



Research Activities



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Organizational silence threatens patient safety

Organizational silence refers to the tendency for people to do or say very little when confronted with significant problems or issues in their organization or industry. In a recent article, Kerm Henriksen, Ph.D., and Elizabeth Dayton, M.S., of the Agency for Healthcare Research and Quality (AHRQ), describe the individual, social, and organizational factors that contribute to organizational silence and can threaten patient safety. They cite several individual factors that contribute to clinician silence. For example, the availability heuristic suggests that if relatively infrequent events that harm patients go unreported and are not openly discussed, clinicians don't believe these events are a problem at their hospital. A second factor is self-serving bias. People tend to view themselves as "above average" in their chosen field of work and so "why do things differently?" Successes are attributable to their own abilities but failures are blamed on situational factors. Finally, members of all organizations display a strong tendency to perpetuate the status

quo and not speak up or rock the boat.

Several social factors also underlie clinician silence. There is great pressure to conform in order to gain acceptance and work harmoniously with coworkers. Diffusion of responsibility is also a problem. In clinical settings, individual roles and responsibilities are often assumed rather than clearly spelled out. Under these conditions of diffused responsibility, components of care that should be attended to are often missed. Also, managers who seek blame and attribute error to the individual failings of careless or incompetent staff create a microclimate of distrust.

Finally, three areas of organizational vulnerability that warrant closer attention are unchallenged beliefs, the perceived qualities of the good worker who "works around" problems rather than focusing on the contributory factors to the problem, and lack of understanding of the interdependence of complex

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Organizational silence

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clinical systems. The authors recommend that health care leaders and managers value dissent and multiple perspectives as signs of

organizational health, and question agreement, consensus, and unity when they are too readily achieved.

See “Organizational silence and hidden threats to patient safety,” by Dr. Henriksen and Ms. Dayton, in

the August 2006 *HSR: Health Services Research* 41(4), pp. 1539-1554. Reprints (AHRQ Publication No. 06-R060) are available from AHRQ.* ■

Patient Safety and Quality

Perceptions of teamwork in hospital labor and delivery units depend on caregiver role and the unit environment

Teamwork is often critical to patient safety in a hospital unit. Caregiver assessments of teamwork in a hospital labor and delivery (L&D) unit depend on the unit environment and their role in the unit, concludes a new study. The investigators, who developed the Safety Attitudes Questionnaire (SAQ) teamwork climate scale, used the instrument to assess caregiver assessments of teamwork climate in L&D units in 44 hospitals in diverse regions of the United States. The SAQ measured the extent to which caregivers reported they felt supported, could speak up comfortably, could ask questions, felt their input was heeded, that conflicts

were resolved, and that physicians and nurses collaborated. The researchers correlated the scale with external teamwork-related items such as workload and procedure briefings.

Good teamwork climate scale scores at the L&D unit level were associated with better information management at point-of-care transitions, like communication during shift changes and briefings before a procedure. A good teamwork climate also appeared to be related to familiarity with other caregivers—for example, knowing their names and being able to predict their actions during emergencies. In L&D units where caregivers reported a good teamwork climate, decisions were made collaboratively and, when necessary, it was possible to disagree with staff physicians. Staff from these units also reported lower levels of caregiver burnout from work. Poor teamwork climate in a unit was associated with communication breakdowns that led to costly and unproductive delays.

Caregiver role influenced perceptions of teamwork. Overall, physicians and nurse managers were much more satisfied than nurses with the collaboration they experienced. For example, anesthesiologists had higher scale scores than certified registered nurse anesthetists for five of the six teamwork climate items. Most (80 percent) L&D staff felt it was easy for personnel in their unit to ask questions. However, only 55 percent found it easy to speak up if they perceived a problem with patient care, and only half felt that conflicts were appropriately resolved. The study was supported in part by the Agency for Healthcare Research and Quality (HS11544).

See “Variation in caregiver perceptions of teamwork climate in labor and delivery units,” by John B. Sexton, Ph.D., M.A., Christine G. Holzmüller, B.L.A., Peter J. Pronovost, M.D., Ph.D., and others, in the August 2006 *Journal of Perinatology* 26, pp. 463-470. ■

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Learning collaboratives are a potentially effective way to improve the quality of care delivered by pediatric practices

Learning collaboratives have the potential to improve the quality of care delivered by pediatric practices, concludes a study supported in part by the Agency for Healthcare Research and Quality (HS11826). Learning collaboratives bring health care provider teams together to learn how to overcome the barriers that impede the delivery of high-quality care within their particular practice. Together, providers learn to identify an explicit quality goal, work with their team to develop innovative plans for change within their system, and use appropriate measurement tools to indicate whether the changes result in the desired improvement.

In the study, 14 Utah pediatric practices participated in a 4-phase learning collaborative. Each

practice formed a team that consisted of a pediatrician, a nurse or medical assistant, and a member of the office administrative staff. After conducting an initial audit of 40 medical records (20 for children age 2 and 20 for children age 4) to document preventive services on the basis of national standards, practice teams attended a quality improvement workshop. They were presented with evidence to support the value of preventive services and the results of their audits. They were also taught quality improvement methods such as rapid cycles of change.

Each team developed plans to improve one or more preventive care services. Brief audits with feedback and monthly conference calls were used to support practice to conduct rapid cycles of change,

discuss barriers and solutions, and monitor progress. A preventive service score (PSS) assigned one point for each preventive service provided. Based on final chart audits, the PSS improved for all practices after participation in the learning collaborative. Mean PSS for 2-year-olds increased from 4.0 to 4.9 and for 4-year-olds from 3.8 to 5.6. The proportion of children who received 9 of the 10 individual preventive services also improved significantly.

See “Evaluation of a learning collaborative to improve the delivery of preventive services by pediatric practices,” by Paul C. Young, M.D., Gordon B. Glade, M.D., Gregory J. Stoddard, M.P.H., and Chuck Norlin, M.D., in the May 2006 *Pediatrics* 117(5), pp. 1469-1476. ■

Child/Adolescent Health

Use of pediatric hospitalists decreases hospital costs and stays without adversely affecting clinicians or parents

Pediatric hospitalists focus on hospital care and spend most of their working day at the hospital, while other pediatricians typically spend much of the day at the office and see their hospitalized patients during morning or evening rounds. Use of pediatric hospitalists decreases hospital costs and length of stay for hospitalized children. This approach does not adversely affect the experiences of the referring physician, parent, or hospital housestaff, concludes a study supported by the Agency for Healthcare Research and Quality (HS13333).

Christopher Landrigan, M.D., M.P.H., of Harvard Medical School, and colleagues systematically reviewed studies on pediatric hospitalist systems. They analyzed 20 studies presenting primary data on efficiency, financial performance, and clinical outcomes affecting family, referring provider, and housestaff experience in hospitalist systems. Demonstrated improvement in costs and/or length of stay in pediatric hospitalist systems was shown in six of seven studies that compared traditional and

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Pediatric hospitalists

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hospitalist systems of care. The average decrease in cost was 10 percent, and the average decrease in length of stay was 10 percent.

However, all three economic analyses demonstrated that efficiency gains did not generally translate into revenues for the

hospitalist programs themselves. In fact, most hospitalist programs were losing money at the time of the study. Surveys of families, referring providers, and pediatric residents demonstrated neutral or improved experiences in hospitalist systems, although these data were less comprehensive. Data on

quality of care were insufficient to draw conclusions.

More details are in “Pediatric hospitalists: A systematic review of the literature,” by Dr. Landrigan, Patrick H. Conway, M.D., Sarah Edwards, B.A., and Rajendu Srivastava, M.D., F.R.C.P., M.P.H., in the May 2006 *Pediatrics* 117(5), pp. 1736-1744. ■

Rural children with special health care needs are more likely than their urban counterparts to lack needed dental care

Children with special health care needs (CSHCN) generally need more medical care, mental health care, or educational services than do other children. They are also at greater risk of having dental problems, yet rural CSHCN are less likely than their urban counterparts to receive needed dental care. Researchers, supported in part by the Agency for Healthcare Research and Quality (HS13309), calculated that the probability of having an unmet need for dental care was 26.3 percent for urban CSHCN and 32.6 percent for rural CSHCN. The 6.3 percentage point difference translates into more than 100,000 additional rural CSHCN who are not receiving needed dental care.

