Report: CPOE one of top causes of error in United States in 2003

Consider advice when building systems

More than half of all errors associated with computerized physician order entry (CPOE) reported to a national database were the result of users’ unfamiliarity with the system. These results stress the need for more training and a user-friendly design.

Educating and reeducating prescribers will help them overcome problems that may arise with CPOE systems and avert potential errors, says Diane Cousins, RPh, vice president of the U.S. Pharmacopeia (USP) Center for the Advancement of Patient Safety (CAPS).

“It would seem logical that applying computer technology to the medication-use process would have a significant positive impact in preventing medication errors,” Cousins says. “Yet depending on the computer's design or user competence, new points of potential errors can emerge.”

Lack of knowledge was a major contributor to errors. More than half of all errors associated with computerized physician order entry (CPOE) reported to a national database were the result of users’ unfamiliarity with the system. These results stress the need for more training and a user-friendly design.

JCAHO program to accredit healthcare staffing agencies

Pharmacists to have more information to fill vacancies

The JCAHO staffing agency certification program launched in October 2003 may help hospitals choose high-quality firms to temporarily fill pharmacy vacancies.

The goal of the Health Care Staffing Services Certification is to improve healthcare safety and quality and to provide an independent evaluation of staffing firms’ ability to provide competent services, JCAHO spokesperson Mark Forstneger says.

Hospitals are increasingly using staffing agencies to fill vacancies because of the ongoing pharmacist shortage, and the JCAHO is aiming to ensure that pharmacies receive the most qualified workers.

“Given the fact that there is still a pharmacist shortage, I think the JCAHO has looked at the situation and said, ‘This could be a dangerous situation if everyone is using these agencies and the quality is not that good,’” says Ernest Anderson Jr., MS, pharmacy director at the Lahey Clinic in Burlington, MA.
responsible for 57.9% of all CPOE-related errors reported to the USP MEDMARX error-reporting database in 2003, according to a USP report. CPOE was the 12th-leading cause of error in 2003.

This was the first year that the USP identified CPOE as a cause of error, says Rod Hicks, RN, MSN, MPA, CAPS research coordinator.

Computer entry—which includes prescribing, transcribing, dispensing, administering, and monitoring phases of the medication process—ranked as the fourth-leading cause of medication errors in 2003, according to the MEDMARX report.

**More reports, more errors**

Eight out of 7,029 total errors recorded in the database were associated with harm that reached the patient, Hicks says. A majority of the errors—67%—occurred during the prescribing phase of CPOE use.

The voluntary error reports are made by 570 hospitals that subscribe to the MEDMARX database.

The prevalence of computer entry and CPOE errors could be related partly to the fact that more facilities are reporting errors. In 2003, error reports totaled 235,159, compared to 192,477 in 2002.

However, the percentage of errors resulting in harm has decreased, and the number of errors caught before reaching the patient has increased, according to the report.

**Simplify your systems**

Avoid complex or complicated screens in a CPOE system, something that could frustrate prescribers, Hicks says. For example, one error report cited a physician ordering insulin for a patient. The screen’s complexity frustrated the physician so much that he created a shortcut around the alerts and prompts.

The patient ultimately never received the medication, Hicks says.

“How the screen is displayed is a big part of safe CPOE use,” he says.

**Avoid distractions**

The location of a CPOE terminal can also affect the order and patient safety.

“It shouldn’t be in the middle of the patient care unit,” Cousins says. “There should be an area designated for this, a quiet area where this can be done in peace.”

The same holds true for computer entry. In 2003, 56.5% of all computer entry errors resulted from distractions.

**Train and retrain prescribers**

Create a multidisciplinary approach to prescriber training on CPOE systems, Hicks says. Any training team should ideally have physician and pharmacy representatives.

The pharmacy representative should have an information technology background, if possible, Hicks says.

Hospitals should also frequently reeducate staff about the CPOE system, Cousins says. Unforeseen issues may arise after the initial education, such as physicians discovering that something they want to order is not allowed based on the current system, so they create a work-around.

