Erlanger Medical Affairs

Yearly Educational Materials

Please review this content in its entirety and complete the associated attestations. Please retain for reference

Other education may be required to stay in good standing with the organization – these may be administered by Erlanger or individual groups.

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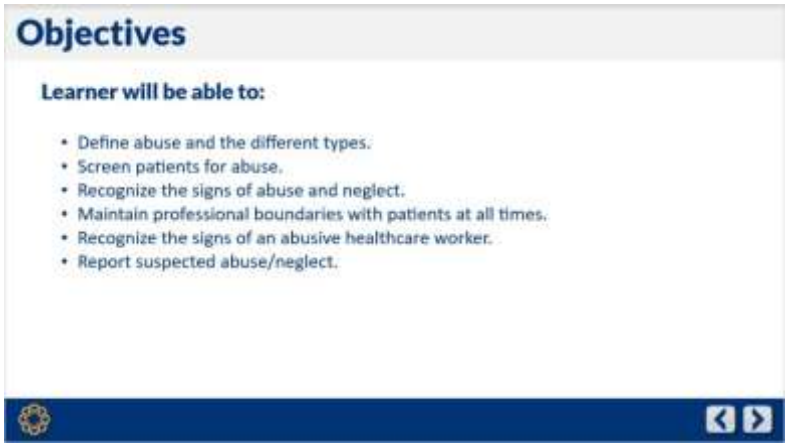
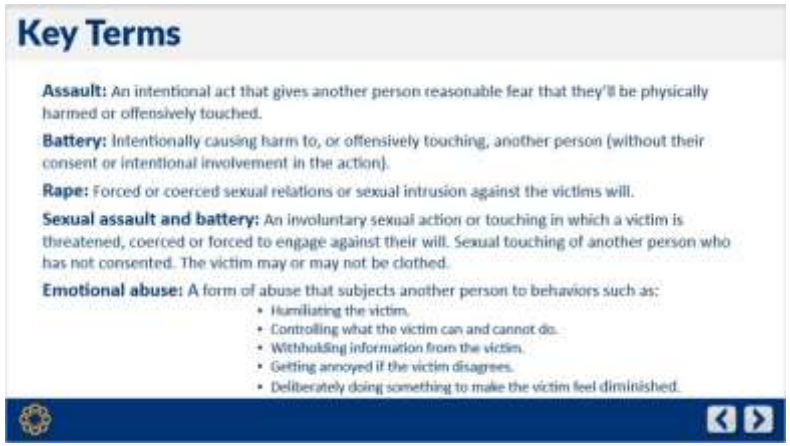




Abuse and Neglect Assessment

More often than not, children and the elderly will not voluntarily disclose they are being abused or neglected.

If the healthcare worker suspects abuse or neglect they must address this by:

- Asking specific questions to adults and elders.
- Recognizing the signs of abuse and neglect in adults, elders, and children.
- Being alert for conflicting stories about the event that brought the victim to the hospital.
- Assessing for delays in seeking healthcare for the victim in relationship to the age and level of severity of the injury.
- Observing for inconsistent caregiver expressions of concern or behaviors for the victim.
- Documenting the observed signs of abuse and/or neglect in detail.

Abuse and Neglect Assessment (Con't)

Conduct a thorough and objective clinical history and physical assessment.

- **Collect and preserve evidence.**
  - This includes x-ray and lab results.
- **Document and include injury description (with or without pictures).**
  - Collect, store, preserve, transfer, and document forensic evidence according to protocol.
- **Please only disclose information to law enforcement in accordance with the Release of Patient Information to Governmental Agencies, Law Enforcement, and Correctional Institutions Policy.**
  - Law enforcement should fill out the Law Enforcement Request for Protected Health Information Form which is attached to this policy in PolicyStat.

Possible Warning Signs of Assault or Abuse

- **Physical abuse:** Frequent unexplained injuries; complaints of pain without obvious injury; bruises or burns; cuts; puncture wounds; ligature marks; bleeding below the scalp; lack of reaction to pain
- **Sexual abuse:** Difficulty walking or sitting; bruising on inner thighs; injury to the genital area; vaginal bleeding that is not menstruation; unexplained sexually transmitted disease or other infection
- **Other signs:** Unusual patient behavior, including changes in attitude or routine; unlikely reasons for injury; reluctance to talk openly; confusion not caused by a diagnosed condition; fear of being alone with a healthcare worker; anger, withdrawal, depression, or agitation; denial

Screening a Patient for Abuse/Neglect

All patients will be screened for signs of abuse and neglect.

