The Joint Commission

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EC News

ENVIRONMENT OF CARE® | EMERGENCY MANAGEMENT | LIFE SAFETY

APPLICABLE PROGRAMS: CAH, HAP

Proposed Environmental Sustainability Standard in Field Review

The Joint Commission's proposed Leadership (LD) standard on decarbonizing health care is available for public comment until May 3

The Joint Commission has released a proposed Leadership (LD) standard that would require hospitals and critical access hospitals to measure their greenhouse gas emissions, set goals for improvement, and take action to achieve those goals. The wording of the proposed standard, which is the same for both hospitals and critical access hospitals, is as follows:

Standard LD.05.01.01: The hospital decreases greenhouse gas emissions and waste.

Element of Performance (EP 1): The hospital leaders designate an individual(s) responsible for the oversight of activities to reduce greenhouse gas emissions in coordination with clinical and facility representatives.

EP 2: The hospital measures three or more of the following:

- Energy use
- Purchased energy (electricity and steam)
- Anesthetic gas use
- Pressurized metered dose inhaler use
- Fleet vehicle gasoline consumption
- Solid waste disposal to landfills or through incineration

EP 3: The hospital develops written goals and action plans to reduce greenhouse gas emissions in three or more areas that it has measured.

EP 4: At least annually, the hospital analyzes its sustainability measures (EP 2) to determine whether it is meeting its goal(s) and revises its plan (EP 3) if goals are not achieved or sustained.

The comment period on the proposed requirements opened March 22 and runs until May 3. Organizations can submit their comments through The Joint Commission's online survey.

If you have questions, contact Phavinee Thongkhong-Park, PhD, RN, Associate Director, The Joint Commission's Department of Standards and Survey Methods, at pthongkhong-park@jointcommission.org.

Applicable Programs: AHC, CAH, HAP

Inspecting, Testing, and Maintaining Diagnostic Imaging Equipment

Joint Commission requirements and recommended practices

Advanced diagnostic imaging (ADI) modalities—including computed tomography (CT), magnetic resonance imaging (MRI), nuclear medicine (NM), and positron emission tomography (PET)—are indispensable tools in diagnosis and treatment. But if not properly inspected, tested, and maintained and if stringent safety precautions are not observed, ADI equipment poses many risks.

Consider that the Food and Drug Administration (FDA) received 1,568 adverse event reports for MRI systems in a 10-year period, according to an article in *Medical Physics*. These included thermal events such as blistering and burning of skin, acoustic events such as hearing loss and tinnitus, and projectile events due to MRI scanners' powerful electromagnets, which can suck in sizable objects containing ferrous materials such as some IV poles, walkers, oxygen tanks, and even gurneys.

The Joint Commission addresses MRI hazards in the *Quick Safety* report "Strong MRI Safety Programs Prevent Safety Events," which was updated in June 2022. However, failure to appropriately maintain, calibrate, and adhere to proper procedures for all types of imaging equipment can have dire consequences for patients, who depend on high-quality images for the accurate diagnosis of their medical conditions or injuries.

Health care organizations (HCOs) need to give greater priority to the inspection, testing, and maintenance (ITM) of ADI equipment, says Andrea Browne, PhD, DABR, Diagnostic Medical Physicist for The Joint Commission's Standards Interpretation Group—Physical Environment Department. "ITM is vital and needs to be done right," she emphasizes. "Not following the procedures appropriately and abiding by best practices can significantly compromise image quality as well as the safety of the imaging process itself, possibly resulting in injuries and fatalities."

Joint Commission requirements

Joint Commission–accredited hospitals, critical access hospitals, and ambulatory care organizations are required to follow crucial imaging standards found in several chapters of the *Comprehensive Accreditation Manual* (or E-dition®), including "Environment of Care" (EC), "Human Resources" (HR), "Medication Management" (MM), "Medical Staff" (MS), "Leadership" (LD), "Provision of Care, Treatment, and Services" (PC), and "Performance Improvement" (PI). A total of 33 elements of performance (EPs) apply to CT, MRI, NM, and PET modalities, and additional physical environment EPs apply to non-ADI modalities, such as radiology, ultrasound, and fluoroscopy.

For the physical environment, the first pertinent standard of significance is **EC.02.04.01:** The [organization] manages medical equipment risks.

Hospitals and critical access hospitals that use Joint Commission accreditation for deemed status need to comply with **EP 5**, which requires that ITM activities and frequencies for imaging and radiologic devices and medical lasers be in accordance with manufacturer instructions for use (IFUs). EP 5 notes that the maintenance history for this equipment must include records provided by contractors, information made public by nationally recognized sources, and records of the HCO's experience with the equipment over time.

"EP 5 is pretty straightforward," says Browne. "You have to follow the manufacturer's recommendations for ITM. You can't just say, 'We can only afford to have testing done once a year' when the manufacturer says it must be done every six months."

EC.02.04.01, EP 10, which applies to ambulatory care organizations, hospitals, and critical access hospitals, is also noteworthy. This EP calls on organizations to identify quality control and maintenance activities to ensure the high quality of all CT, PET, MRI, and NM images produced. Organizations must identify how often these activities should be conducted.

"To comply with EP 10, an organization must create a description of the quality control and maintenance procedures for the ADI modalities," Browne says.

More detailed requirements for evaluating and maintaining ADI equipment are provided under **EC.02.04.03:** The [organization] inspects, tests, and maintains medical equipment.

EPs 18, 20–25, and 34—which apply to ambulatory care facilities, hospitals, and critical access hospitals—require organizations to maintain the quality of the images produced by the imaging modality. At least annually, a diagnostic medical physicist (or comparably trained scientist, if specified for a particular modality) must perform key activities.

