability of a text message-based (SMS: short message service) intervention in a largely African-American population with acute decompensated heart failure and explore its effects on self-

management. Among the participants who completed the study, there was a high rate of satisfaction and preliminary evidence of improvements in heart failure self-management.

Olfson, M., and Marcus, S.C. (2013, June). "Decline in placebo-controlled trial results suggests new directions for comparative effectiveness research." (AHRQ grant HS21112). *Health Affairs* 32(6), pp. 1116-1125.

In their investigation of placebo-controlled trials reported in four medical journals between 1966 and 2013, the authors found a significant decline in average effect size or average difference in efficacy over placebo. On average, recently studied treatments offered only small benefits in efficacy over placebo.

Ozen, A., and Balasubramaniam, H. (2013). "The impact of case mix on timely access to appointments in a primary care group practice." (AHRQ grant HS18795). *Health Care Management Science* 16, pp. 101-118.

The authors quantify the impact of the size and case-mix of physician panels on the ability of a multi-provider practice to provide adequate patient access to appointments. They propose an integer non-linear programming formulation for redesigning panels that will allow practice managers to test various options and infer which options are the least disruptive to the group practice.

Simpson, L. (2013, June). "The adolescence of child health services research." (AHRQ grant

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HS19564). *JAMA Pediatrics* 167(6), pp. 509-510.

The author draws attention to three forces meriting particular attention for their potential to transform the conduct of child health services research: (1) the ever-expanding sources of data, particularly prospective, electronic clinical data, (2) the demand by research users for engagement throughout the life cycle of research, and (3) the need to develop better methods for understanding more quickly which innovations and improvement efforts are actually working.

Talbert-Slagle, K., Berg, D., and Bradley E.H. (2013). “Innovation spread lessons from HIV.” (AHRQ grant HS17589).

***International Journal for Quality in Health Care* 25(4), pp. 352-356.**

Biology provides a model of successful spread in viruses, which have evolved to spread with

maximum efficiency using minimal resources. The authors explore the molecular mechanisms of HIV spread and identify five steps that are also common to a recent example of spread in complex health systems, i.e., reduction in time to angioplasty for patients with ST-segment elevation myocardial infarction. They then describe a new model of innovation spread, called AIDED, based on mixed-methods research but informed by the conceptual framework of HIV spread among cells.

You, W.B., Chandrasekaran, S., Sullivan, J., and Grobman, W. (2013). “Validation of a scoring system to identify women with near-miss maternal mortality.” (AHRQ grant T32 HS00078). *American Journal of Perinatology* 30, pp. 21-24.

The researchers’ objective is to validate a five-factor scoring system (originally developed by Geller et al.) that identifies women with high

risk for significant obstetric morbidity. Using data from 815 cases, they found that the scoring system produced similar results to those obtained at its initial development. It also demonstrated acceptable sensitivity and specificity for identifying near-miss morbidity.

Yu, Z., Liu, L. Bravata, D.M., and others. (2013). “A semiparametric recurrent events model with time-varying coefficients.” (AHRQ grant HS20263). *Statistics in Medicine* 32, pp. 1016-1026.

The authors consider a recurrent events model with time-varying coefficients motivated by two clinical applications (stroke and episodes of wheezing among young children). They use a random effects (Gaussian frailty) model to describe the intensity of recurrent events. Their model can accommodate both time-varying and time-constant coefficients. ■

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