Safety in respiratory care: A guide to the JCAHO requirements

A supplement to HCPro publications
Dear reader:

The JCAHO’s changing standards for safety can be difficult to navigate, and it’s not always easy to tell whether a standard even applies to the respiratory care department. That’s why we’ve identified the safety issues surveyors have focused on recently, and compiled the following stories to help you comply.

This special report will help you identify your department’s strengths, improve on your weaknesses, and prepare for your next survey.

We at HCPro wish you success in your efforts to make your respiratory department as safe as it can be.

Sincerely,

Lauren McLeod
Senior Managing Editor

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Make sure your facility complies with JCAHO’s patient, environmental safety standards

Every hospital department has to worry about safety issues and JCAHO standards. But with explosive chemicals and machines that make the difference between life and death a part of the routine in respiratory care, surveyors may scrutinize your department’s safety more closely.

Karen J. Stewart, MS, RRT, assistant administrator, medicine services at the 947-bed Charleston (WV) Area Medical Center, rifled through the standards manual, sorted out the ones most relevant to RTs, and added clarifying comments to each standard. The AARC has made available the full text of her work on its Web site.

Topping Stewart’s safety list are Environment of Care standards EC.1.1–1.7, which call for the hospital to provide a safe and secure environment and develop plans for hazardous waste management, fire prevention, utility and medical equipment, and emergency management (which has come under more scrutiny since September 11).

Once the hospital designs these plans, EC 2.1–2.8 require implementation and staff orientation about their responsibilities in each plan.

That means managers must know the hospital-wide policies and spell them out to their staff so they understand how to use the various plans, according to Stewart. Department-specific policies and procedures concerning safety should be included in a department version of a safety manual.

Handling equipment
Before a survey, it’s a good idea to review processes for handling equipment—in policy and in practice, says Steve MacArthur, a consultant for The Greeley Company in Marblehead, MA, and former manager of safety and security for Brockton (MA) Hospital. Respiratory care workers can trip up in a JCAHO survey by mishandling oxygen tanks.

“A hospital in Rhode Island got supplemental recommendations under the ‘Environment of Care’ [section] because of unsecured gas tanks. One in the emergency room was on top of a stretcher; and another was a helium tank in the gift shop that they used to fill balloons,” MacArthur says. “If a surveyor were to find enough unsecured gas tanks floating around, you might get all the way to a Type I [recommendation].” (See p. 9 for more information on oxygen tank storage.)

EC.3.2 calls for the hospital to provide “an environment with appropriate space and equipment.” Specifically, you should be able to show that there is enough space to clean equipment without contaminating other hardware, Stewart says.

Maintaining equipment
Recently surveyed respiratory care managers report that surveyors have been looking at preventative maintenance when it comes to equipment safety. They want to know: Is there a plan, and has it been executed? (See p. 8 for more information on equipment maintenance)

“Whether it’s been done internally or externally, on an annual basis [surveyors want to know] you’ve done electrical safety checks and that you’ve checked the equipment,” Stewart says.

Planning for the worst
In the wake of the September 11 terrorist attacks, the Joint Commission has increased attention on emergency and disaster plans. JCAHO has discussed backup power supplies, alternate means of hospital staff communications, and nuclear, chemical, and biological terrorism attacks in recent publications and teleconferences.

Although specific new standards have not been released, Stewart points out that JCAHO is trying to determine how its existing standards, especially those for utilities management and emergency programs, can be best interpreted to help bolster preparedness.

It will be up to respiratory care managers to educate staff on how the standards relate...
to their daily routines. (For more on emergency and disaster plans, see pp. 10-11)

Handling sentinel events
Recent JCAHO standards require leaders to perform “failure modes and effect analysis” (referred to as FMEA) on high-risk processes, says MacArthur. That means rehearsing possible scenarios and understanding the results. “In the past, a lot of times, it’s been more reactive,” MacArthur says. “But now the Joint Commission is moving toward more of a proactive stance.” The goal is to do everything possible to prevent sentinel events, and minimize the effects when one does occur.

The JCAHO’s expectation is that by the time of survey, all organizations have looked at the Joint Commission’s Sentinel Events publication and determined what their risk is for each one and what they can do to mitigate them in their facility, MacArthur says.

That means respiratory care managers should consider the sentinel events that might happen in their department, such as an oxygen tank explosion, says MacArthur: “That’s probably something [JCAHO] wouldn’t be looking at organizationally too soon, but that might be something that a respiratory therapy department would want to do . . . as an education project for FMEA.”

