



RESEARCH ACTIVITIES

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Re-engineered discharge project dramatically reduces return trips to the hospital

The last place patients want to end up after a hospital stay is right back in the hospital. But millions of patients each year are readmitted to hospitals, and many of those stays could have been prevented. In fact, 4.4 million hospital stays each year are due to potentially preventable readmissions, according to Agency for Healthcare Research and Quality (AHRQ) estimates.

In 2006, Boston University Medical Center's Brian Jack, M.D., an AHRQ grantee, decided to tackle the problem of these preventable readmissions. His focus? The

discharge process. By applying engineering methods such as probabilistic risk assessment, process mapping, failure mode and effects analysis, qualitative analysis, and root cause analysis, he and his colleagues were able to get a clear picture of patient discharges.

It wasn't pretty. In fact, Dr. Jack calls the discharge process a "perfect storm" where adverse events can coalesce into patient safety problems.

"There are loose ends, there are communication problems, there is poor quality information, there is poor preparation, there is fragmentation of care, and there is great variability," Dr. Jack said. "It is no surprise that there are many adverse events post discharge."

At the heart of many preventable readmissions lie poorly coordinated care, including unreconciled medications, still-pending test results and still-needed tests, poorly communicated discharge instructions, and rushed staff who don't have adequate time to spend with the patients who are leaving the hospital.

"The discharge process receives low priority in the work schedules of inpatient clinicians, and that is



Nurse Kim Visconti reviews the After Hospital Care Plan with a patient.

understandable in the sense that nurses and doctors are worried about the sick patients coming out from the emergency room, not so much about the relatively healthy ones who are going home that day," Dr. Jack said. His solution was to standardize the discharge process.

Funded by an AHRQ Partnerships in Implementing Patient Safety grant, his Re-Engineered Discharge Project, or Project RED, is based on basic principles that ensure patients are well prepared to leave the hospital: explicit delineation of roles and responsibilities among staff, patient education throughout the hospital stay, easy information flow from the community primary care physician (PCP) to the hospital

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From the Director



More and more, researchers are going back to the basics to improve health care. Tools as simple as checklists are making a real

difference because they challenge us to scrutinize very complicated processes and break them down into deliberate, manageable tasks.

In creating Project RED, or the Re-engineered Discharge, Boston University Medical Center's Dr. Brian Jack went through the soup to nuts of discharging patients from the hospital with a goal of reducing preventable readmissions. In the end, the research team came up with an innovative approach for changing the way we discharge patients from our nation's hospitals.

Project RED's principles are simple and clear:

- Well-defined roles and

responsibilities for everyone on the health care team.

- Easy flow of information from the hospital team and the patient's regular doctor.
- Patient education throughout the hospital stay.
- A printed, easy-to-understand discharge plan for the patient.

Project RED's results have been dramatic. Dr. Jack's team documented a 30 percent reduction in readmissions and emergency room visits as well as high rates of patient satisfaction with the discharge process. For example, 87 percent of those in the study said they knew which appointments they still needed to make, compared with 79 percent of patients who did not participate. Two-thirds of the study group said they understood the main reason why they were in the hospital, compared with 57 percent of nonparticipants. Finally, a larger percentage of patients (89 percent) who took part in Project RED said they understood their medications

after leaving the hospital compared with those who did not participate in the study (83 percent).

Project RED ensures that the treatment team not only communicates better within the hospital's walls, but also reaches out to patients' regular primary care providers to provide updates and schedule followup appointments for patients. This followup is crucial, because AHRQ research shows that more than one-third of patients who leave the hospital don't get the followup care they need, like lab tests or a referral to see a doctor who specializes in their condition. We're hoping Project RED is a fix for this problem.

Project RED's designers also appreciated that patients are often more excited about leaving the hospital than focusing on all the components of their discharge plan. That's why a member of the treatment team will call to check in with patients a few days after discharge to make sure they are following their medication schedules or to remind them about upcoming medical appointments. This call also gives patients an opportunity to ask additional questions and get clarification on anything they might have missed or misunderstood during the discharge.

At AHRQ, we know that engaging patients as active partners in their care is a critical component of providing high-quality care. Project RED's unique blend of patient education and treatment team coordination is truly an example of an innovation that can make a real difference in patient outcomes and lives.

Carolyn M. Clancy, M.D.

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Re-engineered discharge project

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team and back to the PCP, and an easy-to-read printed discharge plan for the patient. As part of the discharge plan, the patient receives contact information for staff members who can assist after the hospital stay ends. Hospital staff also take the additional step of following up with a phone call within 3 days after the patient is discharged to ensure he or she is able to comply with the personalized discharge plan.

When Project RED was put to the test in a randomized trial of 750 adult patients at Boston University Medical Center, Dr. Jack documented a 30 percent decrease in readmissions at the end of 30 days for the patients who received the standardized discharge process compared with patients in the control group who underwent a typical discharge. In fact, the National Quality Forum adopted the re-engineered discharge in 2007 as one of the national “Safe Practices for Better Healthcare.” These “Safe Practices” are evidence-based, ready-to-use tools

They (pilots) don't go through that checklist only if it is a rainy day or a snowy day. It is done each and every time.

to improve safety that have been evaluated, assessed, and endorsed to guide health care systems in providing the safest care possible. Further, of the 14 Safe Transition grants the Centers for Medicare & Medicaid Services awarded to quality improvement organizations around the country in 2008, many are using the re-engineered discharge methodology.

Discharge checklist

To help hospital staff stay on course for preparing patients for discharge, Dr. Jack created a checklist, much like the ones pilots and co-pilots work through before each flight. “They [pilots] don’t go through that checklist only if it is a rainy day or a snowy day. It is done each and every time,” Dr. Jack said.

The checklist ensures that the 11 components of Project RED (see sidebar) are consistently applied for every patient. For example, it prompts staff to check if the patient’s medications have been reconciled, treatment conforms to accepted guidelines, follow-up appointments are made, outstanding tests are tracked, and postdischarge services, such as physical therapy or nutritional counseling, are arranged.

The discharge advocate

The job of ensuring all these moving parts seamlessly come together falls to a staff member called the Discharge Advocate, or DA. “It became clear to us that preparing the patient for discharge wasn’t clearly the responsibility of any one group within the hospital,” Dr. Jack said. “In general, when responsibility is not clearly assigned, then it is nobody’s responsibility, resulting in gaps and redundancies.”

The DA is the central person responsible for coordinating the patient’s discharge from the moment the patient is admitted. The DA’s duties include educating the patient throughout the hospital stay, reconciling medications with the treatment team, and coordinating followup care with community-based providers, which includes ensuring the patient’s primary care

Project RED Checklist

1. Reconcile medications
2. Reconcile discharge plan with national guidelines
3. Make followup appointments
4. Follow up on outstanding tests
5. Arrange postdischarge services
6. Create a written discharge plan
7. Inform patient what to do if problem arises
8. Educate patient
9. Assess patient understanding
10. Send discharge summary to primary care physician
11. Reinforce the discharge plan via telephone

physician receives the discharge summary.

Ultimately, the role of the DA is to reduce information gaps and redundancies that typically occur during discharge and can adversely affect patient care. In Dr. Jack’s study, a nurse was designated the role of DA, but the duties can be filled by a trained patient advocate, social worker, or other support personnel. The DA or pharmacist calls the patient shortly after discharge to see how the patient is faring with new medications or to remind the patient of upcoming appointments.

The culmination of the DA’s work is a document called the After Hospital Care Plan that the patient receives at discharge. The plan contains a wealth of information, in plain language, including the diagnosis, telephone numbers to

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call with questions, a detailed medication list and schedule, and a list of followup appointments that are plotted on a 30-day calendar. Before the patient leaves the hospital, the DA walks the patient through the document, asks the patient questions to ensure he or she knows where to find information, and provides any additional patient education material that may be useful. “Overall, patients really love it when you give them an After Hospital Care Plan that they can understand,” Dr. Jack said. “They feel more ready and more prepared to go home.” Having all the information in one document also helps family members participate in the patient’s care. Additionally, patients are encouraged to bring the plan to all followup appointments so it can serve as a companion to the discharge summary the patient’s community physicians are supposed to receive.

Overall, patients really love it when you give them an After Hospital Care Plan that they can understand.

Putting RED into practice

In late 2009, AHRQ contracted with Joint Commission Resources to provide technical assistance for hospitals that want to implement Project RED. More than 135 hospitals across the United States have signed up for the opportunity to learn how to improve their discharge process.

Because this initiative isn’t a research study, hospitals are free to implement Project RED however it

best fits their needs. After completing three online training modules, the hospitals can choose to implement Project RED, for instance, in a certain unit or for a specific group of patients at high risk for readmission.

Hospitals also have the flexibility to adapt Project RED to fit their systems. For example, some have had their information technology teams program computer prompts for different departments to remind them to perform tasks. Others use colored binders in the patient room to let team members communicate what’s been done and by whom.

What quickly becomes evident to all of the hospitals is that re-engineering discharge is a team effort. The research study found that it is not only important for the providers, nurses, and other hospital staff to support the new process, but also that they significantly commit to making the process successful.

“It’s been a huge learning curve for all of us. We do quite an extensive discharge process...but the communication could be much improved,” said Nancy Carrier of Tift Regional Medical Center in Tifton, Georgia, adding that team communication has improved since implementing Project RED.

Before deploying Project RED, Tift staff members underwent a team-building session to help them better understand each other’s roles. “We stepped back and decided we need to bring the team together to make it more cohesive,” Carrier said. “I don’t think any of us could have pulled this together without pulling together as a team.” Participating in patient rounds, a Project RED principle for improving team communication, can also help DAs get to know their patients early on.



Dr. Brian Jack with the virtual discharge advocate, Louise, who takes patients through their After Hospital Care Plan at the bedside.

“It provides an opportunity for me to get to know the patient, to identify what the learning needs are, and to start working on the care plan from day one,” said Katie Hall, a DA who works in an oncology unit at Rose Medical Center in Denver. “I can sit down and spend the time with the patient and review the new diagnosis, if that’s the case, or review chemotherapy.”

The experience has been enlightening for some of the hospitals. One hospital discovered that, although they thought they communicated well with their patients’ community physicians, that wasn’t necessarily the case. They also learned that their medication reconciliation process wasn’t running as smoothly as they’d believed.

The followup phone calls have also reaped benefits for patients. These calls can serve to remind patients of appointments that may have slipped their minds, or they can pinpoint a larger problem. For example, during one call, Linda Hollan, a DA from Integris Baptist Regional Hospital in Miami, Oklahoma, learned that although a patient filled her prescription, she couldn’t open the

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pill bottle. “I called the pharmacy, and they actually sent someone to her home to open the bottle for her,” she said.

Future steps

Because teaching the After-Hospital Care Plan can be time- and resource-intensive, Tim Bickmore, Ph.D., of Northeastern University worked with Dr. Jack to create a virtual DA named Louise that can review the After Hospital Care Plan at the patient’s bedside. With a paper copy of the After Hospital Care Plan in hand and a touch-screen computer in front of them, the patient walks through the plan in about 40 minutes at Louise’s prompts. When it is the patient’s turn to speak to or ask a question of Louise, he or she touches one of the on-screen options.

“We find that patients can very readily use the system, even if they have no computer experience whatsoever, and they seem to have high levels of satisfaction with it,” Dr. Bickmore said.

Louise also checks the patient’s comprehension of key information, such as information about medications. If the patient doesn’t understand something, Louise reviews the information again, alerting a human DA if the second attempt at relaying the information is unsuccessful.

“The information [Louise provides] is tailored to each patient’s particular discharge information and to their particular needs,” Dr. Bickmore said. “It takes as much time as the patient needs.”

Additional AHRQ grants are being used to test Louise with medically underserved patients in an urban safety-net hospital and to create and test a culturally competent version of the After Hospital Care Plan for varied patient populations.

With one in five Medicare patients returning for a hospital stay within 1 month of being released, Project RED is certain to continue gaining traction in hospitals across the Nation.

“When you think about it, a lot of complex things are happening

during the hospitalization in terms of pharmacology and medications and treatment and discussions. Then we send patients home with maybe 8 minutes of discussion about how to care for themselves when they go home, so it is no surprise that patients are having a lot of trouble caring for themselves once they go home,” Dr. Jack said. Through Project RED, “we transition that information from the hospital environment to home where the patient cares for themselves and then to the community environment where the primary care physician knows about what happened.” ■ *KFM*

Editor’s Note: For more information on improving patient discharge, visit <http://www.ahrq.gov/qual/impptdis.htm>. Hospitals interested in learning about the AHRQ project for re-engineering hospital discharge can contact Deborah Morris Nadzam, Ph.D., F.A.A.N., Joint Commission Resources, Inc., at 630-261-5048 or dnadzam@jcrinc.com.

Patient Safety and Quality

Hospitals with a high volume of sepsis admissions have lowest mortality rates

In patients with sepsis, their bloodstream is completely overwhelmed by bacteria from another infection in their body. Sepsis is a potentially life-threatening condition, which requires immediate medical attention. Emergency departments (EDs) with high volumes of sepsis cases have the lowest odds of inpatient mortality for these patients, concludes a new study.

Researchers reviewed the records of 87,166 adults with sepsis who were admitted to 551 hospitals after receiving care in the ED. Hospitals were categorized into quartiles based on the volume of sepsis patients

treated in their EDs. Key outcome measures were death at any time during hospital admission and early inpatient mortality during the first 2 days of admission.