“Reeducation is important as they’re using the sys-

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**Top 5 error causes reported to the MEDMARX database in 2003**

1. Performance deficit (38.2%)
2. Procedure or protocol not followed (18.3%)
3. Transcription inaccurate or omitted (13.2%)
4. Computer entry (13%)
5. Documentation (12%)
tem and these issues come up,” Cousins says. “They will know how to handle them.”

**Tip:** Ensure that practitioners have some degree of computer literacy before making them use CPOE, says Timothy O’Kelley, RN, risk manager at Deaconess Hospital in Oklahoma City.

Computer literacy helps prescribers navigate and use CPOE more efficiently instead of having to learn as they go, O’Kelley says.

**Look to the future**

While the MEDMARX report may highlight the need to take precautions when using CPOE, the technology is still beneficial.

A report released December 6, 2004, by Long Beach, CA–based First Consulting Group noted that if all acute-care hospitals in Massachusetts implemented CPOE, the state’s healthcare system could save $275 million annually based on an increase in patient safety and care quality.

The state’s hospitals could fully implement CPOE for $210 million, according to the report. Currently, 46 facilities in Massachusetts—70% of all hospitals in the state—do not have CPOE, and most have fewer than 500 beds.

“I believe that CPOE is going to become the standard of medication ordering in the very near future,” O’Kelley says. “But it must be done wisely, with all parties involved in the process included in selecting the proper system for each facility.”

**Tip:** Give physicians, nurses, pharmacists, and any other staff who may use CPOE an equal say in how the system should be designed.

Check out six tips to gain physician acceptance on p. 4. Go to [www.mtpc.org/institute/health/summary.htm](http://www.mtpc.org/institute/health/summary.htm) to read the full report on CPOE in Massachusetts.

**Editor’s note:** Check out next month’s issue, where HPRR will take a look at safety issues involving automated dispensing devices, another highlight of the MEDMARX report.

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**Case study:**

**Two examples of CPOE error**

Check out these examples of the types of errors that can occur with computerized physician order entry (CPOE). Both examples were reported to the U.S. Pharmacopeia MEDMARX medication error-reporting database:

1. **Wrong patient.**
   A physician entering an order for piroxicam accidentally selected the wrong patient on the order-entry screen. The prescriber mistook the patient for a family member with the same last name.

   The family members recognized the error before they took any medication and brought the error to the physician’s attention.

2. **Inexperienced staff.**
   A traveling physician temporarily working at one hospital was in the neonatal intensive care unit (NICU). He entered orders for fentanyl and midazolam drips into a predetermined order set in the CPOE system.

   The order he placed would have resulted in a 500 mL infusion bag with two additives. Typically, staff would have used small-volume infusion syringes of 10 mL–20 mL.

   Also, the predetermined order set incorrectly computed the total amount of drug per 500 mL, which means the patient would not have received the correct hourly dose.

   A pharmacist’s review of the order uncovered the error. Staff later concluded that the order set was available hospitalwide and that NICU physicians had not previously used the predetermined order set.
Six helpful principles to aid CPOE acceptance

A report released December 6, 2004, by First Consulting Group for the Massachusetts Technology Collaborative and the New England Healthcare Institute outlined the following six principles necessary for physician acceptance of computerized physician order entry (CPOE):

1. Order screens should be designed to align with how physicians think about and write orders. Complex medication orders such as sliding scales and IVs with customized admixtures are types of orders where screen design has an effect.

2. Orders of interest for a specific patient should be easy for a physician to call up. A physician should have the option to locate individual and groups of orders for a patient, including personal and departmental favorites, diagnosis- or situation-specific care sets, and order sets with options and instructions. The effort that physicians must put forth locating orders in the CPOE system adds to the time required for writing orders.

3. The system should be able to accommodate all order types, including laboratory, radiology, and pharmacy. Orders should all be generated using the same module and screens. Using different modules and screens to complete orders for one patient takes more time for a physician.

