Research Activities

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New patient safety proposed regulation aims to improve health care quality and patient safety

A proposed regulation to improve the quality and safety of health care for all Americans by fostering the establishment of Patient Safety Organizations (PSOs) was announced by the U.S. Department of Health and Human Services (HHS). PSOs are private entities recognized by the Secretary to collect and analyze patient safety events reported by health care providers. They are new and separate from all currently existing entities that are addressing health care quality.

The creation of PSOs has been called for by the Institute of Medicine and would help improve the quality and safety of health care in several key ways. PSOs would allow for the voluntary reporting of patient safety events without fear of new tort liability. In addition, they would encourage clinicians and health care organizations to voluntarily share data on patient safety events more freely and consistently. Under the proposal, PSOs can collect, aggregate and analyze data and provide feedback to help clinicians and health care organizations improve health care quality.

The authority to list, or formally recognize, PSOs was established by the Patient Safety and Quality Improvement Act of 2005. While the statute makes patient safety event reporting privileged and confidential, it does not relieve clinicians or health care organizations from meeting reporting requirements under Federal, State or local laws. However, the statute and the proposed regulation address an important barrier that currently exists - the fear of legal liability or sanctions that can result from discussing and analyzing patient safety events.

The proposed regulation describes how an organization may become a PSO and explains how clinicians will be able to report patient safety events confidentially, the limited ways in which these data will be shared with others engaging in patient safety work while remaining privileged and

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Health care quality

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confidential, and how clinicians will receive feedback on ways to improve patient safety. Strong confidentiality provisions are the key to voluntary reporting, and breaches of these confidentiality provisions may result in the imposition of civil monetary penalties.

The Agency for Healthcare Research and Quality (AHRQ) will administer the rules for listing qualified PSOs. The HHS Office for Civil Rights (OCR) will be responsible for enforcing the confidentiality provisions of the act. In addition, the department plans to issue guidance soon that would allow entities to be listed as PSOs, consistent with the statute, prior to publication of the final rule. After collecting and analyzing sufficient non-identifiable data, AHRQ will publish information on national and regional statistics, including trends and patterns of patient safety events. This information will be published in AHRQ's annual *National Healthcare Quality Report*. ■

Patient Safety and Quality

Hospital incident reporting systems often miss physician high-risk procedure and prescribing errors

U.S. hospitals have long had voluntary incident reporting systems to report medication errors, falls, patient misidentification, retained foreign bodies after surgery, and other incidents. Nurses report most of these incidents, while physicians report very few. As a result, few physician incidents involving high-risk procedures or prescribing errors get reported, according to a new study. Yet, these incidents are usually responsible for most adverse events, according to a study by University of California Los Angeles researchers. The researchers examined a representative sample of 1,000 incident reports of hospitalized patients at one academic and one community hospital in 2001.

Overall, 9 percent of patients and 8 percent of hospitalizations prompted at least one incident report. Nurses filed 89 percent of the reports, physicians 1.9 percent, and other providers 8.9 percent. Nearly 60 percent of incidents were preventable, and non-physician providers seemed to be involved in most of them. Other studies have shown that most adverse events occurred in operating rooms, floor units, and intensive care units. Yet, the reporting system in this study identified more falls, drug administration errors, and miscellaneous events occurring in patient rooms, and far fewer incidents involving surgery. Also, only a handful of incident reports involved high-risk procedures such as endoscopy, bronchoscopy, or central line placement.

The fact that only 16 percent of the reports in this study addressed physician care represents a major limitation of hospital reporting systems. Incident reports probably underemphasize physician care for two reasons. First, they were developed to minimize litigation against hospitals and their employees. Second, physicians are probably better than other providers at identifying physician errors, and physician reporting is minimal. Shifting the purpose of reporting from preventing litigation against hospitals to

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Incident reporting systems

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improving safety would make capturing physician incidents a higher priority. However, incident reports can be disclosed in litigation in some States. The study was funded in part by the Agency for Healthcare Research and Quality (HS11512).

See "Rates and types of events reported to established incident reporting systems in two U.S. hospitals," by Teryl K. Nuckols, M.D., Douglas S. Bell, M.D., Honghu Liu, Ph.D., and others, in the June 2007 *Quality & Safety in Health Care* 16, pp. 164-168. ■

Studies reveal factors contributing to technical errors in surgery and medical errors made by physician trainees

The majority of technical errors in surgery are made by experienced surgeons during routine operations on complex patients and/or in complex circumstances. In contrast, errors in judgment, teamwork breakdowns, and lack of technical competence contribute most to the medical errors that physician trainees make. Those are the conclusions of two studies that reviewed malpractice claims from several liability insurers. The studies were supported by the Agency for Healthcare Research and Quality (HS11886, HS11285, HS11544, and T32 HS00020), and are briefly described here.

Regenbogen, S.E., Greenberg, C.C., Studdert, D.M., and others. (2007, November). "Patterns of technical errors among surgical malpractice claims: An analysis of strategies to prevent injury to surgical patients." ***Annals of Surgery*** **246(5), pp. 705-711.**

Most technical errors in surgery (73 percent), such as nicking the bladder during a hysterectomy, are made by experienced surgeons during routine operations (84 percent) on complex patients and/or in complex circumstances. A review of 444 malpractice claims from 4 liability insurers revealed that 258 involved injuries due to surgical errors, and technical errors were a contributing factor in 52 percent of the cases. Nearly half (49 percent) of the technical errors caused permanent disability and an additional 16 percent resulted in death. Two-thirds (65 percent) of the technical errors were linked to manual errors (errors of execution with a direct physical act causing injury), 9 percent to errors in judgment (error of planning such as wrong timing or failure to diagnose), and 26 percent to both manual and judgment error.

The most common type of manual error involved incidental injury to one of the soft internal organs such as the lungs or digestive tract (34 percent), followed by breakdown of operative repair or failure to relieve the disease (16 percent), hemorrhage (16 percent), and peripheral nerve injury (14 percent). The most common type of judgment or knowledge error was delay or error in intraoperative diagnosis or management (16 percent), such as failure to recognize a complication during the surgery.

Other relatively frequent judgment or knowledge errors included incorrect choice of procedure or technique (9 percent) and wrong operative site (7 percent). Only a minority of technical errors involved advanced procedures requiring special training (16 percent), surgeons inexperienced with the task (14 percent), or poorly supervised residents (9 percent). However, patient-related complexities, such as difficult or unexpected anatomy, contributed to 61 percent, and technology or systems failures contributed to 21 percent of the technical surgical errors.

Singh, H., Thomas, E.J., Peterson, L.A., and Studdert, D.M. (2007, October). "Medical errors involving trainees: A study of closed malpractice claims from 5 insurers." ***Archives of Internal Medicine*** **167(19), pp. 2030-2036.**

This study found that errors in judgment, teamwork breakdowns, and lack of technical competence contribute to most of the medical errors that physician trainees make. The researchers analyzed malpractice claims from 2002 to 2004 from the files of five liability insurers to identify patient injuries due to medical error. The errors

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Technical errors

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occurred between 1979 and 2001. Among the 240 cases of harmful errors involving physician trainees, errors in judgment accounted for 72 percent, teamwork breakdowns 70 percent, and lack of technical competence 58 percent of the medical errors.

One-third of these medical errors resulted in significant physical injury, one-fifth in major physical injury, and one-third resulted in death. Lack of supervision and patient handoff problems were the most prevalent types of teamwork problems contributing to medical errors involving trainees versus nontrainees (54 vs. 7 percent and 20 vs. 12 percent, respectively). Judgment errors (72 percent) and failures of vigilance or memory (57 percent) were also involved in most trainee medical errors.

Monitoring and diagnostic decisionmaking were involved in many errors. For example, in one case, a surgical resident missed the diagnosis of a bile leak following abdominal surgery. Other significant factors contributing to trainee vs. nontrainee medical errors included: lack of technical competence (58 vs. 42 percent); lack of supervision (54 vs. 7 percent); handoff problems (19 vs. 13 percent); and excessive workload (19 vs. 5 percent). The collective findings from these studies should help leaders of physician residency programs to orient training interventions to these problem areas. ■

Most employers review but do not use quality data when selecting health care plans

Despite the ever-increasing wealth of information available on health care quality, employers seldom use that information when selecting health benefits for their workers, according to a new study. Researchers conducted telephone interviews in 2005 and 2006 with 609 employers in 41 U.S. markets, representing about 78 percent of the U.S. metropolitan population.

Of the executives surveyed, 65 percent said they look at health plan quality data when choosing a plan for their employees. However, just 17 percent use that data to negotiate bonuses or penalties in plan contracts. Instead, geographic coverage and premium rates drove executives' decisionmaking 85 percent of the time. One explanation for not using the data is employers do not see the business case of how value-based purchasing may affect productivity or workforce recruitment and retention. Another explanation offered is that large firms do not believe the benefits of value-based purchasing justify the cost of collecting the data. Similarly, smaller employers are much less likely to aggregate quality data and develop a report card as a basis for choosing a plan.

Large employers wield tremendous purchasing power, which can drive further quality improvements. Also, many small employers belong to purchasing coalitions, which may become the venue for distilling health care quality information for employer purchasers, note the study authors.

Employers do appear to be embracing health promotion in the workplace. Nearly half of all businesses surveyed provide screening, treatment, or disease management on site, and 70 percent provide clinical help lines. This study was funded by the Agency for Healthcare Research and Quality (HS13335).

See "Employers' use of value-based purchasing strategies," Meredith B. Rosenthal, Ph.D., Bruce E. Landon, M.D. M.B.A., Sharon-Lise T. Normand, Ph.D., and others in the November 21, 2007 *Journal of the American Medical Association* 298(10), pp. 2281-2288. ■

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 http://psnet.ahrq.gov/.

Physicians say counseling and education would be useful in reducing their stress after medical errors occur

Although the patient safety movement contends that errors are caused by system rather than individual failures, most doctors involved in medical mishaps still suffer silently, a new study finds. A survey of 3,171 physicians in the United States and Canada found that doctors lost confidence (44 percent), sleep (42 percent), and job satisfaction (42 percent), and feared their reputations would be harmed (13 percent) after medical errors were reported. The more serious the error and the greater the odds of a malpractice suit, the more serious the physician's anxiety was.

Most of the physicians (90 percent) said their hospital or health care organization did not offer them support after an error, and 82 percent said they would welcome counseling to cope with their mistakes. Barriers to counseling included missing time from work and uncertainty about the confidentiality of the sessions. Amy D. Waterman, Ph.D., of the Washington University School of Medicine, and colleagues suggest hospitals broaden the services they offer to physicians to include after-hours counseling. They should also ensure doctors know that the content of counseling sessions generally cannot be used in malpractice suits.