Leading the way in patient safety
Patient safety is a hot issue in recent surveys, “not on the top of the plate, but close to it,” Stewart says.

Missed treatments and medication control are high on the list. JCAHO wants hospitals to define missed treatments, track them, and consider unjustified missed treatments medical errors.

As long as your facility can prove it is tracking missed treatments and trying to cut down on them, “you’re in pretty good shape before JCAHO,” says Stewart.

Medication safety—especially for medications needing refrigeration—is also a big JCAHO concern right now. Keeping on top of expiration dates and monitoring cold-storage temperature should be top priorities, she adds. Managers should pay particular attention to JCAHO leadership standards, which focus on patient safety, Stewart says. They call for department leaders to do the following:

- Provide staff with the basic training on—and adequate time to participate in—patient safety activities
- Provide the processes by which department staff identify and manage sentinel events
- Measure the effectiveness of their own actions to improve patient safety
- Develop a plan for implementing hospital-wide performance improvement and recommendations in their departments

MacArthur points out that managers “worth their salt” will initiate department-specific safety measures on their own. But don’t forget that you have an ally and expert consultant in your facility’s safety officer, who can help you meet JCAHO’s expectations.

Preparing for a survey
Stewart encourages respiratory care managers to set aside a regular time each week or month to review a few standards and consider their departmental compliance. The JCAHO manual includes self-testing tools that help you determine how much work, if any, you need to do to bring your department up to snuff.

New JCAHO policies taking effect this year make it a little harder to know exactly when surveyors will show up. If surveyors find a facility to be non-compliant, it can lead to unannounced follow-up visits.

“If your survey is not very good, you have a certain amount of time to respond to the way [JCAHO has] typed you,” Stewart says. “And then, my understanding is that they can just do a pop-in to see if you’ve really complied. It’s going to be an interesting world.”
Hazard surveillance form: Use one to evaluate compliance in your respiratory care department

When it comes to making your respiratory department safe by JCAHO and Occupational Safety and Health Administration (OSHA) standards, it’s often helpful to conduct a “hazard surveillance detection survey”—a thorough examination of safety issues that might need improvement.

Medical Consultants Network offers forms in its Safety Management Policies and Procedures Manual that can help you uncover your department’s weak spots (See pp. 6–7.)

“This will [help] take care of your big-ticket items in the environment of care,” says Steve MacArthur, a consultant for The Greeley Company and former manager of safety and security for Brockton (MA) Hospital. “You can verify that [staff] education is working and you have an environment that is physically safe.”

The form will help you evaluate staff knowledge of areas such as hazardous waste management and remind you to double-check oxygen and equipment storage.

Its questions can help remind you of safety concerns that aren’t always in the forefront of your mind. For example, question 1 in the “Physical Hazards” section addresses the layout of equipment in your department and could inspire staff to move little-used items out of the way in order to create more space for frequently used hardware.

The form can help evaluate staff work habits and ability to help create a safe environment for caring for patients. You can also use the form to test staff knowledge—just as JCAHO surveyors might. Recent trends show surveyors are interviewing frontline staff more often, managers far less.

Review it at least once a year
The items on the form should be checked once each year at minimum, MacArthur says. Standards dictate that hospitals evaluate patient care areas twice a year and ancillary areas once a year. Most respiratory care departments are considered ancillary areas, he says.

“Organizations should be doing something akin to this already,” MacArthur says. This falls under JCAHO standard EC.4.1, which calls for the hospital to collect information about deficiencies and opportunities for improvement in the environment.

But for recently promoted department managers or those who have never conducted a hazard surveillance survey, it’s a good idea to complete this review on a quarterly basis. Once you’ve addressed most of the problems the survey reveals, once per year is sufficient.

If the hospital makes changes in emergency plans or the physical plant, go over the form to make sure you’ve addressed the relevant questions in your department.

MacArthur recommends conducting the hazard surveillance in cooperation with the hospital’s safety officer—especially if you’re a new respiratory department manager.

“For the first seven questions . . . the safety officer is going to have a larger knowledge base,” he says.

Don’t let the ‘no’ answers slide
If you answer “no” to one or more questions, don’t panic. It doesn’t mean your department is automatically going to receive a Type I recommendation that will be blamed on you. Some of the items—such as posting evacuation routes—aren’t required at all, but are still best practices.