The overall inpatient mortality rate was 18.0 percent; early inpatient mortality was 6.9 percent. Annual ED sepsis volume quartiles were the following: 25 to 145 patients, 146 to 248, 249 to 371, and 372 or more. Patients admitted to hospitals in the highest volume quartile had 27 percent lower odds of dying while in

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Sepsis

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the hospital and 31 percent lower odds of early inpatient mortality. According to the researchers, early inpatient mortality likely more closely reflects the quality of care received by patients with sepsis in the ED before their admission.

The results of this study support further investigation into sepsis treatment best practices in the ED, particularly those found in larger volume hospitals. Educational programs and operational interventions

could be designed and translated from these hospitals to improve care at low-sepsis-volume hospitals. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00078).

See “Volume of emergency department admissions for sepsis is related to inpatient mortality: Results of a nationwide cross-sectional analysis,” by Emilie S. Powell, M.D., M.B.A., Rahul K. Khare, M.D., D. Mark Courtney, M.D., and Joe Feinglass, Ph.D., in the November 2010 *Critical Care Medicine* 38(11), pp. 2161-2168. ■ KB

Hospitals face dilemmas about disclosure of large-scale adverse events

Hospitals sometimes make the news when large-scale adverse events occur that may affect a considerable number of patients. A good example of a large-scale event is when an institution finds that equipment, such as endoscopes, have not been disinfected adequately. As a result, look-back investigations are conducted to determine who may have been harmed. In a recent article, researchers highlight some notable large-scale adverse events and discuss the dilemmas faced by hospitals to disclose such incidents to the public.

While there is strong ethical justification to disclose harmful errors, near-miss events are another matter. Patients not harmed by an incident may not benefit from a disclosure but, instead, be psychologically harmed by the news. However, institutions are caught in a catch-22. If there is no look-back investigation—which requires disclosure—then there is

no way to be sure that no one was harmed.

According to the researchers, there is a greater ethical obligation to disclose when an event results from a preventable error or a system failure. However, this becomes more ambiguous when the probability of harm is extremely low, but the severity of harm is great. This is particularly true in cases where there are no diagnostic tests or effective treatments.

Institutions may have policies in place regarding the disclosure of an adverse event to individual patients. Such policies, however, are inadequate to guide actions when it comes to a large-scale adverse event. The Veterans Health Administration (VHA) Directive 2008-002 on Disclosure of Adverse Events to Patients spells out a clear and systematic process for handling such incidents, including convening a multidisciplinary advisory board. Other organizations may want to adopt the VHA's lead and create

their own policies in this regard, suggest the researchers. They recommend that institutions proactively disclose all large-scale adverse events and not use patient anxiety as an excuse not to disclose. Responding to the media is also critical and a necessary part of being proactive. Followup diagnostic testing and treatment should be offered to all affected patients. Finally, if any patients have been physically harmed by a large-scale event resulting from a preventable error or system failure, they should be financially compensated by the institution. The study was supported in part by the Agency for Healthcare Research and Quality (HS16506).

See “The Disclosure Dilemma—Large Scale Adverse Events,” by Denise M. Dudzinski, Ph.D., Philip C. Hébert, M.D., Ph.D., Mary Beth Foglia, R.N., Ph.D., and Thomas H. Gallagher, M.D., in the September 2, 2010 *New England Journal of Medicine* 363(10), pp. 978-986. ■ KB

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

Most process-of-care events do not harm transplant patients, but they boost costs and lengthen hospital stays

Efforts to improve quality of care in organ transplantation have focused primarily on adverse events (AEs). However, a broader use of voluntary reporting systems and computerized surveillance tools may help identify process-of-care (POC) events and help rein in unnecessary health care costs over time, concludes a new study. The researchers distinguished POC events that are related specifically to the organization and delivery of care (e.g., delays in treatments and tests, medication errors, gaps in monitoring, falls, equipment malfunction, etc.) from AEs that evolve from the course of disease and the risks inherent to standard treatment. They divided POC events into three categories: clinical performance, communication, and patient management.

A voluntary medical event reporting system, implemented in a large hospital, was used to understand the nature of POC events and their impact on hospital length of stay (LOS) and cost for 1,483 patients who experienced 3,012 hospitalizations related to transplantation in 2005. A total of 466 POC events were reported for 336 hospitalizations involving 301

patients. Only 18.5 percent of these events had an effect on the health of the patients, including minor skin damage, pressure ulcers, phlebitis, intravenous infiltrations, injuries, or metabolic changes requiring unplanned interventions. The most frequent types of POC events were medication errors, falls, and communication errors that accounted for 67 percent of all reported events.

POC events were associated with longer LOS and higher costs, regardless of whether an adverse effect or the need of medical intervention was reported for that event. The researchers concluded that monitoring and prevention of POC events in transplantation should form an integral part of a proactive and efficient patient safety system. This study was supported by the Agency for Healthcare Research and Quality (HS11905).

See “Process of care events in transplantation: Effects on the cost of hospitalization,” by Natalia N. Egorova, M.P.H., Ph.D., Annetine C. Gelijns, J.D., Ph.D., Alan J. Moskowitz, M.D., and others in the *American Journal of Transplantation* 10, pp. 2341-2348, 2010. ■ MWS

Person-to-person transmission of *E. coli* resistant to fluoroquinolone drugs is rare among hospital patients

Bacteria (*Escherichia coli*) with resistance to levofloxacin and other fluoroquinolone antimicrobial drugs isolated from the gastrointestinal tract of hospital patients appear to be the result of independent mutation and selection, rather than patient-to-patient transmission, a new study found. Fluoroquinolones are the most commonly used antibiotics and *E. coli* resistance to these drugs is increasing. The researchers isolated drug-resistant colonies of the bacterium from hospitalized patients and sequenced two genes (*gyrA* and *parC*) that can confer levofloxacin resistance. They identified 353 patients as colonized by *E. coli* with reduced susceptibility to fluoroquinolones.

Among the drug-resistant isolates, 62 percent demonstrated a

levofloxacin minimum inhibitory concentration (MIC) of 8 µg/mL or higher (the threshold for fluoroquinolone resistance). In addition, 87 percent of the isolates demonstrated a nalidixic acid MIC of at least 16 µg/mL, indicating lack of susceptibility to this drug as well.

The mean number of *gyrA* mutations per isolate was 1.45 (range, 0–4). In contrast, the mean number of *parC* mutations was 0.51 (range, 0–2), but no isolate exhibited a *parC* mutation without having at least one *gyrA* mutation. Of two molecular typing clusters of 48 isolates and 17 isolates, only 5 patients had isolates from these clusters that met epidemiologic criteria for person-to-person transmission. The findings were based on analysis of rectal swabs for *E. coli* among patients

hospitalized for at least 3 days at two hospitals in the University of Pennsylvania Health System. The study was funded in part by the Agency for Healthcare Research and Quality (HS10399) to the University of Pennsylvania School of Medicine Center for Education and Research on Therapeutics (CERT). For more information on the CERTs program, visit www.certs.hhs.gov.

More details are in “The prevalence of fluoroquinolone resistance mechanisms in colonizing *Escherichia coli* isolates recovered from hospitalized patients,” by Ebbing Lautenbach, M.D., M.P.H., M.S.C.E., Joshua P. Metlay, M.D., Ph.D., Xiangqun Mao, M.D., and others in the August 1, 2010 *Clinical Infectious Diseases* 51, pp.280-285.

■ DIL

Automated screening of patient electronic medical records is only the first step to identifying a medication problem

Without in-depth analysis of possible adverse drug events (ADEs) after they have been identified from patients' electronic medical records (EMRs), changes to prevent future ADEs is unlikely, a new study concludes. The researchers found that trigger tools, software that identifies possible ADEs (such as giving an infant naloxone to counteract oversedation with opiates, or giving a pediatric patient intravenous glucose while on insulin, indicating insulin-induced hypoglycemia), find more ADEs than voluntary reporting systems. However, in-depth analysis of each possible ADE is necessary to find patterns that can be addressed by changes in clinical procedures.

In the study, conducted over 19 months at Cincinnati Children's Hospital Medical Center, the software identified 50 triggers representing 30 instances of insulin-related hypoglycemia ADEs and 59 triggers representing 34 opiate-related oversedation ADEs. Only 2 of the hypoglycemia ADEs and 3 of the oversedation ADEs had been reported to the hospital's voluntary safety reporting system within 24 hours of the event.

Investigation of characteristics of the insulin-related ADEs, including 53 percent in patients without diabetes who were being treated for hyperglycemia, led the researchers to conclude that the most likely causes were lack of standardization in insulin-dosing decisions, and that patients receiving continuously infused insulin were at highest risk. Similar analysis of the oversedation ADEs indicated that 50 percent of the 34 events occurred on the night shift, and among the 19 oversedated patients, all had their ADEs within 48 hours of surgery. The findings were based on a database that stored information collected on each trigger event from the medical record and from interviews with frontline staff. The study was funded in part by the Agency for Healthcare Research and Quality (HS16957).

More details are in "Identifying causes of adverse events detected by an automatic trigger tool through in-depth analysis," by Stephen E. Muething, M.D., Patrick H. Conway, M.D., M.Sc., Elizabeth M. Kloppenborg, M.S.N., B.S.N., and others in the October 2010 *Quality and Safety in Health Care* 19(5), pp. 435-439. ■ *DIL*

When health plans share physicians, they may have less incentive to improve care quality

Measuring a health plan's performance is one way to promote competition in the marketplace and give consumers the information they need to select a plan. Such measurements, however, may not adequately reflect the quality of care received by patients. This is particularly true when hospitals and physicians contract with multiple health plans, creating a degree of overlap that makes performance comparisons difficult. Recently, researchers looked at the relationship between this degree of overlap in physician networks and health plan performance. When there is a high degree of provider

network overlap, plan performance measures tend to reflect a lower level of quality.

Four databases were selected to gather data for the study. One database included information on physicians and their health plan affiliations for 214 health maintenance organizations. The other three databases included information on health plan characteristics, their performance measures, and outcomes. The researchers constructed two measures of network overlap to determine the effect of a plan's overlap with other plans on quality performance.

The analysis found that plan performance converges as physician network overlap broadens. As a result, the performance for a single, individual plan declined as its network physicians started to contract with other health plans. This was particularly true when it came to specific clinical performance measures. For example, these measures declined by 11 to 13 percentage points as physicians moved away from contracting exclusively with one plan to contracting with up to 10 plans. According to the

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Health plan performance

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researchers, when plans share physicians, they face a reduced incentive to improve care quality. The researchers recommend that end-users interpret health plan measures with caution and call for

measures of care quality that focus on the health care provider level. The study was supported in part by the Agency for Healthcare Research and Quality (HS10771).

See “The relationship between health plan performance measures

and physician network overlap: Implications for measuring plan quality,” by Daniel D. Maeng, Ph.D., Dennis P. Scanlon, Ph.D., Michael E. Chernew, Ph.D., and others in the August 2010 *HSR: Health Services Research* 45(4), pp. 1005-1023. ■ KB

Outcomes/Effectiveness Research

Better adherence to diabetes medications means fewer hospitalizations and emergency department visits

Increased adherence to diabetes medications significantly reduces hospitalizations and emergency department (ED) visits for patients with diabetes, reveals a new study. While improving adherence increased drug costs for an individual, the reduction in hospital and ED visits still resulted in a favorable cost offset, note William E. Encinosa, Ph.D. and Didem Bernard, Ph.D., from the Agency for Healthcare Research and Quality (AHRQ).

Along with Avi Dor, Ph.D., from George Washington University, they studied the impact of diabetes medication adherence on hospitalizations and ED visits, controlling for unobservable patient severity of illness. The researchers used a database containing information on 5 million individuals covered by employer-sponsored health insurance. Details were obtained on prescription drug insurance claims, employer health plans, hospitalizations, and ED visits. The final sample consisted of 56,744 individuals with type 2 diabetes, who required oral anti-diabetic medications to manage their condition.

When adherence rates were raised from 50 percent to 100 percent, the hospitalization rate was reduced by 23.3 percent and the rate of ED visits was reduced by 46.2 percent. However, diabetic drug costs also increased substantially from \$325 to \$1,105 per person. Yet for payers, this resulted in a savings of \$1.12 in hospital care for every dollar that was spent on diabetes medications. Cost offsets were increased further when reduced ER costs were taken into consideration, resulting in a total cost savings of \$1.14 for every additional dollar spent on medications. Further studies are needed to see if longer periods of adherence may result in additional benefits and cost reductions.

More details are in “Does prescription drug adherence reduce hospitalizations and costs? The case of diabetes,” by Drs. Encinosa, Bernard, and Dor, in *Advances in Health Economics and Health Services Research* 22, pp. 151-173, 2010. Reprints (AHRQ Publication No. 11-R008) are available from AHRQ. ■ KB

Hospitals with more patients who receive angioplasty within 90 minutes of a heart attack have lower mortality rates

Getting patients with a type of heart attack known as acute ST-segment elevation to a hospital that performs cardiac catheterization (angioplasty) to unclog blocked arteries can help prevent heart damage and death. Hospitals with the highest percentage of patients receiving angioplasty within 90

minutes of a heart attack had significantly lower overall mortality rates, found a new study.

