Joint Commission Resources
Quality & Safety Network
Resource Guide

EC Update: Life Safety Code Issues

April 25, 2013
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Program Summary

This page provides an overview of the program content and learning objectives. Please refer to the Table of Contents and Program Outline for a detailed list of the topics covered. The information included in this Resource Guide is intended to support but not duplicate the video presentation content. There may be additional information available online for this topic.

Program Description

Because of the increased emphasis on patient safety and emergency management, the responsibilities of staff involved in the Environment of Care (EC) and those involved in direct patient care overlap. With the recognition that the EC is crucial to the successful delivery of care, more leaders are educating staff about EC issues and using a team approach to share EC responsibilities.

The “Environment of Care” chapter in The Joint Commission's Comprehensive Accreditation Manual for Hospitals (CAMH) focuses on how everyone in the organization should participate in activities that make the care environment safe. The standards require organizations to establish plans and identify key individuals for managing the environment of care; identify physical risks to which the organization is susceptible; establish activities to minimize these risks; train staff to implement these activities; and monitor the effectiveness of these activities and implement improvements.

Through in-depth expert panel discussion and featured case studies, this 60-minute live event analyzes and explains the staff's role in the environment of care. The most common standards compliance issues related to life safety are also identified.

Program Objectives

After completing this activity, the participant should be able to:

1. Identify problematic EC standards and strategies for achieving compliance.
2. Discuss ways to streamline processes and procedures to avoid duplication of efforts and encourage cooperation between direct care staff and EC staff in managing the environment of care.
3. Describe the most common compliance issues related to life safety.

Target Audience

This activity is relevant to all hospital staff, medical staff, volunteers, and contracted staff, particularly those responsible for life safety-related activities, including safety officers and committees, engineering staff, facility managers, department managers and supervisors, performance improvement staff, training and education staff, and risk managers.
Continuing Education (CE) Credit

After viewing the JCR Quality & Safety Network presentation and reading this Resource Guide, please complete the required online CE/CME credit activities (test and feedback form). The test measures knowledge gained and/or provides a means of self-assessment on a specific topic. The feedback form provides us with valuable information regarding your thoughts on the activity’s quality and effectiveness.

NOTE: Effective April 1, 2012, the Learning Management System web site URL changed as noted below.

Prior to the Program Presentation Day

1. Login to the JCRQSN Learning Management System web site at http://twnlms.com/
2. Enroll yourself into the program
   - Note: Your administrator may have already enrolled you in the program
     • Select All Courses from the courses menu.
     • Select the course category for the current year, 2013 Programs.
     • Select the course for this program, EC Update: Life Safety Code Issues
     • When prompted, choose Yes to confirm that you would like to enroll yourself.
3. Display and print the desire documents (Resource Guide, etc.).

Online Process for CE/CME Credit

1. Read the course materials and view the entire presentation.
2. Login to the JCRQSN Learning Management System web site at http://twnlms.com/
   - Note: This assumes you have already been enrolled in the program as described above.
4. If you didn’t view the broadcast video presentation, view it online.
5. Complete the online post test.
   • You have up to three attempts to successfully complete the test with a minimum passing score of 80%.
   • Physicians must take the post test to obtain credit.
6. Complete the program feedback form.
7. On the top right corner of the main course page, you will see your completion status in the Status block.
8. Select Print Certificate from within the Status block to print your completion certificate.

Process for VA Knowledge Network Participants

1. Read the program’s Resource Guide and view the entire video presentation (speak with your administrator for broadcasting times – do NOT log in to view the program).
2. Complete the Viewer Response form (speak with your administrator to obtain a paper copy that will be completed manually – do NOT log in to take the online test).
3. Complete the Program Evaluation.
4. Record the answers to the post test where indicated on the Viewer Response form.
5. Return the Viewer Response form by the program due date listed in the upper left corner of the page. Forms received after this due date will not be eligible for CE credit.
6. Please allow 6 weeks for processing your Viewer Response Form.

* If you have any questions, please contact Lloyd Parish at (562) 826-5505, extension 3856.
Program Outline

EC Update: Life Safety Code Issues
April 25, 2013

I. Introduction
   A. Program Content
   B. Objectives
   C. Faculty

II. Safe, Secure Interior Spaces

III. Medical Gas Systems

IV. Personal Protective Equipment

V. Other Life Safety Issues

VI. Tips for Survey

VII. Conclusion

VIII. Post-Program Live Question and Answer Session
   A. Audio only telephone seminar with program faculty – for 30 minutes following the program.
   B. Call 1-888-206-0090; enter conference code: 7925428.
      Or e-mail your questions or comments to: Questions@jcrqsn.com

<table>
<thead>
<tr>
<th>Program Broadcast Time</th>
<th>Eastern: 2:00 p.m. to 3:00 p.m.</th>
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<tr>
<td></td>
<td>Central: 1:00 p.m. to 2:00 p.m.</td>
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<td>Mountain: 12:00 p.m. to 1:00 p.m.</td>
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<td></td>
<td>Pacific: 11:00 a.m. to 12:00 p.m.</td>
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During the live airing of this program on April 25, 2013, you may be able to talk directly with the faculty when prompted by the program’s host. After this date, your message will be forwarded to the appropriate personnel.

Immediately following the program, we invite you to join in a live discussion with the program presenters. Call 1-888-206-0090 and enter Conference Code: 7925428 to be included in the teleconference.

To submit your question ahead of time or for additional details, please send an e-mail to questions@jcrqsn.com. If you submit your questions after this date, your message will be forwarded to the appropriate personnel.

You can also receive answers to your questions by calling The Joint Commission’s Standards Interpretation Hotline at 630-792-5900, option 6.
Top Environment of Care and Life Safety Compliance Issues

Top Non-Compliant LS, EC Standards

<table>
<thead>
<tr>
<th>Standard/NPSG</th>
<th>2011 Noncompliance</th>
<th>2012 Noncompliance (first six months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS.02.01.20</td>
<td>56%</td>
<td>52%</td>
</tr>
<tr>
<td>LS.02.01.10</td>
<td>52%</td>
<td>47%</td>
</tr>
<tr>
<td>EC.02.03.05</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>LS.02.01.30</td>
<td>45%</td>
<td>36%</td>
</tr>
<tr>
<td>LS.02.01.35</td>
<td>31%</td>
<td>35%</td>
</tr>
<tr>
<td>EC.02.06.01</td>
<td>29%</td>
<td>32%</td>
</tr>
<tr>
<td>EC.02.02.01</td>
<td>23%</td>
<td>29%</td>
</tr>
<tr>
<td>EC.02.05.01</td>
<td>25%</td>
<td>28%</td>
</tr>
<tr>
<td>EC.02.05.09</td>
<td>22%</td>
<td>24%</td>
</tr>
<tr>
<td>EC.02.05.07</td>
<td>26%</td>
<td>23%</td>
</tr>
<tr>
<td>EC.02.03.01</td>
<td>21%</td>
<td>19%</td>
</tr>
</tbody>
</table>

**LS.02.01.20 – 52%**
- The hospital maintains the integrity of the means of egress.
  - EP 13: Corridor Clutter
- Also scored
  - EPs 16 – 22: Suites issues
    - Boundaries and size defined
    - > 5000 square feet

**Corridor Storage**
- “If the corridor looks cluttered…it probably is.”
- Carts allowed:
  - Crash carts
  - Isolation carts
  - Chemo carts
- Anything in the egress corridor more than 30 minutes is storage.
- Dead end corridors may be used for storage.
  - Less than or equal to 50 sq ft space.
Suites

- Not identified on drawings:
  - Boundaries
  - Dimensions
  - Exits

LS.02.01.10 – 47%

- Building and fire protection features are designed and maintained to minimize the effects of fire, smoke, and heat.
  - EP 9: Fire Barrier Penetrations
  - EPs 5 – 7: Door issues
  - EPs 1 and 2: Building type issues
  - EP 8: Duct issues

EC.02.03.05 – 40%

- The hospital maintains fire safety equipment and fire safety building features.
  - Features of fire protection
    NOTE: #1 for Critical Access Hospitals
- During survey specific documentation is reviewed.
- If the documentation for a specific EP is not available a finding is written as non-compliant for that EP.
  - The documentation should be readily available.
  - Also, LD.04.01.05 EP 4 is scored.
- If the organization clarifies after survey:
  - Joint Commission Engineers will review and evaluate compliance.
  - LD.04.01.05 EP 4 remains.
- If the documentation becomes available later in the survey to the survey team, the survey team can:
  - Consider removing the previous finding if documentation confirms the activity was completed as per the EP.
    ➢ LD.04.01.05 EP 4 would not be removed during survey, as the documentation should have been readily available.
  - If the survey team would prefer not to evaluate the documentation the organization can submit clarification.
LS.02.01.30 – 36%
• The hospital provides and maintains building features to protect individuals from the hazards of fire and smoke.
  – EPs 16 – 23 Smoke Barriers and Doors
  – EP 2 Hazardous Areas

LS.02.01.35 – 35%
• There are 18” or more of open space maintained below the sprinkler deflector to the top of storage.

