Nearly $1.9 trillion is spent on medical care each year in the United States.¹ In spite of this, medical errors occur frequently, and Americans suffer from injuries caused by these errors. Some of these errors result in patient death.

In an effort to reduce errors, the Joint Commission publishes National Patient Safety Goals (NPSGs) and requires accredited organizations and those pursuing accreditation to comply with these goals.² The NPSGs are part of the patient safety trilogy espoused by the Joint Commission, which includes the Sentinel Event Standards and Guidelines, Patient Safety Standards, and the NPSGs. A full understanding of the Joint Commission’s requirements and, when appropriate, the incorporation of technologic solutions can automate and streamline the process of compliance with the NPSGs.

**PATIENT SAFETY**

The focus on patient safety has long been a part of the Joint Commission’s mission, which is

*To continuously improve the safety and quality of care provided to the public through the provision of health care accreditation and related services that support performance improvement in health care organizations.*³

Beginning in 1995, the Joint Commission began reviewing certain sentinel events (ie, unexpected occurrences involving death or serious physical injury, including the loss of limb or function, or psychological injury, or the risk thereof)⁴ and requiring health care organizations to perform root-cause analyses of those events. The *Sentinel Events* are a by-product of these reviews. These alerts are published in an effort to capture the attention of health care organizations for the purpose of helping them recognize, explore, and correct potential problems, thereby preventing similar sentinel events in the future.

The Institute of Medicine (IOM) increased the national focus on patient safety with its three publications, *To Err Is Human: Building a Safer Health System*,⁵ *Crossing the Quality Chasm: A New Health System for the 21st Century*,⁶ and *Patient Safety: Achieving a New Standard for Care*,⁷ published in 2000, 2001, and 2004, respectively. It is noteworthy that the IOM publications not only highlighted the number of medical errors that have resulted in death in health care organizations annually (ie, between 44,000 and 98,000), but they also called for a national health information infrastructure designed to foster the sharing of patient safety information and the design of safer delivery systems.

**ABSTRACT**

In 2003, the Joint Commission began publishing National Patient Safety Goals (NPSGs) and requiring accredited health care organizations to comply with these goals in an effort to reduce the number of medical errors.

The NPSGs are updated yearly with new requirements to promote specific improvements in patient safety.

This article provides a review of the 2008 NPSGs and suggests ways in which information technology systems can address health care organizations’ compliance with some of these goals. AORN J 87 (March 2008) 547-556. © AORN, Inc, 2008.
The Development of the NPSGs
The Joint Commission responded to the subsequent public outcry over medical errors by formulating specific patient safety standards for accredited organizations. These standards became part of the accreditation survey process in January 2001\(^a\) and were followed by the NPSGs in January 2003.\(^b\)

The Joint Commission’s Sentinel Event Advisory Group is responsible for drafting the NPSGs, which subsequently are reviewed and adopted by the Joint Commission Board of Commissioners. The Joint Commission has chosen to maintain the sequential numbering methodology of the original NPSGs; meaning that an existing or retired number will never be reused for any other NPSG. The Joint Commission believes that this will allow better and more efficient tracking of NPSG progress and also will cause less confusion.

As anticipated, the NPSGs have evolved over time. The Joint Commission has added implementation expectations and rationales for each goal.\(^c\) During the Joint Commission’s survey of a health care organization, it will evaluate the organization’s actual performance with respect to each NPSG, not just the intent of the organization to comply “some time in the future.”

Organizations have tried many methods to increase their compliance with the NPSGs. Many of these methods have worked for a limited period of time; however, the results are not always sustainable. Information technology (IT) solutions may help to minimize lapses in some areas of compliance with the NPSGs. This article reviews the 2008 hospital program NPSGs and, when applicable, focuses on ways in which IT solutions (eg, clinical information systems, applications, processes) might be used to address them.