Using information from three databases, the researchers looked at 69,101 hospital admissions coded for an acute heart attack. These admissions were from 116 hospitals who had reported more than 24

emergency admissions to their cardiac catheterization laboratories in 2006. Hospitals were divided into four quartiles depending on the percentage of patients who received angioplasty within 90 minutes of heart attack onset.

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Angioplasty

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The unadjusted inpatient mortality rate for the 27 hospitals in the top quartile was 4.3 percent. This compared with 5.1 percent for the 32 worst-performing hospitals in the bottom fourth quartile. After adjusting for patient risk factors for death, there was a 17 percent lower chance of dying while in the hospital for patients admitted to top quartile hospitals when compared

to the bottom quartile hospitals. The significant, lower overall mortality in these hospitals applied to both ST-segment elevation heart attacks and non-ST-segment heart attacks. In fact, the time-to-percutaneous coronary intervention (angioplasty) quality measure was a potentially important proxy measure for overall quality of care for heart attack. The study was supported in part by the Agency for

Healthcare Research and Quality (HS17876).

See “The relationship between the emergent primary percutaneous coronary intervention quality measure and inpatient myocardial infarction mortality,” by Rahul K. Khare, M.D., D. Mark Courtney, M.D., Raymond Kang, Ph.D., and others in the August 2010 *Academic Emergency Medicine* 17(8), pp. 793-800. ■ KB

Hospitalizations for bacterial pneumonia in Texas towns bordering Mexico three times higher than the national average

Pneumonia and influenza are the 7th leading cause of death in Texas border towns within 62 miles of the Mexico–United States border. Hospitalization for bacterial pneumonia among elderly patients from Texas counties bordering Mexico is three times the national average, according to a study of hospital discharge data. An increase of just one primary care physician per 1,000 inhabitants was associated with a 33 percent reduction in pneumonia-associated hospitalization rates. Yet, an increase in hospital beds per 1,000 inhabitants had no effect. This is significant, because immunization-preventable bacterial pneumonia is one of the AHRQ indicators of quality preventive care.

The study also found that each 10 percent increase in the county’s proportion of Hispanic residents was associated with a 0.1 percent increase in this hospitalization rate. After adjustment for other factors, hospitalization rates were found to be higher for residents aged 75 or older, males, and Hispanics (vs.

whites or blacks). Public health initiatives and practices that support placing more primary care physicians in border communities may contribute to lowering hospitalization rates for bacterial pneumonia and, thus, reducing health care costs, the researchers concluded.

Their findings were based on U.S. hospitalization data for 1999–2001 from a database of the Texas Department of State Health Services, which included patients’ ZIP code of residence at hospital admission. Limiting the data to persons aged 65 or older resulted in 10,749 hospital discharges for analysis. The study was funded in part by the Agency for Healthcare Research and Quality (HS16381, HS11618).

More details are in “Correlates of bacterial pneumonia hospitalizations in elders, Texas border,” by Frank C. Lemus, Ph.D., Alai Tan, M.D., Ph.D., Karl Eschbach, Ph.D., and others in the August 2010 *Journal of Immigrant and Minority Health* 12(4), pp. 423-432. ■ DIL

Colony-stimulating factor is effective in reducing infection for elderly patients with non-Hodgkin’s lymphoma on chemotherapy

Elderly patients with non-Hodgkin’s lymphoma (NHL), who are undergoing chemotherapy, benefit from prophylactic colony-stimulating factor (CSF), concludes a new study. Most cases of NHL are diagnosed in individuals aged 65 and older. The decision to treat elderly patients with chemotherapy is not always straightforward, because the risk of febrile

neutropenia (an abnormally low count of neutrophils, the white blood cells that fight infection) after myelosuppressive chemotherapy is greater in older adults. Myelosuppression (reduced bone marrow activity leading to lower production of blood cells) increases with age. Febrile neutropenia is associated with life-threatening infections. To combat

this, CSF, which has been shown to reduce the incidence and duration of febrile neutropenia, is administered.

The researchers studied 13,203 elderly people diagnosed with NHL. Some were treated with CSF at the onset of chemotherapy, prior

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Non-Hodgkin's lymphoma

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to developing febrile neutropenia (primary prophylaxis), while others were treated only after febrile neutropenia had occurred (secondary prophylaxis).

Among those treated prior to developing febrile neutropenia, participants with 5 to 9 administrations of CSF had a 42 percent lower risk of febrile neutropenia and a 27 percent lower risk of infection than those without CSF. Those with 10 or more administrations had a 48 percent lower risk of febrile neutropenia

and a 52 percent lower risk of infection than those without CSF. Primary prophylactic CSF was not associated with longer overall survival.

In the other group of patients who experienced neutropenia, fever, or infection, secondary prophylactic CSF was significantly associated with longer overall survival, with a strong dose-response relationship. Four to 10 administrations of CSF was associated with a 9 percent lower risk of mortality, 11 to 23 administrations with a 23 percent lower risk, and more than 23 administrations with a 13 percent

lower risk than those who did not receive CSF. This study was supported by the Agency for Healthcare Research and Quality (HS16743).

See “Comparative effectiveness of white blood cell growth factors on neutropenia, infection, and survival in older people with non-Hodgkin’s lymphoma treated with chemotherapy,” by Stephen K. Gruschkus, Ph.D., David Lairson, Ph.D., Xianglin L. Du, M.D., Ph.D., and others in the *Journal of the American Geriatric Society* 58, pp. 1885-1895, 2010. ■ MWS

Women's Health

Bariatric surgery before pregnancy reduces the risk of gestational diabetes in obese women

Gestational diabetes mellitus (GDM) occurs in at least 7 percent of pregnancies in the United States and is associated with increased risk of adverse outcomes for fetus and mother, including subsequent development of adult-onset (type 2) diabetes in the mother and obesity in the offspring. Obese women who have surgery to lose weight (bariatric surgery) before becoming pregnant are 77 percent less likely to suffer from gestational diabetes mellitus (GDM) during pregnancy than obese women who do not have this surgery before their pregnancy, concludes a new study. In addition, women who undergo bariatric surgery before pregnancy are 52 percent less likely to require cesarean section (an outcome associated with GDM) during delivery than women who delivered before having bariatric surgery.

The majority of women in each treated group had a gastric bypass procedure (75 percent for the postdelivery group and 87 percent for the predelivery group). The adjustable-band procedure was more common postdelivery (9 percent) than predelivery (3 percent). The researchers retrospectively analyzed

private insurance data from Blue Cross affiliates in seven States for women who had procedure codes for bariatric surgery between 2002 and 2006, and a service date for either a delivery or a pregnancy loss.

The final study included 700 women who had bariatric surgery and a delivery, but not pre-existing diabetes (346 who delivered before bariatric surgery and 354 who delivered after such surgery). If future, prospective studies confirm the effectiveness of predelivery bariatric surgery in reducing the incidence of GDM, the procedure could be considered as a preventive health intervention for obese women of childbearing age, suggest the researchers. Their study was funded in part by the Agency for Healthcare Research and Quality (Contract No. 290-05-0034).

More details are in “Reduced incidence of gestational diabetes with bariatric surgery,” by Anne E. Burke, M.D., M.P.H., Wendy L. Bennett, M.D., M.P.H., Roxanne M. Jamshidi, M.D., M.P.H., and others in the August 2010 *Journal of the American College of Surgeons* 211(2), pp. 169-175. ■ DIL

Obesity rates are higher among sexually abused and lesbian women

By 2008 approximately 1 in 3 adults in the United States were obese with estimates of obesity accounting for 9 percent of all medical expenses. In a research paper exploring adult obesity, increased odds of obesity were found among lesbians (58 percent greater) and women reporting childhood sexual abuse by a family member (42 percent greater).

In addition, women with a history of a mental health diagnosis (depression or anxiety) had a 41 percent greater odds of obesity than those without such a diagnosis. Reduced odds for obesity were found in those having a household income above \$75,000 per

year (47 percent lower) or a bachelor's degree (56 percent lower).

After adjusting for other factors, the influence of other categories of sexual abuse on the risk of obesity was not significant. One suggestion for future weight loss intervention studies would be the inclusion of a psychosocial component for those reporting childhood sexual abuse by a family member.

The study findings were based on analysis of information collected between 2003-2006 from 392 heterosexual and 475 lesbian women, aged 35 to 64, enrolled in the ESTHER (Epidemiologic Study of

Health Risk in Women) Project at the University of Pittsburgh. Helen Smith, Ph.D., and colleagues used a standard definition of obesity as body mass index of 30 kg/m² or higher. This research was supported by the National Heart, Lung and Blood Institute. Dr. Smith was supported by the Agency for Healthcare Research and Quality (HS17587).

More details are in "Sexual abuse, sexual orientation, and obesity in women" by Dr. Smith, Ph.D., Nina Markovic, Ph.D., Michelle E. Danielson, Ph.D., and others in the August 2010 *Journal of Women's Health* 19(8), pp. 1525-1532. ■ *DIL*

In vitro fertilization has advantages over natural conception for couples who both carry the cystic fibrosis trait

For a couple who are both carriers of the gene for cystic fibrosis (CF) and want to have a healthy child, in vitro fertilization (IVF) combined with preimplantation genetic diagnosis (PGD) has advantages over natural conception and prenatal testing, a new study finds. Cystic fibrosis is a chronic, progressive illness that primarily affects the respiratory and digestive systems and is caused by a recessive mutation in a single gene. Children with two copies of the CF allele have an average life expectancy of 37 years, so genetic screening for CF is now offered to all couples actively planning to have children. The researchers compared expected lifetime income less expected lifetime medical expenses for offspring of a two-carrier couple who used IVF and PGD to prevent having a child with CF, versus a similar couple who used natural conception and prenatal diagnosis.

The result was a substantial net economic benefit for IVF/PGD users, depending on the mother's age. The net benefit was calculated to be highest (\$182,000) among couples in which the woman was younger than 35 years, somewhat lower (\$114,000) if the woman was between 35 and 40 years. This approach had a negative net benefit (-\$148,000) when the woman was

older than 40, when conception/prenatal diagnosis was favored.

Using IVF and PGD, affected embryos can be discarded before implantation, while a couple using natural conception and prenatal testing would face terminating a pregnancy. Because of the cost of IVF, couples are likely to switch to natural conception after about five attempts in vitro, the researchers noted. To perform the cost-benefit analysis, they took the best available information for their model. This included rates of conception (by age of mother), rates of termination of pregnancy by mothers with CF fetuses, costs of medical care for IVF/PGD or prenatal diagnosis, average lifetime costs of medical care for normal and CF individuals, and average lifetime income for normal and CF individuals. The study was funded in part by the Agency for Healthcare Research and Quality (T32 HS00028).

More details are in "A cost-benefit analysis of preimplantation genetic diagnosis for carrier couples of cystic fibrosis" by Lynn B. Davis, M.D., M.S., Sara J. Champion, M.S., Steve O. Fair, M.B.A., and others in *Fertility and Sterility* 93(6); pp. 1793-1804, 2010. ■ *DIL*

Kidney stone rates in children may be on the rise

Obesity and diets high in sodium and animal proteins can lead to kidney stones, small pebble-like deposits of salt and minerals that cause their victims excruciating pain as they wind their way through the urinary tract. Typically a middle-age malady, kidney stones are becoming more common in children's hospitals, a new study finds.

Using the Pediatric Health Information System (PHIS) database that collects inpatient data from select U.S. pediatric hospitals, researchers noted an increase from 125 cases of kidney stones in 1999,

when 9 hospitals participated in PHIS, to 1,389 in 2008, when 42 hospitals participated. When the number of participating hospitals and the hospitals' increased patient volume during the 10-year study period were taken into account, the annual increase for kidney stone diagnoses was about 11 percent.

Because the data represent 7,921 children with kidney stones who were seen as inpatients in pediatric hospitals, they cannot be used to estimate the rate of kidney stones among the general population of U.S. children, the authors caution. However, these data do appear to

indicate that the number of children being diagnosed and treated for kidney stones is increasing, especially in pediatric hospitals. This study was funded in part by the Agency for Healthcare Research and Quality (T32 HS00063).

See "Epidemiological trends in pediatric urolithiasis at United States freestanding pediatric hospitals," by Jonathan C. Routh, M.D., M.P.H., Dionne A. Graham, Ph.D., and Caleb P. Nelson, M.D., M.P.H., in the September 2010 *Journal of Urology* 184(3), pp. 1100-1105. ■ *KFM*

Antipsychotic use doubles for very young children, while mental health visits are few

The use of antipsychotic drugs for very young children with behavior problems approximately doubled between 1999-2001 and 2007. Yet fewer than half of these children received a mental health assessment, a psychotherapy visit, or a visit with a psychiatrist while taking these medications, reveals a new study. The rate of antipsychotic drug treatment among privately insured children, aged 2-5 years, rose from 0.78 to 1.59 per 1,000 children during the study period, and increased more for girls (148 percent) than for boys (94 percent). Treatment with antipsychotic drugs rose significantly for children diagnosed with pervasive developmental delay/mental retardation (57 percent), disruptive behavior disorders (54 percent), and attention deficit/hyperactivity disorder (70 percent).

Antipsychotic drug treatment for children without a diagnosed mental disorder increased by 65 percent, although the rate per 1,000 children remained low.