For example, EP 20, which applies to CT equipment, requires a diagnostic medical physicist to measure the radiation dose produced by each CT imaging system for four protocols (adult brain, adult abdomen, pediatric brain, and pediatric abdomen) and verify that the doses are within appropriate manufacturer-specified parameters for the specific piece of equipment and protocol. EP 21 specifies that a medical physicist must conduct a performance evaluation that covers the following CT imaging metrics:

- Image uniformity
- Scout prescription accuracy
- Alignment light accuracy
- Table travel accuracy
- Radiation beam width
- High-contrast resolution

- Low-contrast detectability
- Geometric or distance accuracy
- CT number accuracy and uniformity
- Artifact evaluation

Likewise, at least annually, a diagnostic medical physicist must evaluate detailed imaging metrics for all PET equipment (EP 24). For MRI equipment (EP 22), the thorough performance evaluation may be performed either by a diagnostic medical physicist or an MRI scientist. And for NM equipment (EP 23), the evaluation may be performed by a diagnostic medical physicist or a nuclear medicine physicist.

Common challenges

Organizations typically don't have problems following manufacturers' instructions for operating ADI equipment, according to Browne. But testing and maintenance as prescribed by the manufacturer can be tricky, she says. Occasionally, the manufacturer will call for maintenance twice a year, but the organization will schedule only annual maintenance.

"Generally, manufacturer service individuals provide the maintenance and service to the advanced diagnostic imaging equipment. Occasionally, specially trained biomedical technicians who are part of the health care organization's staff render the same services," says Browne. "The biggest challenge is taking the equipment out of service to perform the testing."

Smaller hospitals, for example, may have only one CT machine or one MRI machine. "So, if you are going to take it down for, say, five hours or longer for general maintenance, that means you may have to divert or reschedule patients, including those who may need urgent imaging," Browne explains. "CT imaging is used very often as the primary imaging modality in the emergency department (MRI use is less frequent in emergencies); but if there is only one CT unit in an organization, that becomes a major issue."

Other common findings include annual equipment performance evaluations conducted outside the required interval, lack of follow-up on items that failed the annual performance evaluation, and missing days/inconsistencies in quality control records.

"We've also noticed that there is a paucity of qualified medical physicists to provide the performance evaluations required by all the accrediting agencies," Browne says. "This results in a problem meeting the testing interval requirement for The Joint Commission, which is one year from the last event plus or minus 30 days."

Being able to synchronize the scheduling of both physicist personnel and ADI equipment can be especially challenging. "Often, a hospital will say, 'You can do the ITM performance evaluation, but I can only give you this MRI or CT machine after 10 p.m.' If the physicist can't show up that late, this is a major conflict," observes Browne.

"It is recommended that an organization work with the accountable physicist on scheduling as far in advance as possible," Browne suggests. "Also, the medical physicist may be assisted with the testing and annual performance evaluation by individuals who have the required training and skills, as determined by the medical physicist."

To comply with EPs 20 through 25, the accountable medical physicist should create a report that indicates the result of the performance parameters listed in the EPs. "The metrics listed in the EPs are also included in the requirements for American College of Radiology (ACR) accreditation, and the report provided for the ACR accreditation is acceptable as proof of compliance for Joint Commission survey purposes," Browne says. "The main difference between the items in our requirements and ACR requirements is that the latter also describe the method of measuring the metrics, while The Joint Commission allows the physicist to determine the method of measurement."

The newest EP among this aforementioned group is EP 34, which applies to fluoroscopy. "Fluoroscopy is not an ADI modality, but because it has the potential for patient harm if used inappropriately, we created this EP and its testing parameters," Browne says.

On the bright side, EC requirements pertaining to ADI are not among the most frequently cited EPs for hospitals, critical access hospitals, or ambulatory care organizations. "In fact, the total number of EC items scored for imaging is small compared to the total number scored," Browne says. "But that doesn't mean organizations should take this issue lightly. It's important to know that surveyors will look closely to see that proper inspection, testing, and maintenance are performed as expected."

Other good practices

To further ensure imaging quality and safety, Browne recommends that organizations create policies and procedures designed to meet or exceed the expectations of the appropriate standards and EPs. "State what you will do by indicating such in your policies, procedures, and documentation," she advises. "And then make sure you do what you have committed to do, as indicated in those policies and procedures."

"Always be knowledgeable about the manufacturer's requirements for testing and maintenance," Browne emphasizes. "Remember that both the Centers for Medicare & Medicaid Services and The Joint Commission mandate that manufacturer requirements be followed. This applies to the ADI modalities as well as other imaging equipment."

Finally, consider who would be the best choice to conduct the inspection, testing, and maintenance. For ADI units, the most typical provider of ITM is the manufacturer. However, device manufacturer service technicians are often the most difficult to schedule and the costliest. Independent third-party service providers are generally less expensive, but manufacturers often insist that third-party providers don't provide the quality of service needed.

Additionally, or alternatively, your organization may want to assign in-house staff—such as trained biomedical technicians—to perform the ITM. This option provides greater scheduling flexibility and can equate to the lowest cost. Clinical engineers typically need additional training to inspect, test, and maintain ADI equipment. Such training is usually provided by the original equipment manufacturer, Browne says.

Although imaging equipment accidents, misuse, and instances of malfunctioning are relatively rare, the consequences are severe—putting patients, staff, and visitors at serious risk. Take the time necessary to review existing and create new ADI protocols as needed, refresh staff on applicable standards and EPs, and reinforce the rules.

"Accurate images affect diagnostic integrity and patient care. Besides the cost in terms of health and safety to the patient, risks include lawsuits due to errors in interpretation caused by equipment issues," Browne warns. "Also, don't forget that some states include testing as part of licensing for radiographic units. Not performing state-required testing in the state-prescribed interval may result in fines and loss of licensing." EC

Applicable Program: HAP

Top-Cited Physical Environment Standards for Hospitals in Full-Year 2022

Just like in full-year 2021, the most frequently scored higher-hazard findings in the environment of care last year pertained to the environmental risks for suicide, safe and functional interior spaces, ventilation in critical care areas, and hazardous chemicals