A deficiency indicated by a “no” answer could be completely overlooked by JCAHO inspectors. However, it’s better to be safe than sorry and rectify each “no” as soon as possible. Also, share the information about the deficiency with the safety officer, because it might indicate a hospital-wide problem that needs to be solved.

“Any ‘no’ is a potential exposure point,” MacArthur says.
HAZARD SURVEILLANCE DETECTION SURVEY
RESPIRATORY CARE DEPARTMENT / SERVICES

Inspectors: ___________________________  Title: ___________________________  Date: ________________

Area Surveyed: ____________________________________________________________

Received by committee: ___________________________  Sent to Department: ___________________________  Action copy returned: ___________________________

<table>
<thead>
<tr>
<th>Work Practices</th>
<th>Y</th>
<th>N</th>
<th>N/A</th>
<th>Comments</th>
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<tbody>
<tr>
<td>1. Staff able to demonstrate knowledge and skill of their role and expected participation in the safety management program?</td>
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<td>2. Staff able to demonstrate knowledge and skill of their role and expected participation in the security management program?</td>
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<td>3. Staff able to demonstrate knowledge and skill of their role and expected participation in the hazardous materials and waste management program?</td>
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<td>4. Staff able to demonstrate knowledge and skill of their role and expected participation in the emergency preparedness program?</td>
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<td>5. Staff able to demonstrate knowledge and skill of their role and expected participation in the life safety program?</td>
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<td>6. Staff able to demonstrate knowledge and skill of their role and expected participation in the medical equipment management program?</td>
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<td>7. Staff able to demonstrate knowledge and skill of their role and expected participation in the utilities management program?</td>
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<td>8. Employees trained in patient handling techniques and body mechanics? If yes, who instructs? Date of last instruction?</td>
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<td>9. Employees trained in use of mechanical hoist and patient handling equipment? If yes, who instructs? Date of last instruction?</td>
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<td>10. Standard Precautions observed at all times?</td>
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<td>11. OSHA Blood Borne Pathogens Regulations observed?</td>
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<td>12. Proper personal protective equipment provided? Instructed in use of that equipment? Equipment used appropriately?</td>
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<td>13. How are equipment malfunctions reported? Tags used to identify hazards?</td>
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<td>14. Is equipment being repaired locked out? Do all employees know lock out rules?</td>
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<td>15. Safety rules reviewed on a periodic basis? How often? Date of last training?</td>
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<td>16. Emergency procedures posted and reviewed with employees?</td>
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<tr>
<td>17. Check crash cart expiration dates? Locked? Has defibrillator been checked?</td>
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RESPIRATORY CARE DEPARTMENT / SERVICES

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<th>Y</th>
<th>N</th>
<th>N/A</th>
<th>Comments</th>
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<tr>
<td>18. Check equipment inspection stickers - current?</td>
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<td>19. Check expiration dates on sterile supplies?</td>
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<td>20. Evacuation routes posted?</td>
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<td>21. Fire extinguishers tagged - current?</td>
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<th>Physical Hazards</th>
<th>Y</th>
<th>N</th>
<th>N/A</th>
<th>Comments</th>
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<tbody>
<tr>
<td>1. Adequate room?</td>
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<td>2. Equipment properly stored when not in use?</td>
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<td>3. Electrical equipment properly grounded? Regular maintenance inspection schedule?</td>
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<td>4. Towel clips and scissors kept closed when not in use?</td>
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<td>5. Proper footwear worn by all personnel?</td>
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<td>6. Unauthorized persons prohibited from using equipment?</td>
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<td>7. Excess water controlled and cleaned from floor immediately?</td>
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<td>8. Suction and electrical cords flat and out of traffic areas?</td>
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<td>9. Oxygen and gas connections checked?</td>
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<td>10. Gas bottles secured to prevent tipping?</td>
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<td>11. All gas cylinders removed when empty?</td>
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<td>12. Exits clear and well marked/lighted?</td>
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Corrective Actions

Actions Taken: ___________________________

The Joint Commission allows a range of options for medical equipment maintenance

Your safety committee can explore many options in its quest to meet JCAHO requirements

Gone are the old days when technicians had to track down every piece of medical equipment in the hospital for an annual inspection to satisfy surveyors.

Revised environment of care (EC) standards allow more flexibility when maintaining such items, particularly under EC.1.6 and EC.2.10.3.