Over the same time period, the rate of nondrug interventions decreased or remained unchanged. The rate of mental health assessments for children treated with antipsychotic drugs remained essentially unchanged from 1999-2001 (40 percent) to 2007 (almost 41 percent). While 50 percent of children treated with antipsychotic drugs in 1999-2001 had at

least one psychotherapy session during a treatment year, this rate fell to slightly more than 41 percent by 2007.

These findings raise safety concerns, note the researchers. They point out the paucity of evidence supporting the efficacy of these medications to treat young children, their known adverse metabolic effects, and unknown long-term effects on the developing brain. Their findings were based on analysis of service and pharmacy claims from the MarketScan Research Databases on privately insured individuals and their families from 150 United States employers. The study was funded in part (HS16097) by the Agency for Healthcare Research and Quality (AHRQ) to the Center for Education and Research on Mental Health Therapeutics at Rutgers University, one of 14 Centers for Education and Research in Therapeutics (CERTs) funded by AHRQ. For more information on the CERTs program, visit www.certs.hhs.gov.

More details are in "Trends in antipsychotic drug use by very young, privately insured children," by Mark Olfson, M.D., M.P.H., Stephen Crystal, Ph.D., Cecilia Huang, Ph.D., and others in the January 2010 *Journal of the American Academy of Child & Adolescent Psychiatry* 49(1); pp. 13-23. ■ *DIL*

Children with a medical home more likely to receive health screenings and advice

The medical home is now promoted as a system of primary care for children and adults alike. Care is provided through a medical home when the child has a usual source of care that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective. Nearly half (49 percent) of 21,055 children in a new study had a medical home as a usual source of care, found researchers from the University of Washington School of Public Health.

Most children in the study sample had their height (90 percent) and weight (93 percent) measured and about two-thirds of them had their vision or blood pressure checked (63 percent and 66 percent,

respectively). However, receipt of health-related advice varied, depending on the topic. For example, 27 percent of parents/caregivers received advice about seat belt use for children aged older than 9 years, but 57 percent of parents/caregivers received advice about the use of a car seat for children 4 years and younger. If children had a medical home, they were significantly more likely to have their height and weight measured and their blood pressure checked than children without a medical home. They were also significantly more likely to report receipt of advice about dental checkups, diet, exercise, and car and bike safety.

These findings were based on a sample of 21,055 children aged 0 to 17 years surveyed in the 2004-2006 household component of the Medical Expenditure Panel Survey. The children all had at least 1 office-based visit for health care within the year prior to the survey. Questions asked of children's parents/caregivers were used in the survey to determine whether or not a child had a medical home.

See "The Medical home, preventive care screenings, and counseling for children: Evidence from the Medical Expenditure Panel Survey," by Melissa A. Romaine, M.P.H., and Janice F. Bell, Ph.D., M.P.H., in the September/October 2010 *Academic Pediatrics* 10(5), pp. 338-345. ■
MWS

Disparities/Minority Health

Asthma project helps resident physicians improve care for minority patients

Asthma is a troubling, chronic disease that disproportionately affects minorities living in major urban areas like Chicago, Illinois. Critical to asthma self-management is the ability of patients to use inhalers properly. Factors such as low patient health-literacy levels and poor clinician knowledge of new inhalers and their techniques can make managing the disease difficult. However, the Chicago Breathe Project, an intervention designed to improve education on asthma inhalers for resident physicians, is making a positive impact on asthma care. As a result of the project, residents learned about new inhalers and inhaler techniques and how to assess them during patient encounters.

A total of 161 resident physicians participated in 11 workshops held at 5 academic institutions in the Chicago area. During each workshop, the residents

demonstrated their skills on how to use an inhaler. Asthma educators then showed the proper technique, emphasizing how to use and maintain the newer hydrofluoroalkane (HFA) inhalers that have replaced metered-dose inhalers. The residents were also presented with three clinical cases for discussion.

Prior to attending the workshops, only 3 percent of the internal medicine residents were aware of the inhaler policy changes. In addition, less than 10 percent felt comfortable instructing patients on how to use HFA inhalers. Knowledge of HFA inhalers increased significantly from 5 percent before the workshop to 91 percent after the workshop. At 6 months, more residents were able to assess inhaler technique (44 percent vs. 11 percent) and to discuss the newer inhalers with their patients (69 percent vs. 24 percent).

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Asthma

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According to the researchers, the Chicago Breathe Project can be easily replicated in other urban areas to benefit minority communities affected by asthma. The study was supported in part by the Agency for Healthcare Research and Quality (HS16967).

See “The Chicago Breathe Project: A regional approach to improving education on asthma inhalers for resident physicians and minority patients,” by Valerie G. Press, M.D., M.P.H., Amber T. Pincavage, M.D., Andrea A. Pappalardo, M.D., and others in the *Journal of the National Medical Association* 102(7), pp. 548-555, 2010. ■ *KB*

Blacks have worse colorectal cancer survival rates than whites

Blacks have lower colorectal cancer (CRC) survival rates than whites, Asians, and Hispanics, according to a recent study of Medicare patients. Asians had a lower risk of dying than whites and Hispanics had a similar rate to that of whites.

The researchers investigated the correlations between CRC survival rates and sociodemographic factors, tumor characteristics, diagnosis, treatment, and hospital characteristics. The greatest reduction in CRC-specific mortality differences between blacks and whites was associated with socioeconomic status (5 percent), followed by tumor characteristics (3 percent), treatment (2 percent), and coexisting illness (2 percent). The

greatest reduction in mortality differences between Asians and whites was related to tumor characteristics (5 percent), followed by treatment (2 percent) and socioeconomic status (1 percent).

For blacks, poor survival may be caused by biologic features that contribute to aggressive tumor behavior or by inherited or acquired genetic abnormalities which may have an impact on response to therapy. Differences in tumor site distribution and genetics may explain the high survival rates observed among Asians. Relative to whites, Asians have higher rates of distal colon cancer, which is associated with a lower risk of mortality.

The researchers identified patients with CRC from the Surveillance, Epidemiology, and End Results Program (SEER)-Medicare linked database. The sixteen SEER registries used in the study included selected geographic areas covering approximately 25 percent of the U.S. population since 2000. Patient followup ranged from 3 to 13 years. The study was partly supported by the Agency for Healthcare Research and Quality (HS16743).

See “Racial disparities in colorectal cancer survival,” by Arica White, Ph.D., Sally W. Vernon, Ph.D., Luisa Franzini, Ph.D., and Xianglin L. Du, M.D., Ph.D., in *Cancer* 116, p. 4622-4631, 2010. ■ *MWS*

Medicare-insured patients with head or neck cancer differ little in mortality risk because of race or ethnicity

Racial and ethnic disparities in mortality essentially disappear for patients with head and neck cancer who are insured by standard (fee-for-service) Medicare, according to a new study. After adjusting for demographic factors; tumor stage, grade, and sites; year of diagnosis; geographic area; number of coexisting conditions; and socioeconomic status, the risk of disease-specific death did not differ significantly among black, Hispanic, and white Medicare beneficiaries. However, blacks had 19

percent higher and Asians had 33 percent lower all-cause mortality than whites.

A major barrier to equal outcomes appeared to be lower socioeconomic status. Individuals in the lowest quartile of socioeconomic status had a 23 percent higher risk of death from all causes and a 17 percent higher disease-specific risk of death than those in the highest quartile. The researchers used the National Cancer Institute’s SEER (Surveillance, Epidemiology,

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Head and neck cancer

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and End Results) database, which includes population-based tumor registries in 17 geographic areas that cover 25 percent of the U.S. population. These data were linked to a Medicare beneficiary database.

The researchers analyzed data on 7,480 patients, including 6,208 whites, 522 blacks, 376 Hispanics, 252 Asian-Americans, and 222 others. Treatment information came from SEER registries or Medicare claims. Based on their study, the researchers conclude

that equal access to quality health care leads to similar outcomes among different racial or ethnic groups. The study was funded in part by the Agency for Healthcare Research and Quality (HS16743).

More details are in “Racial/ethnic disparities in socioeconomic status, diagnosis, treatment and survival among Medicare-insured men and women with head and neck cancer,” by Xianglin L. Du, M.D., Ph.D., and Chih-Chin Liu, M.S., in the *Journal of Health Care for the Poor and Underserved* 21, pp. 913-930, 2010. ■ *DIL*

Perception of racial discrimination among blacks linked to socioeconomic position

Perceived racism can affect one’s health. Negative health outcomes have also been linked to a person’s socioeconomic position (SEP). Individual- and neighborhood-level SEP may play a role in understanding how racial discrimination is perceived, measured, and processed, suggests a new study. The researchers investigated the relationship between neighborhood- and individual-level SEP, a neighborhood’s racial composition, and perceived racial discrimination. They found that higher-educated black women reported more racial discrimination compared with their less-educated peers. However, SEP, whether on a neighborhood or individual level, did not have any impact on perceived racial discrimination among white women.

The study looked at 1,249 women, aged 40 to 79, living in

Connecticut. Most (61 percent) were white, with 39 percent black. Census data helped the researchers determine neighborhood racial composition as well as the neighborhood-level SEP. Based on an individual’s income, education, and occupation, the researchers also determined individual-level SEP. An interview with each woman determined the level of perceived racial discrimination from seven areas of life, including employment, medical care, school, public settings, and the police/courts.

Black women with 12 years of education or less were less likely to report racial discrimination compared with their more educated peers. However, individual-level income and occupational ranking were not associated with perceived racial discrimination. For white women, neither neighborhood-level nor individual-level SEP were

significantly associated with perceived racial discrimination. In models adjusted for both neighborhood and individual SEP, neighborhood racial composition was not associated with perceived discrimination for either black or white women. The researchers suggest that additional dimensions of racial discrimination and race-related stressors be included in future studies to fully capture the role of racism in health outcomes. The study was supported in part by the Agency for Healthcare Research and Quality (HS15686).

See “Neighborhood- and individual-level socioeconomic variation in perceptions of racial discrimination,” by Amy B. Dailey, Ph.D., Stanislav V. Kasl, Ph.D., Theodore R. Holford, Ph.D., and others in *Ethnicity & Health* 15(2), pp. 145-163, 2010. ■ *KB*

Even with universal health insurance, the homeless in Canada encounter barriers to obtaining health care

Although they are covered by Canada's single-payer health care system, a sixth (17 percent) of Toronto's homeless population report having unmet health care needs, a new study found. Based on interviews with 1,169 randomly selected users of Toronto's homeless shelters and meal programs, 22 percent of homeless single women had unmet health care needs during the past 12 months, followed by homeless women with dependent children (17 percent), and homeless single men (14 percent).

Among 196 individuals reporting unmet health care needs, 27 percent said that they were unable to see a specialist in the past 12 months, even though they or their doctor thought that they should see one. Using a multivariate model, the researchers found four factors that were significantly associated with an increased likelihood of having unmet health care needs: having been the victim of a physical assault in the past 12

months; being younger than the median age of those interviewed (36.1 years); and having poorer-than-the-median physical or mental health as measured by the 12-item Short Form Health Survey.

Based on the study's findings, 32 percent of homeless individuals in Toronto did not have a primary care provider, much higher than for all Toronto residents over age 12 (9 percent). The study was funded in part by the Agency for Healthcare Research and Quality (HS14129).

More details are in "Universal health insurance and health care access for homeless persons," by Stephen W. Hwang, M.D., M.P.H., Joanna J.M. Ueng, B.A., Shirley Chiu, M.A., and others in the August 2010 *American Journal of Public Health* 100(8); pp. 1454-1461. ■ *DIL*

Expert workshop discusses disparities in health care quality and role of health IT in underresourced settings

Six papers from the workshop, "Reducing Disparities in Healthcare Quality in Underresourced Settings Using HIT and Other Quality Improvement Strategies," were published in a supplement to *Medical Care Research & Review* 67(5 Suppl.). The workshop of invited experts was sponsored by the Agency for Healthcare Research and Quality. The six articles highlight two key issues of great importance in improving the quality of the Nation's health care system: expanding the use of health information technology (IT) and reducing disparities in health care delivery.

The first article discusses the overall context of the meeting and the five subsequent articles focus on various populations seeking health care in underresourced settings in the United States,

including black, Hispanic, and Asian-American patients as well as low-income children. The health IT strategies address a variety of health issues, including diabetes outcomes, prenatal care, and preventive services. The articles are briefly described here.

Gibbons, M.C., and Casale, C.R. "Reducing disparities in health care quality: The role of health IT in underresourced areas," pp. 155S-162S.

This article outlines the process, findings, and key recommendations of this expert workshop. The recommendations and research themes fall into five general categories: the health care delivery setting; research and evaluation methodologies; patients and target populations; technology applications and platforms; and providers and clinicians.

Baig, A.A., Wilkes, A.E., Davis, A.M., and others. "The use of quality improvement and health information technology approaches to improve diabetes outcomes in African American and Hispanic patients," pp. 163S-197S.

Health IT is widely viewed as an essential component of health care quality improvement and may be useful in decreasing diabetes disparities in underresourced settings. This article updates an earlier literature review by reviewing 18 articles published between 2006 and 2009 on the effectiveness of health care interventions using health IT to improve diabetes process of care and intermediate diabetes outcomes in black and Hispanic patients.

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Workshop

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Lu, M.C., Kotelchuck, M., Hogan, V.K., and others. “Innovative strategies to reduce disparities in the quality of prenatal care in underresourced settings,” pp. 198S-230S.

