



MAINTAINING SAFETY • REDUCING RISK

Special Report!

2003 JCAHO National Patient Safety Goals: Practical Strategies and Helpful Solutions for Meeting These Goals

Editor's Note: Joint Commission Resources is pleased to offer you this special report on the 2003 JCAHO National Patient Safety Goals. Inside this special report you will find practical advice and helpful tips on incorporating the recently approved JCAHO National Patient Safety Goals. We hope you find this special report useful as you continue your performance improvement and error reduction efforts. Use this special report as a starting point for meeting the goals and recommendations.

As reported in the September 2002 issues of *Joint Commission Perspectives* and *Joint Commission Perspectives on Patient Safety*, the first six JCAHO National Patient Safety Goals (NPSGs) become effective January 1, 2003. This means that by January 1, 2003, your organization should be able to demonstrate how it is meeting all goals and recommendations that are relevant to the services your organization provides. For example, if your organization offers surgical procedures, by January 1, 2003, your organization must be meeting Goal 1, Improve the accuracy of patient identification, and its associated recommendation: 1.b. Prior to the start of any surgical or invasive procedure, conduct a final

verification process, such as a “time out,” to confirm the correct patient, procedure, and site, using active—not passive—communication techniques and Goal 4, Eliminate wrong-site, wrong-patient, wrong-procedure surgery, and both of this goal’s recommendations: 4.a. Create and use a preoperative verification process, such as a checklist, to confirm that appropriate documents (e.g., medical records, imaging studies) are available; and 4.b. Implement a process to mark the surgical site, and involve the patient in the marking process.

The NPSGs and their related recommendations apply to all JCAHO-accredited organizations in which relevant services are provided. For example, say your long term care organization uses equipment with alarms but does not use infusion pumps. Your organization would be expected to meet Goal 6, Improve the effectiveness of clinical alarm systems, and its associated recommendations: 6.a. Implement regular preventive maintenance and testing of alarm systems; and 6.b. Assure that alarms are activated with appropriate settings and are sufficiently audible with respect to distances and competing noise within the unit. Your organization would *not* be expected to meet Goal 5, Improve the safety of using infusion pumps, and its associated recommendation: 5.a. Ensure free-flow protection on all general-use and PCA intravenous infusion pumps used in the organization. It is important to remember to consider the goals and recommendations in their entirety

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REPORT:**
2003 JCAHO
NATIONAL
PATIENT SAFETY
GOALS

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and within the context of the care and services your organization provides.

Compliance with all NPSG recommendations that are relevant to your organization's services will be evaluated on all scheduled full accreditation surveys, random unannounced surveys, and selected for-cause unannounced surveys. Surveyors will look for evidence of consistent implementation of the recommendations. Regardless of when a survey is conducted during the year, scoring will be based on an expectation of continued compliance since the beginning of the year. A significantly shortened track record will result in a special type I recommendation.

Organizations don't need to create any extra documentation for JCAHO that they wouldn't already be creating while implementing these recommendations. The surveyors will look at whatever documentation an organization has that is relevant and will interview the organization's leaders and direct caregivers to determine whether the recommendations have been implemented and how consistently they are being done.

Alternative Approaches to the Recommendations

If your organization believes that it has an alternative approach that meets or exceeds the intent of an NPSG recommendation and you wish to implement an alternative approach in lieu of the published recommendation, your organization must submit the alternative to JCAHO for review, using the "Request for Review of an Alternative Approach to a National Patient Safety Goal Recommendation" form at right (this form is also available on JCAHO's Web site, at www.jcaho.org). Your organization must explain your alternative approach and submit the form for review by the *Sentinel Event Alert* Advisory Group and JCAHO staff. The form will then be sent to members of the Advisory Group for their review. Following review by the Advisory Group, your organization and the survey team will be informed of the decision about the review. If your organization's alternative is not accepted, you will need to revise the proposed alternative until it is approved or implement the recommendation issued by JCAHO.

During survey, surveyors will only judge whether your

Request for Review of an Alternative Approach to a National Patient Safety Goal (NPSG) Recommendation

(Please submit a separate form for each proposed Alternative to your account representative. If you do not know your account representative, call (630) 792-3007)

Organization name	HCO #
City, State	

Check the specific recommendation for which you are proposing an alternative approach:

Safety Goals	Specific Recommendations	Check one
Improve the accuracy of patient identification.	1.a Use at least two patient identifiers.	
	1.b Prior to any procedure, conduct final verification.	
Improve the effectiveness of communication.	2.a Require verification "read-back" of verbal orders.	
	2.b Standardize abbreviations, acronyms and symbols.	
Improve the safety of using high-alert medications.	3.a Remove conc. electrolytes from patient care units.	
	3.b Standardize and limit drug concentrations.	
Eliminate wrong-site surgery.	4.a Use a preoperative verification checklist.	
	4.b Mark the surgical site.	
Improve infusion pump safety.	5.a Ensure free-flow protection on IV infusion pumps.	
Improve the effectiveness of clinical alarm systems.	6.a Implement regular PM & testing of alarm systems.	
	6.b Assure that alarms are activated and audible.	

