Agency for Healthcare Research and Quality

RESEARCH ACTIVITIES

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Highlights

Departments

Regular Features

Hospital charges for the uninsured have soared

The amount that hospitals charge the uninsured for inpatient care jumped 88 percent between 1998 and 2007, according to the latest data from the Agency for Healthcare Research and Quality (AHRQ). The average charge for an uninsured hospital stay grew from $11,400 in 1998 to $21,400 in 2007 after adjusting for inflation. AHRQ's analysis also found that:

- From 1998 to 2007, the number of uninsured hospital stays increased by 31 percent, which far exceeds the 13 percent overall increase in hospital stays during the period.
- The percentage of uninsured hospital stays increased the most in the South, rising from 5.8 percent to 7.5 percent. In contrast, in the Midwest, the percentage of uninsured hospital stays declined from 4.7 percent to 4.0 percent.
- The top reason that uninsured patients were hospitalized was for childbirth. In 2007, roughly a quarter of a million uninsured women gave birth in hospitals. This was followed by depression and bipolar disorder (94,300); chest pain with no observed cause (77,000); skin infections – which more than doubled from 31,000 to 73,300; and alcohol-related disorders (66,600).

These findings are based on data in *Trends in Uninsured Hospital Stays, 1998-2007*. The report uses statistics from the 2007 Nationwide Inpatient Sample, a database of hospital inpatient stays that is nationally representative of inpatient stays in all short-term, non-Federal hospitals. The data are drawn from hospitals that comprise 90 percent of all discharges in the United States and include all patients, regardless of insurance type, as well as the uninsured. You can view the report at http://www.hcup-us.ahrq.gov/reports/statbriefs/sb88.pdf. ■

Children with health insurance are less likely to receive needed services if their parents are uninsured

Insuring children without insuring their parents does not solve the problem of children's unmet health needs, a new study finds. Insured children living with at least one parent in families where the children were insured, but the parents were not, were more than twice as likely to not have a usual source of care than insured children with insured parents. In similar fashion, insured children with uninsured parents were 11 percent more likely to have unmet health needs and 20 percent more likely to have never received any preventive counseling services. Insured children with one insured and one uninsured parent were 18 percent more likely to have had no doctor's visit in the past year than insured children with two insured parents.

A team led by Jennifer E. DeVoe, M.D., D.Phil., of Oregon Health and Science University, analyzed data on 43,509 individuals who responded to the Agency for Healthcare Research and Quality's (AHRQ's) Medical Expenditure Panel Survey–Household Component (MEPS-HC) for 2002–2006. Survey respondents were interviewed five times over 2 years. The team determined that an average of 73.6 percent of children were insured with insured parents, 8 percent of children were uninsured with uninsured parents, and 10 percent of children were insured with uninsured parents.

These findings suggest that the long-term improvement of health care for children cannot be met by covering children alone. The researchers note that those States that have expanded public coverage to parents of covered children have maintained more stable health care. The study was funded in part by AHRQ (HS16181).

More details are in "Children's receipt of health care services and family health insurance patterns," by Dr. DeVoe, Carrie J. Tillotson, M.P.H., and Lorraine S. Wallace, Ph.D., in the *Annals of Family Medicine* 7(5), pp. 406-413, 2009. ■ *DIL*

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Also in this issue:

Adverse events occurring during pediatric sedation are recorded in charts but not always reported

Although most adverse events that occur while children are sedated are considered minor, they are not reported as often as they should be, according to a new study from researchers at Children's Hospital Boston. The team examined 5,045 patient sedation records and found that 329 adverse events occurred, for a rate of 6.52 percent. Of those adverse events, 232 were considered minor, such as the patient vomiting or waking before the procedure was completed; while 97 were deemed serious, such as the need for resuscitation, cardiovascular complications, or paradoxical reaction to the anesthesia (e.g., rage).

Although minor events were more common and more likely to be documented in the patients' file, they were not as likely as serious events to be reported by the perianesthesia nurse. For example, a patient waking before the procedure was completed, considered a minor event, was noted in the records of nearly 120 patients but reported in just over 20 cases. Nurses may underreport minor sedation incidents because they perceive them as unpreventable, despite the excellent care provided, note the researchers.

Their findings suggest that the use of voluntary incident reports may lead to an underestimate of the actual number of adverse events that occur during pediatric sedation. While some perianesthesia nurses may avoid reporting adverse events as a way to preempt possible litigation, not having this information impedes improvements in care quality. This study was funded in part by the Agency for Healthcare Research and Quality (HS11416).

See "Nurse reports of adverse events during sedation procedures at a pediatric hospital," by Jenifer R. Lightdale, M.D., M.P.H., Lisa B. Mahoney, B.S., Meghan E. Fredette, B.S., and others in the October 2009 *Journal of PeriAnesthesia Nursing* 24(5), pp. 300-306. ■ *KFM*

Restricting residents' working hours decreases teaching time but improves well-being

Medical residents are indispensible to academic hospitals. Not only do they take care of patients, but they are also responsible for teaching medical students. Yet to improve patient safety, residents nationwide are only allowed to work up to 80 hours per week with no more than 30 consecutive hours. The amount of time residents spend teaching has declined as a result of these work hour restrictions, according to a new study. However, residents report feeling less exhausted and more satisfied with the level of care they deliver.

At a large academic medical center in California, 125 residents responded to a survey designed to measure various aspects of their working situation. These included the time spent teaching, the number of hours worked, satisfaction with patient care, and how exhausted they felt. Nearly a quarter (24 percent) of respondents reported spending less time teaching. This finding supports previous work suggesting that duty hour restrictions may have some negative effects on resident education, note the researchers. They found that spending less time teaching was associated with working less than 80 hours a week, being a second- or third-year resident, and spending more time on administrative tasks.

Residents with reduced teaching schedules reported feeling less emotionally exhausted and more satisfied with the patient care they provided. Indeed, there was a significant association between the level of emotional exhaustion and the level of satisfaction with patient care. Those responsible for hospital residency programs need to take these findings into consideration in order to maintain the well-being and work lives of their residents, suggest the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS11416).

See "Impact on duty-hour restriction on resident inpatient teaching," by Lindsay A. Mazotti, M.D., Arpana R. Vidyarthi, M.D., Robert M. Wachter, M.D., and others in the October 2009 *Journal of Hospital Medicine* 4(8), pp. 476-480. ■ *KB*

Study provides insights into problems confronting quality improvement educational programs in rural hospitals

To improve health care performance, hospitals and other health care delivery organizations have embraced a strategy known as continuous quality improvement (QI). This approach aims to improve clinical outcomes and system efficiency in part by delivering rapid-cycle educational programs to hospital leadership and staff. While the strategy is popular, its success in actually improving quality performance is inconsistent. A new study by Giovanni Filardo, Ph.D., of the Baylor Health Care System, and colleagues reveals some of the problems confronting QI educational programs in rural hospitals.

The study consisted of a randomized control trial involving 47 rural and small community hospitals located in Texas. All had access to a Web-based quality benchmarking and care-review tool to analyze quality and safety measures. Participating hospitals were randomized to either a formal QI educational program or to usual quality management. The intervention program consisted of two 2-day, face-to-face teaching sessions on rapid-cycle process improvement methods specifically focused on improving pneumonia and heart failure care. After these sessions, the hospitals conducted QI projects over 3 months along with monthly coaching via conference calls and emails. Hospitals randomized to the control group did not receive the educational program, although both groups continued to have access to the Web-based tool.

Among the 23 hospitals randomized to the intervention group, only 16 completed the classroom session component and just 6 hospitals completed the full training program, despite an initial commitment by the hospital CEO or president to full participation. No pneumonia or heart failure care benefit was observed in the 23 intervention hospitals, the 16 that completed the classroom session component, or the 6 hospitals that also participated in coaching sessions and an annual QI conclave. However, no hospital participated with the full team of physician leader, nurse leader, and administrative operational leader for whom the program was intended. Of the 42 individuals who attended educational sessions, 5 (12 percent) left their positions during the study period. This lack of availability and inconsistency of appropriate leaders (QI champions), due to the chronic understaffing and high staff turnover that plagues rural and small hospitals, presented substantial barriers to achieving benefit from the QI education program, note the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS15431).