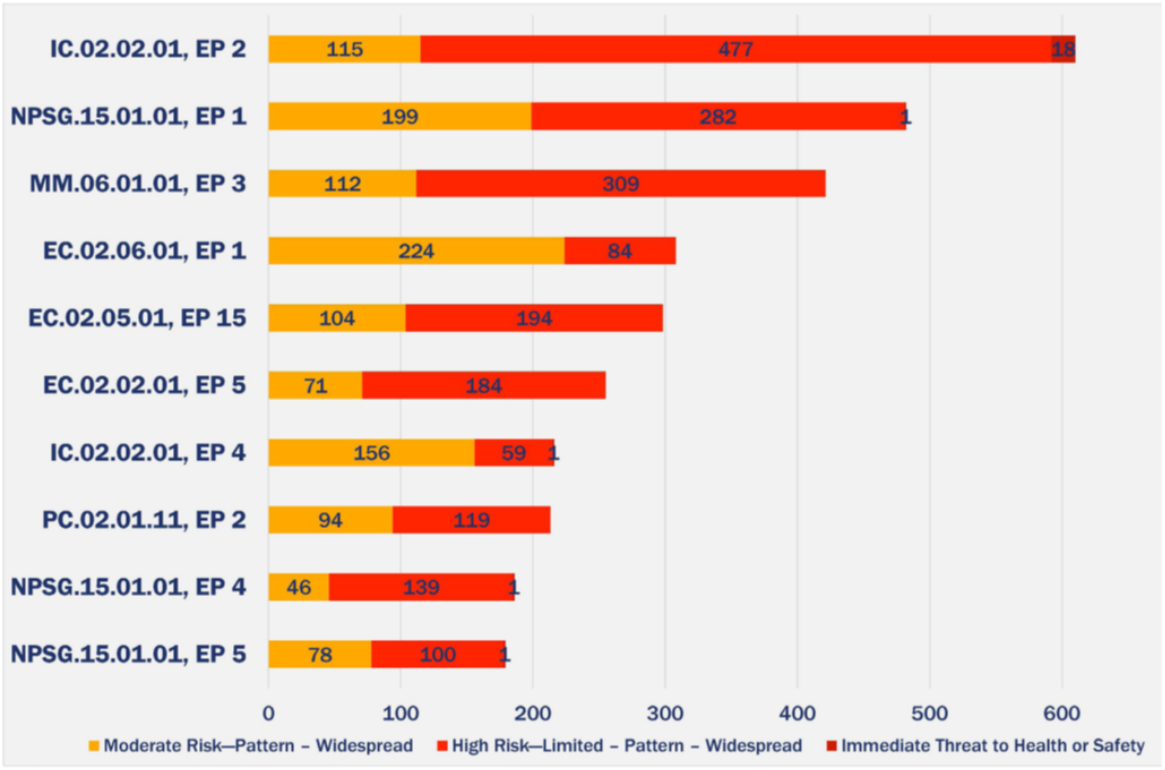
Compliance with The Joint Commission's physical environment requirements for hospitals in 2022 closely resembled the pattern of the prior year. Indeed, the same four physical environment elements of performance (EPs) ranked among the top 10–cited higher-hazard EPs across all chapters of the *Comprehensive Accreditation Manual for Hospitals* (CAMH) and its E-dition® counterpart (*see* Figure 1):

- **National Patient Safety Goal (NPSG) NPSG.15.01.01, Element of Performance (EP) 1** (ranked second for noncompliance)**:**
  - **For psychiatric hospitals and psychiatric units in general hospitals:** The hospital conducts an environmental risk assessment that identifies features in the physical environment that could be used to attempt suicide; the hospital takes necessary action to minimize the risk(s) (for example, removal of anchor points, door hinges, and hooks that can be used for hanging).
  - **For nonpsychiatric units in general hospitals:** The hospital implements procedures to mitigate the risk of suicide for patients at high risk for suicide, such as one-to-one monitoring, removing objects that pose a risk for self-harm if they can be removed without adversely affecting the patient's medical care, assessing objects brought into a room by visitors, and using safe transportation procedures when moving patients to other parts of the hospital.
- **Environment of Care (EC) Standard EC.02.06.01, EP 1** (ranked fourth for noncompliance): Interior spaces meet the needs of the patient population and are safe and suitable to the care, treatment, and services provided.
- **EC.02.05.01, EP 15** (ranked fifth for noncompliance)**:** In critical care areas designed to control airborne contaminants (such as biological agents, gases, fumes, dust), the ventilation system provides appropriate pressure relationships, air-exchange rates, filtration efficiencies, temperature, and humidity. For new and existing health care facilities, or altered, renovated, and modernized portions of existing systems or individual components (constructed or plans approved on or after July 5, 2016), heating, cooling, and ventilation are in

accordance with NFPA 99-2012, which includes 2008 ASHRAE 170, or state design requirements if more stringent.

- **EC.02.02.01, EP 5** (ranked sixth for noncompliance)**:** The hospital minimizes risks associated with selecting, handling, storing, transporting, using, and disposing of hazardous chemicals.

Figure 1: Higher-Hazard EPs Cited for Hospitals in Full-Year 2022 Based on 1,511 Surveys and Ranked by Number of Citations and Risk Level of Noncompliance



Four physical environment elements of performance (EPs) rank among the most frequently cited higher-hazard EPs in 2022. Of these standards, NPSG.15.01.01, EP 1 (requiring an environmental risk assessment to prevent suicide) was the only one with an immediate threat to health or safety (ITHS) declaration. Two commonly cited EC requirements—EC.02.05.01, EP 15 (ventilation parameters for critical care areas) and EC.02.02.01, EP 5 (managing risks associated with hazardous waste)—have far more requirements for improvement (RFIs) in the high-risk (red) zone than in the moderate-risk (orange) zone.

Reducing environmental risks for suicide

Environmental risk assessments must be conducted in psychiatric hospitals and psychiatric units in general hospitals, and these assessments need to include identification of features in the physical environment that could be used to attempt suicide. Unfortunately, 42% of hospitals surveyed in 2022 were not compliant with NPSG.15.01.01, EP 1. The survey findings for locked inpatient psychiatric units included the following observations (among others):

- The hospital could not produce an environmental risk assessment prior to or at the time of the building tour

- Although environmental risks had been identified, there was no clinical mitigation or plan for correcting ligature and other risks identified.
- Although environmental risks had been identified, there was little to no evidence that progress had been made to correct the identified risks.
- Surveyors noted the following ligature risks:
  - Non-ligature-resistant door hinges and/or hardware on doors were found in patient rooms and bathrooms
  - The louvers on the heating, ventilation, and air-conditioning (HVAC) ducts could be used as ligature points.
  - Door closures and a sink near the nurses' station could be used as ligature points.
  - Patients had access to a greater than 14-inch phone cord in the dayroom.