Describe the proposed alternative in the space provided (additional page may be attached if needed).

Describe why this approach was selected instead of the recommended approach.

Identify references in the literature supporting the efficacy of this approach.

Describe how you will monitor the effectiveness of this approach.

For use of the Sentinel Event Alert Advisory Group

Acceptability of the approach described above as an alternative to the NPSG recommendation:

Acceptable Acceptable with modification¹ Not acceptable²

1. Modification required _____
2. Reason for not accepting _____

organization has implemented a recommendation or an acceptable alternative, *not* whether an alternative is acceptable. Therefore, you are encouraged to submit any potential alternative for review at least 60 days before your scheduled survey to provide adequate time for the alternative to be reviewed.

If the surveyor determines during survey that your organization has not implemented all the required recommendations or an acceptable alternative, your organization will receive a score of 5 and a special type I recommendation (for failure to meet an Accreditation Participation Requirement). Your organization will have an opportunity to request a revision of the

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special type I recommendation under the following circumstances:

1. Your organization believes that it implemented a recommendation or an acceptable alternative; or
2. Your organization is using an alternative not reviewed by the *Sentinel Event Alert* Advisory Group and accepted by JCAHO; or your organization is using an alternative that JCAHO, on advice from the *Sentinel Event Alert* Advisory Group, determined to be unacceptable, and your organization wishes to have the alternative reconsidered.

PATIENT SAFETY GOALS AND SPECIFIC RECOMMENDATIONS



Goal 1:
Improve the accuracy of patient identification.

1.a. Use at least two patient identifiers (neither to be the patient's room number) whenever taking blood samples or administering medications or blood products.

JCAHO Requirements

This goal and its recommendation do *not* require that two distinct methods of identification be used or that the identifiers be physically separate; rather, this goal and its recommendation require that two *pieces of information* be used to identify the patient (for example, the patient's name and date of birth). It would be acceptable to use a wristband that includes the patient's name and unique number to correctly identify the patient (the name and the unique number would be the two pieces of information).

Suggestions To Consider

Organizations have many options for complying with this recommendation. The following are some of the possible identifiers you can use:

- The patient's name;
- An assigned identification number;
- The patient's birth date;
- The patient's Social Security number;
- The patient's telephone number;
- The patient's address;
- Another patient-specific identifier;
- Bar coding that includes two or more patient-specific identifiers (*not* the patient's room number); and

- A "unique" identification band for a patient receiving blood transfusions (for example, such an identification band could have a unique number or differ in color from the organization's regular identification band).

In addition, a handheld bar-code reader that reads both bar-coded wristbands on each patient and a bar-code identifier on the tag of the components is one method for reading and comparing identifiers. If the bar-code reader fails to confirm the identity between the wristband and the tag, the health care worker cannot proceed with the transfusion.

Verifying identification with the patient band and having the patient state his or her name are two examples of how to improve the accuracy of patient identification. The identification band should be checked and compared with the ordered service. When verifying the name with the patient, never state the name and ask the patient to confirm it. Confused patients or individuals in behavioral health care settings might agree even when you have not said their names. Safer practice is to ask the patient to state his or her name; this also has the benefit of including the patient in his or her care.

Some organizations have individuals verify their own identity, as long as staff consider the individual reliable to do so. Other organizations, such as behavioral health care organiza-

Compliance Tip

One challenge to meeting this goal and its recommendation occurs with unresponsive patients. In this case, one option is to have a family member verify the patient's identity. If an unresponsive patient is brought to the organization by a police officer or emergency medical services (EMS) personnel, and there is no identification with the patient, ask the police officer or EMS personnel to identify the patient, if possible. Another option is to assign unresponsive patients a temporary name (such as John or Jane Doe) and an emergency department number or medical record number. These identifiers could then be used to identify the patient and match against specimen labels, medications ordered for the patient, and so forth. Having an unresponsive patient whom you are unable to identify might not occur often in your organization, but it is important to address such a possibility in your policy and to enforce the policy consistently.

tions, take a photograph of the individual being served and include the photo in the individual's clinical record. This could be considered one identifier; asking a reliable staff member who is familiar with the individual being served to verify the individual's identity could be considered the second identifier. Another set of identifiers could be verifying the individual against his or her photograph and verifying information in the individual's clinical record which mentions that he or she has a significant physical characteristic, such as a tattoo, a scar, or an amputated limb. In a home care organization, for example, the

Do's and Don'ts for Patient-Blood Product Identification

- Do match the patient's name and account/medical record number to the blood product documentation.
- Do consider using a blood bank-specific identification system that assigns unique identification numbers to patients, requisitions, specimens, and blood products. This will help ensure that the compatibility specimen is traceable to the blood product being administered.
- Do have at least two individuals check the information on the blood product against the documentation to ensure accuracy.
- Don't use the patient's room number or bed number as an identifier.
- Don't ask a colleague to verify that it is Patient Z's blood. Do ask the colleague to match the blood with Patient Z's name and unique identifier.

patient's name and his or her street address could be considered two identifiers.