Examples of screening questions include, but are not limited to:

- Are you safe in your home?
- Are you safe in your relationship?
- Are you in immediate danger?
- Have there been threats or direct abuse of you and your children?
- Are you afraid your life may be in danger?
- Does your partner/caregiver ever watch you closely, follow, or stalk you?
- Has your partner/caregiver ever threatened to kill you, him/herself, or your children?

Screening a Patient for Abuse/Neglect (Con't)

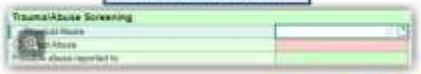
Abuse screening will be documented in the electronic medical record.

Examples of some Abuse Screens in eCHART:

Abuse Indicator Flowsheet in Triage for Emergency Services

Safety and Concerns in Peds Daily Cares/Safety Flowsheet

Inpatient Trauma/Abuse Screening in the Screenings Flowsheet



Suspected Abuse by a Personal Representative

For Abuse, Neglect, Endangerment Situations:

Erlanger Health may elect not to treat a person as the Personal Representative of a patient if the treating provider has a reasonable belief that:

- The individual has been or may be subjected to domestic violence, abuse, or neglect by such individual; or treating the person as the Personal Representative could endanger the patient.

In addition to meeting one or both of these conditions, Erlanger must also, in the exercise of its professional judgment, believe it is not in the best interests of the patient to treat the individual as the patient's Personal Representative.

- Example 1: A provider reasonably believes that a minor patient is a victim of child abuse by her parent.
- Example 2: A physician reasonably believes that providing the Personal Representative of an incompetent elderly patient with access to the patient's Protected Health Information would endanger the patient.

Reporting Abuse and/or Neglect

The following is the process for reporting actual or suspected assault or abuse:

- Meet the immediate needs of patient.
- Notify your Department Manager/Clinical Staff Leader immediately.
- Complete an eSafe occurrence report.
- Report to the appropriate local agencies.

Related Erlanger Policies:

- Occurrence Reporting
- **Additional Related EWCH Policy:**
  - Notification of Law Enforcement of Events Required by Law

Click Here to View Contact Information for Suspected Abuse Reporting in Tennessee

Click Here to View Contact Information for Suspected Abuse Reporting in North Carolina

Reporting Abuse and/or Neglect

Contact Information:

Tennessee Department of Human Services, Adult Protective Services Hotline
1-800-APS-Tenn (1-888-277-8366)
423-634-6628

National Center on Elder Abuse
www.ncea.aoa.gov
1-800-677-1116

Tennessee Department of Adult Services
423-266-6918

Rape Crisis Center
423-755-2700

Childhelp USA National Child Abuse Hotline
1-800-422-4453 (1-800-4-A-CHILD)

Rape, Abuse, Incest National Network (RAINN)
1-800-656-HOPE

Reporting Abuse and/or Neglect

Contact Information:

Contact the county in which the patient resides.

Child/Adult Protective Services

Cherokee County 828-837-7455
Clay County 828-389-6301
Graham County 828-479-7913

Cherokee County Sheriff's Department

577 Regal Street
Murphy, NC 28906
Phone: 828-837-2589
Emergency: 911

Abuse by Healthcare Workers

Patient assault or abuse is a crime punishable by jail or fines.

- Healthcare workers must maintain professional boundaries with patients at all times.
- The very nature of being a patient places the patient in a vulnerable position.
- When a healthcare worker abuses a patient, this is a known as breach of ethical duties.
  - It is considered patient harm and it destroys trust in the healthcare system.
- Sexual contact between a healthcare worker and a patient is considered unethical and abusive because it is an unequal relationship.
- Healthcare workers who assault and abuse patients are often repeat offenders.

Abuse by Healthcare Workers (Con't)

Signs of a possible abusive healthcare worker:

- Refusing to allow a patient to speak for himself or herself
- Indifference or anger toward a patient
- Intentionally not taking care of a patient's needs
- Aggressive behavior toward a patient
- Reluctance to participate in planning for the care of a patient
- Improper affection, flirtation, or coyness with a patient
- Uncalled-for defensiveness
- Alcohol or drug abuse
- Previous history of patient abuse criminal record

Abuse and Impropriety by Healthcare Workers

The patient-healthcare worker relationship is unequal.