Based on a literature review and key informant interviews, the authors identified 17 innovative strategies that have been or can be used to increase access to timely prenatal care, improve the content of prenatal care, and enhance the organization and delivery of prenatal care.

Ngo-Metzger, Q., Hayes, G.R., Chen, Y, and others. “Improving communication between patients and providers using health information technology and other quality improvement strategies: Focus on Asian Americans, pp. 231S-245S.

Disparities in provider-patient communication have been shown to exist among Asian Americans. The authors conducted a systematic review of the literature as well as in-depth interviews with key informants, but found little published literature on interventions focused on Asian Americans. They call for more research using new health IT strategies to improve care for Asian Americans.

Ngo-Metzger, Q., Hayes, G.R., Chen, Y, and others. “Improving communication between patients and providers using health information technology and other quality improvement strategies: Focus on low-income children,” pp. 246S-267S.

The authors conducted a systematic review of the literature on studies of communication surrounding the care of low-income children, with an emphasis on interventions and

health IT. They identified gaps between the existing literature and clinical practice and suggested that future research should focus on the specific impact of health IT on pediatric medicine.

Millery, M., and Kukafka, R. “Health information technology and quality of health care: Strategies for reducing disparities in underresourced settings, pp. 268S-298S.

The authors performed a literature review on health IT and quality outcomes that identified 15 studies including underresourced settings (URSS) and 8 focusing on URSS. Most evidence was available for quality impact of computerized order entry, clinical decision support systems, and computerized reminders. Ninety percent of the studies focused on the microsystem level of quality improvement. ■

Mental Health

Parents of adults with mental illness face the challenges of being an aging caregiver

Parents face a host of challenges when caring for a child with a serious mental illness, such as schizophrenia and bipolar disorder. As the parents age and face their own age-related problems, the care burdens can become even greater when the child becomes an adult. A recent study looked at the subjective burden and personal gains of older parents who cared for adult children with serious mental disorders. It found that various supportive measures in the home can create opportunities for the adult child to help their aging parents, while at the same time helping the parents cope with caregiving challenges.

A total of 111 parents of adults with serious mental illness were selected for the study. They completed a 1-hour telephone survey and a self-administered questionnaire. Personal gains were assessed by asking

the parents questions about their inner strengths and what they valued in life. Aspects of subjective burden were also determined, such as time demands, financial strains, lack of privacy, and adverse health consequences due to caregiving. The parents were asked to rate their adult child’s overall health and activities of daily living, as well as how much they had to help them. Finally, parents reported on how much help they received from their adult child in such areas as preparing meals, helping with chores, and providing companionship.

The researchers found that the child’s contributions to the household had a significant and positive association with the parent’s personal gains. Such gains were also

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Mental Illness

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improved with the parent's participation in support groups and in the number of confidants they had. The amount of help a parent provided to the child was related to the amount of assistance the child provided to the parent, indicating a positive, reciprocal relationship. Parents who reported better child's health and support group participation had lower levels of subjective

burden. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00011).

See "Subjective burden and personal gains among older parents of adults with serious mental illness," by Kelly A. Aschbrenner, Ph.D., Jan S. Greenberg, Ph.D., Susan M. Allen, Ph.D., and Marsha Mailick Seltzer, Ph.D., in the June 2010 *Psychiatric Services* 64(6), pp. 605-611.

■ KB

Elderly/Long-Term Care

Anemia is common among nursing home residents and affects their physical functioning

More than half of 451 nursing home residents, who participated in a study of a restorative-care intervention to improve their functioning, were anemic. These anemic residents tended to have lower scores for function, balance, gait, and overall mobility than residents without anemia, found the researchers. Two-thirds of anemic residents were treated with at least one medicine to treat this condition—iron replacement in more than half of cases and an erythropoietin in less than 10 percent of cases.

University of Maryland researchers led by Barbara Resnick, Ph.D., C.R.N.P., combined data from the trial with laboratory findings from the medical charts of residents at 12 nursing homes, which showed that the anemia of two-thirds of the residents was associated with chronic kidney disease (CKD). Residents with anemia associated with CKD had lower self-efficacy (confidence in managing their health) and outcome expectations for function than residents with CKD without anemia.

The researchers defined anemia as hemoglobin level less than 12 g/dL

for women and less than 13 g/dL for men. The researchers call for future studies to investigate the impact of anemia treatment on the functional activities of nursing home residents. The study was funded in part by the Agency for Healthcare Research and Quality (HS13372).

More details are in "The impact of anemia on nursing home residents," by Dr. Resnick, Valerie Sabol, Ph.D., C.R.N.P., Elizabeth Galik, Ph.D., C.R.N.P., and others in *Clinical Nursing Research* 19(2), pp. 113-130, 2010. ■ DIL

Better hospital quality of care for the elderly is associated with lower mortality after discharge

As baby boomers age into senior citizens, they will most likely be admitted to the hospital at some point in their lives. Higher quality of care during hospitalization resulted in a lower likelihood of death 1 year after discharge, reveals a new study. This is important, as nearly one-quarter of all hospitalized older adults die within 1 year after being released from the hospital.

The researchers used a set of 16 Assessing Care of Vulnerable Elders (ACOVE) quality care measures to evaluate the quality of care at one medical center. The measures included such things as assessment of patients' cognitive, functional, and nutritional status;

pain assessment; efforts to improve their mobility; and presence of delirium or pressure ulcers. A total of 1,856 inpatients aged 65 and older, who were deemed vulnerable, participated in the survey shortly after they were admitted to the hospital.

One year after discharge, 495 participants (26.7 percent) had died. After controlling for several variables, a higher quality of care was associated with a lower risk of dying after 1 year postdischarge. According to the researchers, every 10 percent increase in quality score meant that patients had a 7 percent less

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Hospital quality of care

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likely chance of dying. They also found that patients who received a nutritional assessment had a 39 percent less chance of dying 1 year after discharge. The study was supported in part by the Agency for Healthcare Research and Quality (HS16967).

See “Relationship between quality of care of hospitalized vulnerable elders and postdischarge mortality,” by Vineet M. Arora, M.D., M.A., Melissa Fish, B.A., Anirban Basu, Ph.D., and others in the September 2010 *Journal of the American Geriatrics Society* 58(9), pp. 1642-1648. ■ KB

More nursing home residents are receiving hospice care

A growing number of nursing homes are collaborating with Medicare-certified hospice providers to provide palliative care to their dying residents, and resident referrals to Medicare hospices have increased. In fact, a new study finds that delivery of hospice care in nursing homes has increased significantly over time. However, current efforts aimed at reducing Medicare hospice costs may have a negative impact on the availability of hospice care in nursing homes, caution the Brown University researchers

They analyzed resident assessment data merged with Medicare Part A claims data on nursing home residents who died in 1999 through 2006 in all 50 States and the District of Columbia. Medicare Part A claims included not only hospice care, but also hospital, home health,

outpatient, and skilled nursing facility care. From this information, the researchers determined which residents died while in the nursing home (or within 7 days of transfer to a hospital), the proportion of these residents who received hospice, and their total days of Medicare hospice care.

In 1999, the number of Medicare hospice beneficiaries in nursing homes was 101,843. By 2006, this number had doubled to 233,844 beneficiaries. This growth resulted in part from the growth in the number of hospices providing care in nursing homes, which jumped from 1,850 in 1999 to 2,768 in 2006, a growth rate of 49.6 percent. Rates of nursing home hospice use more than doubled from 14 percent in 1999 to 33 percent in 2006. Mean lengths of stay also increased, from just 46 days in 1999 to 93

days by 2006. In 1999, 69 percent of patients in nursing home hospice died from a noncancer diagnosis. This increased to 83 percent in 2006. Most hospice patients in nursing homes were female, white, and aged 85 and older. Alaska, Hawaii, Wyoming, and Vermont had the lowest rates of nursing home hospice use. Several States in the South and Southwest had the most provider growth for nursing home hospice care. The study was supported in part by the Agency for Healthcare Research and Quality (HS16918).

See “The growth of hospice care in U.S. nursing homes,” by Susan C. Miller, Ph.D., Julie Lima, Ph.D., Pedro L. Gozalo, Ph.D., and Vincent Mor, Ph.D., in the *Journal of the American Geriatrics Society* 58, pp. 1481-1488, 2010. ■ KB

Health Care Costs and Financing

HIV treatment costs much more when patients start treatment later in the disease

Patients who begin treatment for HIV infection well after the infection is established have much higher overall treatment costs than patients who begin treatment early in the disease process, concludes a new study. This is important because historically 24-43 percent of patients who enter treatment are found to do so late in the infection. The findings underscore the importance of motivating individuals at risk of HIV infection to seek HIV testing, and of reducing the time

between the first positive test for HIV and beginning treatment, suggest the researchers.

John Fleishman, Ph.D., of the Agency for Healthcare Research and Quality (AHRQ), and colleagues in the HIV Research Network estimated direct medical expenditures for 8,348 HIV patients. They categorized patients by the level of CD4 lymphocytes (an indicator of disease progression) when they began treatment.

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HIV treatment

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Late entrants to treatment were patients with initial CD4 lymphocyte counts of 200 cells/mm³ or less (indicative of more advanced disease), who accounted for 43 percent of patients enrolled in the study. Early entrants to treatment were patients with initial CD4 counts above 500 cells/mm³. The study used data from 10 of 14 HIV Research Network clinics on adult patients who began treatment between 2000 and 2006. The study looked at treatment costs through the end of 2007.

Men, members of racial or ethnic minorities, and older patients were more likely to enter treatment late. Heterosexual transmission, rather than male-to-male or

intravenous drug use transmission, also increased the risk of late entry to care. The difference in mean cumulative treatment expenditures between late and early entrants ranged from \$27,275 for patients in care for 1 year, to \$61,615 for patients in care for 5 years. Information on standard inpatient charges came from AHRQ's Healthcare Cost and Utilization Project State Inpatient Databases. The study was funded in part by AHRQ (Contract No. 290-06-0025).

More details are in "The economic burden of late entry into medical care for patients with HIV infection" by Dr. Fleishman, Baligh R. Yehia, M.D., Richard D. Moore, M.D., M.H.Sc., and others in the December 2010 issue of *Medical Care* 48(12), pp. 1071-1079. Reprints (AHRQ Publication No. 11-R026) are available from AHRQ.* ■ *DIL*

Preventive dental care saves money on total dental care for Medicare beneficiaries

Preventive dental care may limit expensive nonpreventive dental care procedures among the older population, suggests a new study. It found that Medicare beneficiaries who used preventive dental care (one visit a year that included dental cleaning) had more dental visits—but fewer visits for expensive nonpreventive procedures and lower dental expenses—than beneficiaries who only had oral problems treated at the dentist.

University of Maryland Dental School researchers, Richard J. Manski, D.D.S., M.B.A., Ph.D., also a senior scholar at the Agency for Healthcare Research and Quality (AHRQ), John Moeller, Ph.D., formerly of AHRQ, and Haiyan Chen, M.D., Ph.D., used results of the 2002 Medicare Current Beneficiary Survey to examine dental care use and costs for 10,582 Medicare beneficiaries during a 1-year period. Users of preventive dental care were more likely to have dental insurance coverage, and they visited the dentist more often during the year (2.83 vs. 2.49

visits) than those who didn't use preventive care. They also visited the dentist less often for more expensive procedures (0.83 vs. 1.58 visits). As a result, they paid less (\$560 vs. \$822, on average) for their total dental care.

The researchers concluded that coverage for preventive dental care could pay off in terms of both improving the oral health of the Medicare population and limiting the costs of expensive nonpreventive dental care. Reprints (AHRQ Publication No. 11-R012) are available from the Agency for Healthcare Research and Quality.*

See "Investing in preventive dental care for the Medicare population: A preliminary analysis," by Drs. Moeller, Chen, and Manski, in the November 2010 *American Journal of Public Health* 100(11), pp. 2262-2269. ■ *MWS*

Landmark initiative to reduce healthcare-associated infections cuts deaths among Medicare patients in Michigan ICUs

Older Americans who were treated in Michigan intensive care units (ICUs) saw larger decreases in their likelihood of dying while hospitalized than similar ICU patients in other Midwestern hospitals, according to a new study evaluating an innovative quality improvement initiative funded by the Agency for Healthcare Research and Quality. The initiative, known as the Keystone Project, targeted ways to reduce the number of healthcare-associated infections (HAIs).

Previous research has shown that targeted quality improvement programs can reduce HAI rates. This study, “Impact of a Statewide Intensive Care Unit Quality Improvement Initiative on Hospital Mortality and Length of Stay: Retrospective Comparative Analysis,” published in the January 31st *British Medical Journal*, is the first to link these programs to reduced death rates.

“This study gives us assurance that investing in large-scale, evidence-based quality improvement programs can save lives—the most important outcome for patients and doctors,” said AHRQ Director Carolyn M. Clancy, M.D. “AHRQ and others have already initiated work to expand this project nationwide to other ICUs across the country.”

Researchers led by Allison Lipitz-Snyderman, Ph.D., of The Johns Hopkins Bloomberg School of Public Health, analyzed Medicare data for ICU patients in Michigan hospitals and 364 hospitals in 11

other Midwestern States. They looked at data before the project was initiated, while it was being phased in, and up to 22 months after implementation. The researchers found that overall a person’s chance of dying decreased by about 24 percent in Michigan after the program was implemented compared with only 16 percent in surrounding Midwestern States where the program was not implemented.