One possible result of failing to properly verify a patient's identity is a blood transfusion error. Fifty-one blood transfusion errors have been reported to JCAHO since 1995. Many of these errors result from improper patient and blood product verification and from multiple samples being cross-matched at the same time. The box above presents do's and don'ts for proper patient-blood product identification.

What is "Active" Communication?

Active communication is an affirmation, orally or by some action, that the patient, procedure, and site are correct. Active communication involves everyone's participation. For example, a surgeon stating aloud that "This is Patient Z. I will be performing a total knee replacement of Patient Z's left knee, as stated in Patient Z's informed consent form" is active communication. Passive communication occurs when there is no response to a surgeon's question of "Is this the correct patient, procedure, or site," but the surgeon assumes that it is the correct patient, procedure, or site. Consider the verbal check that pilots perform before takeoff; this is another example of active communication.

Note: JCAHO does not expect patients to participate in the final verification process.

1.b. Prior to the start of any surgical or invasive procedure, conduct a final verification process, such as a "time out," to confirm the correct patient, procedure, and site, using active—not passive—communication techniques.

JCAHO Requirements

Three items need to be verified in order to meet this recommendation:

1. The correct patient;
2. The correct procedure; and
3. The correct procedure site.

This verification should occur where the procedure is to be

performed, immediately before the procedure is to begin (in most cases, the patient will already be under anesthesia or sedation). All staff involved in the procedure should pause—that is, take a time out—to verify that it is the correct patient, the correct procedure, and the correct site.

Suggestions To Consider

The surgical verification process must be interdisciplinary. All members of the team must be involved in the final verbal verification process. All activity in the room should cease and allow for this participation. The procedure should be stated aloud, exactly as it appears on the informed consent form. After the first and all subsequent procedures in multiple procedure cases, all activity should cease, and the circulating nurse should read aloud the procedure to be performed exactly as it is stated on the informed consent form.

When verifying the correct patient, the correct procedure, and the correct site, use active—not passive—communication techniques.

Remember also to monitor compliance with these procedures. It's one thing to have policies for correct verification; it's another to actually *follow* them and ensure that they work the way the organization intends them to work. Monitoring compliance helps ensure that all staff are following the procedures and can identify areas for improvement.



Goal 2:
Improve the effectiveness
of communication
among caregivers.

2.a. Implement a process for taking verbal or telephone orders that requires a verification "read-back" of the complete order by the person receiving the order.

JCAHO Requirements

Policy and practice should discourage the use of verbal orders as much as possible. But when verbal orders are unavoidable, an organization should first review its verbal orders policy to ensure consistency with practice. The process should stipulate that the qualified personnel taking the order should write down the order and then read it back verbatim to the practitioner who initiated it. The practitioner should then verbally confirm that the order is correct. This goal and its recommendation apply to all verbal orders, not just verbal orders for medications.

Suggestions To Consider

Consider following these strategies to lower the risk of errors resulting from misinterpreted verbal orders for medications:

- **Write the purpose (that is, the diagnosis or the indication for use) of the medication on the prescription.** This is an inexpensive and efficient way to minimize errors and can help the pharmacist screen the medication order for the proper dose, duration, and appropriateness; it might also enable the pharmacist to intervene when multiple prescribers unknowingly order duplicative therapy for the same patient. Writing the medication's purpose on the prescription can also minimize the risk of confusion resulting from look-alike names of medications, as well as the risk of misinterpretation resulting from poorly handwritten orders.
- **Develop and implement a policy for taking verbal or telephone orders.** For example, when taking verbal drug orders, clearly repeat the name of the drug and the dosage ordered, request or provide correct spelling, and spell out the number. This is particularly important for sound-alike drugs. The National Coordinating Council for Medication Error Reporting and Prevention recently released comprehensive recommendations to reduce medication errors associated with verbal prescription orders. Some of its recommendations, along with recommendations from the Institute for Safe Medication Practices, appear in the box below.
- **Provide the generic and brand names on all medication labels.** All dispensed medications should be appropriately and safely labeled, using a standardized method in the most ready-to-administer form possible, to minimize opportunities for error. This includes having both the generic name and, when different from the generic name, the brand name

of the drug on the medication order. Surveyors will evaluate whether the drug name on the medication order, medication label, and nursing medication administration record are the same. Providing both names on the label assures consistency between the documents and helps to prevent misinterpretation of orders.

- **Provide patients with written information about their drugs, including the brand and generic names.** Ask if the prescribed drug is a routine medication and reconfirm medications that the patient questions or does not recognize. In behavioral health residential settings, individuals being served might use a local pharmacy to have prescriptions filled. In this case, give the individual the pharmacy print out that accompanies the medication and discuss the medication and its use with the individual.

In addition, verbal orders for laboratory testing (such as an outpatient order) must be followed up with a hard copy, per federal and state requirements.

Compliance Tip

Some organizations have implemented a “no verbal orders” policy (and have also eliminated the use of signature stamps) for high-risk medications such as chemotherapy drugs and in high-risk units such as intensive care.