When the JCAHO revised these requirements last July, it indicated that improved technology and performance eliminated the need to treat every piece of equipment the same.

Instead, the JCAHO offered hospitals a variety of ways to ensure that medical machines operated properly.

The Joint Commission believes that medical equipment is safer today and features more self-testing, says Patricia Schnoor, CBET, a quality, compliance, and regulatory specialist for GE Medical Systems, headquartered in Waukesha, WI.

Schnoor, who spoke at an audioconference for The Greeley Company, conducts surveys to assess medical equipment management at hospitals throughout the country. Greeley is the sister company of Opus Communications in Marblehead, MA, which publishes RCM.

Standards still tough
Don’t take the revisions as a chance to relax.

“There’s a little misconception out there that we’re on Easy Street,” says Steven MacArthur, a safety consultant for The Greeley Company.

The JCAHO’s changes are not meant to short-circuit medical equipment maintenance, but rather give hospitals a greater role in developing—and looking critically at—their own management plans, MacArthur says.

Reviewing the choices
Here’s a quick look at some of the common medical equipment maintenance options:

- **Annual maintenance**—Most safety committees are familiar with this method, in which you check a piece of equipment each year. You can still use this option even though the JCAHO doesn’t require it any more.

- **Interval-based maintenance**—This option allows hospitals to set up their own timeframes for maintenance or performance checks, based on factors such as a manufacturer’s recommendations or history of a particular machine. “We’re used to [doing] this,” Schnoor says.

- **Corrective maintenance**—Here, a technician will conduct a maintenance check on an item that comes in for a repair.

- **Metered maintenance**—This option revolves around factors such as the amount of hours the equipment runs, rather than a set calendar timetable.

- **Predictive maintenance**—Under this option, which isn’t widespread in health care, hospitals attempt to forecast failures in equipment based on the history of the machine and an analysis of past failures.

It is normal to use a combination of any of the above methods because no single maintenance program will address all equipment, she says. A facility may find metered maintenance works well for some equipment, while corrective maintenance gets better results on other items.

Don’t stifle creativity either, Schnoor adds. Safety committees might come up with a new way of conducting maintenance, and if it works, try it. Just make sure your policies and records reflect any unique methods.
‘In use’ v. ‘in storage’ is an important distinction for oxygen cylinders

An oxygen tank doesn’t have to be locked in a closet to be “in storage,” and it doesn’t have to be pumping oxygen into a patient’s lungs to be “in use.”

If you place a cylinder next to a patient’s bed because the patient might need the oxygen at any moment, the cylinder is in use, according to the National Fire Protection Association’s (NFPA) Fire and Life Safety in Health Care Facilities. However, if a second cylinder sits next to the bed, too, that cylinder is in storage and must meet storage requirements because the patient won’t need both cylinders at the same time.

Also, if an emergency cart carries a cylinder on it, the cylinder is in use because staff members might need it at a moment’s notice, the NFPA says.

JCAHO speaks on cylinders
The JCAHO doesn’t have specific standards that guide facilities on oxygen cylinder storage; instead it relies on NFPA 99’s requirements, says JCAHO spokesperson Mark Forstneger. However, the Joint Commission issued an interpretation in 1999 about how many oxygen cylinders it allows facilities to keep on a unit floor.

In the 1999 version of NFPA 99, paragraph 4-3.5.2.1(b)25 states that facilities don’t need to store individual cylinders associated with patient care in enclosures. The 1996 edition of NFPA 99, which the 1997 Life Safety Code references, does not contain this provision for individual cylinders, though it’s probably fair to use the idea either way.

The problem is that NFPA 99 doesn’t put a maximum on the amount of individual cylinders, the JCAHO says. A unit should have enough cylinders on hand to meet daily clinical requirements.

Give me an E
The Joint Commission’s answer is to allow facilities to keep 10 E-size cylinders in an open-topped box subdivided into cubby holes for the tanks. The box ensures that the tanks don’t fall over. E cylinders contain 24 cubic ft of compressed gas; 10 E tanks equal the volume of one H-size cylinder. “Ten tanks should be sufficient to meet a unit’s clinical needs,” the JCAHO says in its interpretation, which it published in the November/December 1999 Environment of Care News.

The staff members who use these cylinders need immediate access to them to meet clinical needs. “The cylinders are not being stored per se; they are staged for ready use,” the JCAHO adds. If your unit needs more than 10 cylinders, then it’s time to find appropriate storage areas that protect against fire and keep the tanks secure.