18” Rule

EC.02.06.01 – 32%
• EP 1: Interior spaces meet the needs of the patient population and are safe and suitable to the care, treatment, and services provided.
  – The organization must provide a safe environment.
    ➢ Unsecured oxygen cylinders
    ➢ Outdoor safety is scored at EC.02.01.01 EP 5.
  • EP 13: The organization maintains ventilation, temperature, and humidity levels suitable for the care, treatment, and services provided.
    – Ventilation:
      ➢ i.e., doors held open by air pressure; odors
    – Temperature:
      ➢ Hot/cold calls
    – Humidity
      ➢ Primary concern is for areas > 60% RH.
        ♦ Mold growth is possible.
EC.02.02.01 – 29%
• EPs 3 – 5: Personal Protective Equipment and the process to manage hazardous materials and waste handling and exposures.
• EPs 6 – 7: Hazardous energy sources
  – Escorts to Hot Lab based on organization policy.
    ➢ *Perspectives*, July 2012

EC.02.05.01 – 28%
• EC.02.05.01 EP 1: Improper system design.
  – Inability of the mechanical system to achieve required results.
• EC.02.05.01 EP 4: Lack of written inspection, testing, and maintaining frequencies.
  – Continuous monitoring by a building automation system (BAS) is acceptable.
• EC.02.05.01 EP 6: Ventilation system is unable to provide appropriate pressure relationships, air-exchange rates, and filtration efficiencies.
  – Specific areas lack:
    ➢ Negative or positive pressures in relationship to adjacent areas.
    ◆ i.e., Endoscopy processing room should be negative to the egress corridor.
    ➢ The correct number of air changes per hour.
    ➢ Improper filtration.
    ◆ MERV = minimum efficiency reporting value

EC.02.05.09 – 24%
• Medical Gas Systems
  – Inspection, Testing, and Maintaining
  – Obstructions
  – Labeling
    ➢ Contents of piping
    ➢ Areas served
    ◆ Accuracy

EC.02.05.07 – 23%
• Missed Generator and Automatic Transfer Switch (ATS) Tests
  – Twelve (12) times per year between 20 and 40 days.
    ➢ Each emergency generator must be tested with a load of at least 30% of nameplate.
    ➢ Each ATS must be tested.

EC.02.03.01 – 19%
• Fire Safety:
  – Open junction boxes.
  – More than 300cuft of nonflammable medical gases (i.e. oxygen) open to the egress corridor.
• Fire Plan:
  – Lack of fire safety training as per fire plan.
    ➢ Surgical site fires.
Green and Clean

How hospitals can protect patients and workers by using earth-friendly and sustainable products/practices

They say that cleanliness is next to godliness. But there’s a devil in the details—namely that proper cleaning of health care facilities (HCFs) comes at a price, not only in terms of product and labor costs but in the effects that harmful cleaning chemicals can have on patients, staff, and visitors.

The truth is as harsh as some of the chemicals used: Certain ingredients in cleaning, sanitizing, and disinfecting products can present health hazards. Such ingredients include those shown in the box at right. Common symptoms that result from working with these and other chemicals are skin rashes, eye and skin burns, coughing and wheezing, asthma, shortness of breath, and headaches or dizziness.

From antimicrobials and pesticides to floor strippers and fragrances, more chemicals are used in health care than in any other sector. What’s more, recent data indicate that health care was the industry most frequently recognized among confirmed cases of work-related asthma, with the top causative agents being cleaning products and poor indoor air quality.

Safety switch
Considering the dangers of cleaning products, it’s no surprise that more HCFs today are implementing alternative cleaning products, including sustainable environmental cleaning agents and fragrance-free products. The advantages of buying products that have positive environmental attributes—such as low toxicity, low volatile organic compound (VOC) content, and biodegradability—are as follows:

• Lower risk of injury or illness to patients and hospital workers
• Improved indoor air quality
• Reduced water and ambient air pollution
• Reduced packaging waste and transportation energy (when buying cleaners in concentrates)
• Reduced costs (in some circumstances)

In addition, HCFs are increasingly turning to equipment that reduces the use of chemicals and aids in safer and more environmentally friendly cleaning practices. These include use of microfiber mops, cloths, and dusters; high-filtration HEPA vacuums; walkoff mats positioned inside and outside entryways; hands-free mops; automated scrubbing machines; and chemical-free cleaning systems. HCFs today can also explore alternatives to pesticides, such as integrated pest management, a process that removes pathways and attractions for vermin to hopefully eliminate the need for chemicals.

Two Joint Commission Environment of Care (EC) standards that reinforce the importance of adopting sustainable products and practices are as follows:

• EC.02.06.01—The hospital must establish and maintain a safe, functional environment. Element of performance (EP) 20 specifies that areas used by patients must be clean and free of offensive odors.
• EC.02.02.01—The hospital must manage risks related to hazardous materials and waste. EP 5 requires that risks associated with selecting, handling, storing, transporting, using, and disposing of hazardous chemicals must be minimized.

Defining “green”
In HCFs, routine cleaning of rooms, bathrooms, glass, carpets, floors, walls, equipment, and surfaces is essential. In addition, surface disinfectants are commonly used in clinical areas to kill pathogenic microbes and prevent disease transmission.

“In health care, cleaning has a dual purpose—making surfaces clean and presentable, as well as significantly contributing to...

Joel Sigler, manager, National Environmental, Health & Safety with Kaiser Permanente, Rockville, Maryland (headquarters of the Mid-Atlantic States regional office), describes what green cleaning products should not do. “A green product should not require any special personal protective equipment to use; cause respiratory irritation or sensitization or skin or eye damage; contain any carcinogens, mutagens, or teratogens; or contribute to smog, damage equipment, or cause harm when put down the drain,” says Sigler. “Furthermore, the packaging should ideally be 100% postconsumer content and reusable.” (See the sidebar at right for other important criteria to consider.)

“The concept of green cleaning should also focus on cleaning practices, not just products,” says Sigler. He offers these examples:

• Use rubber flooring that doesn’t require waxing or stripping.

• To reduce chemical exposures, consolidate the number of cleaning products used. “Using a general surface cleaner may be effective for floor and glass cleaning as well as general surfaces, thereby eliminating the need for three separate cleaning products,” says Sigler.

**Two case studies**

Switching to green products may do more than safeguard your facility’s occupants and create less stress on the planet.1 It can also limit liability and drive a marketplace shift by creating greater demand in the industry. Furthermore, it can lower disposal costs and positively affect an organization’s bottom line, as evidenced by the following two hospital case studies.

**Green cleaning example: Kaiser Permanente.** In 2009, Kaiser Permanente, headquartered in Oakland, California, adopted a multi-year environmental stewardship strategy that involved substituting cleaning chemicals with safer alternatives to decrease toxicity exposure at its participating hospitals and facilities. For example, cleaning products containing fragrances that often cause respiratory problems for workers and patients were replaced with fragrance-free...
were replaced with fragrance-free alternatives. Total green cleaner use increased from 23% to 43% of purchase dollars, and because green cleaners are sometimes less expensive, a savings of approximately $85,000 (9% annually) was realized.3

**Green cleaning example:**

**University of California Davis Medical Center.** In 1999, the University of California Davis Medical Center in Sacramento, California, changed from using conventional loop mops to microfiber mops, which are lighter, more absorbent, and better able to penetrate surface pores. This resulted in a 60% lifetime cost savings for mops, 95% reduction in chemical costs associated with mopping tasks, and 20% labor savings per day.4

**Establishing a green cleaning program** Beth Eckl, environmental purchasing expert in Reston, Virginia, recommends that HCFs implement a well-planned green cleaning policy and program after a careful due diligence period.

“This requires reviewing the latest products, equipment, and procedures and then deciding on the best practices and products that fit within your policy’s design,” says Eckl. “You also need proper buy-in and support from infection control and environmental services staff as well as top management, and you need to educate staff on your chosen procedures.”

| More chemicals are used in health care than in any other sector.1 |

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**Best Practices**

The Massachusetts Nurses Association suggests that health care facilities take the following steps to reduce exposure to cleaning chemicals*:

- Evaluate products currently used by reviewing the adverse health and environmental effects noted on the safety data sheets (SDSs). Begin to use alternative products that have less potential for adverse health effects and environmental pollution.
- Include a person with expertise in occupational health and safety on any committee or group that selects these products.
- Provide hazard communication training that meets the following requirements of the OSHA Hazard Communication Standard 1910.1200(h)(3), “Training and Education”:
  - Contains at least (ii) the physical and health hazards of the chemicals in the work area and (iii) the measures for workers to use to protect themselves from these hazards
  - Follows the requirements of OSHA Standard 1910.1200(g)(8), and SDS, are readily available
- Develop and communicate methods for reporting any symptoms that workers and patients experience when cleaning products are in use. Provide medical evaluation and treatment as necessary.