See "A hospital-randomized controlled trial of a formal quality improvement educational program in rural and small community Texas hospitals: one year results," by Dr. Filardo, David Nicewander, M.S., Jeph Herrin, Ph.D., and others in the *International Journal for Quality in Health Care* 21(4), pp. 225-232, 2009. ■ *KB*

Participation in reporting quality data can be costly for physicians and practices

As the nation's focus on health care quality increases, clinicians and practices are being called upon to report on the health of their patients and the quality of care they provide. Their reports, in turn, are used in data-based quality improvement (QI) programs. Up until now, participation in such programs has been voluntary, but that likely will change in the not-too-distant future, resulting in financial and staff challenges related to data collection and reporting.

Researchers led by Jacqueline R. Halladay, M.D., M.P.H., of the University of North Carolina at Chapel Hill, studied eight demographically diverse primary care practices in North Carolina to determine the costs they incurred in implementing and maintaining quality reporting programs. Each of the practices participated in at least one of four quality reporting programs. The practices varied by size, ownership, specialty, location, and medical record format; four were not-for-profit practices, three were nonprofit practices, and one was a teaching practice.

The major expenses incurred by the practices were associated with planning, staff training, modification of electronic systems, visit coding, data gathering and entry, and maintenance of the data registry. Costs per full-time equivalent physician ranged from less than $1,000 to more than $11,000 during QI program

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implementation and from less than $100 to more than $4,000 annually during the maintenance phase. Practice costs also varied widely among the four reporting programs, underscoring the considerable challenges to QI work in primary care. Small practices appeared to be particularly affected by program participation costs. Cost variations among the practices were due principally to lack of interoperability among information technology systems, the amount of work done by QI program staff, and differences in the way data elements were defined, gathered, and transmitted.

The researchers conclude that participation in quality reporting programs can be costly, and programs seeking to engage primary care physicians should choose measures with great care. They suggest that financial and nonfinancial incentives may help improve physician acceptance. This research was supported by the Agency for Healthcare Research and Quality (Contract No. 290-07-10014).

Details are in "Cost to primary care practices of responding to payer requests for quality and performance data," by Dr. Halladay, Sally C. Stearns, Ph.D., Thomas Wroth, M.D., M.P.H., and others in the November/December 2009 *Annals of Family Medicine* 7(6), pp. 495-503. ■ *MG*

Improvements are needed to better measure mental health care quality

Although a great deal is known about the quality of health care services in the United States, there is a lack of information about the quality of mental health care and substance use services. A new study finds that quality initiatives are expanding in these health care fields. However, such activity remains uncoordinated and only focuses on limited areas. Despite such initiatives, no clear link has yet been established between these activities and an increase in quality improvement.

Researchers identified 36 initiatives that include mental health and substance use indicators into their quality measurements. Such efforts are being spearheaded by a variety of agencies, including Federal and State governments, professional organizations, and health plans. Once these programs were identified, the researchers conducted extensive reviews of each one to determine the exact indicators as well as their development and use.

Some initiatives incorporated mental health and substance use indicators into larger programs, while others had unique, stand-alone initiatives for mental health. Some programs have already developed indicators but they have not yet been implemented in terms of data collection. There is a lack of coordination among the various programs since there is no one group that oversees all of these efforts. As a result, significant gaps exist in the development of quality indicators that could be addressed by a central coordinating agency. The researchers also found poor database collection in mental health systems due to the lack of robust information technology in place.

To overcome these shortcomings, the researchers suggest the establishment of a coordinating agency to oversee indicator development and implementation. The study was supported in part by the Agency for Healthcare Research and Quality (HS16097) to Rutgers University's Center for Education and Research on Mental Health Therapeutics (CERT). For more information on the CERTs program, visit www.certs.hhs.gov.

See "Measuring mental healthcare quality in the United States: A review of initiatives," by Benjamin J. Herbstman, M.D., and Harold A. Pincus, M.D., in *Current Opinion in Psychiatry* 22, pp. 623-630, 2009. ■ *KB*

Visit the AHRQ Patient Safety Network Web Site

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

Atypical antipsychotic medications increase fracture risk in patients with Parkinson's disease

Persons with Parkinson's disease and related movement disorders (parkinsonism) are more likely to fall and fracture a bone than similar persons without parkinsonism. However, use of certain atypical antipsychotic medications (AAs) boosts their rate of fracture even higher, according to a new study. Use of quetiapine was associated with more than a twofold higher rate of fracture, risperidone a 20 percent higher rate, and olanzapine a 70 percent higher rate. These estimates of fracture risk associated with AA use, especially quetiapine and olanzapine, are higher than in the general population. The higher-than-anticipated rate of fractures among users of quetiapine may be explained by evidence that in patients with schizophrenia, quetiapine causes more sedation, somnolence, dizziness, and orthostatic hypotension than the other AAs.

Although they are not approved for these indications, AAs are commonly used in patients with parkinsonism to treat behavioral disturbances associated with concomitant dementia and psychosis caused by certain anti-parkinsonian medications. AAs have been shown to increase fracture risk both in the general and nursing home populations, probably by causing sedation, low blood pressure, confusion, and lightheadedness. In patients with parkinsonism, an additional causal mechanism may be present, suggest the researchers. Since parkinsonism is caused by a lack of dopamine production, the dopamine-blocking action caused to varying degrees by the AAs can exacerbate movement difficulties in these patients and increase their risk of falls. The population studied consisted of Medicaid enrollees with parkinsonism in five U.S. States, including 851 with fractures and 4,220 without fractures (the control group). The researchers caution clinicians to be aware of the potential for fractures when considering the treatment of behavioral disturbances of dementia and psychosis in patients with parkinsonism. This study was supported by the Agency for Healthcare Research and Quality (T32 HS00011).

See "Atypical antipsychotic use and risk of fracture in persons with parkinsonism," by David D. Dore, Pharm. D., Ph.D. Amal N. Trivedi, M.D., M.P.H., Vincent Mor, Ph.D., and others in *Movement Disorders* 24(13), pp. 1941-1948, 2009. ■ *MWS*

Combination treatment reduces acute kidney injury due to infusion of contrast dye during cardiac catheterization

Contrast-induced acute kidney injury (AKI) is a serious possible side effect of the 1.3 million cardiac catheterizations and percutaneous coronary interventions (PCIs) in the U.S. each year. Up to 15 percent of PCI patients may develop contrast-induced AKI, with a fivefold increase of in-hospital and long-term mortality. Contrast media are fluids injected into the bloodstream to increase the image contrast of the heart or other anatomical structures that are not normally easily visualized. Contrast-induced AKI was reduced 35 percent by a combination treatment of N-acetylcysteine (NAC) plus sodium bicarbonate ($NaHCO_3$), according to a new review. However, the review, a meta-analysis of 10 randomized controlled trials, found that a combination of NAC and $NaHCO_3$ did not significantly reduce renal failure requiring dialysis.

Contrast-induced AKI is commonly defined as a 25 percent increase or a 0.5 mg/dl increase in serum creatinine from baseline within 48 hours of exposure. Researchers hypothesize that contrast-induced AKI results from direct toxicity to kidney tubules by a contrast medium or by renal

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

Acute kidney injury

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hemodynamic changes. Patients with contrast-induced AKI had a 22 percent mortality rate compared with 1.4 percent for those without AKI.

Multiple strategies have been used independently to reduce contrast-induced AKI: hydration alone, $NaHCO_3$ alone, NAC alone, and others. However, there has been a lack of consensus about the implementation of these strategies in practice, likely due to much confusion about their clinical efficacy. The authors recommend that the combination prophylaxis of NAC and $NaHCO_3$ should be used in all high-risk patients (emergency patients or those with chronic kidney disease) and should be strongly considered for all interventional radio-contrast procedures. Their study was supported by the Agency for Healthcare Research and Quality (T32 HS00070).

See "Sodium bicarbonate plus N-acetylcysteine prophylaxis," by Jeremiah R. Brown, Ph.D., Clay A. Block, M.D., David J. Malenka, M.D., and others in the November 2009 *JACC: Cardiovascular Interventions* 2(11), pp. 1116-1124. ■ *MWS*

Cost-effectiveness analysis supports genetic testing before patients with metastatic colorectal cancer are given irinotecan

Testing patients with metastatic colorectal cancer for a variant of a gene involved in metabolizing the drug irinotecan may reduce treatment costs and may slightly increase quality-adjusted life expectancy in patients who metabolize the drug more slowly than normal, when effectiveness is not diminished by dose reduction. Patients with two copies of the *28 variant of the uridine diphosphate glucuronosyltransferase 1A1 gene (UGT1A1*28) are slower in removing the active form of irinotecan from their bloodstream, resulting in an increased risk of severe loss of certain white blood cells (neutrophils). This loss, neutropenia, can lead to hospitalization or even death.