Tag those tanks
You may want to put tags around the necks of cylinders to indicate the status of the tank, suggests Robert Westenberger, MCO, CHFM, corporate director of safety and regulatory compliance at Saint Clare’s Health Services in Denville, NJ.

The tags should have check-off areas for categories such as empty, in use, or full. This helps staff members track tank use and keeps JCAHO surveyors happy, explains Westenberger.
Prepare your staff for terrorist attacks with thorough emergency, disaster plans


These threats can be more intimidating than natural disasters because they’re not random.

“If you have a naturally occurring event—a flood, hurricane, ice storm—people’s tolerance of that is very different than a man-made event,” says Barbara Bisset, director of emergency response, safety management and special police at New Hanover Health Network in Wilmington, NC. “The man-made events play very differently, psychologically. One is God doing something; the other is man destroying man.”

It’s important that respiratory therapists move beyond their fears to help prepare their facilities for a terrorist crisis. Depending on the chemical or germ agent used in a terrorist attack, the respiratory care department can turn into a front-line defense. Biological agents such as anthrax and many chemical weapons affect breathing function.

Even without chemical and biological agents, victims are likely to need respiratory care. After the World Trade Center attacks, many rescue workers were hospitalized with breathing problems related to the dust cloud created by the collapse of the buildings.

“Respiratory therapists are key members of our emergency response team in responding to any kind of an incident where there’s a large number of patients,” Bisset says.

Preparing for an emergency of unknown scale, especially when hospital resources are strapped to begin with is no easy task. Start by developing an emergency response plan. The JCAHO requires facilities to have emergency plans in place, and surveyors are scrutinizing them more carefully than ever.

“Work with your suppliers and find out [the maximum number of supplies] you can get on an order,” says Earl Williams HSP, the safety coordinator for BroMenn Healthcare in Bloomington, IL. “Assume the worst-case scenario, with two or three hundred people showing up and needing care.”

In preparing an emergency plan for your department, consider that in many chemical attacks and some biological attacks—anthrax being one of them—respiratory therapists are not likely to get sick merely by caring for victims. Unless health care workers are
directly exposed to anthrax—for example, from pieces of contaminated mail—they can’t get the disease. Airborne contagions such as smallpox, on the other hand, require the same precautions as diseases like tuberculosis.

In contrast, chemical weapon attacks can quickly affect large populations, potentially bringing many victims to your department’s door in a matter of hours or minutes, in some cases needing decontamination.

Emergency plans developed for chemical spills and/or large fires can form the groundwork to deal with terrorist attacks.

Dealing with many uncommon biological agents will require the same precautions and practices that are used frequently for more common diseases.

“We know this. We just haven’t called it anthrax before.” Bisset says. “We deal with these situations every day.”

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10 tips for emergency and disaster readiness

**Barbara Bisset**, director of emergency response, safety management and special police for New Hanover Health Network in Wilmington, NC, and **Earl Williams, HSP**, the safety coordinator for Bromenn Healthcare in Bloomington, IL, offer these principles for respiratory care managers to keep in mind to prepare their departments for biological and chemical terrorist attacks:

1. Routinely fit-test each staff member’s protective gear to prepare for the worst-case scenarios with airborne contagions.

2. Know the sterilization procedures for all equipment in your department and the solutions that are safe to use to clean them. Many biological agents can be eradicated with simple bleach solution. Check manufacturers’ guidelines in advance to see whether masks and other gear can stand such treatment.

3. Find out where you fit on your oxygen vendor’s priority list in case of short supply—especially if you’re located in a community with several hospitals. If you’re not number one on the list or if your primary supplier employs a “first come, first served” policy, line up one or two backup suppliers.

4. Bone up on disposal procedures for hazardous waste.

5. Learn where you can borrow or rent backup ventilators. If possible, make sure the source is available 24 hours a day.

6. Use the homework emergency planners in your facility have already done. For example, Bisset’s facility has dealt with hurricanes, so plans were already in place to handle events with many victims and possible power outages. Williams works in a rural, agricultural region where anhydrous ammonia spills can occur, so his facility was partially prepared for a chemical attack before September 11.

7. Determine the scale of a possible attack in your area, and be realistic. It’s not out of the question that a terrorist could strike remote rural areas, but densely populated areas are more likely targets.