Almost 90 percent of the physicians surveyed said that within the past 12 months, they had told a patient a serious mistake had occurred. Yet only 18 percent of the doctors received formal education on breaking the news. The study team recommends that patient safety specialists and risk managers assist physicians in handling these discussions, because physicians were four times more likely to experience distress when a mistake disclosure to a patient did not go well. This study was funded in part by the Agency for Healthcare Research and Quality (HS11890 and HS14020).

See "The emotional impact of medical errors on practicing physicians in the United States and Canada," by Dr. Waterman, Jane Garbutt, M.B., Ch.B., Erik Hazel, Ph.D., and others in the August 2007 *Joint Commission Journal on Quality and Patient Safety* 33(8) pp. 467-476. ■

Health Information Technology

Care quality is not necessarily better with electronic health records

Electronic health records (EHR) do not automatically guarantee higher quality care in medical settings, a new study finds. Researchers from Harvard and Stanford looked at the effect EHRs had on 17 indicators of quality, including disease management, antibiotic use, preventive counseling, screening tests, and drugs prescribed for elderly patients. They found EHRs improved performance for 2 indicators, worsened performance for 1, and offered no real advantage for the remaining 14.

Physicians using EHRs scored well in not prescribing sedatives (benzodiazepines) to depressed patients and avoiding routine urinalyses at general medical visits. In addition, when researchers limited the study sample to primary care and heart physicians, those who employed EHRs more often counseled smokers to quit. Yet, doctors who had EHR systems didn't do as good a job in prescribing medication for patients with high cholesterol as those who didn't use EHR systems, notes Jeffrey A. Linder, M.D., M.P.H.

Dr. Linder and colleagues used 2003 to 2004 data from more than 50,000 patient records collected by the National Ambulatory Medical Care Survey of patient visits to U.S. physician practices. Electronic health records were used in 18 percent of about 1.8 million ambulatory medical visits during the study period.

The authors note that performance for both groups—with and without EHRs—was below par, indicating there is room for improvement across the board. They stress that no one should assume that quality improves as EHR use widens. Earlier studies conducted by the Agency for Healthcare Research and

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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.

Electronic health records

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Quality, however, found that EHRs can boost the amount of care that meets with guidelines, improve care through clinical monitoring, and curtail medical errors. The authors recommend that physicians adopting EHR systems consider ones that include clinical decision support and use that feature to improve care. This study was funded in part by the Agency for Healthcare Research and Quality (HS14563 and HS11313).

See "Electronic health record use and the quality of ambulatory care in the United States," by Dr. Linder, Jun Ma, M.D., R.D., Ph.D., David W. Bates, M.D., M.Sc., and others, in the July 9, 2007 *Archives of Internal Medicine*; pp. 1400-1405. ■

Child/Adolescent Health

Collaboration between hospital and community palliative care services can improve care for dying children

Most children who die from complex chronic conditions are hospitalized in the months or weeks leading up to their deaths, but a growing number of them are returning home to die. Yet most hospice/home care agencies are oriented toward the care of dying adults, and don't know how to help with the end-of-life care of these children and their families. Collaboration between hospital and community palliative care services could improve the end-of-life care of these dying children, notes the Pediatric Advanced Care Team (PACT) at The Children's Hospital of Philadelphia.

The PACT developed a Partners in Pediatric Palliative Care Program (PPCP), which fosters joint ventures between a palliative care service located in the hospital and a wide range of hospice and home care agencies in five States. The PACT consists of eight physicians from diverse pediatric subspecialties, two nurse coordinators, a social worker, two child life specialists, a bereavement counselor, a psychologist, and a chaplain. They consult with the patient, family, and/or health care team and facilitate high-quality care during transitions from hospital to home and vice versa.

From 2003 to 2005, the PACT consulted on the care of 212 infants, children, and adolescents. Half of the families of the patients who died (67 percent) had engaged hospice services, and 78 percent of those who received home-based hospice service died at home. The PPPC program was launched to provide education and networking opportunities and discuss issues of mutual concern for hospice and hospital staff. In recent evaluations of the program, community-based persons caring for dying children felt it helped them learn about caring for children with complex chronic conditions, how to provide pain and symptom management, how to talk to families about death or dying and be confident doing so, and provide grief and bereavement services. The study was supported in part by the Agency for Healthcare Research and Quality (HS00002).

More details are in "Partners in pediatric palliative care: A program to enhance collaboration between hospital and community palliative care services," by Jean M. Carroll, B.S.N., Gina Santucci, M.S.N., Tammy I. Kang, M.D., and Chris Feudtner, M.D., Ph.D., M.P.H., in the June/July 2007 *American Journal of Hospice & Palliative Medicine* 24(3), pp. 191-195. ■

Parents of hospitalized children with chronic illnesses report fewer care-related problems than other parents

Parents of children in poor health or with chronic conditions typically report lower quality of care for their children than other parents. However, a new study, supported in part by the Agency for Healthcare Research and Quality (T32 HS00063), of hospitalized children found that parents of children with chronic conditions report fewer care-related problems than parents of children in poor health without chronic conditions. This may be due to the more frequent health care interactions and better continuity of care experienced by children with chronic conditions, suggest the Johns Hopkins University researchers.

They analyzed survey responses of 12,562 parents of children receiving care at 39 hospitals from 1997 through 1999. The survey asked 62 questions about 7

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Chronic conditions

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aspects of care: physician-parent partnership, coordination of care, information to parents, information to the child, physical comfort, confidence and trust, and care continuity and transition. Parents of children in the best health tended to rate care highly, whether or not their children had chronic conditions.

Even though 51 percent of parents reported that their child had a chronic health problem, most of the parents rated their child's inpatient care as excellent (47 percent) or very good (32 percent), with the remainder rating the care as good (15 percent), fair (5 percent) or poor (nearly 2 percent). Parents whose children were in fair or poor health with nonchronic conditions reported the lowest quality of care. Nearly one-third (32 percent) of parents felt that their child was not given adequate information and 20 percent of parents considered the parent-physician partnership to be unsatisfactory æ the problems most strongly associated with care ratings.

See "Quality of health care for children: The role of health and chronic illness in inpatient care experiences," by Jennifer W. Mack, M.D., M.P.H., John Patrick T. Co, M.D., M.P.H., Donald A. Goldmann, M.D., and others, in the September 2007 *Archives of Pediatric and Adolescent Medicine* 161(9), pp. 828-834. ■

Pediatricians often do not pursue answers to questions that arise during medical visits

During one in five medical visits, pediatricians are unable to answer questions that arise from the patient or that are prompted by the patient's condition/situation. An example is, "What is the role of hormone therapy in undescended testicles in a young boy?" Visits by children with special health care needs (CSHCN) generate more unanswered questions than visits by children without special needs. Doctors also deem these questions (usually about diagnosis and treatment) more important than other questions. Yet, doctors pursue the answers to only about one-fourth of these questions, both overall and for CSHCN.

These are the findings of a new study supported by the Agency for Healthcare Research and Quality (HS11826). The researchers observed 890 visits (19 percent with CSHCN) with 35 general pediatricians. Parents completed a CSHCN screener. Physicians provided details about their unanswered questions and their pursuit of answers. Of the visits, 19 percent prompted unanswered questions. Of these, the physicians deemed 60 percent to be important or very important.

Physicians intended to pursue answers to half of the questions, but actually pursued answers for only 27.5 percent. They cited lack of time and inadequate information resources as barriers to getting the information needed to answer the questions. Unanswered questions arose nearly twice as often with CSHCN than children without special needs (28.7 vs. 16.9 percent), and over twice as often during well visits (34.6 vs. 14.9 percent). This is probably because general pediatricians have seen few patients with the uncommon conditions suffered by CSHCN. Scheduling more time or more visits for CSHCN may help overcome barriers to answering these often important questions related to children's care, suggest the authors.

More details are in "Unanswered questions prompted during pediatric primary care visits," by Chuck Norlin, M.D., Adam L. Sharp, M.D., and Sean D. Firth, Ph.D., M.P.H., in the September-October 2007 *Ambulatory Pediatrics* 7(5), pp. 396-400. ■

Few nursing home residents receive medications and supplements for osteoporosis

An estimated 70 to 85 percent of nursing home residents have osteoporosis, a loss of bone density. This disease can lead to debilitating fractures among the frail elderly in nursing homes, where falls are commonplace. Yet, less than 1 in 10 newly admitted nursing home residents receive osteoporosis-fighting medications and/or calcium and vitamin D supplements, according to a new study. Using a database to identify newly admitted residents to nursing homes in five States between 1998 and 2000, the researcher examined use of medications (alendronate, risedronate, calcitonin, estrogen, and raloxifene) or supplements (calcium with vitamin D) that are used to treat osteoporosis.

Nine percent of the nursing home residents studied received medications and/or supplements for osteoporosis. The most commonly used treatment was the combination of calcium and vitamin D (5 percent). Use of calcitonin (2.5 percent), a hormone secreted by the thyroid gland that controls levels of calcium and phosphorus in the blood, exceeded that of any other bone-sparing medications.

Individuals diagnosed with osteoporosis were over six times more likely and women were nearly three times more likely to receive an osteoporosis treatment than other new nursing home residents. The number of other medications residents took was also strongly associated with receiving osteoporosis treatment. Black residents were 37 percent less likely, and those diagnosed with four to six other conditions were 29 percent less likely to receive osteoporosis treatment. The author of the study cautions that these findings were based on medication use from 1998 to the end of 2000, and new guidelines and medications to treat osteoporosis have appeared since then. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00011).

More details are in “Use of osteoporosis medications in older nursing facility residents,” by Rollin M. Wright, M.D., M.A., in the September 2007 *Journal of the American Medical Directors Association* 8, pp. 453-457. ■

Outcomes/Effectiveness Research

Outcomes vary for prostate cancer patients choosing surgery, and no treatment was proven superior overall

Patients who undergo complete prostate removal are less likely to experience urinary incontinence or other complications if the operation is done by an experienced surgeon in a hospital that does many of the procedures, according to a report funded by the Agency for Healthcare Research and Quality (AHRQ). However, the new report concludes that scientific evidence has not established surgery or any other single treatment as superior for all men. The analysis compared the effectiveness and risks of eight prostate cancer treatments, including prostate removal, radioactive implants, and no treatment.

In 2007, about 218,000 men were diagnosed with prostate cancer, and about 27,050 men died from the disease. The primary goals of treatment are to determine whether an intervention is needed to prevent death and disability and to minimize complications. Treatment choices often take into account a patient’s age, race, ethnicity, health status, family history, patient preferences, and how quickly the cancer is likely to spread.