According to the researchers, rural CSHCN have unmet needs for dental care for two main reasons: difficulty accessing care and because their parents do not recognize the need for it. Based on professional recommendations, CSHCN living in rural areas were 17 percent more likely to have an unmet need for dental care than urban CSHCN. However, based on parental perceptions of unmet need, there were no significant differences due to rural residence. Previous

difficulty accessing dentists may lead to more conservative beliefs of what constitutes a “need.” Also, when facing access barriers and limited resources, physicians and parents of CSHCN may place priority on the child’s medical condition, especially at younger ages, explain the researchers. Once a child’s need for dental care was recognized by a parent, rural residence itself was not a barrier to needed care. However, poverty, lack of insurance, and low levels of education created barriers to receiving care.

These findings were based on analysis of data from 2000 to 2002 on 37,461 CSHCN age 2 years and older from the State-stratified National Survey of CSHCN. Data on the children included types of health care, such as routine care, specialty care, and dental care, as well as demographic characteristics and insurance status.

See “The effect of rural residence on dental unmet need for children with special health care needs,” by Asheley Cockrell Skinner, B.S., Rebecca T. Slifkin, Ph.D., and Michelle I. Mayer, Ph.D., M.P.H., R.N., in the Winter 2006 *Journal of Rural Health* 22(1), pp. 36-42. ■

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Maternal psychological distress and infrequent use of seat belts are associated with children's low use of motor vehicle restraints

Children whose mothers are psychologically distressed or who don't often use seat belts are less likely to be restrained by car seats or seat belts themselves, concludes a new study. Researchers found that children were over 5 times more likely to be unrestrained in a car seat or seat belt if their mother was an infrequent user than if she buckled up most or all of the time. Children's restraint use plummeted even further if their mother had emotional problems. Older children were especially prone to forego seat belts if their mothers did. Caregivers should consider a mother's seat belt use and emotional condition when assessing children's motor vehicle safety, suggest the authors of the study. They analyzed data from the 1998 National Health Interview Survey of 6,251 children aged 0 to 17 years. They correlated the level of

children's motor vehicle restraint use (low vs. high) with maternal psychological distress and motor vehicle restraint use.

Low users were those who were buckled in a child safety seat or seat belt some of the time, once in a while, or never when riding in a car. High users were buckled in all of the time or most of the time. Based on maternal reports, more than 10 percent of children and nearly 13 percent of mothers reported low use of motor vehicle restraints. More than 35 percent of children were low users of restraints if their mothers also reported low use compared with 6.1 percent of children of high-use mothers.

Among mothers reporting low restraint use, those who were also distressed were more likely than those who were not distressed to report low restraint use by their children (43.3 vs. 35.4 percent).

Distressed mothers were also more likely than nondistressed mothers to report low restraint use for themselves (19.3 vs. 12.9 percent).

Children were less often restrained if their mother was older, black, or less educated, or if they lived with a single parent, in a family of four or more members, in poverty, or in a rural area. The study was supported in part by the Agency for Healthcare Research and Quality (T32 HS00063).

More details are in "Children's use of motor vehicle restraints: Maternal psychological distress, maternal motor vehicle restraint practices, and sociodemographics," by Whitney P. Witt, Ph.D., M.P.H., Lisa Fortuna, M.D., M.P.H., Eijean Wu, M.P.P., and others in the May 2006 *Ambulatory Pediatrics* 6, pp. 145-151. ■

Women's Health

Teriparatide alone is less cost-effective than alendronate alone for the treatment of women with severe osteoporosis

Teriparatide is a promising new agent for the treatment of osteoporosis (loss of bone mass density). The drug increases bone density and reduces fractures in women with severe osteoporosis (those with low bone mass and preexisting fractures) by directly stimulating new bone formation. Yet therapy with teriparatide alone is more expensive and produces a smaller increase in quality-adjusted life years (QALYs) than therapy with alendronate, the U.S. market leader in osteoporosis medications. Sequential teriparatide/alendronate therapy appears expensive; however, it could become more cost-effective in certain circumstances.

Researchers analyzed data from three osteoporosis fracture trials to compare the cost per QALY for usual care (calcium or vitamin D supplementation) with that of three medication strategies for the first-line treatment of high-risk osteoporotic women

(postmenopausal white women with low bone density and vertebral fracture). The three medication strategies included 5 years of alendronate therapy, 2 years of teriparatide therapy, and 2 years of teriparatide therapy followed by 5 years of alendronate therapy (sequential teriparatide/alendronate).

Compared with usual care, the cost of alendronate treatment was \$11,600 per QALY. Teriparatide alone was less cost-effective than alendronate at \$172,300 per QALY, even if its efficacy lasted 15 years after treatment. The cost of sequential teriparatide/alendronate therapy was \$156,500 per QALY compared with alendronate alone. This sequential therapy was less cost-effective than alendronate, even if fractures were eliminated during the alendronate phase. However, it would become cost-

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Teriparatide

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effective (less than \$50,000 per QALY) if the price of teriparatide decreased 60 percent, if used in elderly women with severe osteoporosis, or if 6 months of teriparatide therapy had comparable efficacy to 2 years of treatment. The study was supported in part by the

Agency for Healthcare Research and Quality (T32 HS00028).

See “The cost-effectiveness of therapy with teriparatide and alendronate in women with severe osteoporosis,” by Hau Liu, M.D., M.B.A., M.P.H., Kaleb Michaud, M.S., Smita Nayak, M.D., and others, in the June 12, 2006 *Archives of Internal Medicine* 166, pp. 1209-1217. ■

Elderly/Long-Term Care

Elderly patients whose physicians are white or have urban practices are more likely to use antidepressants

Selective serotonin reuptake inhibitors (SSRIs), newer antidepressants introduced at the end of 1987, have fewer side effects and require simpler dosing and management than older antidepressants. This makes it easier for primary care physicians to prescribe them for elderly patients. Although elderly antidepressant use tripled from 1987 to 1997, the elderly continued to receive their antidepressants from the same type of usual care providers, according to a new study. However, elderly patients of physicians who were white or had urban practices were more likely to use antidepressants than patients of other physicians.

Researchers, supported in part by the Agency for Healthcare Research and Quality (HS13353), asked

2,261 black and 1,875 white elderly community residents of a five-county area in North Carolina about their prescription medications, demographic and health status, and usual medical care provider. They categorized members into predisposing (demographic), enabling (medical care access), and need (health status) categories. The team collected data in the periods 1986-1987, 1989-1990, 1992-1993, and 1996-1997. They used models to examine the association between antidepressant use and provider race, sex, age, location of practice, and primary versus specialist care.

Use of antidepressants increased from 3.7 percent in 1986-1987 to 10.9 percent in 1996-1997, which was mostly attributable to the introduction of SSRIs. A minor but

steady increase in the use of non-SSRIs also occurred over time. The majority of elderly patients who were prescribed antidepressants had a provider who was white, male, a primary care practitioner younger than 44, and practicing in an urban area. These provider characteristics may reflect the treatment preferences associated with the race of their patients and provision of pharmaceutical information to the physician, which is more prevalent in urban areas.