4. Physicians should be able to easily identify messages and tasks by type, patient, and urgency. A good system design should include an inbox and annotated patient lists. New information, such as new lab results and alerts that require attention or orders that are about to expire, should be clearly identified. The system should help the physician manage the patient.

5. Prompts and alerts during the ordering process should be delivered at the most useful time for the physician. The worst case for physicians is receiving a variety of alert messages when attempting to sign an order. Deliver the alerts when the physician is considering what to order, which will help in selecting the appropriate medication, dose, and other essential order elements.

6. Physicians should be able to respond to all prompts and alerts for medication orders. Physicians should be able to display all alerts in one view and accept all advice about order interventions, recommended doses, and all other order elements with one click. This affects the time the physician spends on ordering. The worst case for a physician is the need to begin entering the order again instead of quickly accepting a recommended change.

Source: Massachusetts Technology Collaborative. Reprinted with permission. For more information, go to www.mtpc.org/institute/health/summary.htm.
Information at your fingertips

The standards in the healthcare staffing services certification program address credentials verification, competency assessment, staff placement, and monitoring staff and service performance, among other areas.

The JCAHO will award a Certificate of Distinction to those firms that receive certification, Forstneger says. The JCAHO will make certification results public, thus providing a marketing advantage for employment agencies, he says.

More than 100 staffing agencies have expressed interest in certification, according to the JCAHO. NovaStaff Healthcare Services, Inc., of Oak Brook, IL, became the first organization to receive certification on December 13, 2004.

Benefits must outweigh costs

Advocate Rx Solutions, a healthcare staffing agency with offices in Baltimore, Houston, and Carson City, NV, is one company interested in pursuing JCAHO certification.

“I do see it as a differentiator of agencies,” says Glenn Licthman, Advocate Rx regional vice president in Baltimore. “We want to be seen as the leader as far as having the best possible staff.”

Many smaller staffing agencies may not seek certification because of the cost involved, Licthman says. A single-site staffing firm that places employees in 25 or fewer states will pay a $5,000 base fee for certification, according to the JCAHO Web site, www.jcaho.org. A single-site staffing firm that places employees in 25 or more states will pay a $10,000 base fee.

A corporate staffing system will pay a $25,000 base fee for a system review and $5,000 per day for on-site reviews, according to the JCAHO. The commission will conduct unannounced surveys at a sample of the company’s staffing sites.

By contrast, a small hospital with fewer than 25 beds must pay $5,950 for accreditation, according to the JCAHO. All other hospitals’ prices are based on the average daily census and the number of outpatient visits. Large hospitals could pay as much as $23,000, according to the JCAHO Web site.

“I’d like to say we’re absolutely going to do it, but I need to see the cost, too,” Licthman says. “There has to be a cost benefit.”

Get temps with hospital experience

Several pharmacy directors interviewed say they no longer use staffing agencies due to budgetary constraints. Henderson (TX) Memorial Hospital pharmacists rely on word of mouth and personal contacts to fill vacancies, says pharmacy director Ted Raines, RPh.

If pharmacies do use staffing agencies to fill vacancies, they may be more inclined to use a JCAHO-certified firm, Licthman says.

Anderson says he would use a JCAHO-certified agency over a noncertified agency, although the Lahey Clinic has not had to rely on them because of good recruiting and retention efforts in the past few years.

Tip: Make sure pharmacists from staffing agencies have hospital experience.

Some agencies have reportedly sent retail pharmacists to fill positions at hospitals, Anderson says. The two practices are different, so having a retail pharmacist working in the hospital does not help improve workflow, he says.

“The size [of the company] does not necessarily matter, but more so the quality and experience of the people that they hire and send to the hospitals,” Anderson says.

For more information on the Health Care Staffing Services Certification, visit www.jcaho.org/dscc/hcss/index.htm.
Leadership at Riverside Methodist Hospital in Columbus, OH, knew that medical staff would need guidance when a new policy eliminated range orders for narcotics.

That guidance was just a phone call away.