Let's Keep Talking

Improving communication within your organization doesn't just mean verifying verbal orders. Consider these strategies for improving communication throughout your organization:

- Create a 24-hour documentation tool on which staff from all shifts can document important issues concerning care or

Tips for Improving the Use of Verbal Orders from the National Coordinating Council for Medication Error Reporting and Prevention and the Institute for Safe Medication Practices

- Instill a habit of enunciating clearly and repeating. Pronounce digits separately (for example, say “one six” instead of “sixteen” to avoid confusion with “sixty”) and spell out drug names.
- Avoid abbreviations. For example, “1 tab tid” should be communicated as “Take/give one tablet three times daily.”
- Read back the order to the prescriber and to the individual transcribing the verbal order for verification.
- Have a second person listen to the verbal order.
- Record the verbal order directly onto an order sheet in the patient's chart, if possible.
- Make sure the verbal order includes the patient's name, age, and weight, when appropriate; the drug name; the dosage form (for example, tablets, capsules, inhalants); the exact strength or concentration; the dose, frequency, and route; the quantity and/or duration; the purpose or indication (unless disclosure is considered inappropriate by the prescriber); specific instructions for use; the name of the prescriber and his or her telephone number, when appropriate; and the name of the individual transmitting the order if that individual is not the prescriber.
- Make sure that the receiver signs, dates, times, and documents the order according to procedure; and that the prescriber verifies, signs, and dates it. **Note:** *This might not happen in time to intercept an error.*
- Whenever possible, have a pharmacist receive verbal orders for medications.

follow-up. This tool can be used as a supplement to shift reports. It can be maintained at the nursing station so that all interdisciplinary caregivers can sign it when they review it. The key to its success is auditing and making sure that appropriate follow-up and documentation are entered into the patient record. Organizations should maintain this 24-hour tool over time to compare it to future chart audits and ensure accountability regarding the transfer and follow-up of vital information.

- Educate staff to encourage successful methods of communication, such as appropriate and skillful listening and negotiating techniques. All too often, a failure to communicate merely reflects a lack of learned communication skills. Organizations might want to consider conducting education programs among and between various disciplines to ensure a more comprehensive approach to communication.
- Commit to a culture that supports analysis of why an error has occurred and that rewards such behavior. Root cause analyses (RCAs) often fail to adequately address the vital issues concerning an organization's culture because members of the RCA team might fear revealing barriers to communication and identifying errors. There is often a "disconnect" between the perceptions of organization leadership and the actual behaviors and perceptions of staff. This issue must be recognized as a priority and then scrutinized if culture has not been identified in an RCA. (Perhaps ask why culture has not been identified as a root cause.) Education and support to address communication barriers should occur at both leadership and staff levels.

2.b. Standardize the abbreviations, acronyms, and symbols used throughout the organization, including a list of abbreviations, acronyms and symbols not to use.

JCAHO Requirements

An organization should do a thorough review of its approved abbreviation list and develop, with the involvement of physicians, a list of unacceptable abbreviations and symbols that is shared with all prescribers.

Suggestions To Consider

An organization might also consider implementing the following risk reduction strategies:

- Place posters with this list on units to identify the most common abbreviation mistakes and how to avoid them. (See the box on page 7 for a list of common abbreviation mistakes, what the consequences of using these abbreviations might be, and what solutions you can implement to avoid making these mistakes.)

- Develop a policy to ensure that medical staff refer to the list and take steps to ensure compliance.
- Establish a policy which states that if an unacceptable abbreviation is used, the prescription order is verified with the prescriber before it is filled.
- Train staff during performance improvement committee meetings on how to avoid using dangerous abbreviations.
- Offer feedback, using actual examples, to individual prescribers about dangerous abbreviations they have used.
- Make clear what each of the abbreviations on the "not to use" list means.
- Consider how abbreviations are grouped together or listed on laboratory test menus. Grouping abbreviations with similar letters can contribute to clerical error entry.

Organizations should be careful when using abbreviation books because they are not limited and actually contain all possibilities for abbreviations. In addition, organizations should consider banning the use of abbreviations that have more than one meaning, such as "PT," which could mean physical therapy, protime, or part-time.

Organizations of all types can also develop educational tools and other cues for clinicians who use high-alert medications. For example, an organization can develop a checklist of medications that should not be ordered and the abbreviations and symbols that should not be used when ordering medications. This checklist can be placed in the front of the medical record or in the section where physicians' orders are written. Some organizations tape this checklist to the inner cover of the medical record as a constant reminder. Other organizations put it on the medication cart.



Goal 3:
Improve the safety of using high-alert medications.

3.a. Remove concentrated electrolytes (including, but not limited to, potassium chloride, potassium phosphate, and sodium chloride >0.9%) from patient care units.

3.b. Standardize and limit the number of drug concentrations available in the organization.

JCAHO Requirements

This goal and its recommendations are simple to state but often difficult to enforce. Drug concentrations should be limited as much as possible, and all concentrated solutions of high-alert

drugs should be restricted and kept under the supervision and control of the pharmacy. These drugs should not be allowed in circulation in undiluted form outside the pharmacy.

