UPDATE: National Patient Safety Goals Undergoing Review During 2009—No New NPSGs for 2010

Throughout 2009, The Joint Commission’s current National Patient Safety Goals (NPSGs) will undergo an extensive review process. However, no new NPSGs will be developed for 2010 implementation.

The Joint Commission and the Patient Safety Advisory Group (PSAG), formerly known as the Sentinel Event Advisory Group, have heard from the field and determined that a thorough examination of the current NPSGs and a review of the development process for future NPSGs are needed.

Some of The Joint Commission’s most visible and effective requirements, the NPSGs highlight serious patient safety issues that must be addressed by health care organizations. As the NPSGs have evolved, some have become more specific and detailed, requiring more time and resources for organizations to achieve implementation. Complying with some of the current NPSGs has become a struggle for health care organizations. For instance, compliance rates for the two requirements related to medication reconciliation were 89% and 91% in 2007. The requirement for labeling medication containers continues to cause challenges for health care organizations, reflected by the lowest NPSG compliance rate—81%—in 2007.

The success of The Joint Commission’s recent Standards Improvement Initiative (SII) demonstrated an effective process for thoroughly reviewing the current NPSGs. The SII process will be used to do the following:

- Clarify NPSG language
- Ensure that NPSGs are program-specific
- Delete NPSGs that are redundant or nonessential in specific programs
- Consolidate similar NPSGs
- Ensure that each NPSG is relevant to safety and quality

Continued on page 7
This column informs you of developments and potential revisions that can affect your accreditation and tracks proposed changes before they are implemented. Items may drop off this list before the approval stage if they were rejected at some point in the process.

**APPROVED**
- Modifications to standards for the hospice deemed status program corresponding to recently revised Medicare Conditions of Participation
- Modifications to standards for the critical access hospital program corresponding to recently revised Medicare Conditions of Participation

**CURRENTLY IN DEVELOPMENT**

**STANDARDS**
- Comprehensive Standards Improvement Initiative encompassing the behavioral health care, laboratory, long term care, and Medicare/Medicaid certification-based long term care programs
- Potential standards related to health information technology
- Proposed standards on culturally competent patient-centered care for the hospital program.
- Modifications to standards for the critical access hospital program corresponding to recently revised Medicare Conditions of Participation.
- Modifications to standards for ambulatory surgical center deemed status corresponding to recently revised Medicare Conditions of Participation
- Modifications to standards for suppliers of durable medical equipment, prosthetics, orthotics, and supplies corresponding to recently revised Medicare Quality Standards

**JOINT COMMISSION INTERNATIONAL**
Field review notifications are sent out electronically as well as posted on the Joint Commission International (JCI) Web site, http://www.jointcommissioninternational.org. For JCI standards questions, please contact the associate director, International Accreditation Services, at jciaccreditation@jcrinc.com.

**IN DEVELOPMENT AT JCI**
- Revisions to international ambulatory care standards
- Revisions to international disease-specific care certification standards
- Revisions to international laboratory standards
In some very critical areas, Joint Commission–accredited hospitals in America have steadily improved the quality of patient care over a six-year period, saving lives and improving the health of thousands of patients, according to a recently released Joint Commission report. *Improving America’s Hospitals: The Joint Commission’s Annual Report on Quality and Safety, 2008*—an analysis of National Patient Safety Goal compliance and hospital quality measures related to heart attacks, heart failure, pneumonia, or surgical conditions—provides scientific evidence of improved patient care.

The report shows some dramatic improvements over the six-year period of data collection, especially in providing smoking cessation advice. For example, hospitals provided this advice to 98.2% of heart attack patients in 2007 compared with 66.6% in 2002. Hospitals greatly improved their results from 2002 to 2007 in providing this advice to heart failure patients (from 42.2% in 2002 to 95.7% in 2007) and patients with pneumonia (from 37.2% to 93.7%). Other strong improvements included providing discharge instructions to heart failure patients (from 30.9% to 77.5%) and providing pneumococcal screening and vaccination to pneumonia patients (from 30.2% to 83.9%).

However, the report also shows that, for the third consecutive year, not all hospitals deliver the same level of quality and that some hospitals perform better than others in treating particular conditions. For example, hospitals provided discharge instructions to heart failure patients, on average, 92.1% of the time in the highest performing state, but provided discharge instructions 56.5% of the time in the lowest performing state. The performance difference among states is greater than 10 percentage points on 12 of the 24 quality measures tracked by The Joint Commission in 2007. There are exceptions to this variability. For example, virtually all (99.1% to 100%) accredited hospitals in the United States report that they measure oxygen in the bloodstream of patients with pneumonia.

“Joint Commission–accredited hospitals deserve congratulations for making major improvements in the quality of care. On some of the measures reported here more than 90% of these hospitals perform at rates of 90% or more. However, there is more work to be done,” says Mark R. Chassin, M.D., M.P.P., M.P.H., president, The Joint Commission. “Improvement is a continuous process and in health care especially, it’s one where the target is constantly moving. The wide range of performance on some measures serves as a reminder that we must continue to work to improve patient care.”