Goal 1—Improve the Accuracy of Patient Identification

Requirement 1A of NPSG 1, “Improve the accuracy of patient identification,”\(^d\) is that health care organizations use two patient identifiers when providing care, treatment, or services. The intent of this goal is the identification of the correct patient and the ability to match the service and/or treatment (ie, administering medication, collecting blood samples and other specimens for clinical testing, providing treatments or procedures, administering blood products) with the correct patient.

The patient identifiers may vary depending on the area in which the patient is treated (eg, hospital, ambulatory surgery center [ASC]), but neither identifier should be the patient’s room number. In hospitals, the patient’s armband is the vehicle of choice from which identification is made. Traditionally, two patient identifiers are needed only for patient treatment, but administrators may want to consider using two patient identifiers when passing out food trays or picking up patients for procedures.

An IT component for compliance with this goal is technology that captures these two patient identifiers by point-of-care scanning of individual-specific bar codes on the patient’s armband along with scanning of the bar code on the medication, blood product, or specimen container. This can help ensure that the health care organization is indeed treating the correct patient.

Although this type of technology is becoming more common, it does not replace old-fashioned communication. Usually, ASCs have few, if any, alternatives to questioning the patient and verifying the patient’s responses through a review of the patient’s medical record. Furthermore, staff members in hospitals that do not have the point-of-care scanning equipment must check the armband manually and confirm the information using the patient’s medication administration record or other documentation in the patient’s medical record.

Requirement 1B of NPSG 1 only applies to assisted living, home care, laboratory, and long-term care organizations, but it does reiterate many of the requirements of the Universal Protocol for Preventing Wrong Site, Wrong Procedure, Wrong Person Surgery.\(^e\) Requirement 1B states that a final verification process, such as a time out, should be conducted prior to the start of any invasive procedure. This helps staff members confirm the correct patient, procedure, and surgical site through the use of active, not passive, communication techniques.
GOAL 2—IMPROVE THE EFFECTIVENESS OF COMMUNICATION AMONG CAREGIVERS

National Patient Safety Goal 2 is to “Improve the effectiveness of communication among caregivers.” This NPSG has four separate requirements, and IT solutions can have an impact on at least one of them.

REQUIREMENT 2A. Requirement 2A of this goal states that caregivers must “read-back” the complete verbal or telephone order or critical test result. The verification process is performed by the individual who is taking the order or receiving the critical test result. This practice has been adopted so that verbal and telephone orders and directives are correctly understood by health care personnel on both ends of the exchange. This helps ensure that directives are accurately and completely carried out. Compliance with this component of NPSG 2 is reviewed by the Joint Commission surveyors through observation. It is possible to use IT solutions to document and verify that this communication has taken place.

REQUIREMENT 2B. Requirement 2B states that accredited organizations must maintain a standardized list of abbreviations, acronyms, symbols, and dosage designations that are not to be used anywhere or by anyone in the organization. Computerized patient order entry (CPOE) systems can improve compliance with this NPSG, as can other clinical information systems. These applications force clinicians to document appropriately and eliminate guesswork.

In one study conducted by the Milwaukee Patient Safety Collaborative (MPSC), health care systems and pharmacies eliminated physicians’ use of high-risk abbreviations. The results demonstrated that the overall rate of documentation without using problematic abbreviations improved 32.1% during the study. The one MPSC site that completely eliminated the use of these abbreviations from physician prescriptions used a CPOE system.

These systems, however, are not without problems. In an article published in the Joint Commission Journal on Quality and Patient Safety in September 2007, researchers noted that errors from handwritten prescriptions required clarification and correction by a pharmacist; however, errors also occurred when the technologic application, using a databank library, automatically inserted incorrect abbreviations. This functionality certainly must be monitored carefully.

The danger of being unable to read an individual’s handwriting or to understand an abbreviation, acronym, symbol, or dosage designation is greatly reduced when efforts are made to comply with this requirement. Opposition to these efforts, however, is present in some organizations. Physicians may be of the belief that the abbreviations, acronyms, symbols, and dosage designations they learned in medical school are “sacred” and that their use should not be questioned, regardless of substantiated arguments to the contrary.