See “Provider characteristics related to antidepressant use in older people,” by Gerda G. Fillenbaum, Ph.D., Celia F. Hybels, Ph.D., Carl F. Pieper, Dr.P.H., and others, in the June 2006 *Journal of the American Geriatric Society* 54, pp. 942-949. ■

Severity of illness and rural location affect the willingness of elderly people to travel longer distances to the hospital

Elderly people are generally disinclined to travel long distances for care. However, severity of illness, rural location, and available resources can affect their travel decisions, according to a new study of elderly people in New York. The study used an innovative measure of relative distance—propensity to travel further than one’s neighbors—to gauge propensity for distant travel along the urban-rural continuum. The researchers focused the analysis on elderly New York residents who were hospitalized for

ambulatory care sensitive conditions (those that can often be prevented by good primary care), which are assumed to be representative of usual travel patterns.

The researchers found that the overall willingness of the elderly to travel longer distances for care generally declined from 1997 to 2001. However, over time, more severely ill elderly people from isolated rural and adjacent rural areas were more likely to travel further than normal distances to hospitals, even in

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Elderly people

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communities with new hospital entry. Those in isolated rural areas, who were least likely to travel long distances for care in 1997, demonstrated the greatest increase in travel propensities between 1997 and 2001.

The researchers, Jayasree Basu, Ph.D., M.B.A., of the Agency for Healthcare Research and Quality, and Lee R. Mobley, Ph.D., M.F.A., of Research Triangle Institute, note that two factors may have driven this trend. Medicare created rural Critical Access Hospitals (CAHs) in 1997, which were intended to be instrumental in managing the care of severely ill rural

patients, and Medicare managed care penetrated farther into rural areas—both of which enhanced the ability to refer patients to more distant hospitals. The urban-rural disparity in travel distance to hospitals among the more severely ill elderly could have widened as the growing number of New York rural hospitals certified as CAHs (from three in 1997 to seven by 2001) referred the more severely ill patients to their affiliated support hospitals, explain the researchers.

More details are in “Illness severity and propensity to travel along the urban-rural continuum,” by Drs. Basu and Mobley, in the May 2006 *Health & Place* (online). Reprints (AHRQ Publication No. 06-R077) are available from AHRQ.* ■

Prescription drug benefits limits for Medicare beneficiaries are associated with less use of prescription drugs, worse clinical outcomes, and higher hospitalization costs

The caps placed on Medicare drug benefits are associated with less use of prescription drugs and poor clinical outcomes, without any net cost savings, concludes a new study. In elderly patients with chronic diseases, the caps were associated with poorer adherence to drug therapy and poorer control of blood pressure, lipid levels, and glucose levels. The differences in use of prescription drugs for those with caps were substantially larger during the months after they exceeded the cap than during earlier months. Beneficiaries whose benefits were capped had higher rates of non-elective hospitalizations, visits to the emergency department, and death than those whose benefits were not capped.

Thus, the savings in drug costs from the cap were offset by increases in the costs of hospitalization and emergency

department care. These findings suggest a need to closely monitor the effects of the new Medicare drug benefits and, possibly, to modify cost sharing for drugs that are effective in treating chronic diseases, suggests John Hsu, M.D., M.B.A., M.S.C.E., of Kaiser Permanente. He and fellow researchers at Kaiser, Harvard University, and the University of California, San Francisco compared the clinical and economic outcomes in 2003 among 157,275 elderly Medicare+Choice beneficiaries, whose annual drug benefits were capped at \$1,000, and 41,904 beneficiaries whose drug benefits were unlimited because of employer supplements.

Those with capped benefits had pharmacy costs for drugs applicable to the cap that were 31 percent lower than those whose benefits were not capped, but their total medical costs were

comparable (with a non-significant 1 percent difference). Among those who used drugs for hypertension, high cholesterol, or diabetes in 2002, those whose drug benefits were capped were 30 percent, 27 percent, and 33 percent more likely, respectively, to be nonadherent to long-term drug therapy in 2003. These subgroups also had higher respective blood pressure, cholesterol, and blood-sugar levels in 2003 than their counterparts without drug benefit caps. The study was supported in part by the Agency for Healthcare Research and Quality (HS13902 and HS10803).

See “Unintended consequences of caps on Medicare drug benefits,” by Dr. Hsu, Mary Price, M.A., Jie Huang, Ph.D., and others, in the June 1, 2006 *New England Journal of Medicine* 352(22), pp. 2349-2359. ■

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.

Greater competition among health plans is linked to more advertising that targets healthier patients

Medicare beneficiaries are the targets of advertising from an unprecedented number of health plans offering them prescription drug coverage under the new Medicare prescription drug program. Previous Medicare managed care efforts have been undermined by risk selection, the practice of enrolling healthier and therefore less costly patients. A new study, supported in part by the Agency for Healthcare Research and Quality (HS10771), found that increased competition among health plans was associated with greater use of advertising that targeted healthier patients.

R. Adams Dudley, M.D., M.B.A., of the University of California, San Francisco, and colleagues Ateev Mehrotra, M.D., M.P.H., of Harvard Medical School, and Sonya Grier, Ph.D., M.B.A., of the University of Pennsylvania, examined how health plan advertising content was related to the competitiveness of the health plan market. The researchers developed a method for coding risk-selective characteristics (those that would attract healthier people) in ads. They used a final set of 10 risk-selective ad characteristics to examine risk selection in a national sample of health plan print ads and how risk selection changed in those ads over time. The focus was on the relationship

between frequency of risk-selective ads and HMO market share as a marker of competition. They looked at all types of health plan ads, including Medicare, HMO, and Preferred Provider Organization ads.

Based on coding of the 693 ads included in the database, the use of ads attractive to healthy patients increased nationally from the 1970s through the 1990s, a time when HMOs became more common and gained market share. Further, in 2000, the use of such ads was more common in markets with higher HMO market share than in those with lower market share. Two random samples of plan ads from 2000 showed that in markets with high HMO market share, the mean number of “attract healthy” characteristics in ads was 0.6 or higher, while in markets with low HMO market share, it was below 0.3. There was no consistent relationship between “attract sick” ads and HMO market share. These correlations suggest that as competition increased, health plans attempted to risk-select through advertising.

See “The relationship between health plan advertising and market incentives: Evidence of risk-selective behavior,” by Drs. Mehrotra, Grier, and Dudley, in the May 2006 *Health Affairs* 25(3), pp. 759-765. ■

Outcomes/Effectiveness Research

Studies examine the effectiveness, safety, and feasibility of out-of-hospital endotracheal intubation

Emergency endotracheal intubation (ETI) is a procedure that involves placing a tube into the windpipe (trachea) to maintain an open airway in patients who are unconscious or unable to breathe on their own. Out-of-hospital rescuers often require multiple attempts to accomplish ETI. Three attempts are probably reasonable to optimize the chances for ETI success according to a new study by Henry E. Wang, M.D., M.P.H., and Donald M. Yealy, M.D., of the University of Pittsburgh School of

Medicine. A second study by the researchers indicates that out-of-hospital ETI remains prominent in paramedic care and is beneficial to some patients, but it has not clearly improved survival or reduced morbidity from critical illness or injury when studied more broadly. Both studies, which were supported by the Agency for Healthcare Research and Quality (HS13628), are summarized here.

Wang, H.E., and Yealy, D.M. (2006, April). “How many attempts are required to

accomplish out-of-hospital endotracheal intubation?” *Academic Emergency Medicine* 13(4), pp. 372-377.

Out-of-hospital rescuers often require three or more attempts to accomplish ETI. Multiple attempts are associated with complications such as airway trauma, abnormally slow heart rate (<60 beats per minute), low blood oxygen levels (hypoxemia), and cardiac arrest. Yet a protocol limit of three ETI attempts for out-of-hospital rescuers offers a reasonable opportunity to accomplish ETI,

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Endotracheal intubation

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while minimizing the hazards of more attempts, concludes this study.

Researchers found that for all ETIs performed on 1,941 patients, more than 30 percent of patients underwent 2 or more ETI attempts, and some patients underwent as many as 6 ETI attempts. However, cumulative ETI success rates in all groups did not approach overall success rates until at least the third ETI attempt. Cumulative ETI success among different clinical groups for the first three attempts ranged from 44 percent to nearly 70 percent. This trend is most worrisome in patients with non-arrest rapid-sequence intubation, in which first-pass ETI success is a priority due to the absence of spontaneous airway reflexes, note the researchers.