“We knew that when we applied safety science principles to the delivery of health care, we would dramatically reduce infections in intensive care units, and now we know we are also saving lives,” says Peter J. Pronovost, M.D., Ph.D., a professor of anesthesiology and critical care medicine at The Johns Hopkins University School of Medicine. Dr. Pronovost led development of the AHRQ-sponsored Keystone Intensive Care Unit Project and implemented it in Michigan hospitals with the help of the Michigan Health and Hospital Association.

“These results are very exciting, and further research should be done to address other important issues impacting the safety and quality of patient care,” added Dr. Lipitz-Snyderman.

The Keystone Project uses a comprehensive approach that includes promoting a culture of patient safety, improving communication among ICU staff teams, and implementing practices based on guidelines by the Centers for Disease Control and Prevention

(CDC), such as checklists and hand washing, to reduce rates of catheter-related bloodstream infections and ventilator-associated pneumonia. AHRQ continues to support the Keystone Project through a contract with the Health Research & Educational Trust, an affiliate of the American Hospital Association, by reaching more hospitals and other settings in addition to ICUs and applying the approach to various HAIs. For AHRQ’s recently funded HAI projects, go to www.ahrq.gov/qual/haify10.htm.

According to the CDC, HAIs are one of the most common complications of hospital care, accounting for an estimated 1.7 million infections, and 99,000 associated deaths in 2002. These infections are responsible for \$28 billion to \$34 billion in preventable health care expenses every year. Infectious agents, such as bacteria, found in health care settings can cause patients to develop HAIs when they have surgery or require central lines or urinary tract catheters.

The Keystone Project is part of a Department of Health and Human Services (HHS)-wide effort to address HAIs, as outlined in the HHS Action Plan to Prevent Healthcare-Associated Infections (www.hhs.gov/ash/initiatives/hai/index.html). Partners across HHS, including AHRQ, CDC, the Centers for Medicare & Medicaid Services, and National Institutes of Health, are working together to achieve the goals of the Action Plan. ■

Aching back sends more than 3 million to emergency departments

Roughly 3.4 million emergency department visits—an average of 9,400 a day—were specifically for back problems at U.S. hospitals in 2008, according to the latest *News and Numbers* from the Agency for Healthcare Research and Quality (AHRQ).

In the same year, there were over 663,000 inpatient stays—a daily average of nearly 1,820—principally for back surgery or other back disorder treatments. AHRQ also found that in 2008:

- Adults aged 18 to 44 were the most likely to require just emergency department care for back pain (1,569 visits per 100,000 people) and seniors aged 65 to 84 were the least likely (1,084 visits per 100,000 people).
- However, people aged 18 to 44 years were far less likely to be hospitalized while seniors aged 65 to 84 years had the highest rates of hospitalization (130 hospital stays per 100,000 people vs. 607 per 100,000 people).

- Men were less likely than women to need emergency department care or be hospitalized for back pain (1,005 emergency visits and 209 admissions per 100,000 men vs. 1,244 emergency visits and 225 admissions per 100,000 women).
- The overall costs for inpatient stays principally for back problems was over \$9.5 billion, making it the 9th most expensive condition treated in U.S. hospitals.

This AHRQ *News and Numbers* is based on data in *Emergency Department Visits and Inpatient Stays Related to Back Problems, 2008* (www.hcup-us.ahrq.gov/reports/statbriefs/sb105.pdf). The report uses data from AHRQ's 2008 Nationwide Emergency Department Sample and 2008 data from its Nationwide Inpatient Sample. For information about these two AHRQ databases, go to www.ahrq.gov/data/hcup/datahcup.htm. For more information, contact Bob Isquith at bob.isquith@ahrq.hhs.gov (301-427-1539). ■

Operating room procedures account for nearly half of hospitals' treatment costs

Although only a quarter of patient stays in U.S. hospitals in 2007 involved procedures that were conducted in operating rooms, such stays accounted for 47 percent of hospitals' costs. This totalled \$161 billion for patients receiving procedures, according to a new study by researchers at the Agency for Healthcare Research and Quality (AHRQ) that was published in the December 2010 issue of the *Archives of Surgery*. The researchers found that one-third of the 15 million operating room procedures that year involved people aged 65 and older and that older patients were two to three times more likely to undergo

surgery than younger patients. Surgical patients tended to be less severely ill than non-surgical patients, but their daily cost was double—\$2,900 versus \$1,400 a day.

Fifteen procedures accounted for half of hospitals' costs for surgical patient stays and one-quarter of overall hospital costs. Four of the most expensive procedures—angioplasty, cesarean section delivery, knee replacement, and spinal fusion—increased in volume by between 20 percent and 46 percent between 1997 and 2007, while heart bypass surgery plummeted by 70 percent.

More than half of all procedures were elective. According to the study authors, Anne Elixhauser, Ph.D., and Roxanne M. Andrews, Ph.D., the findings highlight the important role that inpatient surgical procedures play in U.S. health care. The study is based on data in AHRQ's Nationwide Inpatient Sample, a database of hospital inpatient stays in short-term, nonfederal hospitals, which includes all patients, regardless of their type of insurance, as well as the uninsured. You can obtain a free copy of the article by sending an e-mail to AHRQPubs@ahrq.hhs.gov. ■

Approximately 5 percent of seniors report one or more cognitive disorders

Slightly over 5 percent of the nearly 39 million Americans aged 65 and older in 2007 reported one or more cognitive disorders, such as senility or dementia, according to the latest *News and Numbers* from the Agency for Healthcare Research and Quality (AHRQ). Seniors aged 85 and older were the most likely to have reported one or more cognitive disorders (18.4 percent), compared with seniors aged 75 to 84 (6 percent) and seniors aged 65 to 74 (1.1 percent).

AHRQ found that for elderly Americans aged 65 and older in 2007:

- Seniors with less than a high school education were more likely to have reported one or more cognitive disorders than seniors that were high school graduates (8.6 vs. 4.9 percent) or seniors with more than a high school education (2.7 percent).
- Nearly 8 percent of poor seniors reported one or more cognitive disorders compared with 4.1 percent of middle- and high-income seniors reporting such a condition.

- Nearly 11 percent of seniors who had both Medicare and another type of supplemental public insurance reported one or more cognitive disorders, compared with 5 percent of seniors with Medicare only and 4.1 percent of seniors with Medicare and supplemental private insurance.
- Average annual health care expenses for seniors reporting one or more cognitive disorders totaled \$15,549 a year compared with \$9,019 for seniors not reporting any cognitive disorders.

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, see *Personal Characteristics of the Elderly Reporting One or More Cognitive Disorders, 2007*, at www.meps.ahrq.gov under new publications.

For other information, or to speak with an AHRQ data expert, please contact Bob Isquith at Bob.Isquith@ahrq.hhs.gov or call (301) 427-1539. ■

Growth in Medicaid patient hospital admissions outpace those for privately insured patients

Hospital admissions of patients covered by Medicaid jumped by 30 percent between 1997 and 2008 compared with a 5 percent rise in admissions by patients with private health insurance, according to the latest *News and Numbers* from the Agency for Healthcare Research and Quality (AHRQ). Growth in uninsured patient admissions also outstripped privately insured ones, rising by 27 percent.

AHRQ found that the number of Medicaid-covered patient hospitalizations climbed from 5.6 million to 7.4 million, compared with an increase of 13.4 million to 14.1 million for privately insured stays and 1.7 million to 2.1 million for the uninsured. The Agency also found that:

- Over the period, a hospital's average cost for a

Medicaid patient stay rose 11 percent, far less than the 34 percent cost increase for privately insured stays and the 26 percent for uninsured patients, adjusted for inflation.

- In 2008, the average Medicaid patient stay cost a hospital \$6,900 and about the same for an uninsured patient, compared with \$8,400 for a patient stay covered by private insurance, adjusted for inflation.
- Altogether, Medicaid patient stays cost hospitals about \$51 billion compared with \$117 billion for privately insured ones and \$16 billion for uninsured stays in 2008, adjusted for inflation.
- Medicaid was the primary payer for more than 18 percent of the

nearly 40 million hospital stays that year—almost 1 of every 5.

- Maternity-related and newborn infant care accounted for half of all Medicaid hospital stays, compared with one-third of privately insured patient stays, and one-fifth of uninsured stays.
- About 6 percent of Medicaid stays were for mental health and substance abuse conditions compared with 4 percent among the privately insured and 10 percent among the uninsured.

This AHRQ *News and Numbers* is based on data in *Medicaid Hospitalizations, 2008* (www.hcup-us.ahrq.gov/reports/statbriefs/sb104.pdf). The report uses data from the 2008 Nationwide Inpatient Sample,

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Hospital admissions

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a database of hospital inpatient stays in all short-term, nonfederal hospitals. The data are drawn from

hospitals that comprise 95 percent of all discharges in the United States and include patients, regardless of insurance type, as well as the uninsured.

For more information, contact Bob Isquith at bob.isquith@ahrq.hhs.gov (301-427-1539). ■

One-fifth of the U.S. population has no doctor or other usual source of medical care

Roughly 60 million people—1 in 5 Americans—have no usual source of medical care, such as a family doctor or clinic, according to the latest *News and Numbers* from the Agency for Healthcare Research and Quality (AHRQ). According to data from AHRQ, in 2007, two-thirds of those who reported not having a usual source of care said the main reason was because they seldom or never got sick and another 14 percent said their main reason was the high cost of care.

When AHRQ analyzed these and other main reasons reported for not having a usual source of care by people's background and other factors, they found differences. For example:

- Some 29 percent of people with no health insurance cited high cost as their main reason for not having a usual source of care compared with 16 percent of people with public insurance and 4 percent of those with private health insurance.
- Hispanics were more likely to say high cost was the main reason why they didn't have a usual source of care (22 percent), compared with 12 percent for people of racial and ethnic groups.
- At the same time, 59 percent of the uninsured reported not having a usual source of care because they never got sick, compared with 67 percent of

people with private insurance and 53 percent of people with public insurance.

- Blacks were most likely to report that they didn't have a usual source of care because they seldom or never got sick (69 percent) compared with Hispanics, 62 percent; whites, 61 percent; and Asians, 58 percent.
- Asians were most likely to report not liking or trusting doctors as their main reason for not having a usual source of care (12 percent vs. 4 percent for other groups as a whole).

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, see the *Main Reason for Not Having a Usual Source of Care: Differences by Race/Ethnicity, Income, and Insurance Status, 2007* at www.meps.ahrq.gov under Statistical Brief #308.

For other information, or to speak with an AHRQ data expert, please contact Bob Isquith at Bob.Isquith@ahrq.hhs.gov or call (301) 427-1539 ■

Routine osteoporosis screening recommended for all women over age 65

In an update to its 2002 recommendation, the U.S. Preventive Services Task Force (USPSTF) now recommends that all women aged 65 and older be routinely screened for osteoporosis. This is the first final recommendation statement to be published since the USPSTF implemented a new process in July 2010 in which all of its draft recommendation statements are

posted for public comment on the USPSTF Web site prior to being issued in final form. The draft recommendation statement on screening for osteoporosis was posted for public comment from July 6 to August 3, 2010.

The USPSTF also recommends that younger women with increased risk factors for osteoporosis be screened

if their fracture risk is equal to or greater than that of a 65-year-old white woman who has no additional risk factors. White women are used as the benchmark because they have a markedly higher rate of osteoporosis and fractures than other ethnic groups. Risk factors for osteoporosis include tobacco use,

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Osteoporosis screening

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alcohol use, low body mass and parental history of fractures.

The USPSTF did not indicate a specific age limit at which screening should no longer be offered, because the risk for fractures continues to increase with age and the evidence indicates that benefits can be realized within 18 to 24 months after starting treatment. The USPSTF also looked at whether to recommend screening men for osteoporosis, but found insufficient evidence to make a recommendation at this time. This new final recommendation became effective when it appeared in the January 18 online issue of the *Annals of Internal Medicine*. It will also be available on the USPSTF Web site.

“As the number of people over the age of 65 in the United States increases, osteoporosis screening continues to be important in detecting women at risk who will benefit from treatment to prevent fractures,” said Task Force Chair Ned Calonge, M.D., who is also the president and CEO of The Colorado Trust. “Clinicians also should talk to their younger patients to learn if they have risk factors that mean they should be screened.”

Osteoporosis screening involves a measurement of bone density, which is currently covered by Medicare. The most commonly used bone density measurement tests are dual-energy x-ray

absorptiometry (DXA) of the hip and lumbar spine, as well as quantitative ultrasound of the heel, although current diagnostic and treatment criteria are based on DXA tests alone. The USPSTF noted that there is a lack of evidence about how often screening should be repeated in women whose first test is negative.

In postmenopausal women who have no prior fractures caused by osteoporosis, the USPSTF found convincing evidence that drug therapies (including bisphosphonates, parathyroid hormone, raloxifene, and estrogen) reduce the risk for osteoporosis-related fractures.

Osteoporosis, a condition that occurs when bone tissue thins or develops small holes, can cause pain, broken bones and loss of body height. Osteoporosis is more common in women than men and is more common in whites than any other racial group. For all demographic groups, the rates of osteoporosis rise with increasing age.

The USPSTF is an independent panel of private-sector experts in prevention and evidence-based medicine that conducts rigorous, impartial assessments of the scientific evidence and makes recommendations on the effectiveness of a broad range of clinical preventive services, including screening, counseling, and preventive medications. The USPSTF does not consider costs or cost-effectiveness in creating

recommendations. The Agency for Healthcare Research and Quality (AHRQ) is authorized by statute to convene the USPSTF and provide scientific and administrative support.