The lifetime risk of being diagnosed with prostate cancer has nearly doubled to 20 percent since the late 1980s, due mostly to expanded use of the Prostate Specific Antigen (PSA) blood test. But the risk of dying of prostate cancer remains about 3 percent. Therefore, considerable overdetection and overtreatment may exist. PSA tests can detect early-stage cancer when it is potentially most treatable but also lead to frequent false-positive results and identification of prostate cancers unlikely to cause harm.

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Prostate cancer patients

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AHRQ's new report, based on a review of 592 published articles, compared 8 prostate cancer strategies: complete surgical removal of prostate and related tissue; minimally invasive surgery to remove the prostate; external radiation; radioactive implants; destruction of cancer cells through rapid freezing and thawing; removal of testicles or hormone therapy; high-intensity ultrasound; and no immediate treatment, also known as "watchful waiting."

The report, compiled by AHRQ's Minnesota Evidence-based Practice Center, is intended to provide unbiased, evidence-based information so that patients, clinicians, and others can make the best treatment decisions possible. Among its conclusions:

- Not enough scientific evidence exists to identify any prostate cancer treatment as most effective for all men, especially those whose cancers were found by PSA testing. However, more than 90 percent of patients reported they would make the same treatment decision again, regardless of the treatment they received.
- All treatment options cause health problems, primarily urinary incontinence, bowel problems, and erectile dysfunction. The chances of bowel problems or sexual dysfunction are similar for surgery and external radiation. Leaking of urine is at least six times more likely among surgery patients than those treated by external radiation.
- Among patients who choose surgery, urinary complications and incontinence are less likely if their surgeons performed more than 40 prostate removals per year.
- Surgery-related deaths, urinary complications, and readmissions were lower and hospital stays were shorter in hospitals that performed more prostate removals.
- A lack of research makes it impossible to compare several treatments: rapid freezing and thawing (cryotherapy); minimally invasive surgery (laparoscopic or robotic assisted radical prostatectomy); testicle removal or hormone therapy (androgen deprivation therapy); and high-intensity ultrasound or radiation therapy.
- Adding hormone therapy prior to prostate removal does not improve survival or decrease recurrence rates, but it does increase the chance of adverse events.
- Combining radiation with hormone therapy may decrease mortality. But compared with radiation treatment alone, the combination increases the chances of impotence and abnormal breast development.

The report, *Comparative Effectiveness of Therapies for Clinically Localized Prostate Cancer*, is the newest analysis from AHRQ's Effective Health Care Program. This AHRQ program represents an important Federal effort to compare treatments for significant health conditions and make the findings public. The Effective Health Care Program also translates reports into plain-language guides for clinicians, patients, and policymakers. Information on the program, including full reports and summary guides, can be found at www.effectivehealthcare.ahrq.gov. ■

Simulation improves caregivers' performance but whether it improves patient outcomes is still uncertain

In today's technology-driven world, simulators have staked their claim in the health care training arena. Because they mimic real-life situations, these devices are touted as tools that improve skills, safety, teamwork, and patient health. To answer the question of whether simulators actually advance care delivery and patient outcomes, Children's Hospital of Philadelphia researchers reviewed numerous journal articles.

The research team looked at simulators for their ability to improve confidence, competence, operational performance, and patient outcomes. The team found that many who used simulators to learn a clinical task reported having increased confidence in their performance. However, this new-found self assurance did not always correlate with an ability to complete the task.

Rates use video or sound recordings - often integral parts of simulator training - to evaluate trainees' competence. Several studies found that raters tended to score performances similarly, making simulators useful tools for measuring skill. Studies that followed trainees from simulator training on airway management, colonoscopy, gallbladder surgery, and other procedures to real clinical settings indicated that simulating procedures did improve actual performance.

However, research has not demonstrated whether patient outcomes are better when simulators are used.

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Simulators

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This topic is difficult to study because of the large sample sizes needed and the many relevant variables, and research is very much needed in this area, the authors suggest. Their study was funded in part by the Agency for Healthcare Research and Quality (HS16678).

See "Does simulation improve patient safety?: Self-efficacy, competence, operational performance, and patient safety," by Dr. Akira Nishisaki, M.D., Ron Keren, M.D., M.P.H., and Vinay Nadkarni, M.D., in the June 2007 *Anesthesiology Clinics* 25, pp. 225-236. ■

Chronic Disease

Patients with diabetes and depression tend to skip self-care behaviors that would help keep their diabetes in check

Many persons with diabetes also suffer from depression. In fact, a new study found that nearly one-fifth of patients with type 2 diabetes probably suffered from major depression and an additional two-thirds had at least some depressive symptoms. Both the very depressed patients and those with a few depressive symptoms (subclinical depression) were less likely than the 14 percent of patients who were not depressed to perform self-management tasks needed to control their blood-sugar levels. For example, individuals with major depression (including those on antidepressants) spent fewer days than others following the recommended diet (such as eating lots of fruits and vegetables and spacing carbohydrates throughout the day), exercise, and glucose self-monitoring regimens. They were also 2.3 times more likely to miss medication doses in the prior week than patients who were not depressed.

Major depression was a better predictor of self-monitoring of blood-glucose levels. Yet the depression symptom severity score was a better predictor of not following diet, exercise, and medications. For example, a 1-point increase in the symptom severity score was associated with a 10 percent increase in the odds of missing one or more doses of prescribed medications over the prior week. Also, a symptom severity score of 6 was associated with a half-day less of exercise per week than a score of 1. These findings challenge the current belief that only major depression is a risk factor for nonadherence to diabetes self-care. They suggest that there is a continuous relationship between symptoms of depression and nonadherence to self-care for diabetes that is evident even at subclinical levels. The findings were based on a survey of 879 patients with type 2 diabetes from 2 primary care clinics. The study was supported in part by the Agency for Healthcare Research and Quality (HS14010).

See "Depression, self-care, and medication adherence in type 2 diabetes," by Jeffrey S. Gonzalez, Ph.D., Steven A. Safren, Ph.D., Enrico Cagliero, M.D., and others, in the September 2007 *Diabetes Care* 30(9), pp. 2222-2227. ■

Sensitization to indoor allergens is not linked to increased asthma problems among inner-city adults

Sensitivity and exposure to indoor allergens (especially cockroaches) is linked to more asthma problems among inner-city children. However, it is not linked to increased asthma problems among inner-city adults, concludes a new study. Mount Sinai School of Medicine researchers, led by Juan P. Wisnivesky, M.D., M.P.H., examined 245 predominantly low-income minority adults with persistent asthma, who received care at an inner-city clinic. They examined adults' sensitization to indoor allergens (specific IgE antibodies) at study enrollment and health care resource use at enrollment, and 1 and 3 months later.

Overall, 62 percent of patients were sensitized to at least one of the indoor allergens assessed in the study. The prevalence of sensitization to cockroach, dust

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Indoor allergens

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mite, cat, mold, and mouse was 60 percent, 43 percent, 41 percent, 21 percent, and 14 percent, respectively. Patients sensitized to each allergen did not have worse asthma control or higher resource use (oral steroid use, emergency department visits, hospitalizations, and history of intubation) than nonsensitized individuals.

These findings persisted, even after controlling for patient-reported exposure to indoor allergens and other potentially confounding factors. They suggest that allergic sensitization may be a less important determinant of asthma morbidity among inner-city adults than it is among urban children. The study was supported in part by the Agency for Healthcare Research and Quality (HS13312 and HS09973).

See "Lack of association between indoor allergen sensitization and asthma morbidity in inner-city adults," by Dr. Wisnivesky, Hugh Sampson, M.D., Stephen Berns, M.D., and others, in the July 2007 *Journal of Allergy and Clinical Immunology* 120, pp. 113-120. ■

Emergency Medicine

Studies examine emergency communication, use of defibrillators, and benefit of ED pharmacists

Paramedics and emergency department (ED) clinicians are bombarded with information as they struggle to care for critically ill or injured patients in often chaotic circumstances. Good communication, skill in using lifesaving devices, and selection of the right medications help them to save lives both in and outside of the ED. Three studies supported by the Agency for Healthcare Research and Quality (HS15818) and led by Rollin J. Fairbanks, M.D., M.S., of the University of Rochester School of Medicine, recently examined these issues. The first study found that ED communication is typically quick, face-to-face, and varies among types of ED providers. The second study showed that paramedics perform better on a new generation cardiac defibrillator than the older one, but there are still some problems. According to the third study, ED nurses and doctors highly value having an ED pharmacist to consult. The studies are described here.

Fairbanks, R.J., Bisantz, A.M., and Sunm, M. (2007, October). "Emergency department communication links and patterns." ***Annals of Emergency Medicine*** **50(4), pp. 396-406.**

This study observed the communication patterns of 20 staff members in the pediatric and adult ED areas of a regional hospital trauma center over the course of 39 hours (including day and evening shifts). Most communication was face-to-face, short (less than 1 minute to 3 minutes), and frequent (an average of 49 communication events per hour). However, the frequency, duration, and mode of communication differed among ED providers. For example, paramedics and triage nurses didn't communicate often with ED attending doctors. This suggests that the attending doctors received most patient handoff information secondhand.

Attending physicians communicated often with each other, despite caring for separate patients, possibly for second opinions about difficult cases or to coordinate ED care management. All nurses, but especially the charge nurses, seemed to be the hub for communication, linking ED personnel with non-ED staff. All ED providers in the adult area carried wireless phones. However, in the pediatric area, only the attending physicians and charge nurses had wireless phones.

Interruption rates (one cause of skill-based medical errors) in the adult areas ranged from 6.9 per hour for attending physicians to 0.5 per hour for bedside nurses. In the pediatric areas, interruptions ranged from 3.6 per hour for the attending physicians to 0.3 per hour for bedside nurses. Junior physician residents spent much of their time reading and writing on the whiteboard (patient status board that tracks patients and caregiving tasks), which suggests they used it as an organizational tool. This information about ED communication patterns may help identify information technology solutions to enhance ED communication and emergency patient care.

Fairbanks, R.J., Caplan, S.H., Bishop, P.A., and others. (2007, October). "Usability study of two common defibrillators reveals hazards." ***Annals of Emergency Medicine*** **50(4), pp. 424-432.**

Cardiac defibrillators are used to shock the heart, when there is an

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irregular (fibrillation) or abnormally rapid (tachycardia) heartbeat. The Lifepak12 cardiac defibrillator is the newer-generation replacement for the Lifepak10. Although the Lifepak10 is easier to learn, the Lifepak12 is easier to use and more effective in emergencies, according to the 14 paramedics who completed 4 out-of-hospital simulator scenarios using each device.