The patient can be vulnerable and may develop emotional dependence on the healthcare worker.

- The patient seeks specialized knowledge. The healthcare worker offers this.
- The patient seeks advice and treatment. The healthcare worker offers this.
- The patient shares personal information. The healthcare worker does not.
- The patient is 'naked' to the healthcare worker, physically and often emotionally. The healthcare worker is not.

Sexual Impropriety by Healthcare Workers

Healthcare workers are responsible for maintaining proper boundaries with patients.

Examples of sexual impropriety include:

- Performing an intimate exam without explanation, consent, or the presence of others.
- Overexposing a patient's body during a physical exam.
- Making improper comments, such as comments about a patient's body or underclothing.
- Asking for details of a patient's sexual history or preferences, when not clinically relevant.

Erlanger Resources for Clinical Associates

It is every associates' responsibility to manage stress appropriately so that patients are not at risk from your anger or frustration.

If you need help with stress management, please speak to your Department Manager/ Clinical Staff Leader or contact Human Resources for support.

- Erlanger provides an employee assistance program (EAP) for all full-time and part-time employees. You are encouraged to use the EAP whenever you need guidance in coping with life's difficulties. If you have difficulty handling drugs or alcohol, the EAP can provide information on treatment. The EAP is a confidential service to be used when you need help.

Employee Assistance Program (EAP)
To access services:
1-888-825-3509
www.resourcesforliving.com
Username: Erlanger
Password: EAP

Reporting Patient Abuse by a Healthcare Worker

If you witness or suspect patient abuse by a healthcare worker, YOU ARE REQUIRED to report this immediately.

- Meet the immediate needs of patient.
- Notify your Department Manager/Clinical Staff Leader immediately.
- Complete an eSafe occurrence report.
- You can also call the Integrity Hotline at 1-877-849-8338.

Policies and Procedures for Review

The following policies and procedures are important to review if you work in Tennessee:

- Child Abuse, Neglect – Suspected
- Abuse Reporting

The following policies and procedures are important to review if you work in North Carolina:

- Management of Child Abuse
- Management of Domestic Abuse/Battering
- Management of Elderly or Disabled Victims of Abuse/Neglect
- Protection from Abuse, Neglect and Exploitation - Swing Bed Residents

Summary

- All patients will be screened for signs of abuse and neglect.
- When suspected or actual abuse/neglect is identified, meet the immediate needs of patient, notify your Department Manager/Clinical Staff Leader immediately, complete an eSafe occurrence report, and report to the appropriate local agencies.
- Healthcare workers must maintain professional boundaries with patients at all times.
- If you witness or suspect patient abuse by a healthcare worker, YOU ARE REQUIRED to report this immediately.

Knowledge Check

Which of the following is a good strategy for writing **multiple choice** questions?

- ○ Use words like always and never.
- ◉ Keep questions simple and direct.
- ○ Be sure to use two distractors that are not plausible answers.
- ○ Avoid use of short answer options.

Submit

Knowledge Check

True or False. Quiz questions are an opportunity to introduce new concepts.

- ○ True
- ◉ False

Submit

Knowledge Check

In writing quiz questions which of the following guidelines are important to follow? Select all that apply. **(Multiple Response)**

- ☑ Ensure questions are concise.
- ☐ Include clues about the answer in the question.
- ☑ Have someone else review your questions.
- ☐ For multiple choice or multiple response always include as many options as possible.
- ☑ Be sure that all multiple choice answers are grammatically parallel.

Submit

Chain of Infection and Hand Hygiene

Objectives

Learner will be able to:

- Describe the chain of infection and its components
- Identify ways to break the chain of infection and prevent the spread of disease.
- Recognize the importance of hand hygiene in breaking the chain of infection
- Understand how and when to perform hand hygiene

Chain of Infection-Breaking the chain

If you have an infection, believe you are contagious or have been exposed to a infection report to your supervisor before your shift starts.

In most cases, you will need to stay home from work until you have recovered or started treatment.

DO NOT come to work if you have:

- Fever
- Conjunctivitis (a.k.a. Pink Eye)
- Unexplained rash

Chain of Infection-Breaking the chain

Standard Precautions are used with all patients.