In February 1998 JCAHO published its first *Sentinel Event Alert*, which recommended that organizations remove concentrated potassium chloride (KCl) from their floor stocks to prevent accidental intravenous injections that could lead to sentinel events. Since publication of that first *Sentinel Event Alert*, one death resulting from accidental injection of KCl has

been reported to JCAHO. However, concentrated KCl is not the only medication that should be carefully monitored: *All* concentrated electrolyte preparations should be closely controlled.

Suggestions To Consider

The box on page 8 includes a list of high-alert medications, identifies the common risk factors associated with use of these medications, and provides proactive planning tips for prevent-

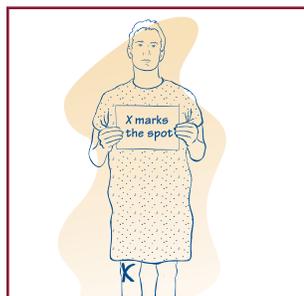
Five Types of Problem-Prone Abbreviations and Their Consequences

Abbreviation = Meaning	Consequences and Solutions
<p>1. Bad handwriting or typo</p> <p>U = units; IU = international unit</p> <p>SC or SQ = subcutaneous</p> <p>cc = cubic centimeters</p> <p>ss = sliding scale</p>	<p>“U” mistaken as a zero or a number 4, resulting in overdose. Also mistaken for “cc” (cubic centimeters). “IU” can be read as “IV.” <i>Solution:</i> Spell out.</p> <p>Mistaken as SL (sublingual). <i>Solution:</i> Spell out “SL.”</p> <p>Mistaken as “U” (units). <i>Solution:</i> Use “mL.”</p> <p>“ss” can be mistaken as “55.” <i>Solution:</i> Spell out.</p>
<p>2. Signs</p> <p>& = and</p> <p>/ = slash mark (separates two doses or indicates “per”)</p> <p>< = less than; > = more than</p> <p>trailing zero (2.0 instead of 2) or lack of a leading decimal (.2 instead of 0.2)</p>	<p>Ampersand (&) mistaken for a number, especially if it is close to other marks. <i>Solution:</i> Use “and.”</p> <p>Can be read as read as a no. “1.” <i>Solution:</i> Use “per” instead of a slash mark.</p> <p>Sometimes mistakenly used opposite to what was intended; with handwriting can be run into another notation and look like something else. <i>Solution:</i> Spell out words.</p> <p>Decimal often not seen in handwriting, leading to 10-fold dosing error. <i>Solution:</i> Always use zero before a decimal when dose is less than a whole unit and never use a trailing zero.</p>
<p>3. Greek letters</p> <p>µg = micrograms</p>	<p>Mistaken for “mg” (milligrams), resulting in overdose. <i>Solution:</i> Spell out “micrograms.”</p>
<p>4. Latin terms and abbreviations</p> <p>QD = every day</p> <p>QOD = every other day</p> <p>AU, AS, AD = both ears, left ear, right ear</p> <p>PO/per os = by mouth, orally</p>	<p>A period after the “Q” has sometimes been mistaken for an “I,” and the drug has been given “QID” (4 times daily) rather than daily. <i>Solution:</i> Use “daily” or “every day.”</p> <p>Misinterpreted as “QD” (daily) or “QID” (4 times daily). If the “O” is poorly written, it looks like a period or an “I.” <i>Solution:</i> Use “every other day.”</p> <p>Misinterpreted as the Latin abbreviation “OU” (both eyes), “OS” (left eye), “OD” (right eye). <i>Solution:</i> Spell out.</p> <p>Not understood or read incorrectly. <i>Solution:</i> Spell out.</p>
<p>5. Ambiguity (more than one meaning)</p> <p>D/C = discharge; also discontinue</p> <p>HS = half strength; also hour of sleep</p> <p>DPT = DEMEROL-PHENERGAN- THORAZINE misinterpreted as diphtheria-pertussis-tetanus vaccine</p>	<p>Patients’ medications have been prematurely discontinued when D/C (for “discharge”) was misinterpreted as “discontinue” because followed by a list of drugs. <i>Solution:</i> Spell out whether “discharge” or “discontinue.”</p> <p>Misinterpreted as Latin abbreviation “HS” (hour of sleep). <i>Solution:</i> Spell out.</p> <p><i>Solution:</i> Always use the complete spelling for drug names.</p>