It’s also crucial to garner feedback from employees when structuring a green cleaning program. “Health care facilities should follow a systems-based approach to green cleaning whereby management and workers collaborate on creating an action plan—and not just think that switching to green products alone will solve the problem,” Fagan says. “Everything needs to be scrutinized, and key questions need to be addressed. How is the product going to be used and applied? Is there adequate ventilation? When should cleaners be used versus disinfectants, or both?”

In addition, and HCF should perform an infection control risk assessment to pinpoint areas within the facility that necessitate routine cleaning as opposed to spaces that demand both cleaning and disinfection.

Before hunting for a new chemical supplier and shifting to a different product line, talk with your current chemical supply company and ask for trials of new products, recommends the Massachusetts Nurses Association.2

Finally, be aware that, while OSHA doesn’t have any rules specific to green cleaning, the agency does require HCFs to provide safe working conditions, proper training for employees using cleaning chemicals, labels on hazardous materials, and safety data sheets (formerly known as material safety data sheets).
References


This article was developed through the cooperative efforts of the OSHA/Joint Commission Resources Alliance.
Medical Gases

Tips for safe use and storage

The Joint Commission has identified the need to increase the field’s awareness and understanding of the Life Safety Code®.* To address this need, Environment of Care® News publishes the column CLARIFICATIONS AND EXPECTATIONS, authored by George Mills, MBA, F ASHE, CEM, CHFM, CHSP, director, Department of Engineering, The Joint Commission. This column clarifies standards expectations and provides strategies for challenging compliance issues, primarily in life safety and the environment of care. You may wish to share the ideas and strategies in this column with your organization’s leadership. This month’s article discusses one of the topics also covered at the recent Hospital Executive Briefings. Watch for discussions of other EC and LS topics addressed at the briefings coming in this column.

The health care environment uses medical gases of all types, via both piped and freestanding systems. Guidance for managing medical gas systems is found in Joint Commission Environment of Care (EC) Standard EC.02.05.09 (for ambulatory care, critical access hospital, hospital, long term care, and Medicare/Medicaid certification-based long term care organizations), National Patient Safety Goal (NPSG) NPSG.15.02.01 (for home care organizations), and the National Fire Protection Agency (NFPA) publication NFPA 99: Standard for Health Care Facilities, 1999 Edition (NFPA 99-1999). Chapter 4 of NFPA 99-1999 establishes three levels of complexity for gas and vacuum systems (plus a fourth for laboratories), with level 1 being the most complex. We focus on level 1 systems in this article.

Inspection, testing, and maintenance

Joint Commission EC standards require an organization to define and adopt a maintenance strategy for managing medical gases. EC.02.05.09, Element of Performance (EP) 1, requires an organization to define, in writing, time frames for inspecting, testing, and maintaining critical components of the piped medical gas system. The Joint Commission developed this requirement because although NFPA 99-1999 frequently states that the medical gas systems and components are to be tested, it does not specify with what frequency. Appendix C-4 of NFPA 99-1999 gives suggested testing methods and frequencies, but NFPA provides appendix material only as supplemental information and does not require the frequencies under the code. Some states and local jurisdictions may have specific requirements.

Breached and modified systems

Whenever a piped medical gas system is opened—whether for new construction, repair, or renovation—the system must be tested for correct gas, gas purity, and correct pressure. In addition, the individuals who work on the piped medical gas system must be qualified (see NFPA 99-1999, 4-3.1.2.12). These steps ensure safety; an accidental breach and subsequent repair could result in cross-connections or contaminated gases, if not repaired and tested properly.

Clear and unobstructed access

The qualified individuals working on gas systems must have clear and unobstructed access (EC.02.05.09, EP 3; NFPA 99-1999, 4-3.1.2.3) to the shut-off

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*Life Safety Code® is a registered trademark of the National Fire Protection Association, Quincy, MA.
valves for medical gases. Because these valves control the flow of the piped gases, they must be easily accessible in case of emergency. Take, for example, oxygen—the most familiar piped medical gas. If there were a fire, oxygen would accelerate its spread, so quickly cutting off the gas supply is critical. The shut-off valve is designed to do this, but it must be accessible. Blocking access to the valve would slow down the removal of a potential accelerant to the fire. Placing the medical gas shut-offs behind a door or other building feature is therefore prohibited (EC.02.05.09, EP 3).

Equally as important as accessibility is defining who has the authority to shut off medical gases during an emergency event. Although maintenance staff might seem like a logical choice, unless they are stationed in the area, they would not have immediate access during the emergency situation. Respiratory therapy staff, another seemingly logical choice, would also have a delayed response time, since they might be in their department when a fire begins. Therefore, many organizations choose to have the unit charge nurse manage the decision to shut off the medical gas system. This individual knows which patients are affected by which gas—for instance, how many patients are on oxygen—and can implement clinical interventions as the medical gases are shut off.

**Labeling**

According to EC.02.05.09, EP 3, and NFPA 99-1999, 4-3.5.4.2, every shut-off location must have labels identifying what gases are present and which areas are served. This can be stated in ranges, provided that there are no breaks in the sequencing.

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**Home Care Considerations**

The home care environment presents unique challenges for medical gas safety. Not only does the organization have to ensure that medical gases are safely managed and stored in their own office or warehouse, but, since the organization is delivering the gases to patients’ homes, it must also make every effort to encourage the safe use and storage of medical gases in those homes by patients, family members, and caregivers.

EC.02.01.01 in the Comprehensive Accreditation Manual for Home Care requires that durable medical equipment (DME) companies, providers of respiratory equipment, and clinicians providing clinical respiratory care store gases in a manner consistent with all the various regulatory agencies, including the Department of Transportation. This standard is applicable to all locations where organizations store or handle medical gases. This could include warehouses, offices, delivery vehicles, and patient homes.

The organization delivering the gases is responsible for storing the cylinders of medical gases (or dewars of liquid oxygen) safely in the patient’s home. This does not mean merely “dropping off” the cylinders. The organization must ensure that, at a minimum, medical gas cylinders are stored away from a source of heat, in a well-ventilated area, and in a manner that prevents them from falling over. Patient homes obviously are not subject to the Joint Commission’s enforcement of the NFPA Life Safety Code, but many elements of current good practice and common sense do apply.

NPSG.15.02.01 requires DME companies, providers of respiratory equipment, and clinicians providing clinical respiratory care to identify risks associated with home oxygen therapy, such as fires. NPSG.15.02.01 includes the following three main elements:

1. A home safety risk assessment that includes evaluating, at least, the presence of smoking materials and other fire safety risks and checking to ensure that there are functioning smoke detectors
2. A process for informing the patient, family members, and caregivers of the findings of the safety risk assessment
3. A process for educating those individuals about the specific recommendations made based on the risk assessment. The goal also requires the organization to assess these individuals’ comprehension of as well as their ability and willingness to comply with the recommended interventions.

Although the NPSG does not specifically require documentation that these assessments occurred, patient safety and survey readiness would indicate that documentation is a sound idea. Keep in mind that NPSG.15.02.01 applies to services provided to ongoing patients and not just to new patients. Circumstances, environments, and caregivers change continually, so whenever there is a need for a new risk assessment, it might lead to new findings and recommendations. In general, the home health care provider or the DME provider must provide appropriate education for patients, covering the storage, transport, and handling of home oxygen stationary and portable systems.

Since studies have proven that early notification of a fire event can save lives, NPSG.15.02.01 requires home oxygen providers to encourage home oxygen patients to install and maintain smoke detection devices in their home as part of a home fire safety assessment. Every October, during Fire Prevention Month (sponsored by the NFPA), there is a national focus on replacing the batteries in smoke detectors.

† Some organizations fail to realize that this standard relates to all risks associated with home oxygen therapy, including fire risk. Liquid oxygen, for example, presents a significant risk of cold injury due to its cryogenic temperature, as well as a fire risk.
For example, if 10 rooms were supplied with piped nonflammable medical gases from a wall-mounted shut-off and no other rooms were in the sequence, a range of rooms could be used—for example, 1–10. However, if an exam room were located between rooms 6 and 7, the signage would need to read as follows: Rooms 1–6, Exam Room X, Rooms 7–10.” According to NFPA 99-1999, 4-3.1.2.13, 4-3.1.2.14, and 4-3.5.4.1, all gas piping must be labeled with contents, including what gas the piping contains. In the interstitial space (the area between the lay-in ceiling and the roof or floor deck above), the piping must be labeled every 20 feet with its contents. All labeling must be current and accurate.

**Discrete location of valves**
The medical gas shut-off valve cannot be in the same room as the area served (see NFPA 99-1999, 4.3.1.2.3[m & n]). In a fire condition, isolating and shutting off the gas source must be done from a safe location, which would not be in the same room as the fire. One clarification: In an operating suite, where rooms are not required to be defined, the medical gas shut-off valve cannot be located in the operating room; it must be located outside that designated space.