Amy Imm, MD, medical director of the intensive care unit (ICU) at Riverside and the electronic ICU at OhioHealth and a former pharmacist, went to the pharmacy and called physicians who used range orders to explain to them why the hospital eliminated the orders and to provide alternatives.

“That’s kind of the scenario that pharmacy gets stuck in the middle of a lot,” Imm says. “A lot of people on the medical staff know that I was a pharmacist. I felt fairly confident they would take my advice.”

Most physicians were appreciative of the personal feedback, which went well beyond the typical staff meeting education.

“It shared the burden that pharmacy would feel,” says Mark Montoney, MD, MBA, Riverside vice president of quality and clinical support. “It helped having that physician-to-physician contact.”

The elimination of range orders led to a nearly 50% reduction in adverse drug events involving narcotics between July 2003 and May 2004, part of a 47% overall reduction in adverse drug events involving anticoagulants, narcotics, and insulin at OhioHealth, an eight-hospital system to which Riverside belongs.

That reduction garnered OhioHealth the first Award for Excellence in Medication-Use Safety from the American Society of Health-System Pharmacists. The health system received the award during the society’s Midyear Clinical Meeting in Orlando, FL, in December 2004.

Identify high-risk categories
OhioHealth began its quest to reduce adverse drug events in 2000, shortly after the Institute of Medicine released its report To Err Is Human: Building a Safer Health System, says Tom Sherrin, RPh, MS, FASHP, OhioHealth director of clinical resource management. But tackling all medication errors seemed like a daunting task.

“Our places began to look and see what they could do to improve safety,” Sherrin says. “We shifted our focus after looking at the literature to adverse drug events that caused harm.”

Those adverse drug events fell into three categories of high-risk medications: anticoagulants, narcotics, and insulin. Research showed that those categories caused the most harm to patients, Sherrin says.

Establish a committee, track data
Once the health system chose the three high-risk categories, each of the eight hospitals established a committee of physicians, pharmacists, and nurses to identify adverse drug event triggers and conduct a three-month study of events with the three classes, Sherrin says.

The committees recorded the monthly number of adverse drug events in each class by looking at a patient’s record for certain triggers, Sherrin says.

For example, a trigger for an adverse event involving anticoagulants could include an International Normalized Ratio—or INR, which expresses blood clotting time—greater than five or the administration of vitamin K, he says.
Most facilities used the pharmacy charge and laboratory charge databases to identify triggers. Facilities that could not use those techniques had pharmacists and lab technicians keep a manual record of triggers.

**Choose one category**

After collecting data for three months, each hospital’s pharmacy and therapeutics or quality improvement committee selected one of the three classes to focus on reducing adverse events. The committees adopted specific interventions, and then oversaw the implementation of those interventions, Sherrin says.

Hospitals chose to focus on one class because of the workload involved with interventions, Sherrin says. Selecting more than one may have been overwhelming.

Riverside chose to focus solely on narcotic safety because that was the biggest area to improve, says Montoney. Along with eliminating range orders, the hospital monitored the safety of patient-controlled analgesia (PCA) pumps.

In December 2004, the JCAHO issued a *Sentinel Event Alert* concerning “PCA by proxy”—when someone other than the patient becomes involved in administering the pain medication.

According to two U.S. Pharmacopeia error-reporting databases, 15 of 460 harmful errors to patients reported between September 1998 and December 2003 were the result of PCA by proxy. Twelve of those errors were the result of a patient’s family member administering PCA by proxy, according to the JCAHO.

Check out a case study on how one hospital reduced improved PCA safety on p. 9 and the sample policy on p. 10.

**Deliberately overeducate**

Riverside—and all other OhioHealth facilities implementing interventions—needed to educate staff about the changes that took place. Education was even more important with something as dramatic as changing ordering procedures, which is what happened when range orders were eliminated, says Montoney.

A joint team of physicians, nurses, and pharmacists set out to alert prescribers of the changes, giving them alternative ways to write orders. Some of those new methods included dosing on a pain scale or giving a precise dose but using a “may repeat” order, allowing staff to administer the same dose again if needed, Montoney says.