"Although most accredited organizations have demonstrated significant progress in evaluating and implementing corrective actions to mitigate environmental risks, deficiencies are still identified," says Gina Malfeo-Martin, MSN, PMH-BC, Team Lead (behavioral health care and human services, hospital psychiatric, and laboratory programs) for The Joint Commission's Standards Interpretation Group. "Organizations should focus on implementing an ongoing process to evaluate the environment to identify new or previously unidentified risks. This process should involve multiple disciplines, including those who are not familiar with the environment. This will offer a fresh perspective and may be the key to identifying ongoing risks."

A risk assessment must look at all aspects of the environment for potential anchor points, including doors and related hardware, furniture, bathroom fixtures, closet rods, hooks, shelving, mirrors, cabinet pulls, wall decorations, and wall-mounted hand hygiene dispensers. The assessment should also address materials that might potentially be used to loop or tie on a ligature point, such as a pull cord for a nurse call station (which can be no longer than 4 inches), a telephone cord (which can be no longer than 14 inches), or an electrical cord for an adjustable bed (which must be shortened and secured).

Other items that can be used for self-harm include mirrors and glass in lighting fixtures, which can be broken and their shards used for stabbing or cutting; alcohol-based hand rub, which can be consumed in toxic quantities; electrical outlets, which can be used for electrocution; plastic bags, which can be used for suffocation; and operable windows in multistory buildings (which must be limited to open only 4–6 inches to prevent defenestration).

The Joint Commission does not specify a format for an environmental risk assessment. One tool that may be helpful can be downloaded from the website of the Veterans Health Administration (VHA) National Center for Patient Safety. The VHA's Mental Health Environment of Care Checklist (MHEOCC) can be a resource for organizations developing their own environmental risk assessments. However,

keep in mind that the MHEOCC may go beyond what The Joint Commission requires.

The "Environmental Risks for Suicide Assessment Checklist," featured on page 21, is another useful tool. Again, use of this risk assessment tool is not required by The Joint Commission. Additional suicide prevention resources can be found on The Joint Commission's website.

Whatever tool or process is used, you must be able show the completed risk assessment to the *Life Safety Code*®* Surveyor as documentation at the time of your survey. In addition to identifying the environmental risks for suicide, your organization must take action to mitigate those risks and provide documentation (such as work orders and time lines) for items that are in the process of being corrected.

As the note to NPSG.15.01.01, EP 1 makes clear, nonpsychiatric units in general hospitals do not have to be ligature resistant. However, an environmental assessment must be conducted for any patients identified as being at high risk for suicide or self-harm. What's more, the hospital must implement mitigation measures, such as one-on-one patient monitoring and removal of medically unnecessary objects that could be used for self-harm.

Safe, functional interior spaces

The Joint Commission often cites hospitals under EC.02.06.01, EP 1 for general safety deficiencies in the interior environment. These findings frequently involve furniture, fixtures, appliances, flooring, walls, and ceilings. Nicked flooring and frayed carpeting, for example, can pose tripping hazards, and damaged surfaces can be difficult to disinfect.

In 2022, nearly 65% of surveyed hospitals were found to be noncompliant with EC.02.06.01, EP 1. Here is a sampling of the deficiencies scored:

- Stained ceiling tiles were observed in sterile environments and immunocompromised patient care areas.
- Wall stains were seen in a patient care area.
- The sterile processing department did not have washable walls and tiles.
- Cracked floor and wall ties were found in a patient waiting area.
- Broken floor tiles in a non-patient-care area created a tripping hazard.
- Peeled/peeling paint was noted on the outside door frames to patient rooms.

Stained ceiling tiles are particularly concerning to surveyors because they usually indicate hidden problems. Whenever possible, the evaluation of stained ceiling tiles should identify the underlying cause before steps are taken to correct the deficiency. For example, if the cause is a leaky pipe above the ceiling, simply replacing the stained tiles won't be an effective solution.

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To improve compliance with EC.02.06.01, EP 1, make sure the general safety risk assessment that hospitals must conduct (under EC.01.01.01, EP 1) includes evaluation of the integrity of walls, ceilings, fixtures, furniture, and appliances. Hospitals should also check for signs of damage during regular environment of care rounds, which are recommended but not required by The Joint Commission.

"Although semiannual physical rounding is no longer required by The Joint Commission, many organizations maintain this schedule to catch the items noted above," says James Kendig, MS, CHSP, HEM, Field Director, Surveyor Management and Development for The Joint Commission. Kendig recommends periodically conducting environment of care rounds as a good practice.

Stained ceiling tiles are a frequent finding, cited under Environment of Care (EC) Standard EC.02.06.01, Element of Performance (EP) 1.

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Ventilation requirements in critical care areas

EC.02.05.01, EP 15 lays out the requirements for hospital ventilation in critical care areas. The Joint Commission requires hospitals to comply with the 2012 edition of the National Fire Protection Association (NFPA) *Health Care Facilities Code* (NFPA 99-2012), which references the 2008 edition of ANSI/ASHRAE/ASHE 170 *Ventilation of Health Care Facilities* (ASHRAE 170-2008)—or state design requirements, if they are more stringent. Ventilation, which is always important, has received increased attention since the start of the COVID-19 pandemic. Although the nationally declared public health emergency ends May 11, it is important for hospitals to continue to prioritize staying within required ventilation parameters.

In 2022, 36.3% of hospitals were not compliant with EC.02.05.01, EP 15. Surveyors cited organizations for the following deficiencies as well as others:

- Operating room (OR) temperatures were found to be outside the allowable limits, and no corrective action was taken.
- The required number of air exchanges in operating rooms was not met.
- Bronchoscopy was not performed in a negative pressure environment.
- The hospital did not maintain the correct positive-to-negative pressure differential between the clean and dirty areas of central processing.
- The temperature and humidity were not monitored in a centralized sterile supply storage room where large volumes of sterile supplies are kept.