**Freestanding medical gas cylinders**
In instances in which it is impractical to have piped nonflammable medical gases, a health care organization will provide these nonflammable gases in freestanding cylinders of various sizes. For example, an E size oxygen cylinder contains approximately 24.96 cubic feet (cu. ft.) of oxygen. All freestanding cylinders must be stored in a rack, a cart, or another enclosure to protect them. Unsecured cylinders could fall, breaking the valve and possibly resulting in a rapid release of the gas inside, propelling the cylinder and turning it into a dangerous projectile.

**12 E cylinders open to the means of egress**
NFPA 99-1999 does not specify how many cylinders can be stored out in the open in the means of egress. However, NFPA 99-2005 allows up to 300 cu. ft. of oxygen in containers per smoke compartment to be in the means of egress without being stored in a cabinet or room. This means, for example, that up to 12 E cylinders can be in an alcove in a means of egress without being protected in a cabinet or room. Limiting the amount of gas open to the means of egress to 300 cu. ft. allows the building air-handling equipment to stabilize the environment. If the volume of gases exceeds the allowable limits, it might create an oxygen-enriched area creating a hazard.

The volume calculation does not include opened or used cylinders (as they no longer off-gas [emit gas] once opened) nor does it include cylinders that are currently in use. Consider the following acceptable scenario: 15 gurneys line an operating suite (to accommodate the day’s surgeries), each with an E cylinder strapped in the holder in the bottom, while a rack of 12 E cylinder sits in an alcove open to the same corridor. This would be a total of 15 cylinders in use (which are not used in volume calculation) and 12 cylinders in storage.

According to NFPA 99-1999 4-3.1.1.2(c), the organization is allowed up to 3,000 cu. ft. (which equates to 120 E cylinders) in a protected environment (for example, a hazardous area room, such as a clean utility room) per smoke compartment. An acceptable example would be a clean utility room with two racks holding 12 full E cylinders and a third rack with empty or partially full cylinders. Outside the room, in an alcove, another storage rack holds 12 E cylinders. In this scenario, there are a total of 36 E cylinders in the smoke compartment, with 12 of them stored in a means of egress.

**Storing cylinders**
Racked full cylinders must be kept segregated from those that have been opened or used (see NFPA 99-1999 4-3.5.2.2.(b)(2). There should be no confusion for health care personnel who need a cylinder for patient care about which cylinder to select. If empty and full cylinders are commingled in the same rack without clearly separating the two groups, staff might accidentally retrieve a partially full or empty cylinder rather than a full cylinder.

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**Cylinders stored outdoors should be protected from direct exposure to the sun.**

Unsecured cylinders could fall, breaking the valve and possibly resulting in a rapid release of the gas inside, propelling the cylinder and turning it into a dangerous projectile.
**Bulk storage**

NFPA 99-1999 has very specific requirements for storage of nonflammable medical gases exceeding 3,000 cu. ft. (up to 20,000 cu. ft.), including providing 1-hour fire-rated room construction, ventilation, and explosion-proof electrical fixtures (such as motors and lights). Cylinders stored outdoors should be protected from direct exposure to the sun where extreme temperatures prevail. (The tank surface temperature must never exceed 130°F.) In addition, tanks exposed to freezing temperatures should be handled with care.
Guidance for the Selection and Use of Personal Protective Equipment (PPE) in Healthcare Settings

Centers for Disease Control and Prevention Atlanta, GA


Personal protective equipment, or PPE, as defined by the Occupational Safety and Health Administration, or OSHA, is “specialized clothing or equipment, worn by an employee for protection against infectious materials.” OSHA issues regulations for workplace health and safety. These regulations require use of PPE in healthcare settings to protect healthcare personnel from exposure to bloodborne pathogens and Mycobacterium tuberculosis. However, under OSHA's General Duty Clause, PPE is required for any potential infectious disease exposure. Employers must provide their employees with appropriate PPE and ensure that PPE is disposed of, if reusable, that it is properly cleaned or laundered, repaired and stored after use. The Centers for Disease Control and Prevention (CDC) issues recommendations for when and what PPE should be used to prevent exposure to infectious diseases.

The protection of healthcare personnel from infectious disease exposures in the workplace requires a combination of controls, one of which is the use of PPE. It is important to recognize that your protection as a healthcare worker also involves other prevention strategies. There are four major components to healthcare worker safety programs. First are training and administrative controls, like isolation policies and procedures, and procedures for recognizing patients with a communicable disease before they expose workers. Second are engineering controls like negative pressure rooms for patients with airborne diseases such as TB; third are work practice controls such as not recapping needles, and finally personal protective equipment. While PPE is last in the hierarchy of prevention, it is very important for protecting healthcare workers from disease transmission.

Gloves, gowns/aprons, masks and respirators, goggles, and face shields prevent contact with the infectious agent, or body fluid that may contain the infectious agent, by creating a barrier between the worker and the infectious material. Gloves protect the hands, gowns or aprons protect the skin and/or clothing, masks and respirators protect the mouth and nose, goggles protect the eyes, and face shields protect the entire face. The respirator, has been designed to also protect the respiratory tract from airborne transmission of infectious agents.

When you are selecting PPE, consider three key things:

- First is the type of anticipated exposure, such as touch, splashes or sprays, or large volumes of blood or body fluids that might penetrate the clothing. PPE selection, in particular the combination of PPE, also is determined by the category of isolation precautions a patient is on.
- Second, and very much linked to the first, is the durability and appropriateness of the PPE for the task. This will affect, for example, whether a gown or apron is selected for PPE, or, if a gown is selected, whether it needs to be fluid resistant, fluid proof, or neither.
- Third is fit. PPE must fit the individual user, and it is up to the employer to ensure that all PPE are available in sizes appropriate for the workforce that must be protected.

Gloves

Gloves are the most common type of PPE used in healthcare settings. Most patient care activities require the use of a single pair of nonsterile gloves made of either latex, nitrile, or vinyl. However, because of allergy concerns, some facilities have eliminated or limited latex products, including gloves, and now use gloves made of nitrile or other material. Vinyl gloves are also frequently available and work well if there is limited patient contact. However, some gloves do not provide a snug fit on the hand, especially around the wrist, and therefore should not be used if extensive contact is likely.
Gloves should fit the user’s hands comfortably – they should not be too loose or too tight. They also should not tear or damage easily. Gloves are sometimes worn for several hours and need to stand up to the task.

Sterile surgical gloves are worn by surgeons and other healthcare personnel who perform invasive patient procedures. During some surgical procedures, two pair of gloves may be worn. Environmental services personnel often wear reusable heavy duty gloves made of latex or nitrile to work with caustic disinfectants when cleaning environmental surfaces. However, they sometimes use patient care gloves too.

Gloves protect you against contact with infectious materials. However, once contaminated, gloves can become a means for spreading infectious materials to yourself, other patients or environmental surfaces. Therefore, the way YOU use gloves can influence the risk of disease transmission in your healthcare setting.

These are the most important do's and don'ts of glove use:

- Work from clean to dirty. This is a basic principle of infection control. In this instance it refers to touching clean body sites or surfaces before you touch dirty or heavily contaminated areas.
- Limit opportunities for “touch contamination” – protect yourself, others and environmental surfaces. How many times have you seen someone adjust their glasses, rub their nose or touch their face with gloves that have been in contact with a patient? This is one example of “touch contamination” that can potentially expose oneself to infectious agents. Think about environmental surfaces too and avoid unnecessarily touching them with contaminated gloves. Surfaces such as light switches, door and cabinet knobs can become contaminated if touched by soiled gloves.
- Change gloves as needed. If gloves become torn or heavily soiled and additional patient care tasks must be performed, then change the gloves before starting the next task. Always change gloves after use on each patient, and discard them in the nearest appropriate receptacle. Patient care gloves should never be washed and used again. Washing gloves does not necessarily make them safe for reuse; it may not be possible to eliminate all microorganisms and washing can make the gloves more prone to tearing or leaking.

**Gowns/Aprons**

There are three factors that influence the selection of a gown or apron as PPE. First is the purpose of use. Isolation gowns are generally the preferred PPE for clothing but aprons occasionally are used where limited contamination is anticipated. If contamination of the arms can be anticipated, a gown should be selected. Gowns should fully cover the torso, fit comfortably over the body, and have long sleeves that fit snugly at the wrist.

Second are the material properties of the gown. Isolation gowns are made either of cotton or a spun synthetic material that dictate whether they can be laundered and reused or must be disposed. Cotton and spun synthetic isolation gowns vary in their degree of fluid resistance, another factor that must be considered in the selection of this garb. If fluid penetration is likely, a fluid resistant gown should be used.

The last factor concerns patient risks and whether a clean, rather than sterile gown, can be used. Clean gowns are generally used for isolation. Sterile gowns are only necessary for performing invasive procedures, such as inserting a central line. In this case, a sterile gown would serve purposes of patient and healthcare worker protection.

**Masks, Goggles, Face Shields, and Respirators**

A combination of PPE types is available to protect all or parts of the face from contact with potentially infectious material. The selection of facial PPE is determined by the isolation precautions required for the patient and/or the nature of the patient contact.