The performance results released in the 2008 report reflect The Joint Commission’s tracking of hospital performance on 25 individual quality measures reflecting the best evidence-based treatments. There are eight measures of care relating to heart attack, four to heart failure, eight to pneumonia, and five to surgical care. Data from more than 3,000 hospitals show the following:

- The heart attack care result improved from 86.9% in 2002 and from 94.4% in 2006 to 96% in 2007. (A 96% score means that hospitals provided an evidence-based treatment 96 times for every 100 opportunities to do so.)
- The heart failure care result improved from 59.7% in 2002 and from 84.1% in 2006 to 88% in 2007.
- The pneumonia care result improved from 72.3% in 2002 and from 87.3% in 2006 to 89% in 2007.
- On 11 of the 18 requirements of the 2007 National Patient Safety Goals, 90% or more of the 1,466 hospitals that received accreditation surveys during 2007 demonstrated compliance. National Patient Safety Goals provide strategies to prevent common health care errors such as medication mix-ups and surgery on the wrong body part.
The Joint Commission Names 2008 Ernest Amory Codman Award Recipients

National Health Care Award for Performance Measurement

The Joint Commission has announced the 2008 recipients of the 12th Annual Ernest Amory Codman Award to recognize excellence in the use of outcomes measurement to improve the quality and safety of health care. Awards are given for organization and individual achievement. The award recipients in the following categories are:

- **Hospital:** Carolinas Medical Center, Charlotte, North Carolina; Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio; and Mission Hospital, Mission Viejo, California.
- **Multiple Organization:** Novant Health, Winston-Salem, North Carolina.
- **Individual:** The late Shukri F. Khuri, M.D.

Established in 1996, the award is named for the physician regarded in health care as the “father of outcomes measurement,” and is the first national award to recognize excellence in outcomes measurement. The Joint Commission also recognizes an individual who has played a significant leadership role in promoting the use of performance measures to improve health care services, or who has made major contributions to the development and testing of performance measures or the science and art of quality improvement. A panel of national experts in quality measurement and improvement selected the five recipients of the 2008 Awards.

“The 2008 Codman Award recipients exemplify how performance measurement improves the quality and safety of health care,” says Mark R. Chassin, M.D., M.P.P., M.P.H., president, The Joint Commission. “Their achievements demonstrate the progress that can be made when process and outcomes measures are combined into meaningful practices that result in better patient care.” The Codman Awards were presented at The Joint Commission and Joint Commission Resources’ Annual Conference on Quality and Safety in Chicago in November 2008. The specific achievements of the 2008 Codman Award winners are as follows:

- **Carolinas Medical Center** improved care for emergency department patients with sepsis, a serious illness that requires quick diagnosis. Using a modified version of the early goal-directed therapy (EGDT) protocol, the Code Sepsis Task Force created a major change in the way their emergency department diagnoses and treats this illness. The result was a 30% decrease in the mortality of these patients. To eliminate infection and keep blood pressure from dropping too low, sepsis patients were treated more aggressively—with a significantly greater crystalloid volume, higher frequency of vasopressor infusion, and greater packed red blood cell transfusion. The focus on sepsis also resulted in better outcomes for patients with acute respiratory distress syndrome and acute renal failure.

- **Cincinnati Children’s Hospital Medical Center** reduced preventable surgical site infection rates from 1.3 per 100 procedure days to 0.54 per 100 procedure days over a two-year period by using a new, tailored pediatric surgical site infection “bundle” of care components that decreased infection rates and improved efficiency. This bundle is now being used by other children’s hospitals in the U.S. Staff emphasized the proper administration of all aspects of their pediatric specific initiative, including correct pre-operative antibiotic administration, skin preparation, and intraoperative oxygen and temperature management. Most importantly, staff made modifications to ensure that approaches were appropriate for the pediatric population.

Continued on page 5
Mission Hospital improved care for seriously ill patients in the emergency department and on a medical-surgical floor by using a specialized nurse-driven rapid response team. The goal was to reduce the incidence and mortality of non-ICU cardiac/respiratory arrests by 50%. The program reduced cardiac or respiratory arrests outside the ICU from 36 to 16 during a one-year period, and the associated mortality rate for floor code patients decreased from 62% to 23% during the same time frame. This initiative is especially relevant given a national trend within hospitals where seriously ill inpatients are at greater risk for increased mortality due to the lack of available ICU or telemetry beds.

Novant Health established a comprehensive program to improve compliance with hand hygiene practices and reduce methicillin-resistant Staphylococcus aureus (MRSA) infections. Hand hygiene compliance rates improved from 49% to 98% during a four-year period, and MRSA rates decreased from 0.5 per 1000 patient days to 0.3 per 1000 patient days—a 40% reduction. This translated to 100 fewer MRSA health care–associated infections for the Novant Health System. The program achieved cultural change by emphasizing patient safety and proved that behaviors can be changed when employees understand that everyone is responsible for patient outcomes.