The hospital was not continuously monitoring the air pressure where medications were being compounded. For optimal ventilation, engineering controls are best, according to Herman A. McKenzie, MBA, CHSP, Director of The Joint Commission's Physical Environment Department. He recommends that hospitals have their building automation systems monitor all areas where ventilation parameters must be verified.

"Also, remember that if you have taken the Centers for Medicare & Medicaid Services (CMS) Survey & Certification (S&C) Letter waiver related to relative humidity, a risk assessment is required for the supplies and equipment in this space," Kendig adds. (To learn more about ventilation, see the article "Optimizing Air Quality" in the December 2020 issue of *EC News*.)

Hazardous chemical handling, storage, and disposal

Life Safety Code Surveyors frequently cite hospitals for not having eyewash stations or drench showers where needed and for not maintaining them appropriately. Specific observations recently cited under EC.02.02.01, EP 5 include the following:

- No eyewash stations were accessible around hazardous chemicals.
- The eyewash stations were supplied with expired eyewash solution.
- The hospital had no log of correct eyewash station maintenance, particularly weekly flushes. (Refer to the American National Standards Institute [ANSI] and International Safety Equipment Association [ISEA] Standard ANSI/ISEA Z358.1-2014: American National Standard for Emergency Eyewash and Shower Equipment.)
- An eyewash station was plumbed for hot water only; there was no mixing valve.
- An eyewash station was plumbed for cold water only; there was no mixing valve and no evidence or documentation that the water temperature remains between 60°F and 100°F.
- Chemicals were stored in unsecured containers (for example, without lids).
- Personal protective equipment (PPE) was not used in the handling of hazardous chemicals.
- There was no spill kit available in areas where formalin was used.

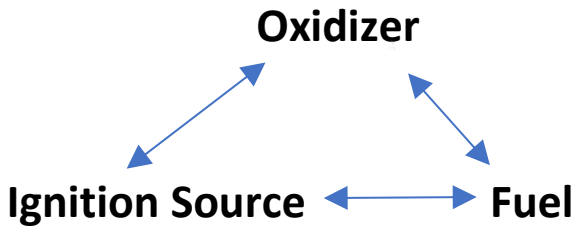
Hospitals and other health care organizations must follow manufacturer instructions for use when maintaining their eyewash stations and drench showers, emphasizes Kendig. "Often, too many emergency eyewash and shower stations are provided," he says, "so it's important to conduct a thorough risk assessment that considers the process being used while handling the chemical or substance, Occupational Safety and Health Administration (OSHA) requirements, and information provided by the safety data sheets."

Making Electrosurgery Safer

Surgeons and other OR team members traditionally lack robust training on the hazards of using surgical energy devices. The Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) bridges this gap with its Fundamental Use of Surgical Energy (FUSE) certification program for surgeons and hospital compliance modules for all OR team members

Roughly 90 to 100 surgical fires occur annually in the United States, resulting in up to 20 serious injuries and 1 or 2 patient deaths per year, according to ECRI. Nearly 70% of these events are due to the use of electrosurgery devices, case reports suggest.

Every fire needs an ignition source, a fuel source, and an oxidizer, known as the fire triangle (see below). Electrosurgery devices can serve as the ignition source for fires, while room air or medical gas (often leaked oxygen) can serve as the oxidizer. Possible fuel sources include alcohol-based skin preparation agents, surgical drapes, sponges, towels, gauze, and even the patient's body hair.



Given that 40 million to 50 million surgeries are performed in the United States each year, surgical fires—as well as surgical burns that don't involve fire—are, fortunately, few and far between. But these events are shattering when they do happen.

"Complications from electrosurgery are rare, but they are devastating," notes Thomas N. Robinson, MD, who chairs the Fundamental Use of Surgical Energy™ (FUSE™) program for the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES). "A fire is devastating. A patient burn is devastating."

Remedying lack of formal training in surgical energy

The underlying problem, explains Robinson, is that surgeons receive little or no formal training in surgical energy during medical school or their residencies. They learn to use monopolar and bipolar electrosurgery devices through practice but tend to lack a deeper understanding of the mechanisms and injury patterns common to surgical energy devices. For example, the tissue effects (cutting, desiccation, fulguration, ablation) depend on the tissue's impedance, or resistance; the current density; the length of time the surgeon uses an active electrode; the size of the electrode; and the current's waveform. Failure to comprehend the interrelationship of those complex variables can result in stray energy and literally cause sparks to fly.

In contrast, observes Robinson, when physicians prescribe medications, they are expected to understand the physiological and pharmacologic effects of those medications, having taken pharmacology as a core requirement in medical school. Knowledge of pharmacology is important for patient safety, but so is a surgeon's understanding of the physics of electrosurgery, he says.

SAGES developed its FUSE certification for surgeons in 2010 to bridge this knowledge gap. The curriculum, which is available for free online, consists of 12 didactic modules that integrate written text, illustrations, video, and audio to suit different learning styles:

1. Introduction
2. Fundamentals of Electrosurgery
3. Mechanisms and Prevention of Adverse Events
4. Monopolar Devices
5. Bipolar Devices
6. Radiofrequency for Soft-Tissue Ablation
7. Endoscopic Energy Devices
8. Ultrasonic Energy Systems
9. Microwave Energy Systems
10. Energy Devices in Pediatric Surgery
11. Integration of Energy Systems with Other Medical Devices
12. Surgical Smoke and Aerosolization Safety

The FUSE certification examination, which has a fee, is an online test that may be taken at a certified testing center or remotely. Test takers have 90 minutes to complete 80 multiple-choice questions.

Hospital Compliance Modules for all OR staff

The FUSE program recently rolled out a shorter, less-intense subscription-based curriculum, Hospital Compliance Modules, that is appropriate for all OR staff. Endorsed by the Association of periOperative Registered Nurses (AORN), this training initiative includes four modules:

1. Safe Energy Use in the Operating Room
2. Fires in the Operating Room
3. Impacted Cardiac Devices
4. Surgical Smoke and Aerosolization Safety (COVID-19 Safety)

The first module offers many safety insights, such as the following:

- Before the incision, make sure that all metal jewelry is removed from the pathway of the electrosurgical circuit.
- Use the lowest power setting to achieve the intended tissue effect.
- Never secure active electrode cords to drapes using a metal clamp.
- Avoid crossing cords; crossing a cord with current running through it with a cord that is not electrically active can lead to stray energy transfer and patient injury.