Masks should fully cover the nose and mouth and prevent fluid penetration. Masks should fit snugly over the nose and mouth. For this reason, masks that have a flexible nose piece and can be secured to the head with string ties or elastic are preferable.
Goggles provide barrier protection for the eyes; personal prescription lenses do not provide optimal eye protection and should not be used as a substitute for goggles. Goggles should fit snugly over and around the eyes or personal prescription lenses. Goggles with antifog features will help maintain clarity of vision.

When skin protection, in addition to mouth, nose, and eye protection, is needed or desired, for example, when irrigating a wound or suctioning copious secretions, a face shield can be used as a substitute to wearing a mask or goggles. The face shield should cover the forehead, extend below the chin, and wrap around the side of the face.

PPE also is used to protect healthcare workers’ from hazardous or infectious aerosols, such as Mycobacterium tuberculosis. Respirators that filter the air before it is inhaled should be used for respiratory protection.

The most commonly used respirators in healthcare settings are the N95, N99, or N100 particulate respirators. The device has a sub-micron filter capable of excluding particles that are less than 5 microns in diameter. Respirators are approved by the CDC's National Institute for Occupational Safety and Health.

Like other PPE, the selection of a respirator type must consider the nature of the exposure and risk involved. For example, N95 particulate respirators might be worn by personnel entering the room of a patient with infectious tuberculosis. However, if a bronchoscopy is performed on the patient, the healthcare provider might wear a higher level of respiratory protection, such as a powered air-purifying respirator or PAPR.

In summary, this has been a brief description of several types of personal protective equipment. PPE is available to protect healthcare workers from exposure to infectious agents while providing care. It is important that you know what type of PPE is necessary for the procedures you perform AND that you use it correctly.
Environment of Care and Life Safety Survey Activities

NOTE: Excerpted from the 2013 Survey Activity Guide for Health Care Organizations.
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Joint Commission Participants
Surveyor

Organization Participants
At a minimum, representation should include safety, security management coordinator, facility manager, building utility systems manager, responsible person for medical/laboratory maintenance, Environment of Care team or safety committee leader, and organizational leadership.

Objective
The surveyor will assess your organization’s degree of compliance with relevant standards and identify vulnerabilities and strengths in your organization’s environment of care management processes.

Overview
The suggested duration of this session is approximately 60-90 minutes and will consist of two parts: Environment of Care discussion and Environment of Care tracer. In preparation for this session, the surveyor evaluates the Environment of Care management plans, any Environment of Care multidisciplinary team meeting minutes for the previous 12 months, and the annual evaluation of the environment of care management plans from the previous year.

During the first part, there is a group discussion that takes approximately 50% of this session. Surveyors are not the primary speakers during this time; they are listeners to the discussion, it is not intended to be an interview. The surveyors review the Environment of Care risk categories as indicated in the matrix below, and safety data analysis and actions taken by your organization.

The remaining time is spent as the surveyor observes and evaluates your organization’s performance in managing a particular risk or management process in the environment of care. The management process or risk selected for observation is based on the environment of care documents previously reviewed, observation by other surveyors, and knowledge gained during the group discussion of this session.

Environment of Care Discussion (Approximately 70% of session time) – Be prepared to discuss how the various Environment of Care risk categories² and construction activities are addressed in each of the following six management processes.

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² The environment of care risk categories include: general safety and security, hazardous materials and waste, fire safety, medical/laboratory equipment, and utilities (see matrix on the next page for applicability of risk categories to each accreditation program).
Plan
• What specific risks related to its environment of care have been identified by your organization?

Teach
• How have roles/responsibilities for staff/volunteers been communicated by your organization (HR).

Implement
• What procedures and controls (both human and physical components) does your organization implement to minimize the impact of risk to individuals served/patients/residents, visitors, and staff?

Respond
• What procedures does your organization implement to respond to an environment of care incident/failure?
• How, when, and to whom are environment of care problems, incidents, and/or failures reported within your organization.

Monitor
• How is environment of care performance (both human activities and physical components) monitored by your organization
• What monitoring activities have taken place within the last 12 months?

Improve
• What environment of care issues are currently being analyzed?
• What actions have been taken as a result of monitoring activities?

Environment of Care Tracer (Approximately 30% of session time)
The surveyor will select an Environment of Care risk category to trace based on the Environment of Care session discussion, individual tracer activity observations, or high risk areas based on your type of organization and the services you provide.

The surveyor observes and evaluates your organization’s performance in managing the selected Environment of Care risk. He or she observes implementation of those particular management processes determined to be potentially vulnerable or trace a particular risk(s) in one or more of the environment of care risk categories your organization manages by:
• Beginning where the risk is encountered or first occurs. (i.e., a starting point might be where a particular safety or security incident occurs, a particular piece of medical equipment is used, or a particular hazardous material enters your organization).
• Having staff describe or demonstrate their roles and responsibilities for minimizing the risk, what they are to do if a problem or incident occurs, and how to report the problem or incident.
• Assessing any physical controls for minimizing the risk (i.e., equipment, alarms, building features).
• Assessing the emergency management plan for mitigation, preparedness, response, and recovery strategies, actions and responsibilities for each priority emergency
• Assess the emergency plan for responding to utility system disruptions or failures (e.g., alternative source of utilities, notifying staff, how and when to perform emergency clinical interventions when utility systems fail, and obtaining repair services).
• If equipment, alarms, or building features are present for controlling the particular risk, reviewing implementation of relevant inspection, testing, or maintenance procedures.
• If others in your organization have a role in responding to the particular problem or incident, having them describe or demonstrate that role, and reviewing the condition of any equipment they use in responding.

If the risk moves around in your organization’s facility (i.e., a hazardous material or waste), the surveyor follows the risk from “cradle to grave.”

Applicability
This activity does not apply to Medicare/Medicaid Long Term Care Option surveys and does not apply to Ambulatory or Behavioral Health Care organizations designated as business occupancies. For the Home Care accreditation program, this activity only applies to certain facility-based hospice settings (see the Life Safety chapter Overview for more information).

Joint Commission Participants
Surveyor (or Life Safety Code Specialist for Critical Access Hospitals and Hospitals)

Organization Participants
Suggested participants include the individual who manages your organization's facility(ies) and other staff at the discretion of your organization.

Logistical Needs
This session occurs after the electronic Statement of Conditions (eSOC) has been reviewed and electronic Plan for Improvement (PFI) has been reviewed and electronically accepted by the surveyor. The surveyor will need a ladder and flashlight for this activity and the escort needs to have keys or tools necessary to open locked rooms, closets or compartments in order to allow the surveyor access to and observation of space above the ceilings.

In preparation for this session, the surveyor meets with an organization staff member to become oriented to the layout of the building (including arrangement of smoke compartments, location of any suites, age of building additions, areas with sprinklers, areas under construction, and any equivalencies granted by the Joint Commission). This activity is greatly facilitated if the organization has plans and drawings available that display the building fire safety features. The surveyor will also review your organization’s processes for Interim Life Safety Measures (ILSMs).
Objectives
The surveyor will:

- Evaluate the effectiveness of processes for maintaining fire safety equipment and fire safety building features
- Evaluate the effectiveness of processes for identifying and resolving Life Safety Code® problems
- Evaluate the effectiveness of processes for activities developed and implemented to protect occupants during periods when a building does not meet the applicable provisions of the Life Safety Code® or during periods of construction
- Evaluate the effectiveness of processes for maintaining and testing any emergency power systems
- Evaluate the effectiveness of processes for maintaining and testing any medical gas and vacuum systems
- Determine the degree of compliance with relevant Life Safety Code® requirements
- Educate attendees on potential actions to take to address any identified Life Safety Code® problems

Facility Orientation
1. Review your organization’s Statement of Conditions and any PFIs approved by Survey Team
2. Meet with appropriate organizational staff to become oriented to the:
   - Layout of the building (including arrangement of smoke compartments, location of any suites, age of building additions, areas with automatic sprinklers, areas under construction, and any equivalencies granted by the Joint Commission
   - Organization processes for Interim Life Safety Measures (ILSMs)

Overview of Building Tour
Surveyors will:

- Assess hazardous areas, such as soiled linen rooms, trash collection rooms, and oxygen storage rooms
- Assess required fire separations
- Assess required smoke separations (at least two)
- Conduct an “above the ceiling” survey at each location identified above by observing the space above the ceiling to identify:
  - penetrations of smoke, fire or corridor walls
  - smoke or fire walls that are not continuous from slab-to-slab and outside wall to outside wall
  - penetrations or discontinuities of rated enclosures including hazardous areas, stairwells, chutes, shafts, and floor or roof slabs
  - corridor walls that are not slab-to-slab or do not terminate at a monolithic ceiling (if the building is fully sprinklered and the ceiling is smoke tight, the walls may terminate at the ceiling line)
  - the presence or absence of required smoke detectors or fire dampers
  - the presence or absence of required fire proofing on structural members such as columns, beams, and trusses
- Verify that fire exits per building and verify that they are continuous from the highest level they serve to the outside of the building
- Assess any kitchen grease producing cooking devices
- Assess the bottoms of any laundry and trash chutes
- Assess the main fire alarm panel (if any)
• Assess the condition of all emergency power systems and equipment

**For Hospitals and Critical Access Hospitals:** Verify that there is a reliable emergency power system that supplies electricity when normal electricity is interrupted to the following areas: exit route illumination, emergency/urgent care areas, areas where electrically powered life-support equipment is used, operating rooms, and postoperative recover rooms

• Assess any medical gas and vacuum system components including master signal panels, area alarms, automatic pressure switches, shutoff valves, flexible connectors, and outlets

**Facility Maintenance Review (for Hospitals and Critical Access Hospitals):** The Life Safety Code Specialist will conduct a document review of inspection, testing and maintenance records for fire safety equipment and fire safety building features identified in the Environment of Care chapter.