Along with Imm’s phone calls, the interdisciplinary team sent memos to staff, made presentations, and held one-on-one conversations with medical staff leadership over a two-month period to get prescribers ready, Montoney says.

“It was really deliberately overcommunicated to let folks know it was coming,” Montoney says. “We really owed it to the medical staff to give them ample heads-up.”

**Find a champion**

Even though the hospitals had the support of a major health system to implement interventions and change work processes, any organization can follow the OhioHealth model, Sherrin says.

“We had eight hospitals participate,” Sherrin says. “Two of those hospitals were critical access—very rural hospitals—and they were able to modify the program and fit it into their organizations.”

The key to success anywhere is collaboration between the medical staff, pharmacy, and nursing, Montoney says.

Although pharmacy may have spearheaded the efforts, physician and nursing participation was just as important and led to greater acceptance throughout. Imm’s phone calls to physicians are a prime example.

“I said I wouldn’t ask them to do it if I wouldn’t do it myself,” Imm says of eliminating range orders. “That sort of got their defenses down.”
JCAHO standard of the month—MM.4.10

Work with respiratory therapy to control meds

The JCAHO is pushing hospitals to have pharmacy control respiratory therapy medications. Make sure your pharmacy has some oversight of the order process to remain compliant.

“This is a tough one, and I know a lot of hospitals are having a tough time with this,” says Joseph Vargas, PharmD, president of Vargas Healthcare Management Group Inc. in Wellington, FL. “This has become more of an issue with Joint Commission surveyors.”

JCAHO medication standard MM.4.10 requires pharmacists to review all medication orders, except in an emergency. The standard was one of the most-cited during hospital surveys in 2004.

Review respiratory orders
Hospitals could violate the prior-review standard if respiratory care departments have total control over respiratory therapy medications. The pharmacy needs to establish guidelines to at least monitor the control of respiratory medications, Vargas says.

Pharmacists can provide complete checks for allergies and drug appropriateness when reviewing respiratory therapy medication orders, says Lana Poirier, director of quality and risk at Midwestern Regional Medical Center in Zion, IL. Her hospital is adding Pyxis automated dispensing cabinets for respiratory therapy to help control the medications, she says.

Pharmacists at St. Michael’s Hospital in Stevens Point, WI, review orders for respiratory therapy medications, says Pharmacy Director Todd Faulks, RPh. After checking the order and patients’ information for drug interactions, allergies, and other problems, pharmacists print up medication labels containing the patient’s name, dose, and frequency.

The pharmacists send the labels through a tube system to respiratory therapists, who then take inhalers or other medications from the respiratory care stock and affixes the labels to them. Pharmacists follow the same process and print up the same labels used for regular medication orders, so there is no additional work required for the pharmacy, Faulks says.

Tip: Review respiratory therapy medication orders, even if your hospital still stores the drugs in the respiratory care department and not the pharmacy.

Define an emergency review policy
The JCAHO standards allow staff to dispense medications without pharmacists’ review in emergency situations if waiting could result in patient harm.

Respiratory therapy medications almost always fall into that category, Faulks says. “You don’t want to withhold a medication because they [patients] may not be able to breathe,” Faulks says.

The pharmacy at St. Michael’s Hospital closes at night, so the hospital considers a patient’s need for a respiratory medication after hours to be an emergent situation, Faulks says. A pharmacist must review the order the next morning and print up a label, he says.

Tip: Make sure respiratory therapists and pharmacists can clearly explain any after-hours or emergency policy to JCAHO surveyors, Vargas says.

Have a transition timeline in place

Outline a timetable if your hospital is in the process of changing its respiratory therapy policy, says Joseph Vargas, PharmD, president of Vargas Healthcare Management Group, Inc., in Wellington, FL. Surveyors will be able to look at the timetable and understand that the hospital is working to comply with the medication standards.
A patient is receiving morphine through a patient-controlled analgesia (PCA) device. Suddenly, an alarm sounds.