These modules are fast and easy to implement, the goal being wide adoption in ORs around the country, Robinson says. As he emphasizes, "We want people to understand—and avoid— the specific scenarios that are really high risk for unintentionally burning patients or lighting a fire." EC

Forum

Getting Ahead to Avoid Coming Up Short

Managing continuing supply chain disruptions for facilities maintenance materials requires renewed emphasis on redundancy and resilience, according to several facilities leaders

In the early weeks of the COVID-19 pandemic in 2020, delays in obtaining needed health care materials and equipment became commonplace. As months and then years have passed and the virus's stranglehold on daily life has eased, the global supply chain has continued to inch toward its pre-pandemic normal.

Delivery times have shortened since the height of the pandemic, as evidenced by the –0.26 Global Supply Chain Pressure Index estimates for February 2023, compared with its high of more than 4.0 in 2021. Seventy percent of computer chip suppliers say they are now able to deliver essential components faster as lead times for chips have dropped, according to research from a trading and technology firm reported by Bloomberg. And an American Shipper survey found that by late November 2022, only 59 container ships sat waiting off North American ports, a 60% drop from the highest numbers earlier in 2022.

Trouble spots are still popping up regularly throughout the health care facilities management supply chain, however. "Instead of not being able to get everything during COVID, now it's like you're on a hamster wheel," says Jerry Galu, CHFM, director–facilities management for Nashville (Tennessee) General Hospital and an *EC News* Customer Advisory Board member. "You just don't know what supply chain problem is going to present itself this week. There's no rhyme or reason to what supplies are getting delayed."

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>
> —Jerry Galu

"Facilities management staff should expect delays in general now when purchasing equipment and supplies," agrees Sukhjit Tom Singh, MHA, MPH, CHSP, CLSS-HC, a *Life Safety Code*®* Surveyor for The Joint Commission. "I am optimistic it will get better, and it has gotten better, but products that used to take weeks to get now may take months or longer."

> Facilities management teams routinely experience supply chain issues with HVAC equipment, electrical components, and IT items such as switches, cables, and devices.
>
> —Luis Collado

At Baptist Health South Florida in Miami, facilities management teams routinely experience supply chain issues with heating, ventilation, and air-conditioning (HVAC) equipment, electrical components, and information technology (IT) items such as switches, cables, and devices, says Luis Collado, MBA, MS, CSP, CHSP, CHFM, HEM, corporate assistant vice president, Environmental

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Health & Safety (EH&S), Regulatory Affairs & Accreditation, and Emergency Management for Baptist Health. (Collado is also a *Life Safety Code* Surveyor for The Joint Commission and an *EC News* Customer Advisory Board member.)

"Lead times for all of these items have doubled or more in the past 18 months, and this is causing major problems with schedules—specifically with smaller projects," says Scott Harding, corporate vice president of facilities and construction for Baptist Health South Florida. "A normal six-month project could have up to four months added, depending on the equipment delivery time frame."

> A normal six-month project could have up to four months added, depending on the equipment delivery time frame.
>
> —Scott Harding

The unpleasant realization that it may be a long time before the global supply chain returns to traditional delivery times is forcing health care facilities managers to become even more proactive about building redundancy and resilience into their supply chain management. Here are some effective strategies for working around these issues.

Note that these are good practice suggestions, not Joint Commission requirements or official recommendations. However, following some of these suggestions may help your organization stay compliant with Joint Commission "Environment of Care" (EC) and "Life Safety" (LS) standards.

Increase project lead times

Build in as much extra time as possible for every project, under the assumption that there may be work stoppages while you wait for materials and supplies to arrive.

"Unless it's deemed a high priority by the executive team, we require more notice now so that we can look into a project and see where there are going to be delays in obtaining materials and equipment, and we can then build that into the project time line," says Galu.

Order as far ahead as possible

Take advantage of any opportunity to get out in front on purchases for new projects and upcoming repair work. "Our facilities management teams are ordering materials and equipment earlier in the process than normal to meet project schedules," says Harding.

Singh suggests ordering long-lead-time supplies and materials for a project as soon as the initial funding is available rather than waiting for all of the funding to be available. "I've seen one organization essentially purchase supplies for unit renovations months sooner by doing that," he says.

Band together

There's strength in numbers, so investigate whether you can tap into formal or informal networks to boost your reach for purchases. "Hospitals that are part of

> Hospitals that are part of health systems can try to get supplies that they don't have on site from colleagues and peers across the system.
>
> —Tom Singh

health systems can try to get supplies that they don't have on site from colleagues and peers across the system," suggests Singh. "If you're short on something, someone else may have it available."

Hospitals that aren't part of larger systems may be able to team up with community-based organizations or peer hospitals to increase their purchasing clout, Singh says.

Nashville General uses a group purchasing organization (GPO) to leverage volume orders for cost efficiency and faster delivery times, says Galu, but be aware that not all GPOs include facilities management purchases. "I see that expanding in GPOs in the future, and there are already GPOs out there that are solely facility related," he notes.

Stockpile with caution

Ordering extra supplies when they're readily available may seem like a good idea, but Galu cautions that it's important to plan for storage needs based on space and funding availability. "At our hospital, we've gone from just-in-time deliveries to having more supplies in-house," he says. "But we just don't have enough storage room. If the manufacturer has storage space available, the company will charge you, so then you may have storage budget issues."

Singh suggests stocking up only on items that commonly require replacement, such as door hardware. "Stockpile a bit more of those items that you're seeing frequent failures with," he says.

If additional storage space is available for stockpiled supplies, make sure the space meets *Life Safety Code* storage room requirements for hazardous areas, if necessary, under **Standard LS.02.01.30:** The [organization] provides and maintains building features to protect individuals from the hazards of fire and smoke.

Element of Performance (EP) 2 requires that new storage rooms larger than 100 square feet and containing combustible material have doors that are self-closing or automatic closing and a fire barrier with a one-hour fire-resistive rating. **EP 3** requires that existing storage rooms greater than 50 square feet used for storage of equipment and combustible supplies be protected by either a fire barrier with one-hour fire-resistive rating or an approved electrically supervised automatic sprinkler system.