In their study, ETI was performed by a range of emergency medical services (EMS) agencies in different practice settings and clinical scenarios. Their findings were based on analysis of prospective, multicenter data from

42 EMS agencies over an 18 month period. Out-of-hospital rescuers (paramedics, nurses, and physicians) completed structured data forms describing clinical methods, course, and outcomes. An ETI attempt was defined as an insertion of the laryngoscope blade into the trachea, not the effort to pass the endotracheal tube.

Wang, H.E., and Yealy, D.M. (2006, June). "Out-of-hospital endotracheal intubation: Where are we?" *Annals of Emergency Medicine* 47(6), pp. 532-541.

Despite its prominent use in paramedic care and benefit to some patients, out-of-hospital ETI has not improved survival or reduced morbidity from critical illness or injury when studied more broadly. A review of studies on this topic has identified equivocal or unfavorable clinical effects of out-of-hospital ETI on patient outcome, as well as adverse events and errors. For instance, one study of 1,953 ETIs found tube misplacement in 3.1 percent of intubations, 4 or more ETI attempts in 3.2 percent of

intubations, and failed ETI efforts in 18.5 percent of intubations.

Studies have also revealed that ETIs may affect other aspects of care. For example, after successful out-of-hospital ETI, rescuers commonly perform ventilation manually using only tactile feedback. Consequently, out-of-hospital ETI may result in unintended hyperventilation, which may be deleterious in certain conditions. Out-of-hospital ETI may also affect the execution of other important resuscitation interventions such as chest compressions, electrical therapy, intravenous access, or the administration of drugs.

Finally, several studies have underscored the challenges of providing and maintaining procedural skill in out-of-hospital ETI. Paramedics often receive relatively limited training and clinical experience. Overall, the studies reviewed highlight the limited understanding of out-of-hospital ETI and the need for new strategies to improve airway support in the out-of-hospital setting. ■

Talc should be the agent of choice when treating fluid buildup around the lungs from advanced cancer

Buildup of fluid around the lungs—pleural effusion—is common among patients with advanced cancer. The fluid buildup causes breathlessness and immobility in cancer sufferers during the last months of life. However, prompt, well-judged, and skilled management of the effusion via a procedure called pleurodesis can alleviate the breathlessness and improve quality of life for cancer patients. In pleurodesis, an irritating substance is infused into the chest cavity to create inflammation, which tacks the membranes around the lung together and prevents buildup of fluid in the space between membranes. This is accomplished using video-assisted thoracoscopic surgery or at the bedside through a chest tube.

Talc appears to be effective and should be the first agent of choice for pleurodesis, concludes a new study.

Researchers found that infusing talc into the lungs via thoracoscopic surgery might be associated with fewer recurrences of effusions compared with bedside talc slurry. However, when thoracoscopy is unavailable, bedside talc pleurodesis has a high success rate and can be a comparable option.

Artyom Sedrakyan, M.D., Ph.D., of the Agency for Healthcare Research and Quality (AHRQ), and colleagues systematically reviewed 46 studies that included 2,053 patients with malignant pleural effusions, to examine the effectiveness of pleurodesis. They focused on the choice of agents, route of delivery, and other strategies to improve outcomes. Talc tended to be associated with fewer recurrences when compared with bleomycin and, with more uncertainty, to tetracycline. Tetracycline (or

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Pleural effusion

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doxycycline) was not superior to bleomycin. When compared with bedside talc slurry, thoracoscopic talc insufflation was associated with a 79 percent reduction in recurrence but the evidence was limited.

See “The evidence on the effectiveness of management of malignant pleural effusion: A systematic review,” by Carol Tan, Dr. Sedrakyan, John Browne, and others, in the May 2006 *European Journal of Cardio-thoracic Surgery* 29, pp. 829-838. Reprints (AHRQ Publication No. 06-R071) are available from AHRQ.* ■

Acute Care/Hospitalization

Patients with more chronic conditions increase hospital costs

Patient severity of illness has long been associated with increased hospital costs. The number of chronic conditions a patient has, an indication of illness complexity, also predicts greater hospital costs, according to a study by Agency for Healthcare Research and Quality (AHRQ) investigators Bernard Friedman, Ph.D., H. Joanna Jiang, Ph.D., and Anne Elixhauser, Ph.D. Along with colleague Andrew Segal of Columbia University, the researchers analyzed 2001 data from a 20 percent sample of the Nationwide Inpatient Sample (NIS) to test the independent effect of the number of different chronic conditions on cost per case, after controlling for the costliness of the principal diagnosis and other factors. The NIS, part of AHRQ’s Hospital Cost and Utilization Project, contains hospital discharge summaries for 80 percent of U.S. hospital stays.

The researchers reported the three most common chronic

conditions found for each of the major types of principal diagnoses as they are grouped into the chapters of the ICD9-CM coding manual. Hypertension was the most common condition and appeared as one of the top three chronic comorbid conditions for all major principal diagnoses except for mental disorders. Diabetes and coronary atherosclerosis were the other most frequent comorbid conditions. About 8 percent of hospitalized patients had no chronic condition, and another 14 percent had only one chronic condition in 2001. Yet patients with two to four chronic conditions accounted for 51 percent of all adult nonmaternal hospitalizations.

The severity index had a very powerful effect on cost, with a severely ill patient having an expected cost of nearly 50 percent higher than a nonseverely ill patient with the same principal diagnosis. Even after controlling for illness severity, the number of chronic

conditions significantly affected hospital costs. About 63 percent of costs were associated with patients who had three or more chronic conditions, and 28 percent were associated with patients with five or more chronic conditions. After adjusting for other patient and hospital factors, the cost per case rose significantly with each additional chronic condition, reaching a plateau at five chronic conditions. The results indicate that the high annual cost associated with multiple chronic conditions operates mostly through the number of cases, which is not offset by lower cost per case.

See “Hospital inpatient costs for adults with multiple chronic conditions,” by Drs. Friedman, Jiang, Elixhauser, and Segal, in the June 2006 *Medical Care Research and Review* 63(3), pp. 327-346. Reprints (AHRQ Publication No. 06-R070) are available from AHRQ.* ■

Study details the prevalence of and deaths from the most common pulmonary fungal infections in immunocompetent people

The major endemic fungal infections (mycoses) that occur in the United States include histoplasmosis, blastomycosis, and coccidioidomycosis. Although they occur primarily in the soil or other environs of distinct geographic areas, these pathogens can be found in all regions of the United States. They are the most common pulmonary

fungal infections in immunocompetent people, with one-fourth of such infections severe enough to require hospitalization. According to a new study, supported in part by the Agency for Healthcare Research and Quality (HS00002), an estimated 332 pediatric and 6,003 adult patients with endemic mycoses required

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Pulmonary fungal infections

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hospitalization in 2002 (4.6 and 28.7 cases per 1 million children and adults, respectively). About 5 percent of children and 7 percent of adults died as a result of these infections. While 13 percent of all patients who died were immunocompromised, 87 percent were immunocompetent.

The researchers retrospectively examined data from the 2002 Nationwide Inpatient Sample, a national database of hospital inpatient stays, to describe the incidence and epidemiology of endemic mycoses requiring hospitalization. Overall, 17 percent of hospitalized children and 13 percent of hospitalized adults with endemic mycoses had a reported underlying immunocompromising condition (for example, bone marrow transplant, sickle cell disease, or cancer). The median duration of hospital stay was 5

days among children and 6 days among adults. The total hospital charges in 2002 for all children with endemic mycoses were about \$18 million, whereas for adults charges were over \$240 million.