**Documentation of Findings**
If a LSC deficiency is not noted in a previously approved Plan for Improvement (PFI), it will be recorded as a finding in the Summary of Survey Findings Report. Any “below-the-ceiling” LSC deficiencies identified by other survey team members that are not noted in a Plan for Improvement (PFI) are documented as a finding in the Summary of Survey Findings Report.
Comprehensive Documentation Demonstrates a Safe Environment

EC, EM, and LS records critical to monitoring and improving performance

The Joint Commission has identified the need to increase the field’s awareness and understanding of the Life Safety Code®*. To address this need, Environment of Care® News publishes the column Clarifications and Expectations, authored by George Mills, MBA, FASHE, CEM, CHFM, CHSP, director, Department of Engineering, The Joint Commission. This column clarifies standards expectations and provides strategies for challenging compliance issues, primarily in life safety and the environment of care. You may wish to share the ideas and strategies in this column with your organization’s leadership.

Many of the Joint Commission’s elements of performance (EPs) require documentation, as indicated by a □ at the beginning of an EP. An organization can determine how it documents; regardless of the method used, the information must be readily available during any survey or other inspection activity.

Although many organizations invest significant resources and create detailed policies to accomplish effective documentation in the clinical arena, it is also critical to document how the environment of care and the organizations’ facilities are maintained.

Documentation both provides evidence to a surveyor that an organization completes inspection, testing, and maintenance efforts and helps leadership review the status of specific work (including the monitoring of the environment of care discussed in the “Environment of Care” [EC] chapter, Standard EC.04.01.01). Through documentation, organizations can highlight self-identified deficiencies and their associated corrective action plans. This demonstrates a proactive process to identify risk and protect patients, staff, and visitors.

Documentation can take many forms. On the most basic level, it can simply involve completing a work assignment, noting the results of the work in some established fashion, and having that information available when requested. While this may seem straightforward, it is not always done. For example, 40% of all Joint Commission hospital surveys completed in 2011 and in the first half of 2012 had findings at Standard EC.02.03.05 specifically related to lack of documentation. This column does not represent an exhaustive list of all that The Joint Commission requires organizations to document, but it does present several documentation requirements in the EC, “Life Safety” (LS), and “Emergency Management” (EM) chapters.

Management plans

Standard EC.01.01.01 requires organizations to write six management plans, summarizing how the standard’s EPs are being met for each of the functional areas of the environment of care (safety, security, hazardous materials and waste, fire safety, medical equipment, and utilities systems). These management plans may be six individual documents or one consolidated document, as long as all the EPs are addressed. A management plan should be available for each hospital, clinic, or residential treatment center that is accredited by The Joint Commission. An organization may create a master management plan for the hospital and then modify the plan for the remaining off-site locations.

The relatively high-level plan does not need to include every detail about managing the environment of care; the plan can refer to additional information found elsewhere. For example, an organization might not monitor for Legionella in its cooling towers, but the infection control department may monitor for evidence of hospital-associated infection related to Legionella. Utilities management plan language could state “Although the utilities system does not monitor for evidence of Legionella in the cooling towers, our...
organization does chemically treat its towers (and other source areas) and has the capability to correct any identified contaminations by using chlorine gas injection.” The specifics of how the organization resolves identified contaminations can be housed in a separate utilities contingency plan, including how infection control staff notify facilities staff of the suspected occurrence.

**Fire response plan and testing**
Standard EC.02.03.01, EP 9, requires a written fire response plan that clearly describes the roles of staff and licensed independent practitioners at and away from a fire’s point of origin. The plan must also address how to sound alarms, respond to a fire, contain a fire, and evacuate if needed. Fire drills and critiques must also be documented, as must an evaluation. A critique is an active assessment of staff, equipment, and building features during a real or simulated fire situation. An evaluation is a review of critiques to evaluate the effectiveness of the fire safety program.

40% of all Joint Commission hospital surveys completed in 2011 and the first half of 2012 had findings at Standard EC.02.03.05 specifically related to lack of documentation.

The maintenance, inspection, and testing of fire safety features must be documented, per EC.02.03.05. The lack of such documentation is what generated the previously mentioned finding for 40% of all hospitals. To demonstrate that all fire safety devices have been tested, organizations must list the devices on an inventory (whether electronic or paper). Simply counting the number of devices is not sufficient. For example, if 912 devices were tested last year, and 911 were tested this year, which one was missed? Without an inventory, the two years cannot be reconciled, and the missing device cannot be identified.

Consider the sample scenario above, which underscores the importance of keeping maintenance, inspection, and testing documentation readily available.

A simple solution to managing documentation and associated actions related to the features of fire protection for work performed by outside contractors involves including in the request for bids a requirement that, at the end of each day, the contractor must provide a list of all discovered failed devices. The organization can then use the list to correct the deficiencies. Once the inspection concludes, the organization will have records that all devices were tested and any that failed were corrected as soon as possible.

The documentation requirements for EC.02.03.05 are based on NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 1998 edition (Section 2-1.3), and NFPA 72, *National Fire Alarm Code*, 1999 edition (Section 7-5.2). EP 25 of that standard requires that the documentation include the items shown in the box on page 8, “Documentation Requirements for EC.02.03.05.”

**Medical and utilities system inventories**
Medical equipment and utilities systems both require documented inventories of equipment; associated activities for maintaining, inspecting, and testing equipment; and established frequencies. The results of maintenance, inspection, and testing must also be documented. Clinical interventions for loss of
utilities systems or medical equipment must be developed and available to designated staff. Labeling, shutdown procedures, and distribution mapping of utilities systems must also be available during emergency events.

Emergency power testing
There are specific documentation requirements for maintaining, inspecting, and testing emergency power and medical gas systems. The standards require testing the emergency generator and automatic transfer switches (ATS) 12 times per year, at intervals of not less than 20 days and not more than 40 days. Emergency lighting must be tested monthly and annually. Medical gas system testing must be established by the organization. (The Joint Commission recommends using the annex material in NFPA 99-1999 when setting medical gas system testing.) Documentation must be available for all these required tests.

Monitoring the environment of care
Standards EC.04.01.01 through EC.04.01.05 require organizations to monitor the environment of care and have processes for reporting and investigating problems and incidents. Resources for monitoring include environmental tours and assessment of each management plan. Any identified issues must be documented. Analysis of the data collected by clinical, administrative, and support services staff reveals opportunities to improve the environment of care.

### Documentation Requirements for EC.02.03.05

Standard EC.02.03.05 requires documentation for 20 specific tests. This documentation must include the following:

- Name of the activity
- Date of the activity
- Required frequency of the activity
- Name and contact information, including affiliation, of the person who performed the activity
- NFPA standard(s) referenced for the activity
- Results of the activity

Life safety documentation
The LS chapter of the Comprehensive Accreditation Manual for Hospitals has many documentation requirements, from managing the electronic Statement of Conditions with the Plan for Improvement process to an evaluation of building features annually. Obtaining accurate life safety drawings has been found to be problematic, and organizations should be sure to keep these drawings. Written interim life safety measures (ILSM) name actions that address situations when Life Safety Code® deficiencies cannot be immediately corrected or during periods of construction. An ILSM policy should include criteria for evaluating a deficiency and determining which elements in the policy are followed.

Emergency management documentation
The EM chapter no longer requires a management plan, but it does require an Emergency Operations Plan (EOP). The EOP addresses the six functional areas of emergency management (communications, resources and assets, safety and security, staff, utilities, and patients) as well as disaster volunteers. A written hazard vulnerability analysis (HVA) must be completed, and an annual review must be performed. The inventory associated with emergency management must be reviewed annually as well, and the findings must be documented. An organization must conduct at least two emergency exercises per year, with observers, critiques, and an assessment. Based on the exercises, enhancements and adjustments can be made to the EOP.