The researchers used findings from previous clinical studies and Medicare payment data to create a mathematical model to calculate cost effectiveness of reducing irinotecan dosage by 25 percent for the 11 percent of patients with metastatic colorectal cancer who have two copies of UGT1A1*28. The model indicated that making this change in treatment based on genetic testing would avoid an average of 84.5 cases of severe neutropenia (including 4.5 deaths) and save $2.7 million in treatment costs for every 10,000 patients tested.

Chemotherapy regimens including irinotecan are used on the approximately 30,000 patients annually diagnosed with metastatic colorectal cancer, as well as those with certain tumors of the upper digestive tract and the central nervous system. These other uses should be taken into account when determining the cost-effectiveness of the genotyping–dose reduction approach to "personalized" treatment, suggest the researchers. Their study was funded in part by the Agency for Healthcare Research and Quality (HS16075).

More details are in "Cost effectiveness of pharmacogenetic testing for uridine diphosphate glucuronosyltransferase 1A1 before irinotecan administration for metastatic colorectal cancer," by Heather Taffet Gold, Ph.D., Michael J. Hall, M.D., M.S., Victoria Blinder, M.D., and others in *Cancer* 115(19), pp. 3858-3867, 2009. ■ *DIL*

Published sources on warfarin interactions with other drugs, food, and supplements tend not to agree

Physicians and pharmacists rely on common drug compendia such as Clinical Pharmacology, ePocrates®, and Micromedex to head off possible adverse events for patients who take the blood thinner warfarin. However, a new study finds that these compendia and the drug label for warfarin often do not agree on which medications, supplements, or food can cause patients to experience dangerous interactions.

Researchers at the University of Arizona Center for Educational Research and Therapeutics (CERT) at the Critical Path Institute found that ePocrates® listed 182 entries for drug interactions with warfarin, while Clinical Pharmacology listed 201 and Micromedex listed 427. In fact, the three compendia agreed on only 50 items that could potentially interact with warfarin: 47 were drugs, 1 was a biologic (the influenza vaccine), and the other 2

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Warfarin interactions

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were vitamin K and ethanol. The three compendia also differed in the terminology used to describe the potential interaction with warfarin. One used severity ratings ranging from "very high severity" to "low severity," while another used a scale of "major," "moderate," and "minor."

The authors suggest that this study shows the challenges clinicians face in determining drug and food interactions with warfarin. Prescribers must sort through vast amounts of information, which at times can be inconsistent or vague, to determine if a potential interaction is clinically significant. The authors recommend an authoritative body take on the tasks of creating consistent terms for compendia to use. This body should also conduct a thorough literature search to evaluate the evidence base to determine the list of drugs, supplements, and foods that interact with warfarin. The study was funded in part by the Agency for Healthcare Research and Quality (HS17001).

See "Warfarin interactions with substances listed in drug information compendia and in the FDA-approved label for warfarin sodium," by Marietta Anthony, Ph.D., Klaus Romero, M.D., M.S., Daniel C. Malone, Ph.D., and others in *Clinical Pharmacology & Therapeutics* 86(4), pp. 425-429, 2009. ■ *KFM*

Anti-tumor necrosis factor therapy increases risk for certain mycobacteria infections

Patients with rheumatoid arthritis and other inflammatory diseases of the immune system are often treated with drugs that inhibit tumor necrosis factor (TNF), which plays a key role in inflammation. Using these medications can weaken the immune system and increase the risk for getting tuberculosis (TB) and other non-TB mycobacteria (NTM) infections. A new study has identified which drugs are most often associated with NTM infections and the type of bacteria most often found.

Kevin Winthrop, M.D., of Oregon Health and Sciences University, and coinvestigators analyzed the Food and Drug Administration adverse drug events database for reports of NTM disease in patients receiving anti-TNF therapies mostly for rheumatoid arthritis. Most of the 239 reports of NTM infection from these drugs were in older women with rheumatoid arthritis. Of these cases, 105 were deemed by the researchers as being confirmed or probable cases.

The drug infliximab (Remicade®) was responsible for the majority of infections (65 percent), followed by etanercept (Enbrel®, 24 percent), and adalimumab (Humira®, 7.7 percent). Patients taking adalimumab had the shortest time (18 weeks) between the start of treatment and diagnosis of their NTM infection. Infliximab had the longest time of 43 weeks. Most of these patients were taking either prednisone (65 percent) or methotrexate (55 percent) in combination with their anti-TNF therapy. Nearly half (49 percent) of all NTM cases were caused by the organism *Mycobacteria avium*, with most patients (56 percent) having lung involvement. The NTM adverse events resulted in hospitalization for 64 of the 105 cases (61 percent), and death for 9 patients. These findings suggest that clinicians should carefully watch patients who are on these medications for signs of these infections. The study was supported in part by the Agency for Healthcare Research and Quality (HS17552).

See "Nontuberculous mycobacteria infections and anti-tumor necrosis factor therapy," by Dr. Winthrop, Eric Chang, M.D., Shellie Yamashita, M.D., and others, in the October 2009 *Emerging Infectious Diseases* 15(10), pp. 1556-1561. ■ *KB*

Some patients are more satisfied when they are given usually unnecessary antibiotics for upper respiratory infections

People suffering from acute upper respiratory tract infections, which are usually caused by viruses, often leave emergency departments (EDs) armed with an antibiotic prescription. Unfortunately, these drugs are ineffective in treating viral conditions and contribute to antibiotic resistance. Nevertheless, some patients give higher satisfaction ratings to EDs that provide prescriptions for antibiotics, reveals a new study.

Surveying 463 patients who received care at 8 Veterans Administration (VA) EDs and 496 patients seen at 8 non-VA EDs, researchers found that patients at the non-VA hospitals were more satisfied with their visits when they received a prescription for antibiotics. In fact, 64 percent of patients at non-VA hospitals who received antibiotics reported high levels of overall satisfaction compared with 50 percent of patients who did not receive prescriptions. Patients who received antibiotic prescriptions also reported higher satisfaction levels for the explanations they received and the quality of provider care.

The study authors suggest that receiving antibiotics may validate the seriousness of the condition and necessity for the ED trip for the patient. On the other hand, antibiotics may cause a placebo effect, resulting in quicker recovery times. While providing antibiotics flies in the face of evidence-based medicine, some providers may feel pressure to provide them because satisfaction ratings are linked to pay-for-performance quality measures, note the researchers.

It should be noted that receiving antibiotics did not affect satisfaction levels for patients seen at VA sites. The authors suggest that because EDs may be located at the same VA site where patients receive their primary care services, followup care may be easier to obtain. This study was funded in part by a grant from the Agency for Healthcare Research and Quality (HS13915) to the University of Pennsylvania Center for Education and Research on Therapeutics (CERT). For more information on the CERTs program, visit www.certs.hhs.gov.

See "Antibiotic prescriptions are associated with increased patient satisfaction with emergency department visits for acute respiratory tract infections," by Cordelia R. Stearns, Ralph Gonzales, M.D., M.S.P.H., Carlos A. Camargo, Jr., M.D., Dr.Ph., and others in *Academic Emergency Medicine* 16(10), pp. 934-941, 2009. ■ *KFM*

Emergency department treatment of asthma with systemic corticosteroids is not always timely

Each year, there are 2 million visits to emergency departments (EDs) for acute asthma attacks. Use of systemic corticosteroids (SCs) within 1 hour of ED arrival significantly improves pulmonary function and reduces the odds of hospital admission by 60 percent. However, not all asthma patients receive this treatment and, if they do, the medication may be given late in the course of the ED visit. The researchers identified 3,798 patients with acute asthma in 62 urban EDs located in 23 States. They analyzed clinical data to determine if patients had received SCs in a timely manner, specifically within 1 hour or less.

The majority of patients (67.4 percent) received SC treatment in the ED. However, more than half of treated patients (51.5 percent) got SCs more than an hour after their arrival time, with a median door-to-SC time of 62 minutes. ED physicians appropriately administered SCs to patients with more severe episodes (i.e., history of intubation for asthma, higher respiratory rate, and lower oxygen saturation). However, nonmedical factors associated with delayed SC treatment concerned the researchers. For example, patients with delayed SC treatment were more likely to be women, 40 years of age and older, and have a longer duration of symptoms.

Delayed patients also had longer ED stays and the likelihood of a delay in treatment was increased during peak ED hours. Patients who did not receive SCs were more likely to be discharged from the ED. The study was supported in part by the Agency for Healthcare Research and Quality (HS13099).