The scenarios ranged from simple electrocardiogram (ECG) monitoring to shocking the heart of a patient with confirmed ventricular fibrillation, synchronized cardioversion (deliver two sequential shocks at a specific time in the cardiac cycle for patients with unstable tachycardia), and replacement of defibrillator paper for the cardiac rhythm readouts.

The experienced advanced life support paramedics rated the Lifepak10 easier to use than the Lifepak12 to perform a quick look (mean of 8.0 vs. 7.1 out of 9) and rated the Lifepak12 easier to use for synchronized conversions (mean of 6.7 vs. 5.3). They performed better on the Lifepak12 than the Lifepak10 for synchronized cardioversion (mean of 3.1 vs. 1.6) and replacing paper (mean of 3.0 vs. 2.1).

Most (85 percent) of the paramedics preferred use of the Lifepak12 on a regular basis. Nevertheless, paramedics had difficulty using the devices with gloves and were confused about the "sync" mode. For example, during the simulations, half of the paramedics inadvertently delivered an unsynchronized countershock for supraventricular tachycardia, which can cause ventricular fibrillation. This high failure rate in synchronized cardioversion indicates a need to reevaluate the user-defibrillator interface design for this function.

Fairbanks, R.J., Hildebrand, J.M., Kolstee, K.E., and others. (2007, October). "Medical and nursing staff highly value clinical pharmacists in the emergency department." ***Emergency Medicine Journal*** **24, pp. 716-718.**

Few emergency pharmacist (EPh) programs exist, despite their potential to improve medication safety and quality of care in the ED. ED doctors and nurses highly value the presence of an EPh in the ED, often seek their advice, and feel that they improve ED care quality, according to this study. The researchers surveyed a random sample of medical and nursing staff at the ED of a large medical center with a dedicated EPh program.

Nearly all respondents (99 percent) thought that the EPh improved quality of care, 96 percent considered them an integral part of the team, and 93 percent had consulted the EPh at least a few times during their last five shifts. The ED doctors and nurses also believed that the EPh should be available for consults, to attend resuscitations, and to check medication orders. Finally, these emergency professionals preferred that high-risk and rarely used medications be checked by an EPh when possible.

Clinicians who cared for children believed that a mandatory review of certain pediatric medication orders would improve medication safety. Nearly all ED physicians and nurses considered the EPh to be helpful with medical and trauma resuscitations, review of medications, and as a patient educator. These findings reinforce the value of the EPh program, and demonstrate that staff acceptance is clearly not a barrier to program implementation. ■

Rural emergency departments have a high rate of medication errors with the potential to harm children

Over half (51 percent) of medications were prescribed in error to children treated at four rural California emergency departments (EDs), according to this study. Although 16 percent of these errors had the potential to cause harm, none of them caused significant harm. These errors are a concern, especially given that one in four children receives ED care in the United States each year. Prescribing medicine for children involves calculating the proper dose based on the child's weight. These calculations are a potential source of error, especially in the critical and fast-paced ED environment, notes James P. Marcin, M.D., M.P.H., of the University of California-Davis. Dr. Marcin and colleagues examined medication errors made between January 2000 and June 2003 among critically ill children treated in four northern California rural EDs. Physician-related medication errors were defined as those involving the wrong dose, wrong or inappropriate medication for the condition, wrong route, or wrong dosage form.

Among the 177 children for whom complete data were available, a total of 84 medication errors were identified among 69 patients, resulting in a medication error rate of 39 percent. Also, 24 physician-related

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medication errors were identified among 21 patients, resulting in a physician-related medication error rate of 11.9 percent. Overall, half of the medications prescribed for children had errors. Some of these medication errors might be prevented by use of an ED pharmacist, computerized order entry systems with automated drug alerts, use of the Broselow tape (which estimates a child's weight based on height), preprinted medication order sheets, and telemedicine or telepharmacy. The study was supported in part by the Agency for Healthcare Research and Quality (HS13179).

See "Medication errors among acutely ill and injured children treated in rural emergency departments," by Dr. Marcin, Madan Dharmar, M.B.B.S., Meyng Cho, Pharm.D., and others, in the October 2007 *Annals of Emergency Medicine* 50(4), pp. 361-367. ■

More than half a million patients visit the emergency department for severe sepsis each year

About 750,000 individuals in the United States each year develop severe sepsis, a blood infection that can lead to organ failure and even death (in 30 percent of cases). More than two-thirds (over 571,000) of this group end up in the emergency department (ED), according to a new study. More than half of these patients arrive at the ED by ambulance, and they spend an average of nearly 5 hours in the ED (compared with 3.4 hours for other ED visits). These findings underscore the community-acquired rather than hospital-acquired nature of severe sepsis, notes Henry E. Wang, M.D., M.S., of the University of Pittsburgh School of Medicine. Dr. Wang and fellow researchers analyzed ED data from the 2001-2004 National Hospital Ambulatory Care Survey.

The researchers defined patients with severe sepsis as those with fever, hypothermia, hypotension (systolic blood pressure of 90 mm Hg or less), respiratory failure or intubation, and other factors. About 40 percent of the patients had both fever and hypotension. High-volume EDs (more than 60,000 visits per year) cared for disproportionately larger numbers of patients with suspected severe sepsis than low-volume (20,000 or fewer visits per year) EDs.

While most of these patients arrived at the ED during daylight hours, 26 percent arrived during "off hours" (8 pm to 6 am). More than half of these patients were elderly; 17 percent resided at nursing homes, and most were white. These national data should help inform design and implementation strategies for severe sepsis treatment. The study was supported in part by the Agency for Healthcare Research and Quality (HS13628).

See "National estimates of severe sepsis in United States emergency departments," by Dr. Wang, Nathan I. Shapiro, M.D., M.P.H., Derek C. Angus, M.D., M.P.H., and Donald M. Yealy, M.D., in the August 2007 *Critical Care Medicine* 35(8), pp. 1928-1936. ■

Limiting out-of-hospital endotracheal intubation to experienced rescuers would limit the practice

Out-of-hospital rescuers and emergency medical service (EMS) personnel receive limited training and clinical experience in out-of-hospital endotracheal intubation, a highly skilled and complex procedure used to restore breathing in critically ill and injured patients. Use of this procedure should be limited to rescuers or agencies meeting defined minimum levels of clinical experience, suggests a new study. However, the authors caution that this approach would substantially decrease the number of out-of-hospital intubations performed across a Statewide EMS system.

Henry E. Wang, M.D., M.S., of the University of Pittsburgh School of Medicine, and colleagues analyzed 2003 Pennsylvania Statewide EMS data on endotracheal intubations done by a valid rescuer, EMS agency, and minor civil division. During the study period, there were 11,771 endotracheal intubations (7,854 cardiac arrest, 3,917 non-arrest, 1,325 trauma, and 561 pediatric). Limiting the procedure to rescuers with at least 3, 5, 10, and 15 intubations per year would result in relative intubation reductions of 12, 32, 79, and 93 percent, respectively.

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Endotracheal intubation

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Limiting intubations to EMS agencies with at least 20, 30, 50, 100, and 150 intubations per year would result in relative reductions of 15, 27, 41, 65, and 73 percent, respectively. Thus, adoption of the lowest minimum experience standards (3 or fewer intubations per rescuer or 20 or fewer per agency) would at least limit intubations by the least experienced providers without affecting major reductions in the overall number of procedures. The study was supported by the Agency for Healthcare Research and Quality (HS13628).

See "How would minimum experience standards affect the distribution of out-of-hospital endotracheal intubations?" by Dr. Wang, Benjamin N. Abo, B.S., N.R.E.M.T.-P., Judith R. Lave, Ph.D., and Donald M. Yealy, M.D., in the September 2007 *Annals of Emergency Medicine* 50(3), pp. 246-252. ■

Access to Care

A short homeless period among youth "aged out" of the foster care system affects care access, but not health

About 20,000 youth "age out" of the foster care system each year, without being reunited with families. Many of these youth become homeless for a time. For example, 40 percent of homeless young adults (18 to 20 years old) were in the foster care system as youth. Being homeless for an average of a month after leaving the foster care system is associated with worse care access, but not worse health, according to a new study.

Margot Kushel, M.D., of the University of California, San Francisco, and colleagues interviewed 749 foster youth aged 17 or 18 years from Illinois, Wisconsin, or Iowa between May 2002 and March 2003 (and 643 between March and December 2004) about access to care and two health outcomes. Most of these youth had been placed in foster care because of abuse or neglect or because they were adjudicated delinquents. Among the 345 individuals who had aged out of the foster care system, 14 percent experienced an episode of homelessness (average of 28 days) and 39 percent were unstably housed (had moved 3 or more times since leaving foster care or spent more than 50 percent of income on rent).

Foster care youth who had been homeless at some point were 3.4 times more likely to be uninsured and 3.3 times more likely to have an unmet need for health care than those who had not been homeless. However, homelessness was not associated with not having had an outpatient visit in the past year. Housing status was not associated with reporting fair or good health 1 to 2 years later, or among women, with having had a pregnancy. Nevertheless, nearly half (46.3 percent) of homeless persons met criteria for drinking problems compared with 23.5 percent of stably housed, 12.8 percent of unstably housed, and 7.9 percent of those still in the foster care system. Similarly, 46.3 percent of homeless youth met criteria for drug problems, compared with 20, 10.7, and 7.9 percent of stably housed, unstably housed, and still-in-system persons, respectively. The study was supported in part by the Agency for Healthcare Research and Quality (HS11415).

More details are in "Homelessness and health care access after emancipation," by Dr. Kushel, Irene H. Yen, Ph.D., Lauren Gee, M.P.H., J.D., and Mark E. Courtney, Ph.D., in the October 2007 *Archives of Pediatric and Adolescent Medicine* 161(10), pp. 986-993. ■

Varied regional rates of chronic obstructive pulmonary disease episodes may be due to medical system factors

Patients with chronic bronchitis and/or emphysema have lungs that become inflamed and often filled with mucus. Over time, airflow becomes obstructed and these patients are said to have chronic obstructive pulmonary disease (COPD). Patients suffering from COPD often experience frightening breathing crises that land them in the doctor's office or emergency room. The varied regional rates of these breathing crises—COPD exacerbations—may be due to health care provider and other medical system factors, suggests a new study.

Researchers at the Northwestern University Feinberg School of Medicine compared COPD exacerbation rates by Veterans Health Administration (VA) regions within the Veterans Integrated Service Network (VISN). They used hospital, outpatient, and pharmacy data on patients diagnosed with COPD from October 1999 to September 2000, who were followed until September 2002. Average COPD episode rates among the 198,981 patients (78 percent were over 60 years of age) was 0.503 events per person per year.