The USPSTF grades the strength of the evidence for providing clinical preventive services as “A” and “B” (recommends a service), “C” (recommends against routinely providing a service), “D” (recommends against a service) or “I” (insufficient evidence to assess the benefits and harms of a service). The USPSTF recommends screening for osteoporosis in women aged 65 and older and in younger women whose fracture risk is equal to or greater than that of a 65-year-old white woman who has no additional risk factors (B recommendation). Current evidence is insufficient to assess the balance of benefits and harms of screening for osteoporosis in men (I statement).

The USPSTF based its conclusions for this recommendation on a report from a team led by Heidi Nelson, M.D., M.P.H., from AHRQ’s Evidence-based Practice Center at the Oregon Health & Science University in Portland. The report is available at www.uspreventiveservicestaskforce.org under highlights. The final recommendation and supporting documents are also available on the USPSTF Web site. ■

AHRQ report finds unclear value of pretesting autoimmune disorder patients before prescribing thiopurine drugs

According to the authors of a recently released report from the Agency for Healthcare Research and Quality (AHRQ), there is insufficient evidence to determine whether patients with autoimmune diseases such as Crohn's disease have better outcomes if they are pre-tested for levels of the TPMT enzyme prior to clinicians prescribing a dosage for thiopurine-based medication. The AHRQ report sought to determine if TPMT pre-testing reduces drug-related adverse effects.

Experts have proposed that patients with either intermediate, low, or absent TPMT enzyme activity (reduced detoxifying metabolism) may benefit from lower initial doses of thiopurine drugs, because higher

doses may cause toxic reactions such as the reduction of white blood cell and platelet count in the bone marrow. Testing patients' TPMT status prior to starting thiopurine drugs, such as Azasan® and Imuran®, has been recommended. The authors, led by Ronald A. Booth, Ph.D., of the AHRQ-supported University of Ottawa Evidence-based Practice Center in Ottawa, Ontario, said that it is unclear whether pre-testing guides appropriate prescribing. For more findings and conclusions, see *Assessment of Thiopurine Methyltransferase Activity in Patients Prescribed Azathioprine or Other Thiopurine-based Drugs* at www.ahrq.gov/clinic/tp/tpmttp.htm ■

AHRQ's Health Care Innovations Exchange offers innovative solutions to caring for women with gestational diabetes

Approximately 7 percent of pregnancies in the United States are complicated by gestational diabetes, which is a risk factor for developing Type 2 diabetes. The Health Care Innovations Exchange at the Agency for Healthcare Research and Quality (AHRQ) offers health care professionals practical tools to educate themselves and pregnant women about gestational diabetes, and for caring for women with the condition during and after pregnancy. The Innovations Exchange also offers innovative

approaches to addressing high-risk pregnancies that can lead to premature babies and other complications.

The Partners in Pregnancy Program (www.innovations.ahrq.gov) provides telephone case management and periodic home visits from registered nurses to pregnant women with Type 2 diabetes or other risk factors receiving Medicaid benefits.

A Medicaid managed care plan (www.innovations.ahrq.gov) uses cell phone text messaging to send

members with Type 2 diabetes monthly educational messages and appointment reminders for glucose testing. This program has been expanded to pregnant women to educate and remind them about pre- and post-natal care.

Additional innovations related to Type 2 diabetes and pregnancy are available on the Innovations Exchange Web site (www.innovations.ahrq.gov), a searchable database of more than 500 innovations and 1550 quality tools. ■

Innovations show the benefits of using phone-based care management

A recent spotlight on AHRQ's Health Care Innovations Exchange Web Site featured an article on the benefits of using phone-based care management to help reduce medical costs and lead to improved patient care, medication adherence, and patient satisfaction. The featured innovations used a telephone-based approach to deliver care to specific patient populations. There are

also quality tools to help clinicians better understand the use of telephone care to manage specific conditions. To find out more about these phone-based care management and other innovations visit the AHRQ Health Care Innovations Exchange Web site at www.innovations.ahrq.gov. ■

New technical brief on stroke care published

A new technical brief highlighting a significant research gap related to stroke care was recently released by the Agency for Healthcare Research and Quality (AHRQ).

Neurothrombectomy Devices for Treatment of Acute Ischemic Stroke was prepared by the University of Connecticut/Hartford Hospital Evidence-based Practice Center for AHRQ's Effective Health Care Program and published in the *Annals of Internal Medicine*. It is the latest of AHRQ's Technical Briefs, which are reports about an emerging or developing technology or treatment that can highlight areas for further research. The report finds that there is limited high-quality research on the use of neurothrombectomy devices—an emerging technology—for the treatment of acute ischemic stroke. A significant unmet need exists for randomized controlled trials to determine the optimal device(s) to use and the patient populations most likely to benefit from their use.

Advances in this technology may ultimately change the way that strokes are treated, but at this point, the specific population that is most likely to benefit from these devices is still under investigation.

A total of seven neurothrombectomy devices are currently in clinical use in the United States. The U.S. Food and Drug Administration (FDA) has cleared two for marketing for use in patients with an acute ischemic stroke to restore blood flow. Other devices have FDA indications ranging from retrieval of intravascular foreign bodies to infusion of fluids into the peripheral vasculature. Data on the use of these various devices are limited.

Visit www.effectivehealthcare.ahrq.gov to access the report and learn more about AHRQ's patient-centered outcomes research, download other products, or submit a suggestion for future research. ■

New look for AHRQ's Health Care Innovations Exchange Web site

A redesign of the Agency for Healthcare Research and Quality's (AHRQ's) Health Care Innovations Exchange Web site now provides more information and offers a more interactive experience for users. Highlights of the redesigned site include:

- A new home page that makes main content areas more visible and accessible.
- An updated Browse-by-Subject feature that allows you to narrow the topic to reach innovations and/or tools of interest.
- Photos that rotate with issues and videos that enhance your multimedia experience.
- Social media links, such as Twitter, that enable you to stay connected. ■

2010 John M. Eisenberg Patient Safety and Quality Award recipients announced

The National Quality Forum and the Joint Commission on Accreditation of Healthcare Organizations announced the 2010 recipients of the annual John M. Eisenberg Patient Safety and Quality Awards. The honorees, by award category, were for Individual Achievement: John H. Eichhorn, M.D., University of Kentucky, Lexington, KY and James L. Reinertsen, M.D., The Reinertsen Group, Alta, WY; Innovation in Patient Safety and Quality at the National Level: Washington State Hospital Association, Seattle, WA; and Innovation in Patient Safety and Quality at the Local Level: The Children's Hospital at Providence Newborn Intensive Care Unit, Anchorage, AK. ■

AbuDagga, A., Resnick, H.E., and Alwan, M. (2010, September). “Impact of blood pressure telemonitoring on hypertension outcomes: A literature review.” (AHRQ Contract No. 290-06-0002). *Telemedicine and e-Health* 16(7), pp. 832-838.

Blood pressure (BP) measurement and monitoring are critical for management of hypertension. BP monitoring traditionally done in the doctor’s office is now supplemented by BP telemonitoring in which the patient measures and transmits their BP and other information to the doctor between visits. After reviewing 15 studies, the authors found that BP telemonitoring significantly reduced BP. Declining BP ranged from 3.9 to 13.0 mm Hg for systolic blood pressure and from 2.0 to 8.0 mm Hg for diastolic blood pressure. These results are comparable to those of efficacy trials of some antihypertensive drugs. The authors concluded that BP can be managed in the community, with the patients taking an active role in their own disease management.

Anastaro, M.P., Rodriguez, H.P., Gallagher, P.M., and others. (2010, October). “A randomized trial comparing mail versus in-office distribution of the CAHPS Clinician and Group Survey.” (AHRQ Contract No. 290-09-0001). *HSR: Health Services Research* 45(5), pp. 1345-1359.

This study compared responses to a survey handed out at physicians’ offices with a mailed survey from the offices of 15 primary care

physicians in a large multispecialty medical group in New York. They compared physician and site-level response rates, the characteristics of respondents, and response patterns between surveys distributed using the different methods. Respondents to surveys distributed by hand reported significantly better experiences on all but three survey items. Handout surveys had lower overall response rates (40 percent vs. 58 percent) compared with mailed surveys. An incomplete distribution rate (74 percent) observed in-office, together with between-office differences in distribution rates and declining rates over time, suggest staff may be burdened by the process and selective in their choice of patients to survey.

Chan, K.S., Fowles, J.B., and Weiner, J.P. (2010). “Review: Electronic health records and the reliability and validity of quality measures: A review of the literature.” (AHRQ Contract No. 290-07-1006). *Medical Care Research and Review* 67(5), pp. 503-527.

The authors reviewed evidence from studies on electronic health record (EHR) data quality published between 2004 and 2009, with an emphasis on data attributes that are important to quality measurement. Their goal was to examine how the reliability and validity of quality-of-care measures may be influenced by the evolving electronic data environment. Many of the 35 studies evaluated multiple aspects of data quality or

comparability, such as data accuracy and measure validity. Based on the findings, the authors suggest that future research focus on the quality of data from specific EHR components and important data attributes for quality measurement such as granularity, timeliness, and comparability. They also propose roles that health care organizations and third-party regulatory or accreditation organizations should play to enhance the value of EHR data for quality measurement.

Chokshi, D.A., Avorn, J., and Kesselheim, A.S. (2010). “Designing comparative effectiveness research on prescription drugs: Lessons from the clinical trial literature.” (AHRQ grant HS18465). *Health Affairs* 29(10), pp. 1842-1848.

Comparative effectiveness research (CER) is particularly relevant to medication choices, because some drugs are approved in the United States after only demonstrating efficacy compared with a placebo. However, a review of recent CER trials suggests that poor-quality studies continue to be done. The authors identify three areas of special concern: choice of comparison treatments, study time frame, and “external validity,” i.e., the extent to which the study’s results can be reliably applied to the population as a whole. They then make several recommendations. First, the appropriate comparators must be relevant to the best available alternatives. Second,

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surrogate endpoints should be used judiciously. Third, CER should be oriented around pragmatic clinical trials comparing real-world management options. Finally, selection of patient populations should ideally provide information to help address health disparities.

Clancy, C. (2010, November). “Quitting smoking—You can do it.” *AARP Bulletin*. Reprints (AHRQ Publication No. 11-R013) are available from the Agency for Healthcare Research and Quality.*

The Director of the Agency for Healthcare Research and Quality, outlines a pathway that smokers who want to quit smoking can follow. After mentioning various resources available to stop smoking and discussing some of its consequences, she discusses a three-step program to follow: (1) get ready—set a quit date; (2) get medicine—nicotine products and other medications; and (3) get help—talk to health care workers for advice. Finally, she discusses in more detail resources available to those wanting to quit smoking such as Medicare, smokefree.gov, and counseling available at 1-800 QUIT-NOW.

Greenwald, J.L., Halasyamani, L., Greene, J., and others. (2010, October). “Making inpatient medication reconciliation patient centered, clinically relevant and implementable: A consensus statement on key principles and necessary first steps.” (AHRQ grant HS17520). *Journal of Hospital Medicine* 5(8), pp. 477-485.

Medication errors and adverse events caused by them are common

during and after a hospitalization. Medication reconciliation is important in reducing such errors. It is the process of comparing a patient’s medication orders to all of the medications that the patient has been taking. It is done to avoid medication errors such as omissions, duplications, dosing errors, or drug interactions. The authors present a consensus statement that originated in a 2009 stakeholder conference on hospitalized patients convened by the Society of Hospital Medicine. A basic principle emerging from the conference was that medication reconciliation should be viewed as an important element of patient safety, not as an accreditation function. The core of the paper discussed ten different areas that need to be addressed and suggests first steps toward doing so.

Henriksen, K. (2010). “Partial truths in the pursuit of patient safety.” *Quality and Safety in Health Care* 19 (Suppl. 3), pp. i3-i7. Reprints (AHRQ Publication No. 11-R016) are available from the Agency for Healthcare Research and Quality.*

The author describes what he calls “partial truths” that undermine a full understanding of the issue of patient safety. He characterizes these partial truths as “bipolar orientations.” They include evidence-based medicine versus quality improvement, ‘knowledge in the head’ versus ‘knowledge in the world,’ sharp end versus blunt end, reporting systems versus local knowledge, changing beliefs versus changing behavior, and system components versus system interdependencies. He cautions against creating such partial truths or dichotomies that tend to assert too much. He further explains how

the different sides of these dichotomies exist in tension with each other, sometimes overlapping and at other times conflicting. The dangers of such dichotomies are oversimplification, neglect of subtlety and interdependencies, and short-term appeal. He encourages investigators of patient safety to rise above these bipolar orientations in their pursuit of a fuller understanding of patient safety problems.

Henriksen, K., and Albolino, S. (2010). “Towards a safer healthcare system.” *Quality and Safety in Health Care* 19 (Suppl. 3), pp. i1-i2. Reprints (AHRQ Publication No. 11-R017) are available from the Agency for Healthcare Research and Quality.*

This article introduces a series of articles, most of which were presented at the second international conference “Healthcare Systems Ergonomics and Patient Safety” held in Strasbourg in 2008. The articles cover a diverse range of topics including the opinions and experiences of Italian health care workers in reporting adverse events to incident-reporting systems, the discrepancies between medication orders for infusion as entered into a computer physician entry system and the medication actually infused, and the need for valid and reliable assessment of provider performance. Representing six countries, the authors of the supplement’s articles are united in the belief that fundamental to the needed change is a dedicated and sustained focus on improving patient safety and the quality of care.