Shukri F. Khuri, M.D., achieved national and international prominence in the fields of cardiac pathophysiology, cardiac surgery, medical informatics, quality improvement, and health policy research. For 16 years, Dr. Khuri oversaw the National Surgical Quality Improvement Program (NSQIP) in the Department of Veterans Affairs. Recognized today as the model for continuous improvement in surgery, NSQIP is the first national, validated, outcome-based, risk-adjusted, and peer-controlled program for the measurement and enhancement of the quality of surgical care. Since the inception of NSQIP, 30-day post-operative mortality and morbidity have dropped by 47% and 43%, respectively. Dr. Khuri was also instrumental in implementing NSQIP in the private sector through collaboration with the American College of Surgeons. Dr. Khuri died September 26, 2008.

Even with the improvements of the past six years, the report makes clear that more improvement is still needed. For example, treatments were still not being performed consistently in 2007 on some measures introduced in 2002, such as the following:

- Discharge instructions for heart failure patients—only 27.5% of hospitals achieved 90% compliance
- Pneumococcal screening for pneumonia patients—only 38.6% of hospitals achieved 90% compliance
- ACE (angiotensin converting enzyme) inhibitor or ARB (angiotensin receptor blocker) prescribed at discharge for heart failure patients—only 57.7% of hospitals achieved 90% compliance
- ACE inhibitor or ARB prescribed at discharge for heart attack patients—only 68.8% of hospitals achieved 90% compliance

The Joint Commission issues this report as part of its ongoing efforts to emphasize the importance of accountability and continuous improvement for hospitals, and to empower consumers with information that will make them more active participants in their health care. Hospital-specific performance on specific measures for Joint Commission accredited organizations can be found on The Joint Commission’s Quality Check® Web site at http://www.qualitycheck.org.

For a complete copy of Improving America’s Hospitals: The Joint Commission’s Annual Report on Quality and Safety, 2008 and additional information, please visit http://www.jointcommissionreport.org.

This white paper offers guiding principles and actions for the hospital of the future to meet the daunting challenges of older and sicker patients, patient safety and quality of care, economics, and the work force. As these challenges escalate, hospitals can lead the effort to meet these demands.

*Health Care at the Crossroads: Guiding Principles for the Development of the Hospital of the Future* contends that hospitals must respond in new ways as escalating health care costs are hitting record highs and the conditions and care needs of hospitalized patients are growing more complex. The report is the work of an expert panel comprising hospital executives and clinical leaders, as well as experts in technology, health care economics, hospital design, and patient safety. The roundtable analyzed how socio-economic trends, technology, the physical environment of care, patient-centered care values, and ongoing staffing challenges will impact the hospital of the future.

“The importance of hospital-based care will not diminish in the future, but hospitals will have to meet the high expectations of the public and all stakeholders in an increasingly challenging environment,” says Mark R. Chassin, M.D., M.P.P., M.P.H., president, The Joint Commission. “As they have been in the past, hospitals must be equally transformative as the future unfolds. The Joint Commission urges hospitals and public policymakers to use the principles in this report to achieve that aim.”

“The Joint Commission has brought together broad expertise in health care to point to directions for optimizing health care in hospitals. Hospitals have an enduring role in the delivery of health care and have provided major contributions to enhancing the treatment of disease,” says Herbert Pardes, M.D., President and C.E.O., New York Presbyterian Hospital and New York Presbyterian Healthcare System and roundtable chair. “Looking forward, this white paper describes issues ranging from technology to personnel, patient relationships, and fiscal and architectural design among many other ways hospitals can enhance health care for all patients.”

The report recommends action in the following five core areas:

1. **Economic Viability**

   While some hospitals today enjoy healthy profit margins, many hospitals continue to be unprofitable. There is a growing gap between the “have” and “have-not” hospitals. An aging population and a continuing decline in employer-sponsored insurance mean that hospitals can expect increases in publicly insured patients and uncompensated care. This is expected to create more competition for the fewer patients to whom costs may be shifted. For hospitals to be economically viable in the future, the following principles must be pursued by hospitals, health care stakeholders, and policymakers:
   - Align performance and payment systems to meet quality- and efficiency-related goals
   - Use process improvement tools to increase efficiency and reduce costs
   - Pursue coverage options to ensure patient access to, and affordability of, health care
   - Address how general acute hospitals and specialty hospitals can both fulfill the social mission for health care

2. **Technology Adoption**

   Information technology plays a major role in improving health care quality and safety, and can help to support the migration of hospital-based care into the community and even the home. The technological transformation of health care also invites the redefinition of the hospital, according to the report. To address technology in the hospital of the future, the expert roundtable suggests the following:
   - Make the business case and secure sustainable funding to support the widespread adoption of health information technology
   - Redesign business and care processes together with health information technology adoption
   - Use digital technology to support patient-centered hospital care and extend that care beyond the hospital walls
   - Establish reliable authorities to provide technology assessment and technology investment guidance for hospitals
   - Adopt technologies that are labor-saving and integrative across the hospital

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The patient is at the center of care. The patient has the greatest stake in his or her care and, as such, should be respected as an equal partner in his or her care. The elevation of the patient to partner is not a ceremonial title given for a “feel good” moment but has significant implications for the quality and safety of patient care. Family members or others to whom the patient is emotionally tied are also part of the health care partnership. According to the report, achieving patient-centered care should be driven by the following actions:

- Make adoption of patient-centered care values a priority for improving patient safety and patient and staff satisfaction
- Incorporate patient-centered care principles into the activities of hospital oversight bodies and transparency initiatives
- Address barriers to patient and family engagement, such as low health literacy and personal and cultural preferences
- Eliminate disparities in the quality of care for minorities, the poor, the aged, and the mentally ill
- Improve the quality of care for the chronically ill through coordinated, multidisciplinary care
- Use robust process improvement tools to improve quality and safety

4. Staffing

Work force shortages have persistently plagued hospitals over the past several years. To address the fact that demand for certain health care professionals exceeds supply and to meet the needs of patients in the future, the report makes the following recommendations:

- Establish fair migration and compensation policies for countries facing shortages of health care workers
- Expand health professional education and training capacity to accommodate the growing demand for health care workers
- Create workplace cultures that can attract and retain health care workers
- Develop professional knowledge and skills necessary in a more complex health care environment
- Educate health professionals to deliver team-based care
- Develop the competence of health professionals to care for geriatric patients

5. Hospital Design

Hundreds of studies have revealed hospital design characteristics that work for improving patient safety and health care outcomes, and providing a supportive environment for hospital staff. Yet, most new hospitals are not being built “safe by design.” To achieve this goal, the report calls for the following actions:

- Improve safety with evidence-based design principles such as single rooms, decentralized nursing stations, and noise-reducing materials
- Address high-level priorities, such as infection control and emergency preparedness, in hospital design and construction
- Include clinicians and other staff, patients, and families in the design process to improve staff workflow and patient safety, and create patient-centered environments
- Design flexibility into the building to accommodate advances in medicine and technology
- Incorporate “green” principles in hospital design and construction

The full report can be found on The Joint Commission’s Web site for free download at http://www.jointcommission.org/ by clicking the “Public Policy Reports” tab, then selecting the “Hospital of the Future” option.
The Joint Commission Names Five New Members to Board of Commissioners

Five prominent health care leaders—David L. Bronson, M.D., F.A.C.P.; Benjamin Chu, M.D., M.P.H., M.A.C.P.; T. Anthony Denton, J.D., M.H.A.; Mary Anne McCaffree, M.D.; and Mary H. McGrath, M.D., M.P.H.—have joined The Joint Commission’s Board of Commissioners. A brief profile of each new member is provided below.

- **David L. Bronson, M.D., F.A.C.P.**, is a general internist and the chair of the Medicine Institute at the Cleveland Clinic Foundation. The Medicine Institute includes 220 Cleveland Clinic faculty physicians and also includes residencies and fellowships in numerous specialties, as well as the 200-bed inpatient service. He was instrumental in developing the Cleveland Clinic regional health system, including 14 family health centers and 9 community hospitals in the Cleveland area. Dr. Bronson is immediate past chair of the Board of Governors of the American College of Physicians and a member of the Board of Regents. He is chair-elect of the American Medical Group Association Board of Directors and serves on the executive leadership committee and chairs the Clinical Advisory Committee of Better Health, Greater Cleveland, a Robert Wood Johnson Foundation funded communitywide collaborative to improve chronic disease management. He has published in the areas of predictive instruments, quality improvement processes, perioperative care, patient adherence, delirium, and health care economics. Dr. Bronson is a graduate of the University of Vermont College of Medicine.

- **Benjamin Chu, M.D., M.P.H., M.A.C.P.**, is regional president of Kaiser Permanente Southern California, directing health plan and hospital operations for 11 hospitals and 130 medical offices. Dr. Chu has served as president of New York City’s Health and Hospitals Corporation (HHC) and Acting Commissioner of Health for the New York City Department of Health. In both California and New York, Dr. Chu has been a strong proponent of electronic health records for improving quality and outcomes for patient care. A primary care internist by training, Dr. Chu possesses extensive health care experience as a clinician, administrator, policy advocate, and academic leader at Columbia University College of Physicians and Surgeons and the New York University School of Medicine and Medical Center. Dr. Chu, a former member of the board of the American Hospital Association, serves on the board of the Commonwealth Fund in New York and is chairman of the board of the American Legacy Foundation. He earned his medical degree at New York University, his master’s degree in public health from Columbia University, and a bachelor’s degree in psychology from Yale University.

- **T. Anthony Denton, J.D., M.H.A.**, is the senior associate director and chief operating officer (COO) of the University of Michigan Hospitals and Health Centers and a member of the University of Michigan Health System’s executive group. Denton was previously associate director for clinical services and administrator of University Hospital. He has also been an active leader in the planning, presentation, and implementation of multiple capital initiatives and investments linked to master facility and program growth for the health system. Denton served as chairman of the board for Michigan Visiting Nurse Corporation, a Michigan Health Corporation subsidiary, and serves on the board of directors for Huron Valley Ambulance, Washtenaw County Chapter of the American Red Cross, Ronald McDonald House, and Ann Arbor’s new Skyline High School. He earned his master’s degree in Health Services Administration from the University of Michigan School of Public Health after receiving a bachelor’s degree in communicative disorders from Northwestern University. Denton earned a law degree from the University of Detroit.