In the follow-up period, 44 percent of the patients suffered an episode of worsened COPD. During follow-up, the average exacerbation rate was 0.589 per person per year. However, across the VA system, there was more than a twofold difference in exacerbation rates between VISN 1 in New England and VISN 9 in Tennessee and Kentucky (0.335 vs. 0.749 episodes per person per year), even after controlling for factors associated with COPD exacerbations such as age and other illnesses. Regional variation in influenza vaccination or treatment for COPD (use of long-acting cholinergics, long-acting beta agonists, and inhaled corticosteroids) could affect COPD exacerbation rates and account for the observed regional differences, note the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00078).

See "Geographic variation in chronic obstructive pulmonary disease exacerbation rates," by Min J. Joo, M.D., M.P.H., Todd A. Lee, Pharm.D., Ph.D., and Kevin B. Weiss, M.D., M.P.H., in the November 2007 *Journal of General Internal Medicine* 22(11), pp. 1560-1565. ■

Acute Care/Hospitalization

Hospitalists can reduce hospital stays and costs for children with common pediatric conditions like asthma

The majority of studies of hospitalists, hospital-based physicians (usually internists) who specialize in the care of hospitalized patients, have been conducted in hospitals that generally treat patients with complex conditions. However, half of children's admissions occur in nonteaching community hospitals. A new study found that use of hospitalists in this setting resulted in earlier discharges and reduced costs for children suffering from asthma and dehydration. These findings suggest that hospitalists can increase efficiency and reduce costs for children hospitalized for common pediatric conditions, concludes Christopher P. Landrigan, M.D., M.P.H., of Children's Hospital Boston.

The researchers retrospectively examined the outcomes of children in a staff-model HMO (HMO 1) and nonstaff model HMO (HMO 2), who were treated at a children's hospital for asthma, dehydration, or viral illness between October 1993 and July 1998. HMO 1 had introduced a hospitalist system in October 1996. Overall, 1,970 children were cared for in HMO 1 and 1,001 in HMO 2.

After the hospitalist system was introduced in HMO 1, length of hospital stay was reduced by 0.23 days (13 percent) for asthma and 0.19 days (11 percent) for dehydration. There was no difference for patients with viral illness. The largest relative reduction in length of stay occurred in patients with a shorter length of stay whose hospitalizations were reduced from 2 days to 1 day. The shift to a hospitalist system resulted in an average cost-per-case reduction of $105.51 (9.3 percent) for patients with asthma and $86.22 (7.8 percent) for patients with dehydration. During the same period, length of stay and total cost rose in HMO 2. The study was supported in part by the Agency for Healthcare Research and Quality (HS13333).

More details are in "Impact of a hospitalist system on length of stay and cost for children with common conditions," by Rajendu Srivastava, M.D., F.R.C.P., M.P.H., Dr. Landrigan, Dennis Ross-Degnan, Sc.D., and others, in the August 2007 *Pediatrics* 120(2), pp. 267-274. ■

Crash site data along with pelvic x-rays may aid triage of motor vehicle crash victims with pelvic fractures

Patients who suffer pelvic fractures due to motor vehicle accidents or other traumas usually receive pelvic x-rays upon arrival at the emergency department. Direction of injury force inferred from pelvic x-rays is typically used in trauma care to predict associated pelvic injuries, such as internal organ damage, and to guide care, such as external fixation of the pelvis. Crash site data on the direction of injuring forces don't always agree with pelvic x-rays, according to a pilot study. Nonetheless, given the limitations of pelvic x-rays, a study of crash site data in an attempt to improve patient triage or outcome is warranted, suggests Christopher C. Blackmore, M.D., M.P.H.

Dr. Blackmore and Harborview Medical Center coinvestigators compared crash site investigation data with pelvic x-rays of 28 victims of motor vehicle crashes. Crash site data included principal direction of force (PDOF), crash magnitude, and passenger compartment intrusion. The PDOF reflected a frontal crash in 32 percent and side impact in 68 percent of patients. The pelvic x-ray fracture pattern agreed with the crash site observation in a moderate proportion of cases for frontal impact cases (80 percent) and lateral impact cases (81 percent).

This implies that surgeons should have moderate confidence that pelvic fracture patterns seen on x-rays are a reflection of the principal direction of force from the crash. Crash site data are not currently used routinely for clinical decisions involving crash victims. However, digital images from motor vehicle crash sites are now available in some trauma centers when the emergency team begins resuscitating the trauma victim. The researchers believe that crash site information potentially will aid emergency treatment of pelvic fractures and associated injuries, and call for further studies. Their study was supported in part by the Agency for Healthcare Research and Quality (HS11291).

See "Do initial radiographs agree with crash site mechanism of injury in pelvic ring disruptions? A pilot study," by Ken F. Linnau, M.D., M.P.H., Dr. Blackmore, Robert Kaufman, B.S., and others, in the July 2007 *Journal of Orthopedic Trauma* 21(6), pp. 375-380. ■

Agency News and Notes

HHS Secretary awards health leaders with special distinction for improving the quality and value of health care

HHS Secretary Mike Leavitt recognized 14 communities with a special Federal distinction for their strong commitment to improving quality and value in health care. The Secretary designated these partnerships of providers, employers, insurers, and consumers as the country's first Chartered Value Exchanges (CVE) for their work to implement cutting-edge, collaborative methods to transform health care at the local level.

CVE communities will have access to information from Medicare that gauges the quality of care physicians provide to patients. These performance measurement results can be combined with similar private-sector data to produce a comprehensive consumer guide on the quality of care available. The Centers for Medicare & Medicaid Services will begin providing physician-group level performance information by the summer of 2008.

In addition, these communities will join a nationwide Learning Network sponsored by the Agency for Healthcare Research and Quality. This network will provide peer-to-peer learning experiences through facilitated meetings, both face-to-face and on the Web. Access to HHS experts and new tools, including an ongoing private Web-based knowledge management system, are added benefits of CVE status.

Over the last year, HHS has designated more than 100 Community Leaders that are encouraging the growth of community-based, multi-stakeholder collaboratives working to drive health care reform. These groups were the first eligible to apply for CVE status. After an extensive peer-review process of 38 applications, 14 collaboratives in a dozen states have been selected to receive charters from Secretary Leavitt. Community Leaders interested in becoming CVEs will have an opportunity to apply later this spring. The CVEs are:

- Wisconsin Healthcare Value Exchange, Madison, Wisconsin

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Chartered Value Exchanges

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- Healthy Memphis Common Table, Germantown, Tennessee
- Greater Detroit Area Health Council, Detroit, Michigan
- Niagara Health Quality Coalition, Williamsville, New York
- Oregon Health Care Quality Corporation, Portland, Oregon
- Pittsburgh Regional Health Initiative, Pittsburgh, Pennsylvania
- Puget Sound Health Alliance, Seattle, Washington
- Utah Partnership for Value-driven Health Care, Salt Lake City, Utah
- Louisiana Health Care Quality Forum, Baton Rouge, Louisiana
- Maine Chartered Value Exchange Alliance, Scarborough, Maine
- Minnesota Healthcare Value Exchange, St. Paul, Minnesota
- Massachusetts Chartered Value Exchange, Watertown, Massachusetts
- Alliance for Health, Grand Rapids, Michigan
- New York Quality Alliance, Albany, New York

CVEs represent one of a number of initiatives undertaken by HHS to implement a bold vision for health care reform built on four cornerstones. These include: advancing interoperable health information technology; measuring and publishing quality information to enable consumers to make better decisions about their care; measuring and publishing price information to give consumers information they need to make decisions on purchasing health care; and promoting incentives for quality and efficiency of care. For more information, please visit http://www.hhs.gov/valuedriven. ■

Agency News and Numbers

Two new reports from the Nationwide Inpatient Sample (NIS) are available from the Agency for Healthcare Research and Quality (AHRQ). The first reflects the widely varying rates of circumcision around the United States, and the second contains updated data on epilepsy hospitalizations. The NIS is a database of hospital inpatient stays that is nationally representative of inpatient stays in all short-term, non-Federal hospitals. The data are drawn from hospitals that comprise 90 percent of all discharges in the United States and include all patients, regardless of insurance type, as well as the uninsured. The reports, *Circumcision Performed in U.S. Community Hospitals, 2005*, Statistical Brief #45, and *Hospitalizations for Epilepsy and Convulsions, 2005*, Statistical Brief #46, are summarized below and are available online along with other reports at www.hcup-us.ahrq.gov/reports/statbriefs.jsp.

Circumcision rates are highest in the Midwest and lowest in the West

Rates of circumcision vary widely across the nation, a phenomenon likely linked to regional variations in racial, ethnic, and immigrant populations, as well as insurance coverage. Circumcision is the surgical removal of foreskin from the penis of an infant boy. The operation is usually performed for cultural, religious, or cosmetic reasons rather than for medical reasons. Some organizations, including the American Academy of Pediatrics, maintain there is insufficient evidence that routine circumcision is medically necessary. However, there is research suggesting that some health benefits may be gained, including a slightly decreased risk of developing penile cancer, a lower chance of urinary tract infections in newborns, and a potentially lessened risk of HIV transmission

AHRQ's new report is an analysis of hospital-based circumcisions in 2005. Among its findings:

In the West, only 31 percent of newborn boys were circumcised in hospitals in 2005. That compares with 75 percent in the Midwest, 65 percent in the Northeast, and 56 percent in the South. Factors influencing circumcision rates may include immigration from Latin America and other areas, where circumcision is less common, and insurance coverage.

Nationwide, about 56 percent of newborn boys—1.2 million infants—were circumcised. The national rate has remained relatively stable for a decade. It peaked at 65 percent in 1980.

About 60 percent of circumcisions were billed to private insurance, 31 percent were billed to Medicaid, nearly 3 percent were charged to other public programs, and about 4 percent were uninsured.

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News and Numbers

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Epilepsy hospitalizations rise after an 8-year decline

Epilepsy-related hospitalizations, which fell from 176,000 in 1993 to 95,000 in 2000, climbed to 136,000 in 2005. The recent 5-year climb represented a 43 percent increase. Epilepsy, a condition characterized by recurrent seizures that may include repetitive muscle jerking called convulsions, affects 1 to 2 percent of the U.S. population. AHRQ's analysis also showed:

- Nearly two-thirds of the patients hospitalized with epilepsy between 2000 and 2005 were younger than 45.
- Between 1993 and 2005, convulsion-related hospitalizations increased 69 percent from 730,000 to 1.2 million. Patients 65 and older were more than twice as likely as younger people to be hospitalized with convulsions.