"You can't just use any empty space for storage. You need to vet it first," emphasizes Singh.

Develop alternative options

Health care organizations (HCOs) need to think ahead about solutions for situations in which deliveries are delayed or canceled. "Our facilities management teams are expanding their specifications to include alternate products or equipment, as long as they meet our quality and performance expectations," says Harding.

Switching from proprietary to non-proprietary equipment can be enough to nip some supply shortages in the bud, says Galu, because more options will be available when you need to order associated products. "In today's environment, it is critical to have choices and not be tied to a single vendor or product," he observes, citing the following lesson-learned example.

Nashville General recently ordered 20 proprietary wireless badge readers for rooms whose contents require accountability. But because the order will take 35 weeks rather than the usual 2 to 3 days, the hospital had to purchase 20 door handles and locks to use in the meantime, significantly increasing the total cost of the project. "With the access control system we have, I have to use a single product that is compatible with that system," Galu explains.

Mitigate potential risks

While awaiting the arrival of a repair part, be sure to assess for any impact on patient and staff safety, advises Singh. Fire doors, for example, sometimes need new parts for the repair of damage, and sometimes the entire door assembly needs replacement, he notes. But using the wrong materials because they're readily available is not a safe solution.

"You need to use fire door hardware on a fire door, or you will compromise the integrity of the door," says Singh. He notes that an interim life safety measure (ILSM) would be required until the fire door is properly repaired and retested. (A list of potential ILSMs is available under LS.01.01.01.)

Keep supply chain issues top of mind with management

Facilities management needs to bring delivery problems out of the shadows by updating upper management on the repercussions of not addressing these issues.

"In the beginning of the pandemic, the facilities management supply chain issues were so bad that we began including materials management in our executive leaders' safety briefing every morning," says Galu. "We're still doing that to this day, and it's a topic that is going to stay on the executive briefing list."

Improve use of real-time data

Accessible inventory data that can drive the supply management process is more important now than ever before. "I see a lot of health care organizations going to real-time data," Galu says, noting that this is now the case for smaller as well as larger HCOs. The optimal inventory management solution, he notes, is a computerized maintenance management system (CMMS) that is tied to the organization's procurement system and allows the user to set periodic automatic replacement (PAR) levels.

"Resiliency in the supply chain is something you're going to be hearing more and more about as we transition to the next normal," Galu adds. "It means having better visibility because we all need to take into consideration that we may no longer have quick access to materials." EC

APPLICABLE PROGRAMS: BHC, CAH, HAP

Toolbox

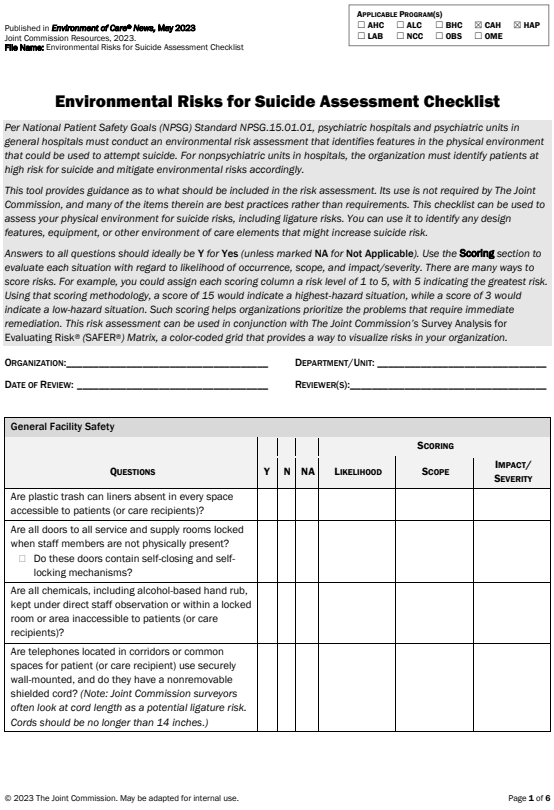
Assessing Environmental Risks for Suicide

You can use the provided risk assessment tool to help your organization comply with National Patient Safety Goal (NPSG) Standard NPSG.15.01.01, Element of Performance (EP) 1

National Patient Safety Goal (NPSG) Standard NPSG.15.01.01, Element of Performance (EP) 1 spells out the physical environment requirements for suicide prevention applicable to some accredited hospitals, critical access hospitals, and behavioral health care and human services organizations. A hospital or residential behavioral health care facility that locks doors to control the egress of patients or individuals served must conduct an environmental risk assessment to identify and mitigate potential physical environment hazards that might facilitate suicide.

As noted in the article beginning on page 8, such risks include door hardware, bathroom fixtures, hospital beds, hooks, and closet rods that provide anchor points for hanging. Just as hazardous are long electrical cords, nurse call cords, and bed sheets that can be used as nooses. Mirrors and other glass objects that can be broken and used for self-harm are also problematic.

Risk assessment is a complex topic. The recently published fourth edition of the Joint Commission Resources book *Environment of Care Risk Assessment* explains the ins and outs of risk assessment and The Joint Commission's requirements and recommendations. One of this book's approximately 40 tools, the "**Environmental Risks for Suicide Assessment Checklist**," is available in a downloadable, customizable format here.



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Joint Commission Resources, 2023.
File Name: Environmental Risks for Suicide Assessment Checklist

APPLICABLE PROGRAM(S)
☐ AHC ☐ ALC ☐ BHC ☒ CAH ☒ HAP
☐ LAB ☐ NCC ☐ OBS ☐ OME

Environmental Risks for Suicide Assessment Checklist

Per National Patient Safety Goals (NPSG) Standard NPSG.15.01.01, psychiatric hospitals and psychiatric units in general hospitals must conduct an environmental risk assessment that identifies features in the physical environment that could be used to attempt suicide. For nonpsychiatric units in hospitals, the organization must identify patients at high risk for suicide and mitigate environmental risks accordingly.