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Asthma

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See "Factors associated with delayed use or nonuse of systemic corticosteroids in emergency department patients with acute asthma," by Chu-Lin Tsai, M.D., Sc.D., Brian H. Rowe, M.D., MSc., Ashley F. Sullivan, M.S., M.P.H., and Carlos A. Camargo Jr., M.D., Dr.P.H., in the October 2009 *Annals of Allergy, Asthma & Immunology* 103, pp. 318-324. ■ *KB*

Health Information Technology

Drug monitoring may be improved by the use of health information technology and clinical pharmacists

Interventions to improve medication safety have mainly focused on the physician ordering stage by providing real-time clinical decision support. Based on a systematic review of a limited number of available studies on the use of health information technology (health IT) to improve monitoring of prescription drugs in ambulatory care patients, passive (nonblocking) alerts are likely to have little or no effectiveness. Alerts that require physicians to navigate multiple steps also seem likely to fail, according to findings from a systematic review. Interventions that employ a team of clinical pharmacists are more likely to reduce drug monitoring errors.

Patients are at risk when potentially toxic medicines are dispensed without the performance of appropriate drug monitoring. Examples of errors include the failure to monitor potassium levels among patients receiving potassium supplementation and the failure to monitor liver and thyroid function among patients receiving amiodarone. To improve drug monitoring in ambulatory patients, the authors undertook a systematic review of current evidence on health IT interventions. The review identified seven relevant studies.

Of the four studies that assessed real-time interventions using alerts to physicians at the time of medication ordering, three showed no effect, while one study suggested modest improvement in monitoring. In contrast, all three of the studies incorporating asynchronous use of health IT that employed a team of clinical pharmacists reported the greatest reductions in drug monitoring errors. These interventions created a new workflow that relieved some of the burden of drug monitoring from the prescribing clinicians. However, this approach may not be feasible for smaller clinical practices and may not be affordable even to larger health care systems, note the researchers. Their systematic review was supported by the Agency for Healthcare Research and Quality (HS17201).

See "Using health information technology to improve drug monitoring: a systematic review," by Geoffrey L. Hayward, M.D., M.P.H., Aaron J. Parnes, M.D., and Steven R. Simon, M.D., M.P.H. in *Pharmacoepidemiology and Drug Safety* 18, pp. 1232-1237, 2009. ■ *MWS*

Physicians with electronic health records are more able to generate patient registries

Evidence suggests that the ability to generate patient registries with clinical information such as patient diagnoses and medications is essential for improving the quality and safety of health care at the population level. Eighty percent of physicians reported that their practices could generate registries of patients with a particular diagnosis and 56 percent could generate registries of patients having a particular lab result or taking a particular medication, according to a survey by a team of researchers led by Adam Wright, Ph.D., of Brigham and Women's Hospital. For all three types of registries, providers with electronic health records (EHRs) were significantly more likely to be able to perform registry functions than providers using other record systems.

The researchers surveyed a total of 1,345 physicians practicing in the State of Massachusetts. In this group,

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there were 387 practices with an EHR. The ease with which registries could be generated varied greatly. Overall, 39 percent of physicians indicated that diagnosis registries could be generated easily or very easily, but only 15 percent reported that registries based on laboratory test results were easy or very easy to generate.

The use or nonuse of key EHR features affected the ability to perform related registry functions. For example, 90 percent of physicians who used an electronic problem list had the ability to perform diagnosis registry functions at least some of the time, compared with only 68 percent of physicians who lacked access to an electronic problem list. The study was supported by the Agency for Healthcare Research and Quality (HS15697).

See "Ability to generate patient registries among practices with and without electronic health records," by Dr. Wright, Elizabeth A. McGlinchey, B.A., Eric G. Poon, M.D., M.P.H., and others in the *Journal of Medical Internet Research* 11(3), pp. e31, 2009. ■ *MWS*

Health information technology improves the timely availability of diagnostic information

One important advantage of health information technology (health IT) is the ability to make clinical data instantly available to health care providers. Such information availability is important, not only for physicians to make medical decisions in real time, but also for public health experts dealing with disease outbreaks and disasters. A new study finds that health IT systems do indeed improve the timely availability of clinical information. However, improvements depend on the level of sophistication of each health IT system.

For their study, researchers looked back at electronic data from approximately 30 million office visits in a large, prepaid, integrated delivery system. The study examined three types of health IT systems: basic, intermediate, and advanced. To assess timeliness of information, the study measured the time between the visit completion and entry of the visit diagnosis into the delivery system's central databases. In 2004, when only basic health IT was available in these office settings, 10 percent of office visits had the diagnosis entered on the same day as the visit. The remaining diagnoses were entered within a week's time of the office visit. In addition, physicians recorded diagnoses in paper medical records in 85 percent of these visits.

As offices migrated to more advanced forms of health IT over the next 3 years, the timeliness of medical information improved dramatically. For example, 85 percent of all office visits had a diagnosis recorded on the day of the visit. By the end of the study period, physicians used the health IT systems in nearly all visits, with diagnoses recorded electronically in 98 percent of visits. The researchers conclude that health IT systems may improve quality of care by providing timely clinical information at the point of care and coordinating information across the range of health care practitioners involved with a patient's care. The study was supported in part by the Agency for Healthcare Research and Quality (HS15280).

See "Evolving health information technology and the timely availability of visit diagnoses from ambulatory visits: A natural experiment in an integrated delivery system," by Naomi S. Bardach, M.D., Jie Huang, Ph.D., Richard Brand, Ph.D., and John Hsu, M.D., M.B.A., M.S.C.E., in the online BMC *Medical Informatics and Decision Making* 9(35), 2009. ■ *KB*

Racial and ethnic minority groups are less aware than whites of genetic testing for cancer risk

Genetic testing for cancer susceptibility is becoming more commonplace because of the availability of new tests and guidelines for genetic counseling and testing. However, racial and ethnic minorities make less use of genetic testing and counseling for cancer risk than whites. A national survey attributes much of this disparity to lower awareness of genetic testing among ethnic and racial minorities. The survey found that only 31 percent of blacks, 28 percent of Asians, and 19 percent of Hispanics had heard about genetic testing compared with 48 percent of whites. Education, length of U.S. residence, residential region, and other factors contributed differently to the disparity in genetic testing awareness among different minority groups, notes Jose A. Pagan, Ph.D., of the University of North Texas Health Science Center.

For example, the survey found that 26 percent and 30 percent of the gap between Hispanics and whites was explained by education and nativity/length of residence, respectively. Similarly, 22 percent of the gap between blacks and whites was explained by education. Region of residence explained another 11 percent of the gap, while 51 percent of the gap between Asians and whites was due to nativity/length of residence in the U.S.

The data for the study came from the 2005 National Health Interview Survey. Since the importance and likely influence on genetic testing awareness of each of the explanatory factors often differs across minority groups, the researchers note that policy remedies are unlikely to have uniform population effects. They suggest development of culturally competent approaches targeted to specific racial and ethnic groups to improve awareness of genetic testing and counseling. Their study was supported in part by the Agency for Healthcare Research and Quality (HS17003).

See "Racial and ethnic disparities in awareness of genetic testing for cancer risk," by Dr. Pagan, Dejun Su, Ph.D., Lifeng Li, M.P.H., and others in the *American Journal of Preventive Medicine* 37(6), pp. 524-530. ■ *MWS*

Opioid-naïve nursing home residents are commonly prescribed long-acting opioids, a potentially dangerous practice

Opioid medications are associated with a large number of adverse drug events in the nursing home. Initiating the use of long-acting opioids (LAOs) in opioid-naïve individuals (those who have never taken opioids) has been highlighted by the U.S. Food and Drug Administration (FDA) as a potentially dangerous practice. "Black box" warnings exist for the use of other LAOs in opioid-naïve patients, but transdermal fentanyl is the subject of the most stringent FDA warnings. Yet a new study shows that opioid-naïve nursing home residents were more likely to be initially prescribed fentanyl relative to other LAOs (60 percent vs. 46 percent), and to use higher initial doses. Opioid-naïve patients who received fentanyl and other long-acting opioids were more likely to have Alzheimer's dementia and difficulty chewing.

In addition to fentanyl, the other LAOs in the study were long-acting oxycodone and long-acting morphine sulfate. The patients selected for the study were Medicaid enrollees residing in Rhode Island nursing homes. The data came from Rhode Island pharmacy records and the Medicaid Minimum Data Set for 2004-2005. Research to date on adverse drug events in the nursing home setting has pointed to inappropriate drug selection, dosing, and subsequent monitoring.