Although epilepsy can cause convulsions, the vast majority of these convulsion cases were not epilepsy related but were rather caused by fever, stroke, infection, uremia—blood poisoning caused by kidney failure—high or low blood sugar, low blood sodium levels, and substance abuse and withdrawal. ■

Diabetes, cholesterol, and anti-obesity drugs top spending

U.S. adult consumers spent nearly $36 billion for prescription drugs to lower blood sugar, reduce cholesterol, or help with other metabolic problems in 2005. The four other classes of drugs that topped spending among adults were:

- Cardiovascular drugs, for reducing high blood pressure and treating heart conditions ($33 billion).
- Central nervous system drugs, which include pain killers, sleep aid medications and medications for attention deficit disorder ($26 billion).
- Antidepressants and antipsychotic drugs ($17 billion).
- Gastrointestinal drugs including antacids and laxatives ($15 billion).
- Purchases of these five top classes of drugs totaled $127 billion in 2005 – nearly two-thirds of the total $199 billion spent on all outpatient prescription medicines.

The data are taken from the Medical Expenditure Panel Survey, 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 Top Therapeutic Classes of Outpatient Prescription Drugs Ranked by Total Expense for Adults Age 18 and Older in the U.S. Civilian Noninstitutionalized Population, 2005*, Statistical Brief #198, at the MEPS Web site www.meps.ahrq.gov/mepsweb/. ■

Announcements

AHRQ releases consumer financial incentives guide for employers and other health care purchasers

The Agency for Healthcare Research and Quality (AHRQ) released a new guide to help employers, private health plans, the Federal government, and State Medicaid agencies as they consider consumer financial incentives as part of an overarching strategy to improve the quality of health care and get better value for what they spend on services. Consumer financial incentives are either a reward offered to influence patients to behave in a particular way, or, less often, a penalty for failing to do so. By using financial incentives, health care purchasers hope to encourage patients to take actions that either may improve the results of their treatment—such as selecting a high-quality physician, reducing or eliminating high-risk behaviors and using preventive services—or may reduce costs by eliminating unnecessary emergency room visits and decreasing preventable hospitalizations.

Using incentives to promote better value in health care is one of the four cornerstones of the

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Financial incentives guide

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Department of Health and Human Services' Value-Driven Care Initiative, which has a goal of providing consumers with the information and incentive they need to choose health care providers based on value.

The decision guide consists of an evidence summary organized around a series of 21 questions that purchasers need to consider when implementing consumer financial incentives. They span incentive design and implementation decisions. The guide reviews the application of incentives to five types of consumer decisions, including selecting a high-value provider, selecting a high-value health plan, deciding among treatment options, reducing health risks by seeking preventive care, and reducing health risks by decreasing or eliminating high-risk behavior.

In addition to a summary of the evidence base, the guide includes examples of consumer financial incentives currently being offered, criteria for selecting performance measures, elements to enable patients to participate in medical decision making and in managing their chronic diseases, and characteristics that increase the likelihood that a consumer will respond to financial incentives.

Consumer Financial Incentives: A Decision Guide for Purchasers (AHRQ Publication No. 07(08)0059) is available at www.ahrq.gov/qual/value/incentives.htm and its companion, Pay for Performance: A Decision Guide for Purchasers (AHRQ Publication No. 06-0047) is available at www.ahrq.gov/qual/p4pguide.pdf. Printed copies of both guides are also available from AHRQ.* ■

AHRQ awards grants for Health Services Research Dissertation (R36)

The Agency for Healthcare Research and Quality (AHRQ) supports dissertation research undertaken as part of an academic program to earn a research doctoral degree. Through this program, AHRQ seeks to expand the number of researchers who address its mission "to improve the quality, safety, efficiency and effectiveness of health care for all Americans." Recently, the Agency awarded two dissertation grants to individuals from the University of Pennsylvania:

- Rosemary Frasso-Jaramilo
  1R36HSA017471-01
  Low Maternal Health Literacy: An Obstacle to Pediatric Health Care Utilization
- Gregory Kruse
  1R36HS017481-01
  The Effects of Formularies and Pharmaceutical Promotion on Physician's Prescribing Behaviors ■

Research Briefs

Bertakis, K.D. and Azari, R. (2007). "Determinants of physician discussion regarding tobacco and alcohol abuse." (AHRQ grant HS06167). *Journal of Health Communication* 12, pp. 513-525.

The U.S. Preventive Services Task Force recommends that physicians screen adults for tobacco and alcohol abuse. Researchers investigated the impact of patient age, gender, education, income, patient health status, depression, alcohol abuse, and current smoking on the likelihood of physician discussion. They analyzed videotapes of initial primary care visits together with the results of previsit screening tests for over 500 patients. The results of the study showed that physicians discussed substance use with over 90 percent of patients who were either problem drinkers or smokers. Older patients were less likely to have their physician discuss health promotion behavioral changes. Physicians tended to address substance abuse with healthier, younger, male patients who currently abuse tobacco and alcohol.

Brown, S.E.S., Chin, M.H., and Huang, E.S. (2007). "Estimating costs of quality improvement for outpatient healthcare organizations: A practical methodology." (AHRQ grants HS10479 and HS13635). *Quality & Safety in Health Care* 16, pp. 248-251.

Many small outpatient health care organizations have not implemented quality improvement

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(QI) programs for chronic disease management due to uncertainties about the costs involved. Established standard methods for determining either costs or consequences are lacking for small organizations. Using a diabetes QI program already in place in some community health centers as a test case, researchers developed a practical set of methods for estimating both direct costs/revenues and cost/revenue consequences. They gathered data on direct costs/revenues such as staff time, purchase of items needed, and grants received through a self-administered survey. They collected cost/revenue consequences such as changes in patient use of services and physician activities using electronic billing data. These methods may help in comparing the relative cost-effectiveness of different QI programs and identifying those that should be widely disseminated.

Chou, A.F., Scholle, S.H., Weisman, C.S., and others. (2007, May/June). "Gender disparities in the quality of cardiovascular disease care in private managed care plans." (AHRQ contract 290-04-0018). *Women's Health Issues* 17, pp. 120-130.

Process-of-care variables may account for some of the gender disparities in cardiovascular disease (CVD) outcomes in commercial managed care programs, concludes this study. It analyzed seven CVD quality of care indicators to examine the CVD care of members of a national sample of commercial managed care plans. Quality indicators ranged from use of beta blockers after a cardiac event to cholesterol screening and blood pressure control (140/90 mm Hg or less). The researchers found low rates of adequate lipid control in both men and women, with a lower rate of control in women. Women with diabetes were 19 percent less likely than men to have low-density lipoprotein (LDL) cholesterol controlled at less than 100 mg/dL, and women with a history of CVD were 28 percent less likely to have their LDL cholesterol controlled. This suggests the possibility of less intensive cholesterol treatment in women. However, more women than men had controlled blood pressure, although the difference was only 2 percent (70.8 vs. 68.9 percent). Smaller gender differences were observed in measures related to screening and medication prescription.

Chou, A.F., Wong, L., Weisman, C.S., and others. (2007, May/June). "Gender disparities in cardiovascular disease care among commercial and Medicare managed care plans." (AHRQ contract 290-04-0018). *Women's Health Issues* 17, pp. 139-149.

Researchers evaluated plan-level performance of seven quality of care measures (ranging from blood pressure and cholesterol control to comprehensive diabetes care) for CVD using a national sample of commercial and Medicare managed care plans. They also conducted key informant interviews with a subset of commercial plans. Over half of participating commercial plans showed a disparity of 5 percent or more in favor of men for cholesterol control measures among people with diabetes, a recent cardiovascular procedure, or heart attack. Disparity was greatest (9.3 percent in favor of men) among those with recent acute cardiac events. Yet no commercial plans showed such disparities in favor of women. These gender differences favoring men were even larger for Medicare plans. For those plans, the mean differences in performance rates for men on the cholesterol control measure were 6.4 percent among people with diabetes and 8.5 percent among those with a recent cardiac event.

Clancy, C. (2007). "Mistake-proofing in health care: Lessons for ongoing patient safety improvements." *American Journal of Medical Quality* 22(6), pp. 463-465.

Latent conditions can create the opportunity for medical errors within health care settings through a lack of standardized equipment and procedures, poor visibility, or distraction. Hospitals can overcome many of these conditions by the use of innovative facility design. In new hospitals, the design of all patient rooms—inpatient, emergency, postrecovery, and ambulatory/diagnostic—can be standardized. Equipment and technology, such as infusion pumps and beds can also be standardized. Multimillion dollar investments are not required to reduce the likelihood of mistakes, notes Carolyn Clancy, M.D., director of the Agency for Healthcare Research and Quality (AHRQ). She points to a new AHRQ research synthesis that shows that mistake-proofing can be achieved through relatively small innovations such as wristband medical records and revamped medication bottles. Dr. Clancy asserts that mistake-proofing is a supplement to, not a replacement for, existing patient safety efforts. Reprints (AHRQ publication no. 08-R016) are available from AHRQ.*

Clancy, C. (2007). "The performance of performance measurement." *HSR: Health Services Research* 42(5), pp. 1797-1801.

Since the late 1980s, interest in and support for core performance

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measurement has been growing among State governments, accrediting organizations, public and private payers, and the Agency for Healthcare Research and Quality (AHRQ). Thus far, there have been few efforts to compare the validity of various approaches to performance measurement, according to AHRQ Director Carolyn Clancy, M.D. A new study appearing in this issue of *Health Services Research* reports on an unprecedented comparison of three approaches to performance measurement: condition-specific measures, global explicit measures, and implicit measures based on professional judgments of overall quality of care. The researchers found a high level of agreement among them for summary measures of quality as well as substantial agreement across the three approaches for diabetes and preventive care. Also important for performance measurement is the ease of identifying available data sources, which increases as more and more providers adopt electronic health records. The growing use of health information technology allows the sharing of information across settings of care, decreases the cost of data collection, and improves the completeness of clinical data, notes Dr. Clancy. Reprints (AHRQ publication no. 08-R017) are available from AHRQ.*

Clancy, C. (2007, September). "Sleepless in the hospital: Evidence mounts that tired caregivers may compromise quality." ***Journal of Patient Safety*** **3(3), pp. 125-126.**

Asking young doctors to work long hours without a break is deeply ingrained in our culture. We believe that it teaches dedication, stamina, and responsibility. Yet in doing so, we are placing patients at risk, which is unacceptable, asserts Carolyn M. Clancy, M.D., Director of the Agency for Healthcare Research and Quality (AHRQ), in a recent commentary. She cites several examples of AHRQ-supported and other research that demonstrates this. For example, one study found that first-year doctors-in-training who worked five extra long shifts (of 24 hours or more at a time without rest) per month had a 300 percent increase in their chances of making a fatigue-related preventable error that contributed to the death of a patient.One study found that sleep-deprived interns working 24-hour shifts made many more serious medical errors while working in intensive care units and crashed their cars more often than interns whose work was limited to 16 consecutive hours. Another AHRQ-supported study found that even the 12-hour shifts worked by most U.S. hospital nurses greatly increased their risk of making a medical error. At the request of the U.S. House Committee on Energy and Commerce, AHRQ will be working with the Institute of Medicine of the National Academies to review the evidence to make recommendations for health care provider training and work hours. Reprints (AHRQ Publication No. 08-R007) are available from AHRQ.*

Clancy, C. (2007, July). "TeamSTEPS: Optimizing teamwork in the perioperative setting." ***AORN Journal*** **86(1) pp. 18-22.**

Working with the Department of Defense, the Agency for Healthcare Research and Quality (AHRQ) developed a toolkit to improve patient safety through improved communication and teamwork. Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS™) is built upon AHRQ's research in patient safety and health care quality and the U.S. military's expertise in team building.