This tool provides guidance as to what should be included in the risk assessment. Its use is not required by The Joint Commission, and many of the items therein are best practices rather than requirements. This checklist can be used to assess your physical environment for suicide risks, including ligature risks. You can use it to identify any design features, equipment, or other environment of care elements that might increase suicide risk.

Answers to all questions should ideally be **Y** *for* **Yes** *(unless marked* **NA** *for* **Not Applicable***). Use the* **Scoring** *section to evaluate each situation with regard to likelihood of occurrence, scope, and impact/severity. There are many ways to score risks. For example, you could assign each scoring column a risk level of 1 to 5, with 5 indicating the greatest risk. Using that scoring methodology, a score of 15 would indicate a highest-hazard situation, while a score of 3 would indicate a low-hazard situation. Such scoring helps organizations prioritize the problems that require immediate remediation. This risk assessment can be used in conjunction with The Joint Commission's* Survey Analysis for Evaluating Risk® (SAFER®) *Matrix, a color-coded grid that provides a way to visualize risks in your organization.*

ORGANIZATION:_____ DEPARTMENT/UNIT: _____

DATE OF REVIEW: _____ REVIEWER(S):_____

General Facility Safety						
				SCORING		
QUESTIONS	Y	N	NA	LIKELIHOOD	SCOPE	IMPACT/ SEVERITY
Are plastic trash can liners absent in every space accessible to patients (or care recipients)?						
Are all doors to all service and supply rooms locked when staff members are not physically present? ☐ Do these doors contain self-closing and self-locking mechanisms?						
Are all chemicals, including alcohol-based hand rub, kept under direct staff observation or within a locked room or area inaccessible to patients (or care recipients)?						
Are telephones located in corridors or common spaces for patient (or care recipient) use securely wall-mounted, and do they have a nonremovable shielded cord? *(Note: Joint Commission surveyors often look at cord length as a potential ligature risk. Cords should be no longer than 14 inches.)*						

Other Learning Opportunities from The Joint Commission and Joint Commission Resources

These resources will enhance your knowledge of the environment of care, life safety, and emergency management.

In-Person or Live Webcasts

- **Environment of Care Base Camp, April 25–26, 2023**
- **Exploring the Life Safety Chapter, April 27–28, 2023**
- **Environment of Care and Life Safety Chapter for Ambulatory Care, May 11–12, 2023**
- **Environment of Care Base Camp, August 1–2, 2023**
- **Exploring the Life Safety Chapter, August 3–4, 2023**
- **Environment of Care Base Camp, November 14–15, 2023**
- **Exploring the Life Safety Chapter, November 16–17, 2023**

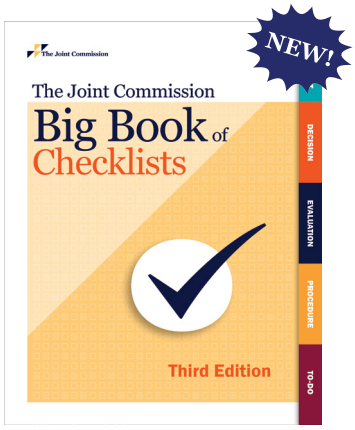
RETURNING! Emergency Management Conference (in person), Rosemont, IL, June 20–22

Webinars

2023 Environment of Care/Life Safety Webinar Series, Joint Commission Resources

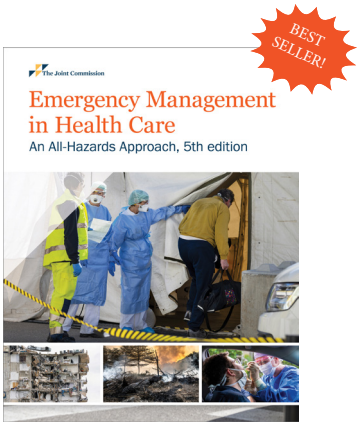
JCR Publications

EC Made Easy, Fourth Edition

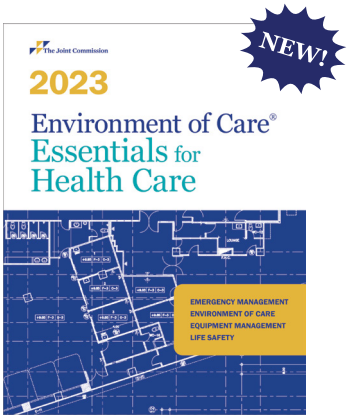


The Joint Commission Big Book of Checklists, Third Edition

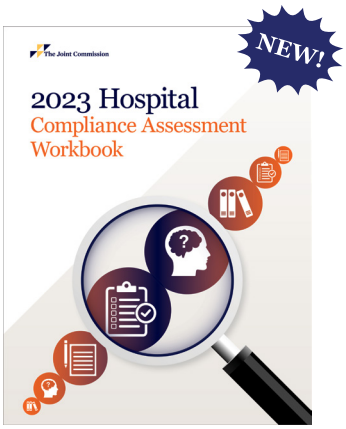
Environment of Care Risk Assessment, Fourth Edition



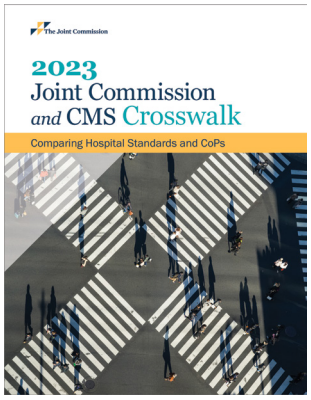
Emergency Management in Health Care: An All-Hazards Approach, 5th Edition



2023 Environment of Care® Essentials for Health Care

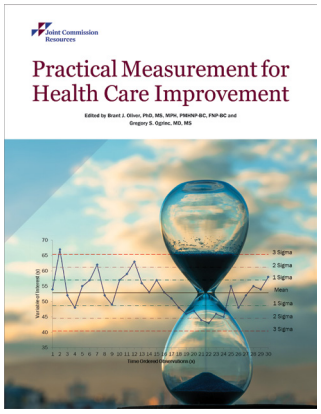


2023 Hospital Compliance Assessment Workbook



2023 Joint Commission and CMS Crosswalk: Comparing Hospital Standards and CoPs

Fundamentals of Health Care Improvement, Fourth Edition



Practical Measurement for Health Care Improvement

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