The patient’s carbon dioxide output retention exceeds the safe maximum limit. Another monitor shows the patient’s blood oxygen saturation is still normal. Based on those two factors, caregivers determine the patient had sleep apnea, a condition that causes people to stop breathing in their sleep.

Caregivers at St. Joseph’s/Candler Health System in Savannah, GA, were able to prevent harm to that patient with the help of monitors accompanying the PCA pump. New technology from the San Diego–based Alaris Products division of Cardinal Health allows clinicians to monitor the oxygenation and carbon dioxide output concentrations in patients who receive PCA.

The pumps allow caregivers to act quickly, reducing the potential for adverse events and patient harm, says Ray Maddox, PharmD, St. Joseph’s/Candler director of clinical pharmacy, research, and pulmonary medicine.

“Had we not had that monitoring in place, [the patient] would have probably stopped breathing,” Maddox says. “This is information coming off the devices that we’re able to take immediate action on.”

Monitor respiratory functions
Narcotics administered through PCA can depress a patient’s respiratory functions, Maddox says, which creates a need for close monitoring.

St. Joseph’s/Candler has used the Alaris monitoring modules since June 2004. All information about a patient’s carbon dioxide and oxygenation levels feed back to a main computer system in real time, which allows staff to review data as necessary.

The Alaris monitoring system is the only product of its type currently on the market, says Timothy Vanderveen, PharmD, executive clinical director of the Alaris Center for Medication Safety and Clinical Improvement.

Lake Forest, IL–based pharmaceutical technology manufacturer Hospira will likely release its own version in the middle of this year, Vanderveen says. Hospira representatives didn’t return requests for comment by presstime.

Watch the dose range
The Alaris system also utilizes Guardrails® technology, which allows hospitals to set preprogrammed upper and lower dose limits. If nurses program a dose that is outside of the limits, the pump will alert them to the error.

St. Joseph’s/Candler has averted 14 cases of programming errors so far with the PCA monitoring, Maddox says. Most were overdoses, but a couple involved underdoses, which are equally as problematic.

For example, a nurse programmed a medical-surgical patient’s PCA pump to receive a 1 mcg dose of fentanyl. The pump alerted the nurse that the dose was below the programmed minimum before she pressed start, and she reprogrammed the pump to 50 mcg, which was a more appropriate dose, says Maddox.

“That dose would have been ineffective to manage the patient’s pain,” Maddox says. “With pain management, dose-below-minimum alerts are extremely important.”

We want your ideas!
Do you have a creative solution to comply with the JCAHO medication standards or reduce medication errors? Send them to Associate Editor Matt Bashalany at mbashalany@hcpro.com or call 781/639-1872, Ext. 3726, and they may be featured in a future issues of HPRR.
Sample patient-controlled analgesia policy

Policy
A physician’s order is required for patient-controlled analgesia (PCA).

Procedure

I. Prescribing:
The physician’s order must include the following:

- Drug
- Loading dose
- PCA dose
- Continuous dose
- Lockout interval
- Four-hour limit

II. Administration:
A registered nurse is responsible for all activities related to PCA; including patient assessment, patient education, medication, equipment, and documentation.

The physician or nurse will explain the concept of PCA to the patient. The registered nurse is responsible for instructing the patient on the proper use of the PCA infuser.

PCA may be infused through peripheral or central IV sites.

PCA cartridges will be controlled and documented in the same manner as any other controlled substance.

III. Monitoring:
The patient’s response to PCA therapy is to be assessed and documented at least once each shift:

- Baseline assessment: Blood pressure, pulse and respirations are to be taken immediately prior to the PCA infusion.

- Loading dose: Blood pressure, pulse and respirations are to be taken five minutes and 30 minutes after the loading dose is infused.

- Supplemental dose: May give one-half of the loading dose every 10 minutes until pain is rated less than 4 and respiratory rate is greater than or equal to 12 breaths per minute. Blood pressure, pulse and respirations are to be taken every 15 minutes times three after each supplemental dose then routinely.

  a. The physician is to be notified for a respiratory rate of less than 10 per minute. The patient’s respirations are to be monitored at least once each shift after the initial assessments.

  b. Pediatric patients are to be monitored at least every two hours by assessing and documenting heart rate, respiratory rate, and behavior.