8. Keep staff informed of the emergency plan, updating them on a regular basis.

9. Try to channel the energy you devote to fear into learning and constructive planning. It can help overcome the specter of terrorism.

10. Make sure you have up-to-date contact information for all your employees. “It sounds simple, but for many departments it can be a big challenge,” says Bisset.
Take steps now to prevent ventilator deaths

Human error, not technical malfunction is most often the cause of ventilator injury and death, according to the JCAHO.

The Joint Commission released a Sentinel Event Alert on ventilator deaths and injuries in February putting respiratory care managers on notice that ventilator safety has become a hot-button issue.

Don’t panic, says Susan P. Pilbeam, MS, RRT, FAARC, who literally wrote the book on ventilators. She’s the author of Mechanical Ventilation: Physiological and Clinical Applications and currently works as a respiratory care educational consultant.

There are both short-term and long-term ways to improve ventilator safety by adjusting work habits, Pilbeam says.

The particulars
The JCAHO’s report cited 23 sentinel events related to ventilators. All occurred in long-term ventilator patients. The majority of the incidents happened in intensive-care units, but a few took place in long-term care facilities and chronic ventilator units at hospitals.

Four incidents put patients in comas; 19 resulted in death. The JCAHO cited “inadequate staff orientation/training” as the number-one root cause (present in 87% of the incidents), followed by communication breakdown among staff (70%), and alarm problems. JCAHO also cited environmental noise, cultural barriers, and insufficient staffing.

None of the incidents resulted from mechanical failure, according to the JCAHO.

Changing habits in the long term

Improving ventilator safety requires effort from the entire respiratory staff. Susan P. Pilbeam, MS, RRT, FAARC, recommends taking these steps:

1. Test staff on the operating procedures for each ventilator after hire and then on an annual basis.

2. Get a copy of the National Board for Respiratory Care (www.nbrc.org) test matrix and use it to develop a JCAHO-friendly testing instrument. Let staffers use it to demonstrate proper operation of ventilators. Most new models have teaching software.

3. Make teaching materials available for staff to review.

4. Consider setting up closed-circuit cameras to observe ventilator patients located in remote rooms, as recommended by JCAHO.

5. Set up interdisciplinary teams to manage patients on ventilators and encourage communication between team members.

6. Encourage RTs to assess patients on ventilators and share information on their condition with nurses, physicians, and other clinical staff.

7. Hold a meeting between nurses and respiratory care staff to share information about ventilator procedures. Outline the urgent situations that require calling each other or getting doctors involved.

8. Consult with other respiratory care department managers in your community and develop teaching materials and documentation methods together to cover all your bases and avoid duplicating efforts.
In the last 15 years, ventilator development has mirrored that of the personal computer—just as processors have become faster and able to take on more operations, vents have also become more sophisticated, says Pilbeam. The last five years have seen the most technological advancement.

“They’re very reliable,” Pilbeam says. “None of them are without some microprocessing capabilities, and those computers are self-testing on a regular basis. They have a lot of backup and checking systems.”

The JCAHO’s report offers recommendations for improving ventilator safety. It emphasizes educating and testing staff, tracking outcomes of ventilator patients, and upgrading alarm systems.

Teach, test, and verify
To meet JCAHO’s expectations, respiratory care managers must document not only that they held educational activities, but that staff actually learned the material.

“I think what managers are going to have to do, in order to appropriately report to JCAHO, is keep records on mechanical ventilation orientation they do with employees, if they are not already doing so,” Pilbeam says. “And my guess would be, document that the training process was effective.”

That means testing staff on the particulars of how to run each ventilator and proving that each therapist can set alarms and monitor each one appropriately.

Developing a teaching and testing mechanism administered on CD/ROM or the ventilator itself and keeping track of the test results can help you demonstrate staff technical competency and understanding of hospital ventilator safety policies. Many new ventilators have software programs that allow staff to learn the controls without a patient actually on the respirator.

Don’t forget, staff must know how to respond to alarms as well as set them based on your hospital policy.

Everyone who works with ventilators also must know how to properly use patient restraints; the JCAHO indicates that 13% of the sentinel events were caused by restraint failure.

Pilbeam suggests respiratory care managers in a city or region pool their resources and help each other promote ventilator safety and staff competency.

“Talk with your compatriots in your neck of the woods and see what they are thinking about doing. Get together on it and start building resources.”