Common Risk Factors and Proactive Planning Tips for High-Alert Medications

	Common Risk Factors	Proactive Planning
1 Insulin	<p>No dose-check systems</p> <p>Mix-ups due to insulin and heparin vials being kept in close proximity to each other on nursing units</p> <p>“U” used as an abbreviation for “units” in orders (can be confused with “O,” leading to a 10-fold overdose)</p> <p>Incorrect rates programmed into an infusion pump</p>	<p>Establish a check system in which one nurse prepares the dose and another nurse reviews it.</p> <p>Do not store insulin and heparin near each other.</p> <p>Spell out “units” rather than abbreviate it.</p> <p>Establish an independent check system for infusion pump rates and concentration settings.</p>
2 Opiates and narcotics	<p>Parenteral narcotics stored as floor stock in nursing areas</p> <p>Hydromorphone confused with morphine</p> <p>Patient-controlled analgesia (PCA) errors involving concentration and rate</p>	<p>Limit the opiates and narcotics available in floor stock.</p> <p>Educate staff about possible hydromorphone and morphine mix-ups.</p> <p>Implement PCA protocols to double-check the drug, pump setting, and dosage.</p>
3 Injectable potassium chloride/phosphate concentrate	<p>Storage of concentrated potassium chloride/phosphate outside the pharmacy</p> <p>Extemporaneous mixing of potassium chloride/phosphate</p> <p>Requests for unusual concentrations</p>	<p>Remove potassium chloride/phosphate from floor stock.</p> <p>Move drug preparation off units and use commercially available premixed IV solutions.</p> <p>Standardize and limit drug concentrations.</p>
4 Intravenous anti-coagulants (heparin)	<p>Concentration and total volume not clearly labeled</p> <p>Multidose containers</p> <p>Mix-ups due to insulin and heparin vials being kept in close proximity to each other on nursing units</p>	<p>Standardize concentrations and use premixed solutions.</p> <p>Use only single-dose containers.</p> <p>Separate heparin and insulin; remove heparin from the tops of medication carts.</p>

ing errors associated with use of these medications. Organizations should check their drug formularies and identify the high-risk medications. Another suggestion: Don’t stock the same medication in multiple forms unless required to meet specific patient-care needs.



Goal 4:
**Eliminate wrong-site,
 wrong-patient,
 wrong-procedure surgery.**

4.a. Create and use a preoperative verification process, such as a checklist, to confirm that appropriate documents (e.g., medical records, imaging studies) are available.

4.b. Implement a process to mark the surgical site, and involve the patient in the marking process.

JCAHO Requirements

This goal and its recommendations (as well as recommendation 1.b. under Goal 1) don’t apply just to operative procedures; they apply to any invasive procedure that exposes patients to more than minimal risk, including procedures performed in settings other than the operating room, such as a special procedures unit, an endoscopy unit, an interventional radiology suite, and so forth. Certain routine *minor* procedures such as venipuncture, peripheral intravenous line placement, or insertion of a nasogastric tube or a Foley catheter are *not* within the scope of this goal and its recommendations. And although almost every health care organization offering surgical and other invasive procedures has a policy addressing how to avoid wrong-site surgery, this type of error is still occurring.

A variety of root causes have been identified, with lack of communication and failure to mark the surgical site at the top of the list. Hence the need for this goal and its recommendations.

Suggestions To Consider

Risk reduction strategies include the following:

- Make sure organization policy specifies who performs the marking, when the surgical site and opposite side (if required) are to be marked, and how the surgical site and nonsurgical site are marked. Policy should be precise and used consistently throughout the organization. **Note:** *Marking only the nonoperative site is not acceptable for complying with this goal.*
- Ensure the proper placement of X-rays and scans on operating room viewing boxes.

X Marks the Spot! But Who Marks the X?

Many questions abound about who should be responsible for marking the surgical site. Should it be the physician? the nurse? or the patient? Many organizations stipulate that the responsibility lies with “any member of the surgical team,” while others specify that only the surgeon should mark the site. It’s up to your organization to decide who should mark the surgical site, based on your policies and procedures and state law.

- Have each member of the surgical team take a time out and verbally verify the patient, surgical site, and procedure in the operating room. Surgeons and nurses must communicate openly. If they have questions or concerns, they should resolve these concerns, as well as any conflicting information, *before* starting the surgical procedure.
- Monitor compliance with these procedures.

Organizations can also look to professional societies for help in establishing procedures to prevent wrong-site surgery. The American Academy of Orthopaedic Surgeons (AAOS) has developed an initiative to involve patients in the marking process. The “Sign Your Site” initiative encourages patients to watch and confirm as the surgeon marks the surgical site.

Be Careful Tip

Many organizations use an X to mark the operative site. Yet some organizations use X to mark the site *not* to be operated on. Your organization’s policy must clearly state how the site is to be marked and, if X is used, what the X refers to. You might also consider meeting with surgical staff in other organizations in your community to decide on a uniform method for surgical site marking. Many surgeons have privileges at more than one facility, and any difference in the process between facilities increases the chance of error for all. Some staff might confuse the meaning of the X as it is used in the different facilities.

Sensitivity Concerns and Marking Ink

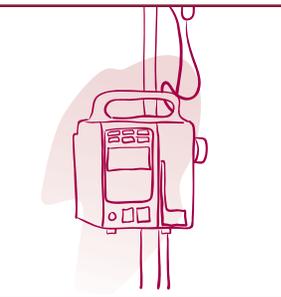
Some organizations have found that marking the surgical site with ink can be upsetting to some patients, particularly those undergoing procedures to treat breast cancer. In such cases, staff responsible for marking the surgical site should discuss with the patient why the marking ink is used. Doing so helps educate the patient about the process and makes the patient part of the process, and it also helps the patient understand how this step is essential for a safe procedure.