- **Mary Anne McCaffree, M.D.**, is a pediatrician from Oklahoma City and a member of the American Medical Association (AMA) Board of Trustees. She has served as chair of the American Academy of Pediatrics (AAP) Committee on Federal Government Affairs. As president of the Oklahoma State Medical Association (OSMA), Dr. McCaffree helped preserve the protected status of peer-reviewed patient information. She also partnered with the Litigation Center of the AMA, state medical societies, and AAP leaders in the fight against low Medicaid reimbursement, leading to a landmark case increasing Medicaid reimbursement in Oklahoma. Dr. McCaffree is the recipient of the Abraham Jacobi, M.D., Award, which honors a physician who has effectively served both the AAP and the AMA at the highest levels; the Ed L. Calhoon, M.D., Leadership in Medicine Award, which is presented to an OSMA.

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REMINDER: Manual E-ditions Now Available


In addition to the customary complimentary copy of the comprehensive print manual, Joint Commission–accredited organizations receive one free single-user license to the E-dition for each of their accredited programs. Each free single-user license allows one simultaneous user per program to access the E-dition content. (In other words, one person can access a program in E-dition at a time, much like one person at a time uses a printed book.) Multi-user site license upgrades are available, as desired.

The primary accreditation contacts and Periodic Performance Review contacts for Joint Commission–accredited customers were notified of when and how to access their free E-dition via an e-mail from Joint Commission Resources during the second half of November 2008. In addition, a special Web link to each organization's E-dition license was posted on their secure Joint Commission Connect™ extranet site.

If your Joint Commission–accredited organization's primary accreditation contact and PPR contact did not receive an e-mail from Joint Commission Resources about your complimentary E-dition access, please contact customer support via phone at 630/792-5420 or e-mail at support@jcrinc.com.


The Joint Commission Names New Members to Board of Commissioners (continued)
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member in recognition of distinguished leadership and service to organized medicine; and the OSMA Woman in Medicine Award. A graduate of the University of Oklahoma College of Medicine, she is a professor of pediatrics at the University of Oklahoma Health Sciences Center.

- Mary H. McGrath, M.D., M.P.H., is professor of surgery in the Division of Plastic and Reconstructive Surgery at the University of California San Francisco and actively practices plastic surgery. Certified by the American Board of Surgery and the American Board of Plastic Surgery, she is chair of the board of trustees of the American Society of Plastic Surgeons and is a member of the Plastic Surgery Residency Review Committee. She has held leadership positions with the American College of Surgeons, American Board of Plastic Surgery, National Endowment for Plastic Surgery, Educational Foundation of the American Society of Plastic Surgeons, and Plastic Surgery Research Council. Dr. McGrath has been a panel member and consultant for the Food and Drug Administration (FDA) for more than 20 years, serves regularly on review panels at the National Institutes of Health, and is a frequent author of publications and books. She received her medical degree from St. Louis University and holds a Master's in Public Health in Health Policy and Management from The George Washington University.

“Health care is facing many serious challenges and the experience and expertise of leaders such as David L. Bronson, Benjamin Chu, T. Anthony Denton, Mary Anne McCaffree, and Mary H. McGrath will be crucial to The Joint Commission as we strive to help health care organizations implement robust, lasting improvements in the quality and safety of patient care,” says Mark R. Chassin, M.D., M.P.P., M.P.H., president, The Joint Commission.

David A. Whiston, D.D.S., a practicing oral and maxillofacial surgeon from Falls Church, Virginia, will serve as chair of the The Joint Commission Board of Commissioners beginning in January 2009. Dr. Whiston is a former president of the American Dental Association.

Isabel V. Hoverman, M.D., M.A.C.P., an internal medicine physician in private practice from Austin, Texas, will serve as vice chair.

The 29-member Board of Commissioners serves as The Joint Commission's governing body. Its composition includes representatives from each of The Joint Commission’s Corporate Members from the American Hospital Association, American Medical Association, American College of Physicians, American College of Surgeons, and American Dental Association; six public members; one at-large representative of the nursing profession; and Joint Commission president, Mark R. Chassin, M.D., M.P.P., M.P.H.
Safely Implementing Health Information and Converging Technologies

Issue 42, December 11, 2008

As health information technology (HIT) and “converging technologies”—the interrelationship between medical devices and HIT—are increasingly adopted by health care organizations,1,2 users must be mindful of the safety risks and preventable adverse events that these implementations can create or perpetuate. Technology-related adverse events can be associated with all components of a comprehensive technology system and may involve errors of either commission or omission. These unintended adverse events typically stem from human-machine interfaces or organization/system design.3 The overall safety and effectiveness of technology in health care ultimately depend on its human users, ideally working together with properly designed and installed electronic systems. Any form of technology may adversely affect the quality and safety of care if it is designed or implemented improperly or is misinterpreted. Not only must the technology or device be designed to be safe, it must also be operated safely within a safe workflow process.