Documentation minimizes risk
A lack of documentation displays a possible at-risk environment as crucial tests and related activities cannot be confirmed. A wise old saying asserts, “Not documented, not done.” Without the evidence that documentation provides, there is no way to verify compliance.
Safety Champions

Making health care safety everyone’s business

The Joint Commission has identified the need to increase the field’s awareness and understanding of the Life Safety Code® as well as other key environment of care concepts. To address this need, Environment of Care® News publishes the column Clarifications and Expectations, authored by George Mills, MBA, FASHE, CEM, CHFM, CHSP, director, Department of Engineering, The Joint Commission. This column clarifies standards expectations and provides strategies for challenging compliance issues, primarily in life safety and the environment of care but also in the vital area of emergency management. You may wish to share the ideas and strategies in this column with your organization’s leadership.

Safety in a health care facility is everyone’s business. But how do you get everyone to care and be involved? The answer may be to recruit “safety champions,” incorporating these people into the flow of safety management in your organization. Here’s how it works.

How safety management works

Meeting patient needs and being safe is the goal of the safety program for every organization. All interior spaces must meet the needs of the patient and be safe and suitable to the care, treatment, and services provided (EC.02.06.01, Element of Performance EP 1]). Of course, the built environment should be hazard free, but unfortunately, the reality is that unsafe conditions often exist. These must be identified and mitigated. To assist in identification, The Joint Commission requires organizations to perform at least two environmental tours each year in the patient care setting and an annual tour in non-patient-care areas (EC.04.01.01, EPs 12–14).

Hazards that environmental tours should be able to identify include, for example, unsecured oxygen cylinders. This is a hazard because if a cylinder were to fall and shear the valve assembly, the whole cylinder could become a dangerous projectile. Other common hazards include blocked fire alarm pull stations and inaccessible fire extinguishers and medical gas shutoff valves. Corridor clutter reduces fire safety, as does obstructing sprinkler protection by storing items too close to the ceiling-mounted sprinkler heads.

In addition to discovering unsafe conditions, the two required environmental tours should also be used to monitor the environment and train staff regarding potentially unsafe conditions. Staff must understand that everyone is responsible for maintaining a safe patient care environment.

What are safety champions?

Safety champions are people selected from each unit, department, or area who are specially trained to advocate safety and promote safety awareness in their work environment. Safety champions also disseminate appropriate education to the other members of their unit or department, as directed by the safety officer.

Think back to the example of unsecured oxygen cylinders. The average health care employee may have been told to be sure to secure all oxygen cylinders. But does this person understand why he or she must do this? The safety champion can step in and explain that what makes such a situation dangerous is large projectiles launching in the hospital hallway. Or take the example of obstructing sprinkler protection by storing items too close to the ceiling-mounted sprinkler heads. The reason that storage must be at least 18 inches below the sprinkler head deflector is to make sure the sprinkler can provide the appropriate coverage and protection. Providing the reason for safety activities bolsters compliance because it makes all employees active, thinking players in safety.

Safety champions would be in the role for a set period of time. A one-year commitment seems to be practical; then the role would be rotated to another member of the department or unit so that eventually all staff will have had an opportunity to serve as the safety champion for their area.
The result will be a safety-conscious environment, with all staff understanding the roles and responsibilities related to safety. A vibrant safety culture, where staff can speak openly to one another to support the proper safety actions, is important and can be developed as each member of the unit or department serves in the safety champion role.*

**Safety champions and environmental tours**

The Joint Commission “Environment of Care” chapter does not define what to look for or who participates in environmental tours. For many organizations, performing the required environmental tours is the extent of the safety assessment of the physical environment. Moreover, these tours might not include the key staff who work in those areas.

Hopefully, the tours identify deficiencies and set up appropriate corrective actions. But if the corrective actions are only associated with the environmental tours event, deficiencies may occur and not be addressed until the next environmental tour.

However, if safety champions are included in the tours as observers and to help identify deficiencies, they will have a vested interest in making sure those deficiencies are corrected and in motivating their colleagues to maintain that safety. They can provide verification that items identified as potentially unsafe are corrected in a timely manner.

**Getting started with safety champions**

The safety officer or environment of care coordinator (or equivalent) should oversee the safety champions program, with the goal of training staff who are able to assist in monitoring and protecting the physical environment. A base training curriculum should include how to assess the work environment for potential safety risks as well as other topics, including those shown in the box on page 32. Initially the safety officer should work within the unit or department to identify safe and potentially unsafe work practices and conditions. This initial assessment should also include the physical environment, possibly generating a series of work orders to correct obviously unsafe conditions.

**Implementation of the safety champions program**

When safety champions have been identified, have agreed to participate, and have been trained, the program can be implemented. One organization coordinated the inaugural event with the organization’s annual safety fair. The safety champions were recognized and the staff were informed of the resource now at each unit and department. Each safety champion then conducted initial tours of his or her units or departments and began to campaign for a safe physical environment.

The safety champions are actively involved in the environmental tours required by The Joint Commission. Working with the multidisciplinary team that conducts the environmental tours of the unit or department, the safety champions continue their education as well as share any unit- or department-specific concerns.

As the program progresses, the formal environmental tour team should look for additional opportunities to continue to develop the safety champions’ knowledge.

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* The safety champion is in a volunteer role and does not have authority over any other staff member but can identify and report unsafe behaviors to the safety officer for appropriate follow-up actions.
As a unit or department safety resource, safety champion must be conversant in many areas that affect the physical environment. The following is not an all-inclusive list but is provided to help create the program. Suggested topics include the following:

1. Reporting safety and injury incidents (EC.04.01.01)
   a. Document location, how and when to report safety in incidents resulting in injuries

2. Safety and security issues (EC.02.01.01)
   a. Risk assessment
      i. Risk assessment process (EC.02.01.01, Elements of Performance [EPs] 1 and 3)
      ii. Failure mode and effects analysis (“Leadership” chapter introduction)
   b. Access control, including managing sensitive areas (EC.02.01.01, EPs 5 and 8)

3. Fire response plan (EC.02.03.01, EP 10)
   a. Understand the RACE (or equivalent) acronym [Rescue, Alarm, Contain, Evacuate or Extinguish]
   b. Understand how to use a fire extinguisher as per hospital policy (PASS acronym: Pull pin, Aim nozzle, Squeeze trigger handle, Sweep the base of the fire from side to side)

4. Emergency Operations Plan (EM.02.01.01–EM.02.02.15)
   a. Emergency codes and appropriate actions (EM.02.02.01)
   b. Location of Emergency Operations Plan for the unit or department (EM.02.01.01)
   c. Hospital evacuation (EM.02.01.01, EP 2)

5. Medical equipment (EC.02.04.01 and EC.02.04.03)
   a. Reporting of equipment issues and clinical interventions associated with equipment failure (EC.02.04.01, EP 6)
   b. New equipment inspection (EC.02.04.03, EP 1)

6. Utilities systems (EC.02.05.01–EC.02.05.09)
   a. Clinical interventions associated with failure of the utility systems (EC.02.05.01, EP 11)
   b. Reporting of utility-related issues (EC.02.05.01, EPs 7–10 and 13)
   c. Clear access to medical gas shutoffs (EC.02.05.09, EP 3)
   d. Electrical safety (EC.02.06.01, EP 1)

7. Hazardous materials and waste management (EC.02.02.01)
   a. Spills procedures specific to the unit or department, including how to report a spill (EC.02.02.01, EP 3)
   b. Hazardous materials inventory and location of safety data sheets (SDS) (EC.02.02.01, EP 1)
   c. Proper waste handling (EC.02.02.01, EPs 5–11)
   d. Personal protective equipment (PPE) (EC.02.02.01, EPs 3–5)

8. Features of life safety (EC.02.03.01 and entire “Life Safety” chapter)
   a. Corridor clutter (LS.02.01.20, EP 13)
   b. Blocked or propped-open fire/smoke doors (LS.02.01.10, LS.02.01.20 and LS.02.01.30), inaccessible fire equipment such as a pull station or fire extinguisher (LS.02.01.34, EP 4)

9. Infection prevention and control
   a. Hand hygiene (NPSG.07.01.01)
   b. Following all protective environment (contact isolation) requirements

10. Physical environment
    a. Oxygen (and other gas) cylinder handling/storage (EC.02.06.01, EP 1)
    b. No corridor clutter (LS.02.01.20, EP 13)
    c. Clear space under sprinkler heads where storage may occur (at least 18 inches below the sprinkler diffuser) (LS.02.01.35, EP 6)
    d. When interim life safety measures (ILSM) are implemented, appropriate staff are trained, according to organization policy (LS.01.02.01)

The Joint Commission requires six management plans (EC.01.01.01) and an Emergency Operations Plan (EM.02.01.01). These plans should provide the base information all staff are expected to be familiar with. The training of the safety champion includes these plans plus how to assess their implementation. The three methods used during the area assessment are as follows:

1. Visual inspection: walking the area and identifying any deficiencies, including equipment and building features that are broken or damaged; noncompliance with any of the management plans
   a. The use of a checklist is very helpful to both guide the review and provide documentation of what was reviewed

2. Staff interviews: testing staff knowledge related to the management plans, including the fire response plan

3. Document review: ensuring that all required documents are current and available, such as equipment checks, utility tests, and others, as defined by organization policy
Appendix A: Faculty Biographies

NOTE: These presenters do not have any financial arrangements or affiliations with corporate organizations that either provide educational grants to this program or may be referenced in this activity. These presenters have also attested that their discussions will not include any unapproved or off-label use of products.