Coccidioidomycosis mostly occurred in the southern and western regions of the country, and histoplasmosis generally occurred in the southern and midwestern States. Blastomycosis, largely found along the Ohio and Mississippi Rivers, occurred primarily in midwestern and southern regions. Obtaining a patient's complete travel history may be valuable in diagnosing these infections among patients with undiagnosed pulmonary symptoms.

See "Hospitalizations for endemic mycoses: A population-based national study," by Jaclyn H. Chu, M.H.S., Chris Feudtner, M.D., Ph.D., M.P.H., Kateri Heydon, M.S., and others, in the March 15, 2006 *Clinical Infectious Diseases* 42, pp. 822-825. ■

HIV/AIDS Research

Less than half of parents infected with HIV tell their children about the diagnosis

Parents are reluctant to disclose their HIV infection to their children, primarily because they fear the emotional impact. As a result, fewer than half (44 percent) of children are aware of their parent's HIV infection, according to a new study supported in part by the Agency for Healthcare Research and Quality (HS08578 and T32 HS00046).

Researchers interviewed 274 parents from the HIV Cost and Services Utilization Study, a nationally representative sample of HIV-infected adults receiving care for HIV. HIV-infected parents reported that 44 percent of their children ages 5 to 17 years old were aware of their parent's HIV status. Another 14 percent of children were unaware of their parent's HIV status, but knew their parent had a serious illness. In 28 percent of households with more

than one child, some, but not all, children knew their parent's HIV status. Parents had discussed the possibility that HIV or AIDS might lead to the parent's death with 90 percent of children who knew about their HIV infection.

Parents did not disclose their HIV status to their children primarily due to worry about the emotional consequences of disclosure for the child (67 percent), worry that the child would tell other people (36 percent), and not knowing how to tell their child (28 percent). Many parents also feared that their children would reject them or lose respect for them. Certain parents were less likely to disclose their HIV infection than others. These included those who contracted HIV through heterosexual intercourse (rather than homosexual intercourse or intravenous drug

use), those with higher CD4 cell counts (indicative of greater disease progression), those who were more socially isolated, and those with younger children. According to the parents, 11 percent of children who were aware of their parent's HIV infection worried they could catch HIV from their parent, 5 percent had experienced other children not wanting to play with them, and 9 percent had been teased or beaten up.

See "Do children know their parent's HIV status? Parental reports of child awareness in a nationally representative sample," by Rosalie Corona, Ph.D., Megan K. Beckett, Ph.D., Burton O. Cowgill, M.P.H., and others in the May 2006 *Ambulatory Pediatrics* 6(3), pp. 138-144. ■

Medical malpractice laws capping damage payments appear to lower State health care expenditures by 3 to 4 percent

Twenty-eight States have enacted laws that limit the payment for damages to patients in medical malpractice cases. These laws appear to reduce State health care expenditures by 3 to 4 percent, concludes a study by researchers Fred J. Hellinger, Ph.D., and William E. Encinosa, Ph.D., of the Agency for Healthcare Research and Quality (AHRQ). Payment limits may reduce expenses by curtailing the practice of defensive medicine (physicians ordering tests, procedures, and visits because of their concern about malpractice liability risk).

Drs. Hellinger and Encinosa used a multivariate model and 1984, 1988, 1994, and 1998 data on State health care expenditures and a variety of other State characteristics to estimate the impact of State tort reform laws that directly limit malpractice damage payments of State health care expenditures. The model included data from before and after the enactment of cap laws in 15 States, factors that adjusted for other types of malpractice liability reforms, and other factors affecting a State's health care expenditures (for example, income and proportion of uninsured).

Based on the model, the mean reduction in State health care expenditures due to caps was equal to \$92 per capita. The robustness of findings across a variety of specifications provides reasonably strong support for the argument that laws capping non-economic damage payments reduce health care costs, note the authors. However, they caution that other types of State laws may have affected health care expenditures and that their findings relied on State data only. They recommend that future studies include more variables and use data from other sources and different time periods. They also call for studies that examine whether or not the level at which damages are capped is related to health care expenditures, and whether or not reductions in health care spending attributable to these laws are related to poorer health outcomes.

See "The impact of state laws limiting malpractice damage awards on health care expenditures," by Drs. Hellinger and Encinosa, in the August 2006 *American Journal of Public Health* 96(8), pp. 1375-1381. Reprints (AHRQ Publication No. 06-R073) are available from AHRQ.* ■

Over half of compensation for medical malpractice claims goes toward administrative expenses

Moves to curb frivolous medical malpractice lawsuits, such as limits on attorney's fees and caps on damages, will have a relatively limited effect on the caseload and costs of malpractice litigation, concludes a new study. The vast majority of resources go toward resolving and paying claims that have evidence of injury due to medical error or substandard care. For instance, the study found that only one-third of claims were without merit. Only one in four of these claims resulted in financial compensation compared with 73 percent of claims that involved injuries due to medical error.

The study was led by David M. Studdert, L.L.B., Sc.D., M.P.H., of

the Harvard School of Public Health, and supported by the Agency for Healthcare Research and Quality (HS11886 and HS11285). Trained physicians reviewed a random sample of 1,452 closed medical malpractice claims from 5 liability insurers to determine whether a medical injury had occurred and, if so, whether it was due to medical error. They found that for 3 percent of the claims, there were no verifiable medical injuries, and 37 percent of claims did not involve medical errors.

The vast majority of expenditures went toward litigation over errors and payment for them. When close calls were excluded, claims without evidence of injury or error accounted for only 13 percent of

total litigation costs. When the plaintiffs for these cases received compensation, payments averaged 60 percent of the amount paid for claims due to medical error (\$313,205 vs. \$521,560). For every dollar spent on compensation, 54 cents went to administrative expenses (including those involving lawyers, experts, and courts). Claims involving errors accounted for 78 percent of total administrative costs.

See "Claims, errors, and compensation payments in medical malpractice litigation," by Dr. Studdert, Michelle M. Mello, J.D., Ph.D., M.Phil., Atul A. Gawande, M.D., M.P.H., and others in the May 11, 2006 *New England Journal of Medicine* 354(19), pp. 2024-2033. ■

U.S. hospital bill is approaching \$800 billion

The nation's hospital bill totaled more than \$790 billion in 2004, according to a new report by the Agency for Healthcare Research and Quality. The bill represents the total amount charged for 39 million hospital stays that year.

The Federal report also found that:

- Federal and State governments were billed for nearly \$500 billion, or 60 percent, of the national hospital bill for Medicare and Medicaid patients.
- One-fifth of the national hospital bill was for treatment of five conditions: coronary atherosclerosis, mother's pregnancy and delivery, newborn infants, acute myocardial infarction, and congestive heart failure. Hospital stays for coronary atherosclerosis incurred the highest charges (\$44 billion). Mother's pregnancy and delivery had the second highest charges (\$41 billion).
- Pneumonia and osteoarthritis were among the top five most expensive conditions for Medicare, which provides insurance for the elderly. Treatments for pregnant mothers and their

deliveries, plus care of newborn babies, were the two most expensive types of hospital stays for Medicaid, which covers certain groups of low-income patients.

- Medicaid's top five most expensive conditions also included pneumonia, schizophrenia, depression, and bipolar disorders.
- Private insurers' biggest bills were for pregnancy and delivery, care of newborn infants, hardening of the heart arteries, heart attack, and back problems.
- Brain trauma and stroke were among the expensive conditions billed to uninsured patients.

These and other statistics are presented in *The National Hospital Bill: The Most Expensive Conditions*, by Payer, 2004, Statistical Brief No. 13, which can be found online at www.hcup-us.ahrq.gov/reports/statbriefs/sb13.pdf. The data are from the Agency's Healthcare Cost and Utilization Project — the nation's largest source of statistics on hospital inpatient care for all patients regardless of type of insurance or whether they were insured. ■

Over half of Hispanics who are not U.S. citizens are uninsured

More than one-third of Hispanics under 65 years of age do not have health insurance. Hispanics who are not U.S. citizens are more than twice as likely to be uninsured as those who are citizens.