Since nursing home residents with Alzheimer's or chewing difficulties are at potential high risk for adverse medication events, future work to determine the morbidity and mortality associated

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Opioid medications

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with LAO initiation among opioid-naïve persons is essential, conclude the researchers. Their study was supported by the Agency for Healthcare Research and Quality (T32 HS00011).

See "Frequency of long-acting opioid analgesic initiation in opioid-naïve nursing home residents," by David M. Dosa, M.D., M.P.H., David D. Dore, Pharm. D., Ph.D., Vincent Mor, Ph.D., and Joan M. Teno, M.D., M.S. in the October 2009 *Journal of Pain and Symptom Management* 38(4), pp. 515-521. ■ *MWS*

Women's Health

While young women are knowledgeable about the HPV vaccine, many have yet to be vaccinated to prevent cervical cancer

To prevent cervical cancer, it is recommended that girls aged 11 to 12 get vaccinated against the human papillomavirus (HPV), a sexually transmitted infection. That's because the vaccine (Gardasil®) is most beneficial when given before young women become sexually active. The advertising campaign for the vaccine appears to have served as a chief source of information on the vaccine, a new study finds. Of the 1,011 young women aged 13 to 26 years old that G. Caleb Alexander, M.D., M.S., of the University of Chicago, and colleagues surveyed in November 2007, 61 percent said they received their information from the manufacturer's advertisements on the vaccine. Further, the women tended to know more about the vaccine than about HPV infection, which may be a result of the marketing efforts.

Young women who received at least one dose of the vaccine were likely to answer questions accurately about whether the vaccine protects against cervical cancer and whether they should still insist on condom use to protect against other sexually transmitted infections. Only 5 percent of this group incorrectly believed the vaccine exempted them from having routine screening for cervical cancer or practicing safe sex.

Vaccination rates for this group were high, especially considering the fact the researchers collected data in the first 6 months the vaccine was available. Thirty percent of young women aged 13 to 17 had received the vaccine compared with 9 percent of 18- to 26-year-old women, who often cited cost as a barrier for not getting vaccinated. The younger women were more likely to have received the vaccine because the Advisory Committee for Immunization Practices and, thus, pediatricians recommended it; parents may have made the immunization decision on behalf of their daughters; and this group was likely to have health insurance.

Almost 30 percent of the young women who chose not to receive the vaccination cited not being sexually active as their rationale. The authors suggest that practitioners, parents, and young women need to be educated about the importance of receiving the vaccine before sexual activity occurs. This study was funded in part by the Agency for Healthcare Research and Quality (HS15699).

See "Knowledge and early adoption of the HPV vaccine among girls and young women: Results of a national study," by Rachel Caskey, M.D., M.A.P.P., Stacy Tessler Lindau, M.D., M.A.P.P., and Dr. Alexander in the November 2009 *Journal of Adolescent Health* 45(5), pp. 453-462. ■ *KFM*

Chronic Disease

Team-based care of patients with hypertension improves control of blood pressure

Adding pharmacists and nurses to the teams that work to help patients control their blood pressure (BP) improves the outcomes, according to a new systematic review of intervention studies. Although nurses, pharmacists within primary care clinics, and community pharmacists all served to improve BP control, the greatest impact was seen for interventions that involved community pharmacists.

The researchers found that team-based interventions that provided education about blood pressure medications were associated with a reduction in mean

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Hypertension

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systolic BP (SBP) of 8.75 mm Hg and diastolic BP of 3.6 mm Hg. Pharmacist treatment recommendations were associated with a mean SBP reduction of 9.30 mm Hg; intervention by nurses a 4.80 mm Hg SBP mean reduction; and use of a treatment algorithm, 4.00 mm Hg mean SBP reduction. Compared with patients who received no intervention, patients who received a nurse intervention were nearly twice as likely to have controlled BP. Patients who received interventions from pharmacists in primary care clinics and community pharmacists were two to nearly three times more likely to have controlled BP.

The findings came from meta-analysis of 37 studies that met the researchers' inclusion criteria out of 583 relevant papers that were published between the beginning of 1970 and early February 2009. New guidelines for control of high blood pressure should recommend that health care organizations consider changes in organizational structure to include important components of team-based care, the researchers conclude. Their study was funded in part by the Agency for Healthcare Research and Quality (HS16094) to the University of Iowa 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 potency of team-based care interventions for hypertension. A meta-analysis," by Barry L. Carter, Pharm.D., Meaghan Rogers, Pharm.D., Jeanette Daly, R.N., Ph.D., and others in the October 26, 2009 *Archives of Internal Medicine* 161(19), pp. 1748-1755. ■ *DIL*

Market Forces

General hospitals are stepping up specialty services in response to competition from single specialty hospitals

Specialty hospitals owned by physicians are one of the fastest-growing segments in health care. Such facilities focus on one area of care, such as cardiac, orthopedic, or general surgical services. Acute care hospitals are stepping up their own offerings in these areas in direct response to serious competition from single specialty hospitals (SSHs), according to a new study. It looked at this phenomenon by analyzing data from the American Hospital Association (AHA). Kathleen Carey, Ph.D., and colleagues at the Department of Veterans Affairs and the Boston University School of Public Health focused on 10 key States where growth of specialty hospitals is increasing, including Arizona, California, Texas, Louisiana, and Ohio.

A total of 70 unique clinical services included in the AHA data were grouped into 3 categories. One category was hospital services that are growing and in direct competition with SSHs. A second category consisted of high-technology diagnostic services offered by hospitals facing stiff competition from SSHs. The final category was composed of safety-net services heavily used by the uninsured and underinsured patients. Such services are normally not offered by SSHs, but are usually available at general hospitals.

Overall, the study found that hospitals are responding to SSHs by engaging in direct competition with them. This was most notable for cardiac catheterization and angioplasty services. A very strong association was also found for growth in high-technology diagnostic services in areas where SSH competition is increasing. Among safety-net services, only trauma centers and burn units appeared to have a positive association with SSH market entry. Competition from orthopedic and surgical SSHs was associated with an increase in the number of freestanding outpatient centers affiliated with hospitals. The study was supported in part by the Agency for Healthcare Research and Quality (HS16541).

See "Single specialty hospitals and service competition," by Dr. Carey, James F. Burgess, Jr., Ph.D., and Gary Y. Young, J.D., Ph.D., in *Inquiry* 46, pp. 162-171, 2009. ■ *KB*

Treating blood infections tops annual hospital cost increases

The hospital costs for treating blood infections (septicemia) increased by an average of nearly 12 percent each year from 1997 to 2007, according to the latest data from the Agency for Healthcare Research and Quality (AHRQ). Treatment costs for this potentially deadly blood infection increased from $4.1 billion in 1997 to $12.3 billion in 2007. After adjusting for inflation, AHRQ also found other conditions that saw high annual increases in hospital costs in each of the 11 years between 1997 and 2007:

- Osteoarthritis, up 9.5 percent each year ($4.8 billion to $11.8 billion)
- Back problems, up 9.3 percent each year ($3.5 billion to $8.5 billion)
- Acute kidney failure, up 15.3 percent per year ($1 billion to $4 billion)
- Respiratory failure, up 8.8 percent per year ($3.3 billion to $7.8 billion)

Overall, the most important driver of cost increases in the hospital was the greater intensity of services provided during a hospital stay, which grew 3.1 percent per year from 1997 to 2007. This greater intensity of services accounted for 70 percent of the total increase in hospital costs. These findings are based on *HCUP Facts and Figures 2007*, which highlights the latest data from the 2007 Nationwide Inpatient Sample, a part of AHRQ's Healthcare Cost and Utilization Project. You can view the report at www.hcup-us.ahrq.gov/reports/factsandfigures/2007/TOC_2007.jsp. ■

Why women are admitted to the hospital

Women accounted for nearly 60 percent of the 39.4 million admissions to U.S. hospitals in 2007, according to the latest data from the Agency for Healthcare Research and Quality (AHRQ). The leading reasons that women are admitted to the hospital are for pregnancy and childbirth. About 5 million of the 23.2 million hospital admissions for women were related to delivery.

Nearly 2 million hospital stays for women involved cardiovascular disease, the number one killer of women. They included treatment of coronary artery disease, congestive heart failure, heart attacks, atrial fibrillation and other types of irregular heart beat, and chest pain with no determined cause.