John Maurer, CHFM, CHSP
Engineer
Department of Engineering
The Joint Commission

Mr. Maurer has been with The Joint Commission since 2007 as a staff member in the Central Office and as a surveyor. He has over 20 years experience in facilities management, 11 years of which were in management positions. In addition to conventional facilities functions, he has had the responsibility for several construction projects, energy reduction and efficiency initiatives, and safety programs.

Mr. Maurer is a Certified Healthcare Facilities Manager (CHFM), a Certified Healthcare Safety Professional (CHSP), member of the American Society for Healthcare Engineering (ASHE), and the Healthcare Engineers Society of Northern Illinois (HESNI), serving on HESNI's Board since 2008. He also is a Trustee for his local library district.

Mr. Maurer received his Bachelor's degree in Business Management from Olivet Nazarene University in Bourbonnais, Illinois.

George Mills, MBA, FASHE, CEM, CHFM, CHSP
Director of Engineering
The Joint Commission

As Director for the Department of Engineering at The Joint Commission, Mr. Mills provides standards interpretation and education to The Joint Commission’s Surveyors and accredited organizations, reviews equivalency requests, conducts surveys, and is a nationally recognized speaker. Previously, Mr. Mills served as Senior Engineer for the Standards Interpretation Group in the division of Accreditation and Certification Operations at The Joint Commission.

Mr. Mills has over 25 years of experience in the healthcare setting, and previous experience in the construction industry and structural steel fabrication. Prior to joining The Joint Commission, he served as a Director of Facilities; held national positions related to Codes and Standards, including serving as Director of Codes & Compliance for ASHE; and served as a consultant.

Mr. Mills is a Fellow with the American Society for Healthcare Engineering (FASHE), a Certified Healthcare Facility Manager (CHFM), a Certified Energy Manager (CEM), and a Certified Healthcare Safety Professional (CHSP). He is also a past President of HESNI – a local ASHE chapter.

Mr. Mills earned an MBA from California Coast University in Santa Ana, California.
Charlie Stevenson, AIA, MSHA  
Consultant  
Joint Commission Resources, Inc.

Mr. Stevenson's healthcare experience in planning and development, project management, and facilities operations has spanned more than 27 years. He has demonstrated proficiency in facility operations, project administration, process improvement, environment of care compliance, regulatory requirements, budgeting, scheduling, estimating, master planning, programming, transition planning, and contract administration, and has served as a key management member for performance improvements and transition planning.

As a Director of Plant Operations for a suburban healthcare provider, he managed the day-to-day operations of a 500+ bed hospital and was responsible for the environment of care compliance. Most recently, as Director of Project Planning and Development, Mr. Stevenson was responsible for strategic planning, project development, programming, design, and construction of capital improvement projects. He was the administrator of a major campus redevelopment project that included a new utility infrastructure system, parking garage, site improvements, operating suite expansion, and a 330,000 square foot new patient care addition and emergency department, and led the team to achieve LEED® Gold certification.

Mr. Stevenson has contributed to numerous national publications and has been a presenter at national conferences. He is a member of American Institute of Architects, American Society of Healthcare Engineers, Hospital Engineers of Northern Illinois, and past member of Loyola University Chicago Project Management Curriculum Advisory Board.

Mr. Stevenson is a registered architect in the state of Illinois. He received his bachelor of architecture from the University of Wisconsin – Milwaukee and a master of science in healthcare administration from the University of Saint Francis.
Appendix B: Post-Test

To be eligible for CE credit, you MUST view the video presentation and read the Resource Guide first. Then complete the post-test at [http://twnlms.com/](http://twnlms.com/) by the due date listed online.

1. Maintenance, inspection, and testing of fire safety features must be documented, as per Joint Commission standard _____.
   a. EC.02.03.05
   b. EC.01.01.01
   c. EC.02.02.01
   d. LS.01.01.01

2. A potential starting point for an Environment of Care Tracer might be where a particular _____.
   a. safety or security incident occurred
   b. piece of medical equipment is used
   c. hazardous material enters the organization
   d. All of the above.

3. Corridor clutter is addressed at Element of Performance 13 of Joint Commission Standard _____.
   a. LS.02.01.10
   b. LS.02.01.20
   c. EC.02.03.05
   d. EC.02.02.01

4. During the Life Safety Code Building Assessment, the surveyor evaluates the effectiveness of processes for maintaining fire safety equipment and fire safety building features.
   a. True
   b. False

5. Interior spaces meet the needs of the patient population and are safe and suitable to the care, treatment, and services provided, is Joint Commission standard _____.
   a. EC.02.01.01, EP 5
   b. EC.03.03.10, EP 3
   c. EC.02.06.01, EP 1
   d. None of the above.

6. The use of cleaning products and practices that have positive environmental attributes, such as low toxicity and biodegradability, is known as _____.
   a. deep cleaning
   b. sterilization
   c. green cleaning
   d. disinfection

7. Direct care staff should never be involved in the correction of Environment of Care deficiencies because The Joint Commission specifies that this be handled only by certain approved Facilities employees.
   a. True
   b. False
8. Joint Commission standard LS.02.01.10 states that _____.
   a. the hospital maintains fire safety equipment and fire safety building features
   b. building and fire protection features are designed and maintained to minimize the effects of fire, smoke, and heat
   c. during survey, specific documentation is reviewed
   d. dead end corridors may be used for storage

9. Personal protective equipment can be defined as specialized clothing or equipment worn by an employee for protection against infectious materials.
   a. True
   b. False

10. Important components of medical gas safety include _____.
    a. keeping cylinders secured
    b. segregating full from empty cylinders
    c. repairs being completed by qualified staff
    d. All of the above.
Appendix C: Resources and Related Information

Electronic Resources

The Joint Commission: http://www.jointcommission.org
Joint Commission Resources: http://www.jcrinc.com/

NOTE: The Internet is an ever-evolving environment and links are subject to change without notice.
Appendix D: Continuing Education Credit Information

Accreditation Council for Continuing Medical Education

Joint Commission Resources (JCR) is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. JCR takes responsibility for the content, quality, and scientific integrity of this CME activity. JCR designates this educational activity for the listed contact hours of AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

American Nurses Credentialing Center's Commission on Accreditation

JCR is also accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation. JCR designates this continuing nursing education activity for the listed contact hours.

JCR is a provider approved by the California Board of Registered Nursing, provider number CEP 6381 for the listed contact hours.

American College of Healthcare Executives

Joint Commission Resources is authorized to award the listed contact hours of pre-approved ACHE Qualified Education credit for this program toward advancement, or re-certification in the American College of Healthcare Executives. Participants in this program wishing to have the continuing education hours applied toward ACHE Qualified Education credit should indicate their attendance when submitting application to the American College of Healthcare Executives for advancement or re-certification.

National Association for Healthcare Quality

This activity has been approved by the National Association for Healthcare Quality (NAHQ) for 1.0 Certified Professional Healthcare Quality (CPHQ) CE credit.

Successful completion of this CE activity includes the following:

- View the presentation and read the accompanying Resource Guide.
- Complete the online Evaluation Form and Post Test.
- A CE certificate/statement of credit can be printed online following successful completion of the Post Test and the Evaluation Form.

NOTE: This information applies to The Joint Commission Resources Quality & Safety Network program titled, EC Update: Life Safety Code Issues, originally presented on Thursday, April 25, 2013 from 2:00 - 3:00 p.m. ET.

There is no individual participant fee for this educational activity.
### Appendix E: Discipline Codes: Instructions

Some of our programs are accredited for more than one discipline. To ensure that we issue each participant a certificate by the appropriate accrediting body, we ask that you supply us with the following information:

1. The two-digit discipline code
2. Followed by the position code

Example: For a medical doctor, use: 10 MD

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<th>Discipline Code</th>
<th>Position Code</th>
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Appendix F: JCR Quality & Safety Network Contact Information

General information, customer service issues, or program reception problems?
If you have questions or need technical assistance, please contact the JCRQSN Customer Service Team via e-mail at support@jcrqsn.com or call toll-free 1-888-219-4678

To provide feedback or comment on JCRQSN educational programming
Please contact:
George Riccio
Associate Director of Video and Satellite Service
Joint Commission Resources 630-792-5428

Continuing education questions?
Please contact:
JCRQSN Continuing Education Support Team 1-888-219-4678
support@jcrqsn.com

Questions about standards?
Standards Interpretation Group 630-792-5900

Questions about JCR education or other resources?
JCR Customer Service Center 877-223-6866

VA Knowledge Network Questions?
Contact Lloyd Parish 562-826-5505, extension 3856