Keep your head
The responsibility for ventilator safety falls on the department manager. Changes—especially big ones that involve an entire staff’s work habits—can’t happen overnight. Surveyors understand that.

“Do it slowly,” Pilbeam says. “I don’t care if JCAHO is coming next week. It’s not the end of the world; you’re not going to be drawn and quartered . . . it takes time to do it right.”

Short-term fixes

Susan P. Pilbeam, MS, RRT, FAARC, recommends the following steps to respiratory care managers who want to take immediate action to prevent ventilator injuries:

1. Review your department’s policies on ventilator management to ensure you’ve addressed issues brought up by the JCAHO such as staffing orientation and alarm responses.

2. Assess ventilator management policies with staff to make sure everyone understands them.

3. Record when you’ve had an in-service meeting to review the policies.

4. Devise a checklist for each different model of ventilator in your department. Make sure every staff member knows how to turn it on, put the circuit on correctly, adjust controls, and set alarms appropriately.

5. Document staff members’ training and verify that they have not forgotten what they learned when studying for credentials.
Oxygen safety is crucial to prevent medical errors

When a staff member at Westchester Medical Center in Valhalla, NY, brought an oxygen cylinder into a Magnetic Resonance Imaging (MRI) room in July 2001, the metal container was attracted the machine’s magnet, propelled through the air, and killed a small boy. The hospital staff knew better, but somehow the accident still happened.

Both the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the Food and Drug Administration (FDA) voiced concern last year about medical gas problems, and this MRI incident adds fuel to the fire.

The JCAHO included an article about such mix-ups in the July 2001 issue of Sentinel Event Alert, and the FDA wrote a public health advisory in March 2001 on medical gasses. It’s crucial to make sure your therapists are well-informed about those and other dangers of medical gasses. The following are some of the circumstances in which they should pay extra attention to potential gas problems:

- **In the MRI room**
  
  Kenneth Capek, MPA, RRT, director of respiratory care services at the 400-bed Englewood (NJ) Hospital and Medical Center, used the Westchester incident to remind the department’s 25 therapists about how to handle medical gasses in the MRI room.

  Capek teamed up with Joseph Sudano, MPA, RT, administrative director of radiology. Sudano put together a fact sheet based on information from the manufacturer of MRI equipment and distributed it to every therapist.

  Capek went over this sheet during a staff meeting, and the staff watched a video from a manufacturer on MRI room safety. The hospital has three MRI rooms—two with piped in oxygen and one without. The one without contains a few aluminum cylinders with special regulators on plastic stands. Therapists are trained for both types of rooms.

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**Posted on the outside of every Magnetic Resonance Imaging (MRI) room at Englewood (NJ) Hospital and Medical Center is a sign that reads:**

**1.** The MRI machine (magnet) is always on! Even if the machine seems to be off (no patient on the table) the magnetic field is still present.

**2.** Never enter an MRI room without checking with an MRI Technologist. They will prepare you to enter the room.

- All persons entering an MRI room must be screened before entering the room. This includes patients, visitors, nurses, doctors, maintenance staff, environmental services, and any other staff member.

- In an emergency situation, CAC, respiratory arrest, etc., the patient must be removed from the MRI room. Emergency procedures cannot be conducted in an MRI room (never, no exceptions).

**3.** Items such as loose metal objects must be removed before entering the MRI room. These include:

- ID badges, beepers, stethoscopes, scissors, cell phones, credit cards

- STRICTLY FORBIDDEN—oxygen tanks, pumps, monitors, ventilators, suction machines, and any other powered device

**4.** Tools used for repairs or cleaning must be “non-ferrous,” which means no iron. The magnet will not attract them.

**5.** People with Pacemakers are never permitted to enter an MRI room.

**6.** Please observe the signs posted on all MRI entry doors.

Source: Englewood Hospital and Medical Center. Reprinted with permission.
“The only thing we don’t have is an MRI ventilator, because we don’t often have a lot of patients with this need,” he says. On the rare occasion that a ventilated patient needs an MRI in that room, a therapist accompanies the patient and manually bag vents with a long-neck bag while the test is given.

Capek placed small oxygen stands outside of each of the three MRI rooms. The stands and doors to the rooms have signs indicating that oxygen cylinders should be placed in the stands before anyone enters the room (see p. 14). These reminders help prevent accidents, Capek says. “The signs are helpful because they raise consciousness of therapists, but are also good for instances where an intern or nurse may be handling a patient who is on oxygen.”