Compliance Tip

Make sure the surgical mark is still visible *after* surgical drapes are in place.

The AAOS’ Web site, www.aaos.org, provides more information.

JCAHO has received many questions about marking surgical sites, particularly for procedures that involve only one site or organ, such as hemorrhoidectomy, nasal septal repair, and esophageal surgery. It is important to consider marking the site as the first step, or the guide, in verifying the correct patient, the correct procedure, and the correct site. Lack of a marked surgical site should prompt staff to ask, “Is this the correct patient? Is this the correct procedure?” For example, if the surgical procedure involves the pancreas, gallbladder, or spleen, but there is no mark on the abdomen, staff should ask, “Is this the correct patient? Is this the correct procedure?” Some organizations have even gone so far as to implement a “no mark, no surgery” policy.



Goal 5:
Improve the safety
of using
infusion pumps.

5.a. Ensure free-flow protection on all general-use and PCA intravenous infusion pumps used in the organization.

JCAHO Requirements

This goal and its recommendation apply to ambulatory pumps that have patient-controlled analgesia (PCA) capability; this goal and its recommendation do *not* apply to syringe pumps or enteral pumps.

To test whether your infusion pumps have free-flow protection, turn the power off but keep the infusion set primed and loaded in the device. While all the tubing clamps are open and the fluid container is as high above the device as the tubing will

allow, verify that no fluid flows out of the set as it hangs straight down from the device. Then, remove the set from the device (with the tubing clamps still open) and again verify that no fluid flows out of the set. (Source: ECRI's *Health Devices Inspection and Preventive Maintenance System*.)

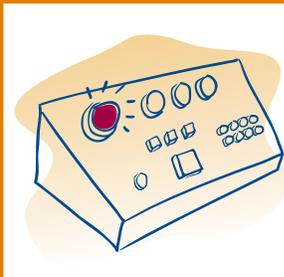
Suggestions To Consider

JCAHO recognizes ECRI as an authoritative source of information about the safety considerations related to infusion pumps. As such, information published by ECRI that identifies the adequacy of free-flow protection for specific pump/administration set configurations will be acceptable as evidence of compliance with this goal, pending verification during an on-site survey of whether the health care organization appropriately uses such configurations when providing patient care services. In other words, if ECRI determines that a particular infusion system is capable of providing adequate free-flow protection, JCAHO will still survey how the organization uses that equipment.

According to ECRI, all currently available PCA pumps fall under the “free-flow protected with dependencies” category, which means that the free-flow protection of PCA pumps is dependent on the use of tubing sets with an integral positive pressure valve. These are usually purchased independent of the pump itself, so the key issue for assessment should be to determine whether the tubing set is appropriate, rather than whether the model of the pump is appropriate.

Some risk reduction strategies for meeting this goal and its recommendation include the following:

- **Standardize drug concentrations and medication practices**—Establish a process whereby when a high-alert drug (for example, morphine) is administered, one staff member sets the pump controls and a second individual checks the settings.
- **Make sure all applicable personnel and caregivers are properly trained and educated**—Anyone who handles a pump, including nurses, orderlies, nurse assistants, radiology technicians, and patients' family members, should know about the potential risks of disconnecting and connecting pumps and what to do if an alarm goes off or the patient is in distress. Use only pumps with set-based, free-flow protection. Review the design of all pumps used in your organization.
- **Review your purchasing process**—Be sure to involve patient care staff (such as nursing and education) in the decision-making process when purchasing new pumps; their input regarding difficulties already encountered and patient needs can be invaluable.



Goal 6: Improve the effectiveness of clinical alarm systems.

6.a. Implement regular preventive maintenance and testing of alarm systems.

6.b. Assure that alarms are activated with appropriate settings and are sufficiently audible with respect to distances and competing noise within the unit.

JCAHO Requirements

The *Sentinel Event Alert* Advisory Group considers this goal and its recommendations relevant to the entire array of alarm systems that are triggered by physiologic monitoring of the patient or by variations in measured parameters of medical equipment directly applied to the patient. Examples might include cardiac monitor alarms, apnea alarms, door alarms in behavioral health residential settings, cell-salvaging devices, elopement/abduction alarms, infusion pump alarms, or alarms associated with measuring gas pressure or concentration going directly to or coming from the patient, such as a fraction of inspired O₂ (FIO₂) from a mechanical ventilator to the patient or an exhaled CO₂ fraction in the OR, or emergency assistance alarms such as “panic buttons.”

This goal and its recommendations essentially apply to *all* the alarms listed above, not just the alarms an organization would include in its preventive maintenance (PM) and medical equipment management program (MEMP) inventory.

Suggestions To Consider

Organizations should review all alarms in use. Create a list to make sure that all alarms are included in your biomedical PM program. Activate the alarms and involve clinical staff in the testing process to ensure that each alarm is audible. It is also valuable to evaluate what alarms staff consider to be *critical* and define the practice concerning these alarms. For example, you might determine that critical alarms should not be deactivated at a desk; the staff member should physically enter the room, observe the patient, and evaluate the reason for the alarm.