Other leading reasons why women were hospitalized in 2007 included:

- Pneumonia, 608,000 admissions
- Osteoarthritis, 498,000 admissions
- Depression and bipolar disorder,442,000 admissions
- Urinary tract infection, 383,000 admissions
- Blood infection (septicemia), 354,000 admissions
- Skin infections, 282,000 admissions

These findings are based on data from *HCUP Facts and Figures 2007*, which highlights the latest data from the 2007 Nationwide Inpatient Sample, a part of AHRQ's Healthcare Cost and Utilization Project (HCUP). You can view the report at http://www.hcup-us.ahrq.gov/reports/factsandfigures/2007/TOC_2007.jsp. ■

Patients who take a proton-pump inhibitor with medicine to prevent blood clots are less likely to be hospitalized for bleeding ulcers

Heart patients who took a stomach acid-suppressing proton-pump inhibitor along with clopidogrel – a drug that prevents blood clots – were only half as likely to be hospitalized for upper digestive tract bleeding than those who used clopidogrel alone, according to a new study. The study also suggested that combining the drugs did not increase the risk of serious heart problems. Clopidogrel (sold as Plavix®, Clopilet®, and Ceruvin®), a blood thinner, is usually prescribed for heart patients to reduce the risk of a heart attack or stroke and can also

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Proton-pump inhibitor

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cause bleeding stomach ulcers. Proton-pump inhibitors, which include pantoprazole (Protonix®), omeprazole (Prilosec®), lansoprazole (Prevacid®), esomeprazole (Nexium®) and rabeprazole (Aciphex®), are used to prevent or treat ulcers, acid reflux disease, and other stomach acid-related problems.

Although proton-pump inhibitors are commonly prescribed with clopidogrel to reduce the risk of upper digestive tract bleeding, clinicians worry that this practice may decrease the drug's ability to prevent blood clots. Yet this study found that concurrent use of a proton-pump inhibitor and clopidogrel did not increase patients' risk of heart attack, sudden cardiac death, stroke, or other cardiovascular problems. However, the researchers at the Center for Education and Research on Therapeutics (CERT) at the Vanderbilt University Medical Center noted that even though they did not find an elevated cardiovascular risk from this drug combination, they cannot rule it out and call for more studies.

Their findings were based on data from nearly 21,000 patients in the Tennessee Medicaid program between 1999 and 2005. The researchers divided the patients into two groups – those who were prescribed clopidogrel by itself and those who took clopidogrel in combination with a proton-pump inhibitor. They then determined how many patients in each group had been hospitalized for gastrodoudenal ulcers – raw tissue in the upper part of the small intestine, or duodendum, where it connects to the stomach. The study was supported in part by a grant from the Agency for Healthcare Research and Quality to the Vanderbilt Medical Center CERT.

For more details, see "Outcomes with concurrent use of clopidogrel and proton-pump inhibitors," by Wayne A. Ray, Ph.D., Katherine T. Murray, M.D., Marie R. Griffin, M.D., M.P.H., and others, in the March 16, 2010 *Annals of Internal Medicine* 152, pp. 337-345. For information on the CERTs program go to www.certs.hhs.gov. ■

Announcements

AHRQ launches Healthcare 411 en Español

The Agency for Healthcare Research and Quality (AHRQ) has launched Healthcare 411 en Español—a new audio news series to provide Spanish speakers with evidence-based consumer information to help them stay healthy, prevent diseases, compare the effectiveness of various medical treatments, and obtain high-quality and safe health care.

Under this new initiative, AHRQ is producing two 60-second audio reports each month and distributing them to Spanish-language radio stations nationwide. Each audio segment includes an interview with a native Spanish-speaking AHRQ physician who discusses current issues, such as the importance of regular screening exams for people with diabetes or how to prepare for a doctor's appointment. AHRQ posts the audio to its Healthcare 411 Web site, where consumers can subscribe and download the segments to a computer or portable media device such as an MP3 player.

To listen to the Healthcare 411 audio segments in Spanish, visit www.healthcare411.ahrq.gov and select "En Español." To subscribe, go to www.healthcare411.ahrq.gov/subscribe.aspx. ■

Technical specifications for AHRQ's Common Formats allow electronic collection of patient safety data

The Agency for Healthcare Research and Quality (AHRQ) released technical specifications for its revised Common Formats (Version 1.1) that make possible electronic data collection and reporting of patient safety information in the hospital setting, including adverse events, near misses, and unsafe conditions. Technical specifications promote standardization by ensuring that data collected by Patient Safety Organizations (PSOs) and other entities are clinically and electronically comparable. The technical specifications provide direction to software developers. They specify rules for data collection and submission, as well as providing guidance on how and when to create data elements, their valid values, conditional and go-to logic, and reports. Common

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Common Formats

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Formats, which are authorized by the Patient Safety and Quality Improvement Act of 2005 (Patient Safety Act), establish a standard language, definitions, technical requirements, and reporting specifications that patient safety, quality, and risk managers, clinicians, and others can use to collect patient safety event information.

PSOs use Common Formats to ensure consistency in reporting patient safety event information and allow aggregation and analysis of comparable, interoperable data at provider, PSO, and national levels. AHRQ's revised Common Formats (Version 1.1) and the technical specifications, along with accompanying user information, are available at no charge through AHRQ's PSO Web site at www.pso.ahrq.gov. ■

Research Briefs

Alexander, G. C. (2010, April). "Clinical prescribing (and off-label use) in a second-best world." (AHRQ grant HS15699). *Medical Care* 48(4), pp. 285-287.

Given the existence of medication overuse, underuse, misuse, adverse effects, and nonadherence, there is no shortage of ways that the use of prescription drugs could be improved. Into this mix, there is important evidence of off-label use, which may represent an important source of clinical innovation, but can also reflect unsupported uses that expose patients to ineffective therapies. The author discusses a study published in the same issue of the journal that examines the case of gabapentin, whose alleged off-label promotion led to a substantial legal settlement. This study focuses on gabapentin use among nonelderly adults with bipolar affective disorder who were enrolled in the Florida Medicaid program. The case of gabapentin highlights the importance of ensuring that off-label uses are rooted soundly in scientific evidence. The author also discusses the role of the FDA in improving the safe use of prescription drugs. He concludes by cautioning that comparative effectiveness research may be necessary, but is far from sufficient to optimize clinical prescribing.

Carr, B. G., Conway, P. H., Meisel, Z. F., and others. (2009). "Defining the emergency care sensitive condition: A health policy research agenda in emergency medicine." *Annals of Emergency Medicine* 20(10), pp. 1-3. Reprints (AHRQ Publication No. 10-R041) are available from AHRQ.*

The authors define emergency-care-sensitive conditions as those for which rapid diagnosis and early intervention in acute illness or acutely decompensated chronic illness improve patient outcomes. They propose as a first step the identification and cataloging of the universe of emergency-care-sensitive conditions. Next, for those conditions in which systems of care are identified as essential to improving outcomes, multidisciplinary physician partners and administrators must join in bridging traditional barriers to care both within and between institutions. Finally, demonstration projects and outcomes researchers will need to measure the effectiveness of emergency-care-sensitive, condition-specific interventions.

Clancy, C. M. (2010). "Common Formats allow uniform collection and reporting of patient safety data by patient safety organizations." *American Journal of Medical Quality* 25(1), pp. 73-75. Reprints (AHRQ Publication No. 10-R036) are available from AHRQ.*

The Agency for Healthcare Research and Quality (AHRQ) recently published evidence-based common definitions and reporting formats (Common Formats) for patient safety work products that will allow Patient Safety Organizations (PSOs), health providers, and other entities to collect and report patient safety events in a uniform manner. The term "Common Formats" describes clinical definitions and reporting formats (for electronic transmission) used by PSOs to uniformly collect and report patient safety data. At present, the focus is on acute care hospitals, but future versions will include other health care settings. Common Formats apply to all patient safety concerns, including incidents that reach the patient (regardless of whether harm occurred), close calls, and unsafe conditions. In order to develop and maintain the Common Formats, AHRQ has convened a Federal patient safety work group including many agencies within the Department of Health and Human Services, notes the author, the director of AHRQ. The release of the Common Formats helps lay the groundwork for providers to report patient safety work products to

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PSOs that will collect, analyze, and collaborate with organizations to reduce the risk of medical error.

Clancy, C. M. (2010). "The promise and future of comparative effectiveness research." *Journal of Nursing Care Quality* 25(10), pp. 1-4. Reprints (AHRQ Publication No. 10-R040) are available from AHRQ.*

Comparative effectiveness research (CER) compares existing interventions to determine which poses the greatest benefits and harms for which patients. The Agency for Healthcare Research and Quality (AHRQ) has been funding CER since 2003, according to the director of AHRQ. The American Recovery and Reinvestment Act of 2009 has allotted an additional $1.6 billion for CER, which will be divided among several components of the Department of Health and Human Services. The future direction of CER will be guided by two reports: *Initial National Priorities for Comparative Effectiveness Research*, issued by the Institute of Medicine, and a report by the Federal Coordinating Council for CER. AHRQ's Effective Health Care (EHC) Program, initiated by Congress in 2003, offers a useful initial model for CER. Since 2005, the EHC Program has issued more than 45 products, including comparisons of treatments for osteoarthritis of the knee and treatments of clinically localized prostate cancer.