A new report by the Agency for Healthcare Research and Quality (AHRQ), based on a 2004 survey, examines public and private insurance coverage among Hispanics overall and among three subgroups — Mexican-Americans, Puerto Ricans and "other Hispanics." The latter category primarily includes persons of Cuban, Dominican, South or Central American, or Spanish birth or descent.

The report, which analyzed the insurance status of Hispanics under 65, showed that:

- Sixty-seven percent of non-citizen Mexican-Americans are uninsured. For other non-citizen Hispanics, the percentage is 50.5 percent.
- Sixteen percent of Puerto Ricans living in the United States are uninsured. Virtually all Puerto Ricans are U.S. citizens.
- Among Hispanics overall, about 12 percent of non-citizens have public health insurance, such as Medicaid. The rate is about 30 percent for those who are U.S. citizens.

- Puerto Ricans have the highest public-only insurance rate — about 38 percent. The rate is approximately 24 and 21 percent, respectively, for Mexican-Americans and other Hispanics.
- Non-citizen Mexican-Americans are almost 3 times less likely to have public-only coverage than their citizen counterparts — 11.5 percent versus approximately 30 percent. The corresponding numbers for other Hispanics are roughly 12 percent and 26 percent, respectively.

These data are from AHRQ's Medical Expenditure Panel Survey

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Insurance coverage

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(MEPS), the nation's most complete survey of how Americans use and pay for health care,

including their health insurance coverage. For more information, see *Health Insurance Status of Hispanic Subpopulations in 2004: Estimates for the U.S. Civilian*

Noninstitutionalized Population under Age 65, MEPS Statistical Brief #143 at www.meps.ahrq.gov/mepsweb/data_files/publications/st143/stat143.pdf. ■

Announcements

Heart attack risks and pain relief are similar for most osteoarthritis drugs

Osteoarthritis is a joint disease that causes erosion of cartilage and leads to friction between bones. Its precise cause is unknown, though it has been linked to aging, specific occupations, trauma, genetics, and repetitive, small injuries over time. The rubbing causes pain, swelling, and loss of motion. About 6 percent of U.S. adults age 30 or older have osteoarthritis of the knee, and about 3 percent have osteoarthritis of the hip.

Two classes of drugs commonly used to treat osteoarthritis – non-steroidal anti-inflammatory drugs (NSAIDs) and COX-2 inhibitors (a newer generation of NSAIDs) – present similar, increased risks of heart attacks while offering about the same level of pain relief, according to a new report by the Agency for Healthcare Research and Quality (AHRQ).

The exception is the drug naproxen, commonly sold as Aleve® or Naprosyn®, a medication that scientific evidence suggests presents a lower risk of heart attack for some patients than other NSAIDs or COX-2 inhibitors, the study concluded. Researchers emphasized in their analysis, however, that all drugs pose potential harms along with benefits. Patients differ widely on how they react to drugs, how they prioritize risks, and whether risks are acceptable when compared to a drug's benefits. Patients should talk to their doctors before changing any medications.

The report, authored by AHRQ's Evidence-based Practice Center at Oregon Health & Science University, was based on a systematic review of 360 published studies and represents the most comprehensive analysis thus far of arthritis pain medications. Researchers compared the pain medications' effectiveness and health risks, including heart attack and gastric side effects, plus identified topics where more research is needed. While the review yielded important findings about the painkillers, it concluded more studies are needed about the drugs' comparative risks, the consequences of long-term use, and the impact of dosing variations. The

authors also suggested that genetic research may one day predict which patients are most likely to develop cardiovascular problems when taking the analgesics.

The AHRQ report, which was developed with ongoing input from experts and other members of the public, analyzed the risks and benefits of 26 medications. Among the conclusions:

- All NSAIDs and COX-2 inhibitors can cause or worsen hypertension, congestive heart failure, swelling and impaired kidney function.
- No clear difference has been shown in pain-relief effectiveness among NSAIDs and COX-2 inhibitors.
- Most NSAIDs and COX-2 inhibitors pose similar increased risks of heart attack.
- The NSAID naproxen carries a smaller risk of heart attack than other NSAIDs or COX-2 inhibitors.
- The risks of serious adverse gastrointestinal events for users of Celebrex are similar to the risks for users of Motrin®, Advil®, Voltaren® and other NSAIDs.
- More scientific evidence is needed to compare the cardiac and gastrointestinal risks of aspirin at doses effective for pain relief versus other NSAIDs.
- Acetaminophen (Tylenol®) generally reduces pain less effectively than NSAIDs but carries a smaller risk of gastrointestinal problems. One study showed high doses posed heart attack risks similar to NSAIDs.

In 2003, Americans spent about \$36.6 billion on treatments for osteoarthritis and other non-traumatic joint disorders, including hospitalizations, surgeries, diagnostic tests, drugs, home care and other interventions, according to Federal estimates. Of this amount, about \$5.5 billion was spent on COX-2 inhibitors and \$3 billion on other NSAIDs.

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Osteoarthritis drugs

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Traditional NSAIDs work by inhibiting the action of two related enzymes. One of the enzymes reduces inflammation, eases pain and prevents blood clotting. But the intervention also limits the other enzyme's ability to protect the stomach lining from digestive chemicals and help maintain kidney function. Each year, an estimated 16,500 people die due to NSAID-induced gastrointestinal problems.

The new report, *Comparative Effectiveness and Safety of Analgesics for Osteoarthritis*, is available at <http://effectivehealthcare.ahrq.gov/>. Reprints of the Executive Summary (AHRQ Publication No. 06-

EHC009-1) are available free on a single-copy basis while supplies last from AHRQ.*

Editor's Note: The report, *Comparative Effectiveness and Safety of Analgesics for Osteoarthritis*, is the latest in a series of Comparative Effectiveness Reviews produced by AHRQ's Effective Health Care Program, the first Federal program to compare alternative treatments for health conditions and make the findings public. The program is intended to help patients, health care providers, and others choose the most effective treatments. Information on the program and other comparative effectiveness reviews can be found at www.effectivehealthcare.ahrq.gov. ■

New evidence report finds most genomic tests to identify or treat ovarian cancer have not shown clinical value

Many genomic tests that are currently used to diagnose and guide treatment of ovarian cancer are not shown to decrease the number of women who die from the disease or improve their quality of life, according to a new evidence report supported by a partnership of the Agency for Healthcare Research and Quality (AHRQ) and the Centers for Disease Control and Prevention's Division of Cancer Prevention and Control and National Office of Public Health Genomics.

Ovarian cancer causes more deaths than any other cancer of the female reproductive system. Over 20,000 women are diagnosed with the disease annually, and approximately 15,000 die from it. The risk for ovarian cancer increases with age and most often is diagnosed in white women over the age of 50. If diagnosed during stage I, ovarian cancer has a survival rate of over 90 percent. However, most cases are diagnosed in advanced stages, when the cancer has spread to other organs.

Physical exams, ultrasounds, and other routine screening efforts for reducing the number of women affected by the disease, and, in

turn, the number who die from it, have been unsuccessful compared with similar efforts aimed at other causes of cancer deaths in women. Because current strategies have not proven to be effective, there is tremendous interest in identifying the disease in its earliest stages by looking at genes, gene expression levels, proteins, and tumor markers. These tests focus on detecting a gene-based tumor marker, such as CA-125, or identifying genetic mutations such as BRCA1 and BRCA2 that indicate increased risk for developing cancer, or identifying genetic changes that predict response to therapy in women with ovarian cancer.

Researchers performed a comprehensive review of the literature and found few studies that evaluated genetic tests other than CA-125 or BRCA1 and BRCA2 to diagnose ovarian cancer or identify women at risk. No studies were found showing that changing treatment based on test results reduced deaths or improved the quality of life in women who were diagnosed with ovarian cancer. There are few data on the harms of gene-based tests for ovarian cancer, including the psychological impact of false-

positive tests or delays in treatment that can result from a false-negative test.