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Kaafarani, H.M.A., Rosen, A.K., Nebeker, J.R., and others. (2010). “Development of trigger tools for surveillance of adverse events in ambulatory surgery.” (AHRQ Contract No. 290-06-0001). *Quality and Safety in Health Care* 19, pp. 425-429.

As ambulatory or same-day surgeries become more complex, the incidence of postoperative adverse events (AEs) in this setting will probably increase. To address this problem, the trigger tool methodology uses surveillance algorithms (triggers) derived from clinical logic to ‘flag’ medical records where AEs have most likely occurred. The authors describe a four-step methodology to create these algorithms that is based on the evidence in the literature, end users’ suggestions, and experts opinion. Emerging from this process is an initial set of ten surgical triggers including five global triggers and five AE-specific triggers. They culled the list to a final list of five trigger tools. These ranged from an emergency room visit within 21 days of surgery and unscheduled readmission within 30 days of surgery to an unscheduled procedure or reoperation within 30 days of surgery.

Luo, Z., Gardiner, J.C., and Bradley, C.J. (2010). “Applying propensity score methods in medical research: Pitfalls and prospects.” (AHRQ grant HS14206). *Medical Care Research and Review* 67(5), pp. 528-554.

Use of propensity score (PS) methods in medical research to estimate causal effects from nonexperimental data has grown considerably over the past decade. Focusing on assumptions for the validity of instrumental variables

and PS methods, the authors review experimental and nonexperimental causal inference methods. They provide guidance in four areas for the analysis and reporting of PS methods in medical research. They selectively evaluate mainstream journal articles from 2000 to 2005 in the four areas: examination of balance, overlapping support description, use of estimated PS for evaluation of treatment effect, and sensitivity analyses. They conclude that appropriate PS applications can create experimental conditions using observational data when randomized controlled trials are not feasible. In this way, they lead researchers to an efficient estimator of the average treatment effect.

Moyer, V.A., Singh, H., Finkel, K.L., and others. (2010). “Transitions from neonatal intensive care unit to ambulatory care: Description and evaluation of the proactive risk assessment process.” (AHRQ grant HS17122). *Quality and Safety in Health Care* 19, pp. i26-i30.

Over 20,000 newborn babies make the risky transition from the neonatal intensive care unit (NICU) to home each year in the U.S., often to the care of primary care physicians they have never met. The researchers describe the use of Health Care Failure Mode and Effects Analysis (HFMEA) to proactively assess the risks of this transition and present a qualitative evaluation of the HFMEA process. The 10-member HFMEA team worked within a large pediatric hospital between October 2007 and April 2008 to identify the main processes and possible errors involved in the discharge of a high-risk infant. The researchers conducted a facilitated debriefing session with the team, interviews of

key informants, and a content analysis of documentation generated by the project. They identified 40 high-risk failure modes and 75 associated high-risk causes. Their conclusion was that while the HFMEA holds promise for improving patient safety during care transitions, the value of applying this tool to transitions from the NICU requires further study.

Mushlin, A.I., and Ghomrawi, H.M.K. (2010). “Comparative effectiveness research: A cornerstone of healthcare reform.” (AHRQ grant HS16075). *Transactions of the American Clinical and Climatological Association* 121, pp. 141-155.

Comparative effectiveness research (CER) has recently emerged as a major theme in the health policy arena and as a component of health care reform legislation. The authors review the distinctive elements of CER, which differentiate it from the research currently required for approval of new drugs and devices. They illustrate some of the methods of CER, as well as its potential value, through examples from the authors’ prior and current work. Finally, they argue that CER should be viewed by the medical community and by academic medicine, on balance, as an asset and not as a threat of rationing, of cookbook medicine, or to the doctor-patient relationship.

Outterson, K., Powers, J.H., Gould, I.M., and Kesselheim, A.S. (2010). “Questions about the 10 x 20 Initiative.” (AHRQ grant HS18465). *Clinical Infectious Diseases* 51, pp. 750-751.

The initiative to develop 10 new antimicrobial drugs by 2020 seems

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reasonable, but raises certain questions, assert the authors of this paper. The initiative does not distinguish between quantity and quality. Too often, the focus is on new drugs or specific organisms rather than the serious disease caused by those organisms. Also, the clinical trials on which clinicians and patients base therapeutic decisions need to be improved. In addition, the 10 x 20 initiative makes little mention of working to extend the useful life of the drugs already available. Priorities need to be set between antibiotic conservation and new drug development, focusing on policies that will best serve the public interest.

Pham, J.C., Giangi, S., Battles, J., and others. (2010). “Establishing a global learning community for incident-reporting systems.” *Quality and Safety in Health Care* 19, pp. 446-451. Reprints (AHRQ Publication No. 11-R018) are available from the Agency for Healthcare Research and Quality.*

Incident reporting systems (IRS) are a cornerstone of patient safety improvement efforts. An international group of patient safety experts convened in Baltimore in June 2008 to establish a global community to learn how IRS could improve patient safety. This paper summarizes the experiences of various organizations managing IRS and describes a global community to help advance the science of learning from mistakes. To organize their findings, they used a conceptual model for learning from adverse events, and explored how reporting systems are used to identify, analyze, and

prioritize incidents; mitigate the hazards discovered; and evaluate whether risk-reduction interventions were effective. They conclude by discussing the challenges facing incident reporting systems and short-term goals such as exploring an international list of serious adverse events.

Riley, W., Davis, S., Miller, K.M., and others. (2010). “Detecting breaches in defensive barriers using in situ simulation for obstetric emergencies.” (AHRQ grant HS16728). *Quality and Safety in Health Care* 19, pp. i53-i56.

The researchers used in situ simulation to identify defensive barriers and classify the nature of active and latent breaches in these barriers in the context of team performance during obstetrics emergencies. In situ simulation is a team-based simulation strategy that occurs in patient care units involving interdisciplinary team members working within their own environments. The researchers conducted 46 trials in two phases at six different hospitals within one health care system. Of the 965 breaches identified, 461 were classified as latent conditions and 494 were classified as active failures. The latent condition category included policy, equipment, and systems processes. The active failure category included communications breakdowns and loss of situational awareness.

Schillaci, M.A., Waitzkin, H., Carson, E.A., and Romain, S.J. (2010, September). “Prenatal care utilization for mothers from low-income areas of New Mexico, 1989-1999.” (AHRQ grant

HS09703). *PLoS ONE* 5(9), p. e12809.

The researchers compared levels of prenatal care utilization and rates of adverse birth outcomes between mothers from low- and higher-income residential areas of New Mexico between 1989 and 1999. On average, mothers from the low-income areas started their prenatal care significantly later in their pregnancies than did mothers from higher-income areas. Despite this disparity in prenatal care, there were only minor differences between income groupings in the relative occurrence of negative birth outcomes. This finding suggests that mothers from low-income areas of New Mexico are either receiving an adequate level of prenatal care or that small differences in prenatal care have exerted little direct impact on birth outcomes.

Steinman, M.A., and Hanlon, J.T. (2010). “Managing medications in clinically complex elders: ‘There’s got to be a happy medium.’” (AHRQ grant HS17695). *Journal of the American Medical Association* 304(14), pp. 1592-1601.

Multiple medication use, common in older adults, may ameliorate symptoms, improve and extend quality of life, and occasionally cure disease. Unfortunately, it is also a major risk factor for prescribing and adherence problems, adverse drug events, and other adverse health outcomes. Using the case of an 84-year-old male patient taking multiple medications for various conditions, the authors summarize the evidence-based literature about improving medication use and withdrawing specific drugs and

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drug classes. They also describe a systematic approach for how professionals can assess and improve medication regimens to benefit patients and their caregivers and families. The success of this patient's care was due to his doctor using a careful, stepwise process that merged key principles of pharmacologic care with the clinical reality, social situation, and care goals for the patient.

Taekman, J.M., and Shelley, K. (2010). “Virtual environments in healthcare: Immersion, disruption, and flow.” (AHRQ grant HS16653). *International Anesthesiology Clinics* 48(3), pp. 101-121.

The last decade has seen an increasing emphasis on simulation in health care education. Simulation encompasses a broad continuum that includes standardized patients, high-fidelity simulation, and virtual environments (VEs). The authors focus on VEs for health care education. This includes VEs as a disruptive technology, the psychological state of “Flow” and what it means for education. They also examine factors that are catalyzing a change in medical education and discuss the strengths and weaknesses of mannequin-based learning (MBL). The authors then discuss the topic of games-based learning and why it will have a prominent place in education, the theory behind why they work, the advantages of VEs over MBL, and their limitations. Finally, they explore the possible opportunities enabled by VEs.

Williams, R.L., Willging, C.E., Quintero, G., and others. (2010, October). “Ethics of health

research in communities: Perspectives from the southwestern United States.” (AHRQ grant HS13208). *Annals of Family Medicine* 8(5), pp. 433-439.

Interest is growing in community-based participatory research, whereby community members have more involvement in all stages of the research process—raising concern about the adequacy of research protections. The researchers studied Hispanic/Latino and Native American minorities in the southwestern United States to assess views about community-based health research in order to gather data about appropriate methods for conducting research in communities. After conducting 18 focus groups with 155 participants, they found that overall research was viewed as beneficial. However, participants also cited negative aspects such as coercion and inadequate attention to language and cultural issues. Also, results were sometimes not adequately communicated. The researchers concluded that community-based health research should engage communities as active partners, focus on community priorities, and take extra precautions to assure privacy.

Winthrop, K.L., and Furst, D.E. (2010). “Rheumatoid arthritis and herpes zoster: Risk and prevention in those treated with anti-tumor necrosis factor therapy.” (AHRQ grant HS17960). *Annals of Rheumatic Diseases* 69, pp. 1735-1737.

The authors discuss the following questions: are rheumatoid arthritis (RA) patients at increased risk for herpes zoster (HZ) due to their disease or their therapies? Should anti-tumor necrosis factor (TNF) in

patients with a history of HZ be avoided? Can they be vaccinated and when? After reviewing recent studies, they found that HZ risk is elevated in RA and is further elevated 1.5-2.0-fold by prednisone. However, the inconsistent results for anti-TNF therapy are confusing. They further believe that the rationale for zoster vaccination goes beyond the goal of simply preventing hospitalized HZ. Strong evidence exists arguing for the protective effect and importance of vaccinating those 60 years of age and older. Since vaccination with live viruses is contraindicated while using biological therapies, it seems logical to target this group for vaccination before anti-TNF initiation.

Weir, R.C., Emerson, H.P., Tsent, W., Chin, M.H., and others. (2010, November). “Use of enabling services by Asian American, Native Hawaiian, and other Pacific Islanders Patients at 4 community health centers.” (AHRQ grant HS13401).

American Journal of Public Health 100(11), pp. 2199-2205. Community health centers (CHCs) are safety nets for some of the country's most vulnerable patients. But many of these patients are unable to access or use this needed medical care without enabling services. Such services include language interpretation, health education, and financial or insurance eligibility assistance. The impact of enabling services on medically underserved Asian American, Native Hawaiian, and other Pacific Islander (AANHPI) patients has not been studied until now. This study of four CHCs located in States (Hawaii, New York, and Washington) with a

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higher-than-average percentage of AANHOPIs found that eligibility assistance was the most widely used service. Compared with nonusers, users of enabling services were more likely to be older, female, AANHOPi, and uninsured.

Wu, A.W., Snyder, C., Clancy, C., and Steinwachs, D.M. (2010). “Adding the patient perspective to comparative effectiveness research.” *Health Affairs* 29(10), pp. 1863-1871. Reprints (AHRQ Publication No. 11-R022) are available from the Agency for Healthcare Research and Quality.*

The purpose of comparative effectiveness research is to help patients, clinicians, purchasers, and policymakers make informed decisions that will improve health care. The authors describe how questionnaires can be used

systematically to capture the experience of patients directly to provide a complete picture of treatment impact. The key patient-reported outcomes such as health-related quality of life, symptoms, rating of the quality of care/satisfaction with care, use of health care services and health behavior are included unevenly in existing studies. The authors discuss how to improve this situation with respect to the main data sources: clinical trials, observational studies, clinical data, and administrative data.

Yu, H. and Dick, A.W. (2010). “Risk-adjusted capitation rates for children: How useful are the survey-based measures?” (AHRQ grant HS16742). *HSR: Health Services Research* 45(6), Part II, pp. 1948-1962.

Public insurance programs such as Medicaid and the State Children’s Health Insurance Program

increasingly contract with managed care organizations that use capitation rates that are not adequately adjusted for high-cost children. This encourages risk selection, i.e., encouraging the enrollment of low-risk, low-cost children and discouraging the enrollment of high-risk, high-cost children. However, few risk-adjustment models have been estimated especially for children. The authors correct this lack by estimating risk-adjustment models for children using survey measures, including those developed for children with special health care needs (CSHCN). They found that CSHCN information explained a higher proportion of variance in annual expenditures than subjectively rated health status. The inclusion of this information may help provide appropriate payments to managed care plans serving this vulnerable group of children. ■

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