Previous Sentinel Event Alerts have addressed specific technology-related safety issues, including the following: infusion pumps (Issue 15), ventilators (Issue 25), patient-controlled analgesia (Issue 33), tubing misconnections (Issue 36), and MRI (magnetic resonance imaging; Issue 38). In addition, technology-related adverse events in health care can involve, but are not limited to, computerized provider order entry (CPOE), automated dispensing cabinets (ADCs), electronic medical records (EMRs), clinical decision support (CDS), bar coding or RFID (radio frequency identification), virus threats to information security, CT (computed axial tomography) scanning technology, and the loss of patient data. According to a 2007 study conducted by the American Society of Health-System Pharmacists, approximately 83% of hospitals in the U.S. have ADCs, 44% have smart pumps, 43% have EMRs, 24% have bar code medication administration, 18% have CPOE, 13% have intelligent medication carousel systems for pharmacy inventory picking, and 10% have robots for unit-dose packaging and dispensing.1 There is extensive literature available about the uses and potential risks of these technologies. This Alert focuses on how to safely implement HIT and converging health technologies.

There is a shortage of data on the incidence of adverse events directly caused by HIT overall. The United States Pharmacopeia MEDMARX® database includes 176,409 medication error records for 2006, of which 1.25% resulted in harm. Of those medication error records, 43,372, or approximately 25%, involved some aspect of computer technology as at least one cause of the error. Most of the harmful technology-related errors involved mislabeled barcodes on medications (5%), information management systems (2%), and unclear or confusing computer screen displays (1.5%). The remaining harmful errors were related to dispensing devices, computer software, failure to scan barcodes, CPOE, computer entry (other than CPOE), and overrides of barcode warnings. (See the sidebar on page 11 for a breakdown of these data.) In addition, a 2007 survey conducted by the Institute for Safe Medication Practices (ISMP) showed that safety improvements with ADCs have not kept up with the growing popularity of the technology. According to the 800 respondents to the survey, 94% are using ADCs and of those, 56% are using the technology as the primary means of drug distribution.4,5,6 ISMP recently released the first set of interdisciplinary guidelines to promote safety practices with ADCs.7

Contributing Factors

Inadequate technology planning can result in poor product selection, a solution that does not adapt well to the local clinical environment, or insufficient testing or training. Inadequacies include failing to include frontline clinicians in the planning process, to consider best practices, to consider the costs and resources needed for ongoing maintenance, or to consult product safety reviews or alerts or the previous experience of others. Implementing new clinical information systems can expose latent problems or flawed processes with existing manual systems; these problems should be identified and resolved before implementing the new system. An over-reliance on vendor advice, without the oversight of an objective third party (whether internal or external), also can lead to problems. “There’s often an expectation that technology will reduce the need for resources, but that’s not always true,” says Bona Benjamin, B.S. Pharm., director of Medication Use Quality Improvement, American Society of Health-System Pharmacists. Instead, technologies often shift staffing allocations, so there is not typically a decrease in staff.
Technology-related adverse events also happen when health care providers and leaders do not carefully consider the impact technology can have on care processes, workflow, and safety. “You have to understand what the worker is going through—whether that worker is a nurse, a doctor, a pharmacist, or whoever is using the technology. The science of the interplay between technology and humans or ‘human factors’ is important and often gets short shrift,” says Ronald A. Paulus, M.D., chief technology and innovation officer, Geisinger Health System.

If not carefully planned and integrated into workflow processes, new technology systems can create new work, complicate workflow, or slow the speed at which clinicians carry out clinical documentation and ordering processes. Learning to use new technologies takes time and attention, sometimes placing strain on demanding schedules. The resulting change to clinical practices and workflows can trigger uncertainty, resentment, or other emotions that can affect the worker’s ability to carry out complex physical and cognitive tasks. For example, through the use of clinical, role-based authorizations, CPOE systems also exert control over who may do what and when. While these constraints may lead to much needed role standardizations that reduce unnecessary clinical practice overlaps, they may also redistribute work in unexpected ways, causing confusion or frustration. Physicians may resent the need to enter orders into a computer. Nurses may insist that the physician enter orders into the CPOE system before an order is carried out, or nurses may take over the task on behalf of the physician, increasing the potential for communication-related errors. Physicians have reported a sense of loss of professional autonomy when CPOE systems prevent them from ordering the types of tests or medications they prefer, or force them to comply with clinical guidelines they may not embrace, or limit their narrative flexibility through structured rather than free-text clinical documentation.

Furthermore, clinicians may suffer “alert fatigue” from poorly implemented CPOE systems that generate excessive numbers of drug safety alerts. This may cause clinicians to ignore even important alerts and to override them, potentially impairing patient safety.

Patient safety is also impaired by the failure to quickly fix technology when it becomes counterproductive, especially because unsolved problems engender dangerous workarounds. Additionally, safety is compromised when health care information systems are not integrated or updated consistently. Systems not properly integrated are prone to data fragmentation because new data must be entered into more than one system. For example, when the CPOE system is not interfaced with the pharmacy system, each order must be printed manually and then electronically transcribed into the pharmacy system. Multiple networks can result in poor interoperability and increased costs. If data are not updated in the various systems, records become outdated, incomplete, or inconsistent.