A computer simulation model developed by the researchers suggests that screening, even with the highly accurate tests, will not result in large reductions in deaths from ovarian cancer unless testing is very frequent (less than 1 year between tests). However, such frequent screening would also yield a large number of false-positive test results. Research aimed at improving treatment options and the discovery of treatment, lifestyle, or dietary choices that could prevent ovarian cancer would likely offer greater promise for major reductions in deaths from the disease.

The report was prepared by a team of researchers led by Evan Myers, M.D., M.P.H., of AHRQ's Duke University Evidence-based Practice Center in Durham, North Carolina. *Genomic Tests for Ovarian Cancer Detection and Management* can be found online at <http://www.ahrq.gov/clinic/tp/genovctp.htm>. Printed copies of the report (AHRQ Publication No. 07-E001) are also available from AHRQ.* ■

Battles, J.B., Dixon, N.M., Borotkanics, R.J., and others. (2006, August). "Sensemaking of patient safety risks and hazards." *HSR: Health Services Research* 41(4), pp. 1555-1575.

In order for organizations to become learning organizations, they must make sense of their environment and learn from safety events, according to the authors of this paper. The ultimate goal of sensemaking is to build the understanding that can inform and direct actions to eliminate risk and hazards that are a threat to patient safety. Sensemaking is an essential part of the design process leading to risk-informed design, a conceptual framework to bring together well-established approaches to assessment of risk and hazards. These include using root cause analysis (RCA) at the single event level, using failure modes effects analysis (FMEA) at the processes level, and using probabilistic risk assessment (PRA) at the system level. The results of these separate or combined approaches are most effective when end users in conversation-based meetings add their expertise and knowledge to the data produced by the RCA, FMEA, and/or PRA in order to make sense of the risks and hazards. Reprints (AHRQ Publication No. 06-R059, are available from AHRQ.)*

Bertakis, K.D. and Azari, R. (2006, June). "The influence of obesity, alcohol abuse, and smoking on utilization of health care services." (AHRQ grant HS06167). *Family Medicine* 38(6), pp. 427-434.

Researchers found that obese patients had significantly more primary care visits and diagnostic

services, as well as higher primary care clinic charges, over a 1-year study period. Problem drinking predicted more frequent emergency department (ED) visits, as well as more diagnostic tests. Cigarette smoking was associated with more specialty care clinic visits and hospitalizations. Smoking also significantly predicted subsequent medical charges and appeared to have a stronger association with increased costs (especially costs for ED visits and hospitalizations) than obesity or alcohol abuse. Smokers had nearly 11 percent higher total charges for their use of health care services than nonsmokers, even after accounting for patient health status, depression, age, education, income, and gender.

Brewer, C.S., Kovner, C.T., Wu, Y-W., and others. (2006, June). "Factors influencing female registered nurses' work behavior." (AHRQ grant HS11320). *Health Services Research* 41(3), pp. 860-886.

An analysis of data from the 2000 National Sample Survey of Registered Nurses, 2001 regional market analysis data, and the 2002 Area Resource File indicates that the market environment has little effect on whether a female nurse works, but influences how much she works. Researchers examined the impact of demographic, job-related, and metropolitan statistical area-level variables on the work of female nurses. In 2000, about 81.7 percent of registered nurses (RNs) were employed in nursing, down from 82.7 percent in 1996. Of those RNs not employed in nursing, about 7.7 percent were seeking nursing employment, 27.2 percent had another occupation, and 65.1 percent were not in the labor force.

Some market factors appear to affect why female RNs work (WK) or do not work (NW) in nursing and whether they work full-time (FT) or part-time (PT). Overall, a greater number of market-level factors influenced FT/PT than WK/NW behavior. Being age 55 and older, other family income, and prior other work experience in health care were negatively related to working as an RN. The wage was not related to working as an RN, but negatively influenced FT work. Older age, children, minority status, student status, other income, and some job settings had a negative impact on working FT. Previous health care work had a positive effect on whether married RNs worked. Married RNs who were more dissatisfied with their jobs were less likely to work FT.

Davis, K.S., Magruder, K.M., Lin, Y., and others. (2006, April). "Brief report: Trainee provider perceptions of group visits." (AHRQ grant HS10871). *Journal of General Internal Medicine* 21, pp. 357-359.

One approach to the limited time physicians have to address problems of complex patients is to have group visits with 15 to 20 patients simultaneously, during which patients can discuss educational topics and receive medical care. Health care provider trainees may feel tentative about group visits; however, this study suggests that their opinions improve significantly after observing one or more group visits, regardless of trainee gender, type, or level of training. In the study, 32 trainees assigned to month-long rotations at a primary care clinic observed between 1 and 4 group

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Research briefs

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visits. They completed a Group Visit Questionnaire (GVQ) evaluating their perceptions of group visits as a method of health care delivery both before and after observing such visits. The post-observation GVQ scores significantly improved after observing at least one group visit.

DiSantostefano, R.L., Biddle, A.K., and Lavelle, J.P. (2006). “The long-term cost effectiveness of treatments for benign prostatic hyperplasia.” (AHRQ grant HS14719). *Pharmacoeconomics* 24(2), pp. 171-191.

Half of men aged 60 years and older have frequent symptoms from benign prostatic hyperplasia (BPH), such as urinary frequency, incomplete emptying, and urinary urgency. Using \$50,000 per quality adjusted life year (QALY) as the threshold for cost-effectiveness, transurethral resection of the prostate and alpha-blockers appear to be the most cost-effective treatments for BPH patients with moderate and severe symptoms, respectively. Transurethral microwave thermotherapy is promising for patients with moderate symptoms and the oldest patients with severe symptoms, but was otherwise dominated by the other two approaches.

Feudtner, C., Silveira, M.J., Shabbout, M., and Hoskins, R.E. (2006, May). “Distance from home when death occurs: A population-based study of Washington state, 1989-2002.” (AHRQ grant T32 HS00002). *American Academy of Pediatrics* 117, pp. 932-939.

The distance between home residence and the hospital where death occurs has increased over time, and is greatest for children,

according to this study. These findings have implications for the design of local and regional pediatric end-of-life supportive care services, note the researchers. They measured the driving distance between home residence and location at the time of death for Washington State residents who died from 1989 to 2002. The overall mean distance from home to the hospital where death occurred increased by 1 percent annually. The mean distance from home to the hospital where death occurred was 37.4 km for neonates and 50.9 km for children aged 1 to 9 years, compared with 19.9 km for adults aged 60 to 79 years and 14 km for those older than 79 years.

Franks, P., Hanmer, J., and Fryback, D.G. (2006, May). “Relative disutilities of 47 risk factors and conditions assessed with seven preference-based health status measures in a national U.S. sample.” (AHRQ grant T32 HS00083). *Medical Care* 44(5), pp. 478-485.

Preference-based health measures yield summary scores that are compatible with cost-effectiveness analyses of various clinical interventions. This study examined how different measures weight health conditions. It concluded that absolute incremental cost-effectiveness analyses of a given problem would likely vary depending on the measure used. However, the relative ordering of incremental cost-effectiveness analyses of a series of problems would likely be similar regardless of the measure chosen, as long as the same measure is used in each series of analyses. The findings were based on analysis of data from 11,421 adults in the 2000 Medical Expenditure Panel Survey of representative U.S. households. The researchers regressed 7 preference-based health measures

on 43 medical conditions and 4 risk factors (smoking, overweight, obesity, and lack of health insurance) to determine the disutility associated with the problem, adjusting for sociodemographics.

Hanmer, J., Lawrence, W.F., Anderson, J.P., and others. (2006, August). “Report of nationally representative values for the noninstitutionalized U.S. adult population for 7 health-related quality-of-life scores.” (AHRQ grant T32 HS00083). *Medical Decision Making* 26, pp. 391-400.