REQUIREMENT 2C. Requirement 2C instructs health care organizations to measure, assess, and, if appropriate, take action to improve the timeliness of reporting and the timeliness of receipt of critical test results and values by the responsible licensed caregiver. With clinical information systems, documentation of these exchanges becomes easier, and measurement can be done electronically.

REQUIREMENT 2E. Hand-off communication was first adopted as NPSG requirement 2E in 2006. It requires that the health care organization establish a standardized approach to hand-off communications. This communication must be interactive between staff members, allowing them the opportunity to ask and respond to questions whenever a patient is transferred between caregivers, for example,
when the postanesthesia care unit nurse receives a patient from the anesthesia care provider after surgery. Whatever the hospital’s policy, it should be followed by all staff members, and hand-off communications should cover up-to-date information about the patient’s care, treatment, service, current condition, and any anticipated changes to that condition. Verification, including repeat-back or read-back of patient information, also should become part of this process. Interruptions during hand offs should be minimized, if at all possible.

**Goal 3—Improve the Safety of Using Medications**

National Patient Safety Goal 3 is to “Improve the safety of using medications.” There are three requirements of this NPSG, and two have IT implications.

**Requirement 3C.** Requirement 3C refers to look-alike/sound-alike medications. Health care organizations are to review their list of look-alike/sound-alike medications and take action to prevent errors involving their interchange. Although the Joint Commission has established tables of look-alike and sound-alike medications and suggests safety strategies for avoiding errors related to these products, they have not recommended a specific method for managing these medications. Developments in pharmacy robotics, automated cabinets, and bar code medication administration should help health care providers’ comply with this directive.

**Requirement 3D.** The provisions of requirement 3D affect all perioperative and procedural areas. This requirement stipulates that all medications, other solutions, and solution containers (eg, syringes, medicine cups, basins), both on and off the sterile field, must be labeled. The only exception to this rule is if the solution is poured directly or drawn into a syringe from the original container and is used immediately. Unlabeled solution containers never should be allowed on or off the sterile field, because they are unidentifiable. Many untoward events have resulted when someone administered the wrong solution because it was dispensed in an unmarked container.

The Institute for Safe Medication Practices (ISMP) also has warned of this danger. One ISMP report describes an instance in which chlorhexidine antiseptic solution taken from an unmarked container was injected into a patient’s artery instead of contrast medium prior to a cerebral angiography. This error resulted in the patient’s death.

**Requirement 3E.** An addition to NPSG 3 in 2008 is requirement 3E, which instructs health care organizations to reduce the likelihood of patient harm associated with the use of anticoagulation therapy. This requirement has a one-year phase-in period, with an expectation that planning, development, and testing will be accomplished during 2008. As it conducts surveys in 2008, the Joint Commission will be checking specific milestones—assigning oversight for the program, creating an implementation work plan, pilot testing—as noted in the implementation expectations for 3E. These milestones will provide evidence that an organization is on the right track. These milestones are to be achieved by April 1, July 1, and October 1, 2008, respectively. The Joint Commission anticipates full implementation and surveying for this requirement by January 1, 2009. The Joint Commission has stated that only oral unit dose anticoagulant products and pre-mixed infusions are to be used. Health care organizations also will be responsible for evaluating and instituting anticoagulation safety practices. Pharmacy robotics, automated cabinets, and bar code medication administration could help health care facilities comply with this requirement.

**Goal 7—Reduce the Risk of Health Care-Associated Infections**

National Patient Safety Goal 7 is to “Reduce the risk of health care-associated infections.” In brief, requirement 7A of this NPSG requires that all organizations comply with the current Centers for Disease Control and Prevention or World Health Organization hand hygiene guidelines. As previously noted, sentinel events are a concern of the Joint Commission. With that in mind, requirement 7B states that all identified instances of unanticipated death or major permanent loss of function related to a health care-associated infection should be managed as a sentinel event.
GOAL 8—Accurately and Completely Reconcile Medications Across the Continuum of Care

Goal 8 is to “Accurately and completely reconcile medications across the continuum of care.” Information technology solutions can be used to fulfill both requirements 8A and 8B of this NPSG, when it is financially feasible for the institution.