Organizations can use different maintenance strategies, as appropriate (for example, predictive maintenance, interval-based inspections, corrective maintenance, metered maintenance) for their medical equipment, based on a risk assessment of each piece of equipment, using criteria that address equipment function (diagnosis, care, treatment, and

Learning from Others

Hurley Medical Center in Flint, Michigan, is considering taking a “what could go wrong” approach regarding the recommendation on testing and assessment of alarm systems. Staff are planning on using a typical continuous quality improvement tool, such as a fishbone diagram, to search for potential causes of problems. These could include

- *technical*—known or historical malfunctions, alarm volume controls that go to “off,” and so on;
- *user error*—staff unfamiliar with equipment, staff do not understand meaning of alarm indications, staff not aware of alarm off/on status;
- *environmental*—high ambient noise levels, presence of sound-blocking walls and doors, use of other similar-sounding alarms; and
- *other concerns*—concerns that are unique to the facility and/or its devices.

By performing this comprehensive assessment on each system, Hurley Medical Center would proactively address potential problems. Some issues, such as user-related items, would likely need ongoing and repeated reinforcement or training due to normal staffing changes. However, unless the area substantially changes for some reason (remodeled, new equipment, and so on), the overall assessment (testing) might not necessarily have to be repeated regularly. The technology or facility planning phases of such projects would need to consider the impact of changes on the alarm system before such systems were purchased and installed.

monitoring), physical risks associated with use, and equipment incident history. Clinical alarms that are integrated into medical equipment should be inspected and tested along with the other components of the equipment as defined by the manufacturer’s recommendations and/or an organization’s current PM inspection protocol.

In light of the NPSGs, organizations might choose to revisit their PM protocols (starting with their most critical equipment and systems) to ensure that alarms are appropriately addressed in the procedures. When reviewing equipment management reports for problems, failures, and user errors, managers should look for patterns of failures of alarm enunciators on a model-specific or device-specific basis. Negative trends might serve to focus maintenance, use, or training issues. In addition, clinicians should be reminded of self-check procedures for verifying alarm operation before and during use of critical equipment. When equipment is monitored by an outside contracted vendor, make sure periodic maintenance checks are effectively communicated.

Exemplary organizations understand the dynamics of their maintenance activities and use data from their MEMPs to anticipate and react to operational problems. These organizations are able to use management data to focus resources on their highest-priority equipment—that is, devices that are high risk, have short PM intervals, have demonstrated reliability

Compliance Tip

Actually hearing an alarm can be difficult in some organizations that have crowded and/or noisy units. Ask your staff if they can hear alarms. If staff have difficulty hearing alarms, consider using an intercom system or other alarm enhancement devices on noisy or busy units to help staff hear alarms.

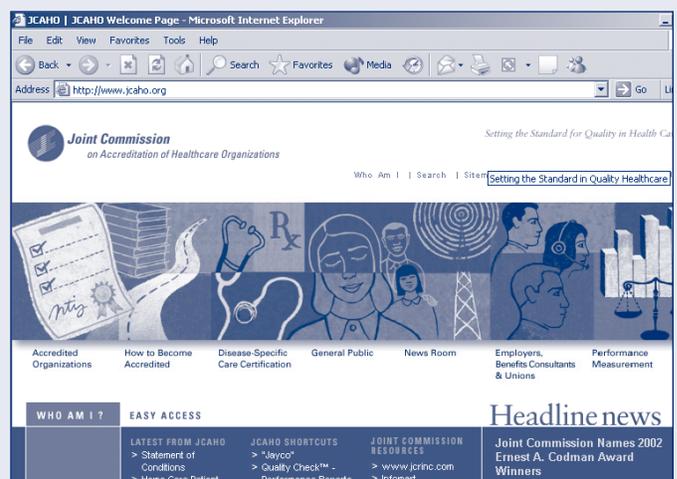
problems, or require strict maintenance activities. These organizations are also able to identify program problems—such as “equipment in use” and “equipment not found”—and are able to work with departments or otherwise take additional steps to resolve these problems in a timely manner.

Some additional suggestions for meeting this goal and its recommendations include the following:

- Develop and implement policies that prevent “turn off” capabilities for alarms.
- Conduct environmental rounds that focus on the background noises that prevent staff from hearing the alarms (this might be related to time of day as well as location within the facility).
- Review your organization’s policy for alarm response and practice testing the policy. Make sure that the policy and practice match. Issues such as number and type of staff and time of day are related to lack of appropriate alarm response.
- Poll staff members of all disciplines by asking “Can you hear alarms when sounding? If you cannot hear them, why not?” Sometimes there is nothing better than finding the obvious! **PS**

For More Information

As these and future National Patient Safety Goals become effective, your organization might continue to have questions about how to meet specific goals and recommendations. For more information, please refer to JCAHO’s Web site, www.jcaho.org, or contact Rick Croteau, JCAHO executive director of strategic initiatives, at rcroteau@jcaho.org.





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