### Existing Joint Commission Requirements

The “Information Management” (IM) chapter covers electronic information. Regarding patient safety and technology, organizations should pay particular attention to the following standards:

- **Standard IM.1.10** (IM.01.01.01*) addresses planning the management of information
- **Standard IM.2.20** (IM.02.01.01*) requires the safeguarding of data and information against loss, destruction, and tampering
- **Standard IM.2.30** (IM.01.01.03*) requires a disaster recovery plan for information systems and the periodic testing of the plan to ensure its effectiveness

Leadership standards **LD.4.20** (LD.04.04.03*) and **LD.4.40** (LD.04.04.05*) address designing new processes and establishing a safety program. In addition, since technology is prevalent in health care—from patient admission, to

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<th>Cause</th>
<th>Number</th>
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</tr>
<tr>
<td>Barcode, failure to scan</td>
<td>114</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Computer entry (general, other than CPOE)</td>
<td>24,715</td>
<td>&lt;1</td>
</tr>
<tr>
<td>CPOE</td>
<td>10,752</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Barcode, override warning</td>
<td>41</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>43,372</td>
<td></td>
</tr>
</tbody>
</table>

* From a total of 176,409 medication error records.

* Note: The 2009 standards have been renumbered as part of The Joint Commission’s Standards Improvement Initiative.
the surgical suite, to the ordering and administration of medication and the use of equipment and medical devices—any Joint Commission standard could potentially be tied to technology. Users should consider the use of any technology in relation to the standards and be aware of potential dangers to patients, as in any clinical situation.

**Joint Commission Suggested Actions**

The following are suggested actions to help prevent patient harm related to the implementation and use of HIT and converging technologies:

1. Examine workflow processes and procedures for risks and inefficiencies and resolve these issues before any technology implementation. Involving representatives of all disciplines—whether they be clinical, clerical, or technical—will help in the examination and resolution of these issues.

2. Actively involve clinicians and staff who will ultimately use or be affected by the technology, along with IT staff with strong clinical experience, in the planning, selection, design, reassessment, and ongoing quality improvement of technology solutions, including the system selection process. Involve a pharmacist in the planning and implementation of any technology that involves medication.

3. Assess your organization’s technology needs beforehand (for example, supporting infrastructure; communication of admissions, discharges, transfers). Investigate how best to meet those needs by requiring IT staff to interact with users outside their own facility to learn about real world capabilities of potential systems, including those of various vendors; conduct field trips; and look at integrated systems (to minimize reliance on interfaces between various vendor systems).

4. During the introduction of new technology, continuously monitor for problems and address any issues as quickly as possible, particularly problems obscured by workarounds or incomplete error reporting. During the early post-live phase, consider implementing an emergent issues desk staffed with project experts and champions to help rapidly resolve critical problems. Use interdisciplinary brainstorming methods for improving system quality and giving feedback to vendors.

5. Establish a training program for all types of clinicians and operations staff who are using the technology and provide frequent refresher courses. Training should be appropriately designed for the local staff. Focus training on how the technology will benefit patients and staff (that is, less inefficiency, fewer delays, and less repeated work). Do not allow long delays between orientation and system implementation.

6. Develop and communicate policies delineating staff authorized and responsible for technology implementation, use, oversight, and safety review.

7. Before taking a technology live, ensure that all standardized order sets and guidelines are developed, tested on paper, and approved by the Pharmacy and Therapeutics Committee (or institutional equivalent).

8. Develop a graduated system of safety alerts in the new technology that helps clinicians determine urgency and relevancy. Carefully review skipped or rejected alerts as important insight into clinical practice. Decide which alerts need to be hard stops when using the technology and provide appropriate supporting documentation.

9. Develop a system that mitigates potential harmful CPOE drug orders by requiring departmental or pharmacy review and sign off on orders that are created outside the usual parameters. Use the Pharmacy and Therapeutics Committee (or institutional equivalent) for oversight and approval of all electronic order sets and clinical decision support alerts. Assure proper nomenclature and printed label design, eliminate dangerous abbreviations and dose designations, and ensure MAR acceptance by nurses.

10. To improve safety, provide an environment that protects staff involved in data entry from undue distractions when using the technology.

11. After implementation, continually reassess and enhance safety effectiveness and error-detection capability, including the use of error tracking tools and the evaluation of near-miss events. Maximize the potential of the technology to maximize the safety benefits.

12. After implementation, continually monitor and report errors and near misses or close calls caused by technology through manual or automated surveillance techniques. Pursue system errors and multiple causations through the root cause analysis process or other forms of failure-mode analysis. Consider reporting significant issues to well recognized external reporting systems.
13. Re-evaluate the applicability of security and confidentiality protocols as more medical devices interface with the IT network. Reassess HIPAA compliance on a periodic basis to ensure that the addition of medical devices to your IT network and the growing responsibilities of the IT department haven’t introduced new security and compliance risks.2

Contributing to these actions for successfully implementing and maintaining new technologies in support of patient safety were: Bona Benjamin, BS Pharm, and Karl F. Gumpper, BS Pharm, American Society of Health-System Pharmacists; David C. Classen, M.D., CSC Consulting, Inc.; Donald Mon, Ph.D., American Health Information Management Association; Tony Montagnolo, M.S., and Ronni Solomon, J.D., ECRI Institute; Ronald A. Paulus, M.D., Geisinger Health System; and Patricia Wise, R.N., Healthcare Information and Management Systems Society.