Requirements 8A and 8B. The stipulation of requirement 8A is that health care organizations create a process to compare the patient’s current medications with those ordered for the patient while he or she is in the care of the organization. Requirement 8B goes a step further toward this goal by requiring an organization to complete a list of the patient’s medications and to communicate that information to the next provider of care or service when a patient is referred or transferred to another setting, service, practitioner, or level of care within or outside of the organization. A complete list of medications also is to be provided to the patient upon discharge from the facility.

Both of these measures encourage health care organizations not only to know the patients in their care but also to keep track of the medications a patient was taking before presenting at the organization and those that have been ordered going forward. This risk-avoidance effort is intended to thwart disastrous medication interactions by alerting all parties throughout the care process of a patient’s medications, both prescription and over-the-counter.

One way that IT solutions can help organizations comply with these requirements is by the use of bar code medication administration systems with constant updating of patient-specific information. The IT solutions related to this safety goal also can address the movement sweeping the country in the area of consumer-centric care. One major goal for delivering consumer-centric and information-rich health care is personalized care. This idea was noted in a July 2004 report released by the Department of Health and Human Services (HHS) titled The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care. In an effort to comply with the this goal, the American Health Information Community (AHIC) was formed by the HHS to assist in the advancement of President George W. Bush’s 2004 plan to ensure that most Americans have electronic health records within 10 years. The AHIC recommended the widespread adoption of a personal health record that would be “easy-to-use, portable, longitudinal, affordable, and consumer-centered as one of the breakthrough areas.”

National Patient Safety Goal 8 requires health care organizations to keep track of all medications a patient is currently taking and those that are subsequently prescribed.

In March 2006, the HHS went a step further by publishing a document titled Harmonized Use Case for Consumer Empowerment (Registration and Medication History), which discusses the need for identification of principle stakeholders and the flow of events needed for secure exchanges of consumer registration summaries and medication histories. The intent is to create a reconciled medication record that provides a safety net for patients as they progress through the health care system, whether they are seeking medical care in their hometown or are traveling.

GOAL 9—Reduce the Risk of Patient Harm Resulting From Falls

The NPSG 9 is to “Reduce the risk of patient harm resulting from falls.” Requirement 9B of this goal requires each health care organization to implement a fall-reduction program and to conduct an evaluation of the effectiveness of the program. Both clinical IT systems and manual methods can be used to collect the information necessary for this evaluation.
GOAL 11—REDUCE THE RISK OF SURGICAL FIRES

Although NPSG 11, “Reduce the risk of surgical fires,”21 currently is applicable only to the Joint Commission’s ambulatory care and office-based surgery accreditation programs, it certainly is a valuable guideline for hospitals and perioperative settings as well. This is evidenced by perioperative resources such as AORN’s “Fire Safety Tool Kit.”22 Requirement 11A of this NPSG states that the organization should educate all applicable staff members, including licensed independent practitioners and anesthesia care providers, in how to control heat sources, manage fuels, and provide enough time for patient preparation. In addition, organizations are instructed to establish guidelines to minimize oxygen concentration under drapes. Information technology solutions can be used to address this goal by facilitating the education of staff members to the risks and safety measures associated with surgical fires.

GOAL 13—ENCOURAGE PATIENTS’ ACTIVE INVOLVEMENT IN THEIR OWN CARE AS A PATIENT SAFETY STRATEGY

Goal 13 is to “Encourage patients’ active involvement in their own care as a patient safety strategy.”11 This goal requires health care organizations to define and communicate the means for patients and their family members to report any concerns they have about safety. According to the Joint Commission, patients should be encouraged to report such concerns. When a patient or family member voices a concern, follow-up actions must be taken when warranted. Information technology also can be used to address this goal by providing a system of reporting in a non-threatening environment.