- **During equipment transport**

  Gary Johnson, RRT, RCP, director of respiratory care services at the 100-bed North Country Regional Hospital in Bemidji, MN, says it’s easy for equipment to fall or regulators to break during transport.

  “When therapists are moving a patient quickly and one throws the IV pump and oxygen tank on the bed, it can fall off. This equipment needs to be properly secured,” Johnson says.

  Equipment transport problems can harm patients. Damage to regulators can alter the flow of gas to the patient, and therapists must be able to prevent this, Johnson says. His 13 therapists know they should use portable tank holders when transporting patients and seek help from additional staff members if they are struggling with equipment.

  

  The solution: Training

  “The JCAHO’s newsletter addresses the issue of proper training, and I think that’s the solution,” Johnson says. “If you bring the issue back to therapists attention, they’ll improve.”

  “The AARC has clinical indicators, and managers have to look for red flags to indicate that problems are going on in the facility,” he adds. Johnson suggests therapists also stay current on National Fire Protection Association (NFPA) guidelines. Go to www.jcaho.org/eud_pub/sealert/sea21.html to read the JCAHO’s Sentinel Event Alert on medical gas mix-ups.

  Go to www.nfpa.org/members/Member_Sections/Health_Care/Medical_gas_mix-ups/4341fnl.pdf to read the FDA’s public health advisory on medical gasses.

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**Ensure that all staff have adequate knowledge of equipment to prevent errors**

One of the best ways to prevent medical mishaps with oxygen like the one that occurred at Westchester Hospital in 2001 is to ensure that staff in other departments understand how the equipment works.

The transportation staff who move patients from one floor to another often deal with patients who rely on oxygen to breathe.

If any problems arise during the transport, a basic knowledge of how oxygen equipment works is necessary for patient safety.

That’s why Ken Capek, MPA, RRT, director of respiratory care services at the 400-bed Englewood (NJ) Hospital and Medical Center, makes sure transporters learn the basics of oxygen equipment as part of safety training. After the training, he tests the transporters on their skills.

Last year was the first year of training for transporters, and Capek says it may become an annual event in the future.

For now, all newly hired

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employees are required to undergo the training.

Many other facilities don’t require transporters to know how to use oxygen equipment, but Capek thinks the training is beneficial.

At Englewood, therapists generally transport patients on oxygen themselves, but in certain circumstances, it’s left up to the transportation staff. “It’s a good idea for many hospitals to have transporters trained to handle oxygen, because many of them will be transporting patients who are on oxygen,” Capek says.

At the 100-bed North Country Regional Hospital in Bemidji, MN, severely ill patients are usually transported by therapists, but patients just going to physical therapy are likely to be moved by transporters, says Gary Johnson, RRT, RCP, director of respiratory care services.

There’s no rule from the JCAHO or any other regulatory body requiring the presence of a therapist when transporting patients on oxygen, so it’s entirely up to your facility to decide what to do.

“It would be interesting to find out what percentage of patient transport is done by respiratory therapists, because generally the only patients we transport at my facility are patients who are severe cases and need constant respiratory care involvement,” Johnson says.

Regardless of whether your transporters are frequently moving patients on oxygen, they should undergo basic oxygen training and at least know how to turn the cylinders on and off, Johnson says.

Booklets make good references

Kristine McDonald, RCP, director of respiratory care and HME Services at Cardinal Health System Homecare Services Inc., in Muncie, IN, has only eight therapists, but 75 nurses.

With so few therapists, it’s key for the nurses and other staff to understand the basics of oxygen equipment operation. McDonald keeps several of the 34-page oxygen equipment booklets given to patients on hand for nurses and any other employees who might need to look up oxygen information in a hurry.

“These booklets are [useful for] all employees because they are very educational and have excellent pictures,” McDonald says. “And when nursing staff visits a home and sees a patient who is on oxygen, not only will they be more familiar with the cylinders, but they can grab this book and explain it a bit better.”

The booklet covers operating an oxygen cylinder system, using a portable cylinder system, cleaning and maintaining equipment, troubleshooting, using the system for pediatric patients, and more.

Having the booklets available curbs the fear of the unknown many nurses have when it comes to handling oxygen equipment, says McDonald.

“Whether or not it relates directly to their patient care plans, it’s always nice to offer a helping hand in a time of need.”

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