References


Additional changes to requirements for critical access hospitals with distinct part units were accepted by The Joint Commission's Board of Commissioners in December 2008. These requirements, effective March 1, 2009, are in alignment with the Centers for Medicare & Medicaid Services' (CMS) hospital Conditions of Participation requirements for rehabilitation and psychiatric distinct part units.

These changes apply to rehabilitation and psychiatric distinct part units in critical access hospitals that use their Joint Commission accreditation for deemed status.

A final, complete version of the changes accepted by The Joint Commission's Board of Commissioners in September, November, and December 2008 will be posted to The Joint Commission's Web site, http://www.jointcommission.org, in January 2009. The changes can be viewed by selecting the “Accreditation Program” tab and then the “Critical Access Hospital” option. The direct link to these changes is: http://www.jointcommission.org/AccreditationPrograms/CriticalAccessHospitals.

Effective Dates

Please note that the restraint and seclusion requirements at standards PC.03.05.01 through PC.03.05.19 are effective immediately. All other new or revised standards and elements of performance are effective March 1, 2009.

The article titled “Improvements to the Decision Process” in the August 2008 issue of The Joint Commission Perspectives described each level of criticality, including “Immediate Threat to Life” situations. A bulleted list on page 6 of the article provided examples of Immediate Threat to Life findings; among this list was the example “adult-strength medications on pediatric crash cart.” Questions from the field have indicated that clarifying information on this example is needed. This information follows.

Not every case of adult-strength medications in pediatric crash carts represents an Immediate Threat to Life situation. The only time that the patient is at risk of significant harm (Immediate Threat to Life) is when only the higher (or adult) strength of a medication is stocked in a crash cart, and the organization's policy, protocol, dosing charts, or routine practice in handling pediatric codes is based on the less concentrated pediatric strength.

When both of these situations are present, a life-threatening overdose is a high probability. Consider the following examples:

- The organization's dosing charts for pediatric emergencies are based on the pediatric strength of a medication, those specific charts are on the cart, and the cart contains only a significantly higher adult concentration of the medication. This would also be true if such medication is in the pediatric section of a cart used to serve both adult and pediatric patients.

- All pediatric carts contain the pediatric strength, with the exception of one unit that has only the adult strengths. However, the policy, protocol, or standard practice in that hospital for handling a cardiac emergency is based on the pediatric strength. Staff responding to pediatric codes do so on all units, and might mistakenly administer adult doses or strengths when accustomed to pediatric doses or strengths.

The presence of an adult-strength medication in a pediatric crash cart does not automatically represent an Immediate Threat to Life situation. Please evaluate your organization's situation against the criteria outlined above.

For additional questions, please contact The Joint Commission's Standards Interpretation Group at 630/792-5900 or submit an online inquiry at http://jcwebnoc.jcaho.org/SigSub/onlineform.asp.
UPDATE: 2009 Standards FAQs Now Available Online

The Joint Commission’s Web site has been updated to include answers to Frequently Asked Questions (FAQs) and clarifying information on the 2009 standards for the ambulatory care, behavioral health care, critical access hospital, home care, hospital, laboratory, long term care, and office-based surgery programs. The FAQs were revised based on the 2009 accreditation manuals, which were improved through The Joint Commission’s Standards Improvement Initiative.

Improvements to the manuals included clarifying language, re-numbering standards to facilitate the new E-ditions (electronic manuals), and a revised scoring and accreditation decision process. The FAQs have also been updated to reflect the recent revisions to the National Patient Safety Goals and Universal Protocol.

To access the new FAQs, please visit The Joint Commission Web site at http://www.jointcommission.org, click on “Standards,” select the “Standards FAQs” option, and click on the phrase “2009 Standards FAQs Now Available.” The direct link to the FAQs is as follows: http://www.jointcommission.org/Standards/FAQs/2009+Standards+FAQs.htm.

The 2009 standards FAQs are organized by accreditation manual.

CORRECTION: Eligibility Criteria in the 2009 CAMHC

This article corrects information in “The Accreditation Process” (ACC) chapter of the 2009 Comprehensive Accreditation Manual for Home Care (CAMHC), page ACC-4. This correction applies to home care organizations, effective immediately.

In the “Eligibility for Home Care” segment of the ACC chapter, under section “F. Active Service,” the eligibility criteria are incorrect. Per Accreditation Committee approval in November 2007, there must be at least two active patients. The corrected text is noted in the box below in strikeout and underlined text.

In the “Eligibility for Home Care” segment of the ACC chapter, under section “F. Active Service,” the eligibility criteria are incorrect. Per Accreditation Committee approval in November 2007, there must be at least two active patients. The corrected text is noted in the box below in strikeout and underlined text.

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January 2009
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