GOAL 15—THE ORGANIZATION IDENTIFIES SAFETY RISKS INHERENT IN THE PATIENT POPULATION

The intent of NPSG 15 is that “The organization identifies safety risks inherent in the patient population.”11 This goal addresses a health care organization’s patient safety program. Requirement 15A specifically addresses the need to identify patients at risk for suicide and is applicable to patients in psychiatric hospitals and those being treated for emotional or behavioral disorders in general hospitals. Tracking this information also can be facilitated through the use of the appropriate technology.

GOAL 16—IMPROVE RECOGNITION AND RESPONSE TO CHANGES IN A PATIENT’S CONDITION

Goal 16, “Improve recognition and response to changes in a patient’s condition,”11 is a new NPSG for 2008. This goal also will be subject to a one-year phase-in period. This NPSG requires a health care organization to enable staff members to request additional assistance from specially trained individuals when a patient’s condition appears to be worsening. This goal addresses, in part, the “rapid response team” approach fostered by the Institute for Healthcare Improvement during its “100,000 Lives Campaign,”21 launched in 2004, which evolved into the current campaign, “Protecting 5 Million Lives From Harm: Some Is Not a Number. Soon Is Not a Time.”24 This directive is meant to help organizations identify and prepare individuals with specific knowledge and training who can be available to respond when a patient’s condition deteriorates.

Perioperative areas, in particular, are staffed with specially trained individuals who continually monitor each patient and respond quickly if the patient’s condition appears to be failing. Because of this, it is essential that perioperative clinicians become involved as the organization develops specific criteria and corresponding education related to this goal. Nurses must be diligent to call for additional assistance and to...
make sure this policy is instituted in all perioperative areas. These measures are essential for safe, quality patient care.

The Universal Protocol

Although distinct from the NPSGs, the Joint Commission’s Universal Protocol for Preventing Wrong Site, Wrong Procedure, Wrong Person Surgery drew upon, expanded, and integrated many requirements of the NPSGs. The Universal Protocol is particularly relevant to patient safety in perioperative settings.

In July 2003, the Joint Commission first approved the Universal Protocol, which applies to all hospital, ASC, critical access hospital, and office-based surgical procedures. Although adherence to the Universal Protocol has been required by the Joint Commission since July 1, 2004, wrong site, wrong procedure, and wrong person surgeries still occur. This is evidenced by the Joint Commission’s Sentinel Event Trend Statistics, which indicate that the number of wrong site surgeries reported each year increased until 2006, at which time a slight decline was observed. From January 1, 1995, to September 30, 2007, the Joint Commission investigated and considered 615 wrong site surgeries as sentinel events. Undoubtedly, additional wrong site surgeries have occurred since that time. Observance of the Universal Protocol, while seemingly easy, is not embraced by all health care workers. The incidence of wrong site surgery could be improved with the full participation of all involved in the process.

Implementing the NPSGs

Underlying this brief recap of the 2008 NPSGs is a plea for implementation of clinical IT systems, applications, and processes. There are both tangible and intangible benefits to be gained from the use of these technologic tools. Tangible value will be seen in the financial, clinical, and organizational arena, and intangible value will be evidenced through error prevention, risk reduction, and organizational good will.

References


Editor’s note: The Universal Protocol for Preventing Wrong Site, Wrong Procedure, Wrong Person Surgery is a registered trademark of the Joint Commission, Oakbrook Terrace, IL.
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Anaheim Information Available for Congress 2008 Attendees

Congress 2008 will take place in Anaheim, California, from March 30 to April 3, 2008, and attendees and exhibitors may want to take some extra time before or after Congress to enjoy the local attractions. Anaheim has numerous theme parks, theaters, art galleries, markets, and shopping opportunities for interested visitors—but many visitors may not know where to go to find what they are looking for.

AORN, in conjunction with the Anaheim/Orange County Visitor & Convention Bureau, has created a special web site you can use to search for things to see and do in Anaheim before or after Congress. Whether you want to

• get driving directions and maps,
• find parking,
• research restaurants,
• check out the theme parks,
• view airport and transportation information,
• take a look at special events and attractions, or
• find out what the weather will be like,

there is something on this web site for you. To access the web site, go to http://anaheimoc.org/microsites/sites/AORN.asp.