In this commentary, AHRQ Director Carolyn M. Clancy, M.D., describes the toolkit's features. Each phase of the training mirrors the effort that goes into executing a military campaign: assessment; planning, training, and implementation; and sustainment. Lessons in the kit apply to any health care setting and can be used sequentially or as standalone modules. They stress leadership, situational awareness, anticipating and meeting other team members' needs, and communicating. The uniqueness of TeamSTEPPS™ lies in the fact that it gives users tools they can use to improve patient safety. It offers more than 130 mini case scenarios that can be customized for different specialty areas, such as the surgical suite. Ordering information for the toolkit is available at the AHRQ Web site, www.ahrq.gov/qual/teamstepps. Reprints (AHRQ Publication No. 08-0002) are available from AHRQ.*

Clancy, C. and Slutsky, J.R. (2007, October). "Commentary: A progress report on AHRQ's Effective Health Care Program." ***HSR: Health Services Research*** **42(5), pp. xi-xix.**

The goal of the Effective Health Care Program, supported by the Agency for Healthcare Research and Quality (AHRQ), is to provide up-to-date, evidence-based information about treatment options so that patients, clinicians, purchasers, and policymakers can make informed health care decisions. To date, AHRQ has released eight comparative effectiveness reviews, which can be

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found on the program's Web site http://effectivehealthcare.ahrq.gov.

These reviews can aid better treatment decisions. For example, Gastroesophageal Reflux Disease found that medications called proton pump inhibitors can be as effective as surgery in relieving disease symptoms and improving quality of life. The review Oral Diabetes Drugs found that most oral medications prescribed for type 2 diabetes are similarly effective for reducing blood glucose. However, the drug metformin is less likely to cause weight gain and may be more likely than other treatments to decrease so-called bad cholesterol. The Effective Health Care Program is already having an impact. For example, Consumer Reports Best Buy Drugs, a public education project of Consumers Union, uses findings from the program to help clinicians and patients determine which drugs and other medical treatments work best for certain health conditions. Also, the National Business Group on Health uses findings from the program in its evidence-based benefit design program. Reprints (AHRQ Publication No. 08-R006) are available from AHRQ.*

Crane, P.K., Cetin, K., Cook, K.F., and others. (2007). "Differential item functioning impact in a modified version of the Roland-Morris Disability Questionnaire." (AHRQ grant HS09499). *Quality of Life Research* 16, pp. 981-990.

Measuring the effects of back pain consistently across different demographic groups requires an assessment of scale bias. This assessment is needed to determine if scores for a given group may be artificially high or low, thus exaggerating the actual differences. Researchers sought to determine if the modified 23-item Roland-Morris Disability Questionnaire was subject to this problem. They evaluated it for differential item functioning (DIF) to see if particular test items yielded different responses from different demographic groups. The groups were based on the variables of gender, age, education, marital status, employment status, surgical status, and self-rated general health. Of the 23 items in the questionnaire, 18 showed DIF related to at least one variable, and all of the variables except gender were associated with DIF in at least one item. However, mean scores across demographic groups varied minimally. Thus, for most purposes, the DIF in the modified Roland-Morris Disability Questionnaire may be ignored without threatening the validity of the results.

Dobalian, A., Tsao, J.C., Putzer, G.J., and others. (2007). "Improving rural community preparedness for the chronic health consequences of bioterrorism and other public health emergencies." (AHRQ grant H13110). *Journal of Public Health Management Practice* 13(5), pp. 476-480.

In the wake of a major bioterrorism event, there are likely to be extensive chronic health needs requiring long-term attention from health care providers. Little is known about how rural health care providers will respond to these needs following a public health emergency. In order to prepare for these events, a needs assessment of the public health system in rural communities is required. The assessment of existing resources and response mechanisms will rely on both qualitative (e.g., key informant interviews, focus groups with stakeholders) and quantitative (e.g., surveys that examine the knowledge-based testing of health care providers) methods. A preparedness needs assessment will incorporate key thematic elements based on the 10 Essential Public Health Services model, according to the authors. The needs assessment should also include an analysis of the surge capacity of facilities available within the rural community. The approach to needs assessment suggested by the authors is a potentially expensive one and likely to require at least 6 months.

Dohan, D. and Levintova, M. (November 2007). "Barriers beyond words: Cancer, culture, and translation in a community of Russian speakers." (AHRQ contract 290-2006-00231). *Journal of General Internal Medicine* 22(Suppl 2), pp. 300-305.

A study of Russian-speaking cancer patients in San Francisco revealed several language and cultural barriers to their care that may best be overcome with professional Russian interpreters. Researchers collected data from patients, providers, and families using focus groups at two medical centers with cancer clinics, individual interviews, and observations. The local cancer clinics did not provide adequate Russian language resources compared with Spanish and Chinese, even though more than 30,000 Russian-speaking immigrants reside in San Francisco. Also, Russian family members, especially patients' children, often did not have adequate Russian language skills to interpret medical and technical information and often edited messages to protect family members from the stress or despair.

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The demanding nature of Russian patients also created barriers to care. Many would demand to see a certain doctor or to be seen without an appointment or complain about the lack of hands-on care that they were used to in their home countries.

Filardo, G., Nicewander, D., Hamilton, C., and others. (2007, November). "A hospital-randomized controlled trial of an educational quality improvement intervention in rural and small community hospitals in Texas following implementation of information technology." (AHRQ grant HS15431). *American Journal of Medical Quality* 22(6), pp. 418-427.

Rural and small community hospitals typically have fewer resources and poorer quality of care than larger hospitals. They also tend to have little experience with quality improvement (QI). This article describes the planned methodology of the first study to apply a formal QI education program in rural U.S. hospitals. The research team will randomly assign 47 rural and small community Texas hospitals that had received a Web-based quality benchmarking and case review tool to either just that information technology (control group) or to those IT tools plus an educational QI intervention. The team will compare composite quality care scores for congestive heart failure and community-acquired pneumonia 2 years following implementation of the QI intervention.

Holmes-Rovner, M., Nelson, W.L., Pignone, M. and others. (2007). "Are patient decision aids the best way to improve clinical decision making? Report of the IPDAS Symposium." (AHRQ grant HS 16486). *Medical Decision Making* 27, pp. 599-608.

This article reports on the International Patient Decision Aid Standards Symposium held in 2006 by the Society for Medical Decision Making. The subject of debate at the symposium was whether patient decision aids are the best way to improve clinical decisionmaking. Among the related topics discussed were the history and philosophy of decision aids (DAs), the problems addressed by DAs, the growth and scope of DAs, and standards setting for DAs. The symposium highlighted several major areas of controversy in DA research: the correct theoretical framework and the gold standard for a good decision, the efficacy of DAs, and the feasibility of DAs in clinical practice. There was consensus that the purpose of DAs is to inform patients about choices and their outcomes. However, the questions of efficacy and feasibility of DAs remained controversial throughout the discussion. At the end of the symposium, participants were split down the middle about whether DAs are the best way to improve clinical decisionmaking.

Reed, P.L., Rosenman, K., Gardiner, J., and others. (2007). "Evaluating the Michigan SENSOR surveillance program for work-related asthma."(AHRQ grant HS14206). *American Journal of Industrial Medicine* 50, pp. 646-656.

Workplace inspections by the Occupational Safety and Health Administration (OSHA) are normally conducted on the basis of employee complaints or the targeting of industry groups. An alternate basis for inspections is the Sentinel Event Notification System for Occupational Risks (SENSOR), which relies on reports of diseases such as workplace-related asthma (WRA). This study compares Michigan worksites inspected in the normal program with those inspected under the SENSOR program as a result of reported WRA cases. From a sample of 12,813 inspections carried out between 1989 and 2002, the researchers found that the occurrence of violations and issuance of penalties was similar under both systems of inspections. However, SENSOR-inspected worksites received fewer citations than non-SENSOR worksites. Also, under both programs of inspection, worksites receiving citations for any violation, as well as worksites cited for serious violations, were more likely to have fewer employees and to lack unions. The researchers suggest that SENSOR inspections are as valuable with respect to public health as inspections undertaken for other reasons.

Rubenstein, L.V., Rayburn, N.R., Keeler, E.B. and others. (2007). "Predicting outcomes of primary care patients with major depression: Development of a Depression Prognosis Index." (AHRQ grant HS08349). *Psychiatric Services* 58(8), pp. 1049-1056.

Mental health conditions, unlike general medical conditions, have generally lacked prognosis indices. The authors of this study developed and tested a Depression Prognosis Index (DPI) to predict 6-month outcomes. They enrolled 1,471 patients with major depression being treated in 108 primary care practices. They identified the following factors as predictors of poor depression outcome: physical and mental comorbidities, a history of depression treatment, low social functioning and support, being older and male, being unemployed,

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and being a member of a racial or ethnic minority group. The principal outcome measure was depression symptom severity after 6 months. At the outset, patients were ranked in quartiles based on their self-reported characteristics. At the 6-month follow-up, 64 percent of those with the poorest prognosis had a likely diagnosis of major depression while only 14 percent of those in the healthiest group had a similar diagnosis. Thus, the ability of the DPI to predict depression outcomes compares favorably with that of prognostic indicators for general medical problems.