Czeisler, C. A. (2009). "Medical and genetic differences in the adverse impact of sleep loss on performance: Ethical considerations for the medical profession." (AHRQ grants HS12032, HS13333, HS15906, HS14130). *Transactions of the American Clinical and Climatological Association 120,* pp. 249-285.

The author summarizes much evidence on the adverse impact of sleep loss on performance by medical residents. In particular, he points to evidence that genetic polymorphisms, sleep disorders, and other interindividual differences may convey a vulnerability to the performance-impairing effects of 24 hours of wakefulness. He raises questions about how the work hours of physicians should be limited to optimally protect patient safety. He also discusses various ethical principles that are relevant to the hazards posed by work shifts of 30 consecutive hours. For example, the principle of beneficence requires implementation of safer work schedules that reduce risk. The principle of autonomy requires that physicians respect the right of the patient to be informed of any impairment and to withhold consent to treatment.

De Cordova, P. B., Lucero, R. J., Hyun, S., and others. (2010, January/March). "Using the Nursing Interventions Classification as a potential measure of nurse workload." (AHRQ grant HS17423). *Journal of Nursing Care Quality* 25(1), pp. 39-45.

The Nursing Interventions Classification (NIC) is a comprehensive standardized nursing terminology that has been used to systematically classify nursing care in clinical settings. An advantage of the NIC over other nursing terminology classification systems is its link to SNOMED (Systematized Nomenclature of Medicine), which is a more comprehensive controlled vocabulary for biomedical sciences. This link integrates the NIC with other health care classifications from different disciplines. The researchers conducted an exploratory descriptive study to ascertain the utility of the NIC terminology to classify nursing care interventions of a nursing workload measure. Focus groups were used to gather information from RNs who worked on a 42-bed orthopedic surgical unit of a level III urban teaching hospital. The study found that the NIC terminology captured the full scope of work performed by the nurses.

Finch, S. A., Barkin, S. L., Wasserman, R. C., and others. (2009, December). "Effects of local institutional review board review on participation in national practice-based research network studies." (AHRQ grant HS10746). *Archives of Pediatric Adolescent Medicine* 163(120), pp. 1130-1134.

Primary care practice-based research networks (PBRNs) conduct multisite studies addressing community-based practice and are aimed at improving the effectiveness of primary care. PBRN research typically requires that multiple Institutional Review Board (IRB) applications be submitted for local review. Pediatric Research in Office Settings (PROS) is a PBRN organized by the American Academy of Pediatrics. It conducted two national studies, one on child abuse and the other on violence prevention. The researchers queried practices about local IRB rules at PROS enrollment and study recruitment. Practices requiring additional local IRB approval were less likely to participate than those that did not. The researchers suggest that the

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need for local IRB approval appears to be an impediment to participation in PBRN-based research, may also discourage the inclusion of minority and urban patients, and seems to result in little if any significant change in the research protocols.

George, S., Garth, B., Wohl, A. R., and others. (2009). "Sources and types of social support that influence engagement in HIV care among Latinos and African Americans." (AHRQ grant HS14022). *Journal of Health Care for the Poor and Underserved* 20, pp. 1012-1032.

HIV disease changed from an acute to a chronic disease as a result of the introduction of highly active antiretroviral therapy in the mid-1990s. This increased the importance of HIV disease management requiring regular appointments with medical providers and consistent medication use, which, in turn, imposed substantial lifestyle adjustments on HIV-positive people and their support networks. Social support systems may be formal (professional support organizations) or informal (family, friends). The researchers interviewed 24 HIV-positive adults, including six each of Latinas, black women, black men who have sex with men, and Latino men who have sex with men. Formal networks were more critical for engagement in HIV-specific medical care. Informal networks were crucial for other general subsistence care, such as emotional, household-related, and financial support.

Hansen, R. A., Dusetzina, S. B., Song, L., and others. (2009, November/December). "Depression affects adherence measurement but not the effectiveness of an adherence intervention in heart failure patients." (AHRQ grant HS10049). *Journal of the American Pharmacists Association* 49(6), pp. 760-768.

Patients with congestive heart failure are prescribed one or more medications under current clinical practice guidelines. Among patients with heart failure, depression, which increases nonadherence to medications, is an important predictor of hospital admissions and death. The researchers sought to determine whether depression might influence the effectiveness of a pharmacy-based intervention to improve heart failure management. The intervention involved the pharmacist in counseling and monitoring patients at each dispensing and special written instructions on the prescription bottles. The researchers found that intervention effectiveness did not differ for patients with and without depression. Also, medication adherence as measured electronically was somewhat lower than self-report for both groups of patients.

Kroner, E. L., Hoffmann, R. G., and Brousseau, D. C. (2010, January). "Emergency department reliance: A discriminatory measure of frequent emergency department users." (AHRQ grant HS15482). *Pediatrics* 125(1), pp. 133-138.

In the past decade, emergency department (ED) visits for children have increased to more than 25 million per year. Many of these visits (between 37 and 60 percent) are for nonurgent care. Emergency department reliance (EDR) is a measure defined as the percentage of all ambulatory health visits that occur in the ED. The researchers sought to show the discriminatory ability of EDR within frequent ED user populations. They analyzed data on 8,823 children collected from the Agency for Healthcare Research and Quality's Medical Expenditure Panel Survey from 2000 to 2002. They found that 10.5 percent of the children within the study population had high EDR. Children (0-2 years) were 26.3 percent of the frequent ED users but only 14.6 percent of those with high EDR. The study demonstrates the ability of the EDR to discriminate within frequent-ED-user populations and provides the first description of EDR across a nationally representative sample of children.

Leape, L., Berwick, D., and Clancy, C. (2009). "Transforming healthcare: A safety imperative." *Quality and Safety in Health Care* 18, pp. 424-428. Reprints (AHRQ Publication No. 10-R035) are available from AHRQ.*

Health care remains unsafe despite efforts by public and private organizations that have initiated major programs to develop and implement new safe practices and to train health care workers in patient safety. Too many health care organizations are hierarchical and deficient in mutual respect, teamwork, and transparency, note the authors. The Lucian Leape Institute, established by the U.S. National Patient Safety Foundation to provide vision and strategic direction for patient safety work, has identified five concepts fundamental to meaningful improvement in health care system safety: transparency, integrated care platform, consumer engagement, joy and meaning in work, and medical education reform. The authors outline all five concepts and conclude by calling for leaders to view their organizations not as

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industrial models, but as composed of people with the skills and energy to perform meaningful work.

Lin, H., Liu, D., and Zhou, X-H. (2009). "A correlated random-effects model for normal longitudinal data with nonignorable missingness." (AHRQ grant HS13105). *Statistics in Medicine* 29, pp. 236-247.

The missing data problem is common in longitudinal or repeated measurements data. The authors focus on normal longitudinal data or cluster data when the missingness mechanism is nonignorable. The missing pattern could be either monotone or nonmonotone. They develop a correlated random-effects model to fit the normal longitudinal or cluster data with nonignorable missingness. By transforming the integral in the likelihood function into a conditional expectation, an accurate approximation of the likelihood function that has a closed form was obtained. The simulations showed that their approximation was accurate, but with minimal computational burden. The estimates and inferences based on the approximate likelihood function were also reliable.

MacPherson, D. W., Gushulak, B. D., Baine, W. B., and others. (2009, November). "Population mobility, globalization, and antimicrobial drug resistance." *Emerging Infectious Diseases* 15(11), pp. 1727-1732. Reprints (AHRQ Publication No. 10-R039) are available from AHRQ.*

Human mobility is causing an increase in antimicrobial drug-resistant organisms and drug-resistant infectious diseases. Each year 2 billion persons move across large geographic distances, with half of those crossing international boundaries. Recent descriptions of primary community-associated methicillin-resistant *Staphylococcus aureus* (MRSA) infections causing death have raised concerns about the control and management of this and other organisms that humans can asymptomatically carry and transmit from zones of high to low prevalence. The volume, rapidity, and complexity of international movements exceed current international disease control practices. To deal with this problem, the authors propose greater international collaboration and standardization in the following areas: prescriber education and training; infection control training, certification, and practice; active and passive surveillance systems; and engagement of process and regulatory tools such as good manufacturing practices and quality systems for medical devices and pharmaceuticals.