Despite widespread use of generic health-related quality-of-life (HRQOL) scores, few have published nationally representative U.S. values. The authors of this study created the first publicly available set of current nationally representative values for seven of the most common HRQOL scores, stratified by age and sex. To accomplish this, they used data from the 2001 Medical Expenditure Panel Survey to calculate six HRQOL scores. These included categorical self-rated health, EuroQol-5D with U.S. scoring, EuroQol-5D with UK scoring, EuroQol Visual Analog Scale, mental and physical component summaries from the SF-12 health status questionnaire, and SF-6D. The authors also estimated Quality of Well-being Scale scores from the 2001 National Health Interview Survey. These values are important for use in both generalized comparisons of health status and in cost-effectiveness analyses.

Hays, R.D., Eastwood, J-A., Kotlerman, J., and others. (2006, April). “Health-related quality of life and patient reports about care outcomes in a multidisciplinary hospital intervention.” (AHRQ grant

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Research briefs

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HS10734). *Annals of Behavioral Medicine* 31(2), pp. 173-178.

Researchers from the University of California, Los Angeles divided the general medicine floor of a hospital into a control unit (626 patients) and an intervention unit (581 patients). The control unit consisted of a multidisciplinary team, including a nurse specialist, discharge planner, social worker, home health nurse, utilization review nurse, nutritionist, and physical therapist. The intervention unit added a nurse practitioner plus daily multidisciplinary rounds, a hospital medical director, and attending hospitalists. The researchers examined patient evaluations of hospital care 30 days after study inception, and assessed health-related quality of life (HRQOL) at baseline, 30 days later, and 4 months later.

Patients in the intervention unit reported higher emotional support and physical comfort from health care providers than the control group. However, these effects became nonsignificant after adjusting for multiple comparisons. The hospital care rating and HRQOL summary scores improved significantly from baseline to the followup 30 days and 4 months later, but were similar for both groups. Patient ratings of care were not associated with subsequent HRQOL. The multidisciplinary model of care did reduce costs, while maintaining positive perceptions of care and preserving HRQOL among hospitalized patients. Thus, it was cost-effective.

Kumar, V., Norton, E.C., and Encinosa, W.E. (2006). "OBRA 1987 and the quality of nursing home care." *International Journal of Health Care Finance and Economics* 6, pp. 49-81.

The 1987 Omnibus Budget Reconciliation Act (OBRA) was a sweeping government reform to improve the quality of nursing home care. However, because the minimum government standards imposed by OBRA regulate only part of the nursing home market, they may have unintended effects, suggest the authors of this paper. They examined how the effect of OBRA standards on the quality of nursing home care—measured by resident outcomes—varied with nursing home profitability. After controlling for the endogenous effects of regulation, they found that this landmark legislation had a negative effect on the quality of care in less profitable nursing homes, but improved the quality in more profitable nursing homes during the initial period after OBRA. However, OBRA had no significant effect in the later period when the regulation was weakly enforced. Reprints (AHRQ Publication No. 06-R069) are available from AHRQ.*

Nayak, S., Olkin, I., Liu, H., and others. (2006, June). "Meta-analysis: Accuracy of quantitative ultrasound for identifying patients with osteoporosis." (AHRQ grant T32 HS00028). *Annals of Internal Medicine* 144, pp. 832-841.

There is growing interest in quantitative ultrasound for osteoporosis screening because it predicts fracture risk, is portable, and is relatively inexpensive. However, this study concluded that results of calcaneal quantitative ultrasound at commonly used cutoff thresholds do not definitively exclude or confirm osteoporosis that was diagnosed by dual-energy x-ray absorptiometry (DXA). The authors call for additional research before use of this test can be recommended in evidence-based

screening for osteoporosis. Their conclusions were based on a meta-analysis of 25 studies that evaluated the sensitivity and specificity of calcaneal quantitative ultrasound for identifying adults with osteoporosis, that is, those with DXA T-scores of -2.5 or less at the hip or spine.

Satcher, D., and Rust, G. (2006, Spring). "Achieving health equity in America." (AHRQ grant HS14748). *Ethnicity & Disease* 16, pp. S3-8-S3-13.

The authors of this paper assert that health equity can be achieved in America if people care enough, know enough, do enough, and persist long enough. Toward this end, they developed a three-dimensional model for the elimination of health disparities. The first dimension is surveillance, that is, continual measurement of racial-ethnic disparities in each specific disease, in its risk factors, and in outcome-relevant quality of care. The second dimension is research into the causes of disparities and potential intervention points to eliminate them. These can be found in an individual's biology or behavior, in their physical and social environment, or in the health care arena (quality and access). The third dimension is intervention, which requires translating clinical knowledge not only to the bedside, but also into each community and home.

Seow, H., Phillips, C.O., Rich, M.W., and others. (2006, March). "Isolation of health services research from practice and policy: The example of chronic heart failure management." (AHRQ grant 11558). *Journal of the American Geriatrics Society* 54, pp. 535-540.

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Research briefs

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In this article, researchers cite heart failure management as one example of the slow rate of implementation of health services research into health care policy and practice. At least 30 studies have demonstrated the merits of outpatient management of chronic heart failure (CHF), yet 13 of 15 such U.S. studies ceased operating at the end of the research project. Nearly three-fourths (74 percent) of first authors on the U.S. studies attributed discontinuation of their projects to lack of financing.

Financing problems stemmed largely from adverse incentives in Medicare's payment arrangements for CHF disease management. Fee-for-service Medicare does not pay well for services that yield lower hospitalization rates, including telephone advice at the first sign of worsening heart failure, continuity of critical medications, and counsel about diet and exercise. Medicare fees, however, are generally adequate to cover the costs for hospitalization for CHF. Optimal outpatient CHF services would reduce hospitalization income substantially, without engendering offsetting income from outpatient CHF care.

In contrast, reducing hospitalization rates is desirable in capitated Medicare. However, heart failure patients are usually much more expensive than their capitation rate (fixed rate per

patient). Thus, managed care companies serving Medicare patients risk substantial losses if they gain a good reputation and disproportionately attract these patients to enroll for their services, note the researchers.

Swan, J.S., Lawrence, W.F., and Roy, J., (2006, August). "Process utility in breast biopsy." *Medical Decision Making* 26, pp. 347-359.

For most cost-utility analysis (CUA) models, measures of chronic health state preferences use standard gamble utilities, time tradeoff preferences, rating scale values, or generic indexes. Preference measures and health state classification designed for chronic states are problematic for quality-adjusting short-term events that may be important in studies of diagnostic tests or some interventions. However, this study found that the waiting tradeoff (WTO) is feasible for discriminating preferences for short-term health states in an acute medical scenario, where it might have been expected to be impracticable. The authors conducted WTO assessments with 75 women with past experience of either breast core-needle biopsy, more invasive excisional surgical biopsy (EXB), or both. The median paired and mean unpaired WTO scores indicated that women were willing to wait significantly longer to avoid EXB. Reprints (AHRQ Publication No. 06-R083) are available from AHRQ.*

Turley, J.P., Johnson, T.R., Smith, D.P., and others. (2006, April). "Operating manual-based usability evaluation of medical devices: An effective patient safety screening method." (AHRQ grant HS11544). *Journal on Quality and Patient Safety* 32(4), pp. 214-220.

Use of medical devices often directly contributes to medical errors. Because it is difficult or impossible to change the design of existing devices, the best opportunity for improving medical device safety is during the purchasing process. The authors propose a review of medical device operating manuals as a practical method of evaluating the device's usability. They examined operating manuals for five volumetric infusion pumps from three manufacturers. They evaluated each manual's safety message content to determine whether the message indicated a device design characteristic that violated known usability principles (heuristics) or indicated a violation of an affordance of the device. "Minimize memory load," with 65 violations, was the heuristic violated most frequently across pumps. Results suggest that prepurchase manual review can provide a proxy for heuristic evaluation of the actual medical device. ■

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