Russell, R.B., Green, N.S., Steiner, C.A., and others. (July 2007). "Cost of hospitalization for preterm and low birth weight infants in the United States." ***Pediatrics*** **120, pp. e1-e9.**

According to hospital discharge data from the 2001 National Inpatient Sample from the Healthcare Cost and Utilization Project, 8 percent of infants were born premature or with low birth weights. Their hospital stays accounted for nearly half (47 percent) of infant hospitalization costs in the United States. Hospital stays for premature or low-birthweight (less than 5.5 pounds) infants averaged 12.9 days and cost $15,100 compared with 1.9 days and $600 for uncomplicated births. The higher costs reflected the infants' need for intensive care for acute and chronic conditions, with respiratory illnesses being the most common and costliest. Very premature infants, born at less than 28 weeks of gestation or with birth weights of less than 2.2 pounds, incurred the highest costs, averaging $65,600 and stays of 42.2 days. The true costs for care of these vulnerable infants are actually higher because physician fees, rehabilitation, outpatient expenses, and the mother's hospital costs were not included in the study's total costs. Both public (42 percent) and private insurers (50 percent) bore the costs of infant hospitalizations. Reprints (AHRQ Publication No. 07-R066) are available from AHRQ.*

Shen, J.J., Washington, E.L., Chung, K., and Bell, R. (Spring 2007). "Factors underlying racial disparities in hospital care of congestive heart failure." (AHRQ grant HS13056). ***Ethnicity & Disease*** **17, pp. 206-213.**

Researchers analyzed data from the 1995-1997 National Inpatient Sample on 373,158 patients discharged with heart failure from U.S. hospitals. Blacks with heart failure were nearly two times more likely and Hispanics were 30 percent more likely than their white counterparts to be admitted to the hospital through the emergency department. Blacks and Hispanics were less likely than their white counterparts to have other coexisting medical conditions. They were also more likely than whites to be admitted to teaching hospitals, which generally have better facilities and capability than nonteaching hospitals. Yet blacks and Hispanics were 34 and 30 percent, respectively, less likely than whites to receive invasive cardiovascular services such as cardiac catheterization, angioplasty, or bypass surgery. These procedures tend to improve outcomes for heart failure patients. Blacks and Hispanics also stayed in the hospital longer and had higher total charges (which is more typical of teaching hospitals).

Singer, S., Meterko, M., Baker, L, and others. (2007). "Workforce perceptions of hospital safety culture: Development and validation of the patient safety climate in healthcare organizations survey." (AHRQ grant HS13920). ***HSR: Health Services Research*** **42(5), pp. 1999-2021.**

This paper describes the development and psychometric evaluation of the Patient Safety Climate in Healthcare Organizations (PSCHO) survey by a Stanford-based patient safety research program. The theory underlying the survey was based on research regarding high-reliability organizations (HROs), whose successful operations require a culture of reliability centering on safety. The 38-item PSCHO survey was distributed in 105 hospitals to over 42, 000 individuals. The response rate was 51 percent (21, 494 completed surveys). The survey was divided into three broad factors (senior managers' engagement in patient safety, organizational resources for patient safety, and overall emphasis on patient safety) consisting of nine dimensions: three organizational, two unit-based, three individual and one that relates to report-type questions about the actual incidence of unsafe care. This nine-dimensional model of hospital safety culture was well supported by the empirical results of the survey and may be used in further studies to understand the impact of safety climate on patient safety outcomes.

Smith, S.R., Wahed, A.S., Kelley, S.S., and others. (2007 July). "Assessing the validity of self-reported medication adherence in hepatitis C treatment." ***Annals***

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***of Pharmacotherapy* 41, pp. 1116-1123.**

Strictly following a drug regimen of ribavirin and peginterferon is critical to treat the infection and halt liver damage in individuals infected with hepatitis C virus (HCV). While a high number of patients continue to take the combination medication, despite the flu-like symptoms, hair loss, extreme fatigue, depression, and other side-effects that are common, adherence gradually wanes during therapy.

Patients tended to report higher drug compliance than indicated by electronic monitoring of pill bottle openings, but the discrepancy between the two was slight suggesting that self-report can be used a simple screening tool for nonadherence to HCV treatment. Based on patient self-report, the proportion of patients who were adherent prior to a given visit ranged from 85 to 97 percent for ribavirin and 97 to 100 percent for peginterferon. Adherence based on an electronic monitor placed inside the cap of prescription containers ranged from 69 to 90 percent for ribavirin and 84 to 100 percent for peginterferon. Adherence decreased over time for both medications, probably due to drug side-effects. For combination therapy, adherence was better for weekly injections of peginterferon than for twice daily doses of ribavirin. The findings were based on self-report and electronic monitoring of drug adherence by 196 black and 205 white patients enrolled in an HVC treatment study.

Reprints (AHRQ Publication No. 08-R003) are available from AHRQ.*

Tan, A., Freeman, J.L., and Freeman, D.H. (2007). "Evaluating health care performance: Strength and limitations of multilevel analysis." (AHRQ grant HS11618). *Biometrical Journal* 49, pp. 707-718.

Several statistical methods are available to evaluate variations in health care performance: single-level analysis, cluster analysis, and multilevel analysis. Choosing which method to use is complicated by the fact that multi-level analysis, a relatively new and popular method, has not yet been compared to cluster analysis with either a simulated or real dataset. To perform the comparison, the researchers used Medicare claims data in evaluating the extent and source of variation in false-positive rates of screening mammography among radiologists. They found no systematic difference between cluster sampling and multilevel analysis in estimating fixed effects of patient and radiologist characteristics. However, both approaches yield larger standard errors of fixed-effect estimates than single-level analysis. In addition, multilevel analysis identified much less between-radiologist variation and fewer outlier radiologists than the other two methods. The researchers conclude that the choice between cluster sampling and multilevel analysis should be based on the researcher's objectives.

Wackerbarth, S.B., Tarasenko, Y.N., Curtis, L.A., and others. (2007). "Using decision tree models to depict primary care physicians CRC screening decision heuristics." (AHRQ grant 84503). *Journal of General Internal Medicine* 22(10), pp. 1467-1469.

Although guidelines suggest that those without other risk factors be screened for colorectal cancer (CRC) starting at age 50, merely mentioning this is not enough to motivate all patients and there is variation in the nature of recommendations. The researchers interviewed 66 primary care physicians to find out how they formulated recommendations about who should be screened for CRC and what type of tests should be performed. In addition to age 50, inclusion criteria used by physicians were symptoms, cancer history, history of colon problems, and a family history of other cancer. Exclusion criteria were short life expectancy, multiple coexisting illnesses, contraindications to testing, and cognitive impairment. The researchers found that, in making decisions about the timing of screening, physicians used one of four heuristics involving age and, sometimes, family history. In making decisions about the type of screening, they used five heuristics. ■

New publications are available from AHRQ

The following publications are available from the Agency for Healthcare Research and Quality. Copies can be obtained either online or through the AHRQ Clearinghouse.*

Effective Health Care reports (http://effectivehealthcare.ahrq.gov/)

- *Comparative Effectiveness of Treatments to Prevent Fractures in Men and Women with Low Bone Density or Osteoporosis: Executive Summary*. Number 12. (publication no. 08-EHC008-I)
- *Pills for Type 2 Diabetes: A Guide for Adults*. (publication no. 07(08)-EHC010-2A)
- *Comparing Oral Medications for Adults with Type 2 Diabetes: Clinician's Guide.* (publication no. 07(08)-EHC010-3)
- *Comparative Effectiveness of Management Strategies for Renal Artery Stenosis: 2007 Update/Executive Summary.* Number 5 Update. (publication no. 07(08)-EHC004-IU)
- *Comparative Effectiveness of Angiotensin-Converting Enzyme Inhibitors (ACEIs) and Angiotensin II Receptor Antagonists (ARBs) for Treating Essential Hypertension: Executive Summary*. Number 10 (publication no. 08-EHC003-I)
- *Comparative Effectiveness of Drug Therapy for Rheumatoid Arthritis and Psoriatic Arthritis in Adults. Executive Summary*. Number 11. (publication no. 08-EHC004-I)
- *Comparative Effectiveness of Percutaneous Coronary Interventions and Coronary Artery Bypass Grafting for Coronary Artery Disease: Executive Summary*. Number 9. (publication no. 08-EHC002-1)
- *Comparing Two Kinds of Blood Pressure Pills: ACEIs and ARBs. A Guide for Adults.* (publication no. 08-EHC003-2A)
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Evidence-based Practice Reports (www.ahrq.gov/clinic/epcindex.htm)

- *Collection and Use of Cancer Family History in Primary Care.* EPC Report Number 159. (publication no. 08-E001)

Other Publications

- *Preguntas y Respuestas sobre Seguros de Salud: Guia para el Consumidor.* Questions and Answers About Health Insurance/A Consumer Guide (Spanish Version). (publication no. 07(08)-0043)
- *Patient Self-Management Support Programs: An Evaluation. Final Contract Report.* (publication no. 08-0011)
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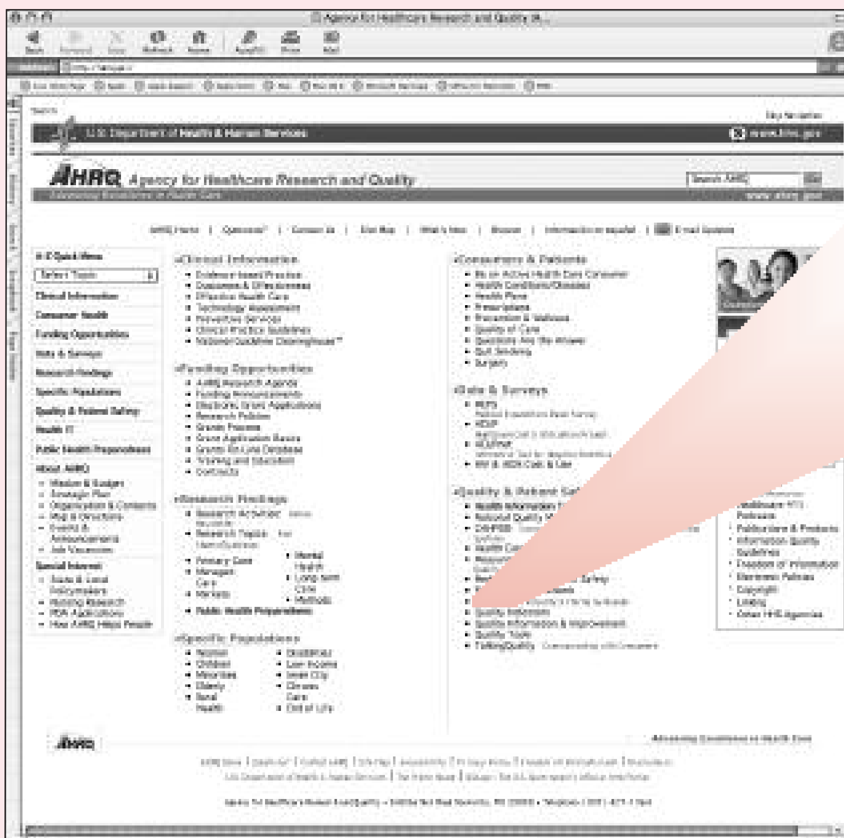

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