All documentation of medication infused to the patient (loading dose, supplemental dose and eight hour shift total) will be recorded in milligrams on the PCA flow sheet.

  a. All documentation is taken from the LED screen on the face of the infuser. This displays the total milligrams taken since the pump was last cleared.

  b. Syringe must be in pump to read pump history.

The PCA cartridge and tubing is to be changed at least every 72 hours.

IV. Modes of operation:
The PCA pump can operate in three different modes of operation:

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modes: PCA, PCA plus continuous, or continuous only:

- **PCA:** Allows the patient to receive a dose only when requested by pushing the patient pendant.

- **PCA plus continuous:** The pump administers a continuous dose of narcotic and still allows the patient to access narcotic by pushing the patient pendant for supplement doses.

- **Continuous:** The pump administers a prescribed amount of narcotic continuously with no patient access to supplement doses.

**V. Definitions**

a. **Loading dose:** initial bolus dose given to the patient as ordered by the physician.

b. **Lockout interval:** period during which the PCA cannot be activated and no analgesic can be delivered by the patient.

c. **Supplemental dose:** an additional loading or bolus dose given to a patient when ordered by the physician.

d. **PCA dose:** the amount of drug administered each time the patient activates the PCA pendant.

e. **Continuous dose:** the amount of drug administered continuously and not under the patient’s control.

f. **Four-hour limit:** controls the maximum amount of drug the patient can receive in any four-hour period.

g. **Patient pump history:** the accumulation of data describing the patient’s use of the medication.

**VI. Preparation of PCA infuser**

Obtain the following equipment; PCA infuser, narcotic cartridge and PCA tubing set with Y connector.

a. Open cartridge package and screw plunger into glass vial. Eliminate air.

b. Attach PCA tubing to the injector.

c. Invert the vial and gently push down on the injector to prime the PCA tubing. The vial is overfilled by 2.5ml for this purpose. The tubing can also be primed by using the purge feature on the pump once the syringe has been loaded.

The patient must be disconnected from PCA set when performing the purge cycle.

d. Clamp the PCA tubing above the Y connector.

e. Unlock PCA infuser and insert the narcotic cartridge.

f. Pinch upper portion of cartridge holder and pull all the way to the top.

h. Pinch upper portion of cartridge holder and pull down until bottom disc of injector locks into clamp. The pump will alarm and give a visual signal to “check syringe” if not snapped in securely.

Quick tip: Write out abbreviations for PRN orders to comply with JCAHO requirements

Prescribers must write out abbreviations for PRN, or as needed, orders, even if the indication for use is obvious, says Darryl Rich, PharmD, a JCAHO field representative.

For example, an order reading “MS q4h PRN pain” would violate the National Patient Safety Goal requirement banning certain abbreviations, Rich says. Pharmacists could mistake the abbreviation MS—morphine sulfate—for MgSO4—magnesium sulfate.

Although it may appear obvious that the order is for the pain medication morphine sulfate, room for error still exists, Rich says.

**Tip:** Call the prescriber if you receive a PRN order with an unapproved abbreviation. Document the clarification on the order to remain in compliance with the JCAHO.

The JCAHO also determined at the end of 2004 that unapproved abbreviations will only apply to medication-related documents and all orders in 2005, according to its Web site, www.jcaho.org. The minimum level of compliance will remain at 90%, the JCAHO said.

The JCAHO originally expected 100% compliance by January 1.

The unapproved abbreviations Patient Safety Goal will also apply to all preprinted order forms in 2005, according to the JCAHO. The commission will expect 100% compliance when it comes to abbreviations on preprinted order forms.

The JCAHO has not told surveyors what to use for a numerator and denominator when checking orders, according to a source close to the commission. Surveyors do not know whether they should use only orders with unapproved abbreviations or all orders from a hospital, the source says.