Min, L., Yoon, W., Mariano, J., and others. (2009, November). "The Vulnerable Elders-13 Survey predicts 5-year functional decline and mortality outcomes in older ambulatory care patients." (AHRQ grant HS17621). *Journal of the American Geriatric Association* 57(11), pp. 2070-2076.

Several screening tools have been designed to target older populations at risk for functional decline and death. The Vulnerable Elders-13 Survey (VES-13) is a short tool that predicts functional decline over a 1- to 2-year followup interval. The researchers sought to determine its usefulness in predicting functional decline and death over an observation time of 5 years in older ambulatory patients with common geriatric conditions. Higher VES-13 scores were associated with greater predicted probability of death and decline in older patients over a mean observation time of 4.5 years. There was a linear relationship between increasing scores on the VES-13 and the odds of death and functional decline. The VES-13 was found to be an excellent predictor of health outcomes over a 5-year period. This finding greatly expands the clinical utility of the tool.

Resnik, L., Plow, M., and Jette, A. (2009). "Development of CRIS: Measure of community reintegration of injured service members." (AHRQ grant T32 HS00011). *Journal of Rehabilitation Research & Development* 46(4), pp. 469-480.

Community reintegration is especially challenging for injured veterans because it may be complicated by the co-occurrence of physical injuries with postwar adjustment difficulties, such as posttraumatic stress disorder, depression, substance abuse, and severe mental illness. The researchers developed and tested a new measure of community reintegration of injured service members: the Community Reintegration for Service Members (CRIS) measure. They found that the CRIS instrument was a comprehensive measure with conceptual integrity, excellent reliability, strong content, and construct, convergent, and discriminant validity. The researchers believe that use of the CRIS would provide a method for comprehensive, standardized assessment and monitoring of community reintegration outcomes of vulnerable veterans of the Iraq and Afghanistan wars.

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Research briefs

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Silverman, M., LaPerriere, K., and Haukoos, J. S. (2009, November). "Rapid HIV testing in an urban emergency department: Using social workers to affect risk behaviors and overcome barriers." (AHRQ grant HS17256). *Health & Social Work* 34(4), pp. 305-308.

The authors describe how the emergency department (ED) of a large urban inner-city teaching hospital provides rapid HIV testing with particular emphasis on the role of social workers in HIV prevention and crisis counseling. EDs are often the only medical setting available to target often marginalized patients at increased risk of harboring unrecognized HIV infection, identify those who are infected, and link them into ongoing care. After referral of a patient by a physician, the social worker obtains informed consent, performs pretest counseling, and provides referrals to medical and preventive care as needed. For patients who test positive, the social worker provides posttest counseling, which consists of intensive crisis counseling, emotional support, and further education about HIV infection. The social worker then coordinates referrals for medical and preventive care and ensures that the patient receives appropriate followup from outside agencies.

Tsalik, E. L., Woods, C. W. (2009). "Sepsis redefined: The search for surrogate markers." (AHRQ grant T32 HS00079). *International Journal of Microbial Agents* 34S, pp. S16-S20.

Sepsis is a blood infection due to an infectious agent that may be bacterial, viral, fungal, or parasitic. Much effort has been invested in the identification of a sepsis biomarker to aid the clinical diagnosis and management of sepsis. The authors discuss a small sample of current sepsis biomarkers, but state that the number of available biomarkers, either in clinical use or still being researched, is vast. Genomic medicine appears well situated to facilitate the rapid identification of etiological organisms, but the complex physiology and epidemiology of sepsis have slowed progress. New technologies, such as microarray analysis, have significantly advanced our understanding of sepsis biology. Research in functional genomics can now identify candidate molecules that can more readily be measured, potentially fulfilling the need for a reliable sepsis biomarker.

Weissman, M. M. and Olfson, M. (2009). "Translating intergenerational research on depression into clinical practice." (AHRQ grant HS16097). *Journal of the American Medical Association* 302(24), pp. 2695-2696.

Anxiety, depressive, and disruptive behavior disorders are more common in the children of depressed than nondepressed parents. Three recent studies suggest clinical opportunities for reducing the intergenerational transmission of depression. Two of these studies found that treating depressed mothers reduced depressive symptoms in their children. The third study used group cognitive behavioral therapy to prevent high-risk adolescents from developing depression. The authors believe that there are serious deficits in the training, skill, and competence of health care professionals in managing adult depression and related child psychiatric disorders. Pediatricians are well positioned to follow up identification of child mental health problems with assessments of maternal depression. The authors recommend establishing referral networks and close collaborative relationships between pediatricians and adult mental health professionals to ease the transition of depressed parents in specialty mental health care.

Werner, R. M. and Konetzka, R. T. (2010, January). "Advancing nursing home quality through quality improvement itself." (AHRQ grant HS16478). *Health Affairs* 29(1), pp. 81-96.

Regulation, inspection, and accountability through public reporting have produced only modest results in improving the quality of care in U.S. nursing homes. Instead of focusing on discrete outcomes such as the percentage of residents with pain, pressure sores, infections, or unexplained weight loss, it might be better to incorporate broader measures of quality—such as quality of life—into current market-based initiatives. Instead of being tied simply to quality levels, with little guidance on how to improve performance, incentives should also be tied to efforts to improve quality. Nursing homes must engage in a formal process of quality improvement such as total quality management. This involves collecting and reviewing data on quality of care; assembling multidisciplinary teams to review data and identify areas for improvement; and empowering all employees to both identify quality problems and identify and implement solutions to address them. ■

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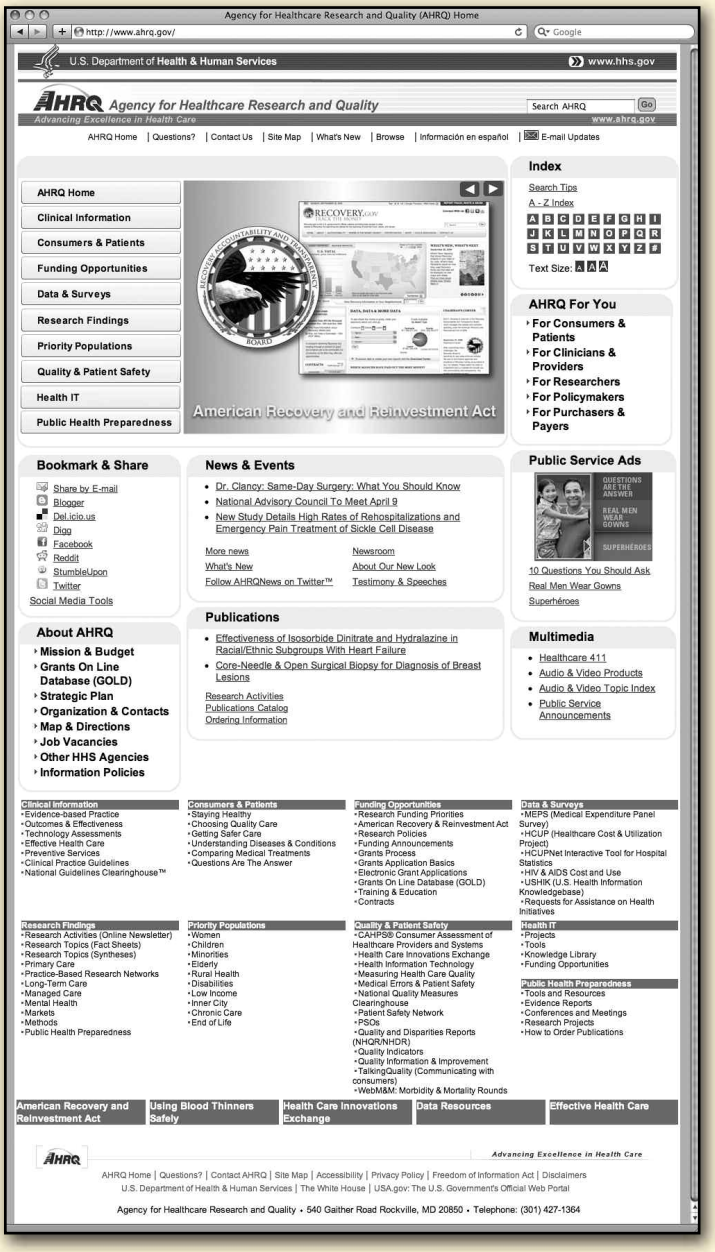

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