Patients with certain diseases require additional precautions to block the spread of disease.

These precautions are:

- Contact Precautions
- Droplet Precautions
- Airborne Precautions
- CD Precautions
- Pediatric Respiratory Precautions
- Enhanced Precautions

Note: These precautions are covered in more detail for clinical personnel in the course Standard Precautions and Isolation Guidelines.

Chain of Infection-Breaking the Chain

Routine patient care can lead to contamination of surfaces, equipment, medical devices, etc. Infection prevention includes cleaning and disinfection of equipment and environment.

A surface can become contaminated if:

- It is touched with a contaminated hand or glove.
- It is touched by a patient.
- There is a spill or splatter.
- There are bacteria, fungi, or viruses in the air that contact the surface.

Decontaminate items by cleaning them with hospital approved disinfectants.

Chain of Infection-Breaking the chain

Protective Personal Equipment (PPE)

PPE helps reduce the risk of exposure to infectious agents/pathogens such as blood or other body fluids. Examples of PPE are:

- Gloves
- Gowns
- Face shields
- Respirator/Face mask

Note: Clinical employees will receive more details on these topics in an additional course.

Chain of Infection-Breaking the chain

Cough Etiquette

Chain of Infection-Breaking the chain

Influenza

- Infected persons are contagious one day before symptoms appear and as long as seven days after infected.
- Virus is spread by droplets from coughing and sneezing, contaminated hands and by touching contaminated objects and then touching eyes or nose (i.e. computer keyboards, door knobs, telephones, elevator buttons).
- Use Standard and Droplet Precautions for patients with flu-like illness and fevers.
- Restrict family and visitors who are sick.
- Use Respiratory Hygiene/Cough Etiquette in areas where flu can be spread. Place signs that alert patients and visitors. Provide tissues, trash cans, masks, and hand sanitizer.

Chain of Infection-Breaking the chain

Influenza prevention is a matter of patient safety!

- Approximately 25% of healthcare workers get the flu each year and are contagious even if symptoms are mild.
- One sick healthcare worker can infect a patient who has a health risk and this can lead to severe illness and even death.
- The elderly and the very young are most likely to be hospitalized and die from influenza.
- Influenza vaccine is least effective (30-40%) in the elderly and those who are frail.

Chain of Infection-Breaking the chain

Immunization-It is a best practice to protect yourself and others from vaccine-preventable diseases.

Examples of these diseases include:

- Measles
- Varicella (chickenpox / shingles)
- Hepatitis B (HBV)
- Pertussis
- Rubella
- Mumps
- Influenza
- Tetanus
- Diptheria

As an Erlanger employee, you may be tested to check your:

- Immune status
- Need for immunization

Hand Hygiene and Breaking the Chain

Hand hygiene is the best way to stop the spread of infection.

- Alcohol-based hand rubs are preferred
- Use soap and water if hands are visibly soiled or if caring for a patient with Clostridioides difficile (C. diff).

Hand Hygiene and Breaking the Chain

Hand hygiene is the best way to stop the spread of infection.

Perform hand hygiene:

- Immediately before touching a patient
- Before performing an aseptic task (e.g., placing an indwelling device) or handling invasive medical devices
- Before moving from work on a soiled body site to a clean body site on the same patient
- After touching a patient or the patient's immediate environment
- After contact with blood, body fluids, or contaminated surfaces
- Immediately after glove removal

Hand Hygiene

Proper hand hygiene is the single most important way to prevent the spread of disease.

How to wash hands or cleanse with alcohol rub:

Hand washing	Alcohol-based hand rub
• Wet hands and apply soap • Rub hands together for at least 20 seconds • Rinse with a stream of warm water • Dry with a paper towel • Use a clean paper towel to turn off the faucet.	• Apply enough rub to cover all surfaces of both hands. • Rub hands until dry. Do not rinse or wipe dry. • **NOTE:** DO NOT use alcohol wipes. They are less effective than rubs.

Wash hands…

- Before and after each work shift.
- Before and after physical contact with each patient.
- Before donning sterile gloves when inserting a central intravascular catheter.
- Before inserting indwelling urinary catheters, peripheral vascular catheters, or other invasive devices that do not require a surgical procedure.
- When moving from a contaminated-body site to a clean-body site during patient care.
- After handling contaminated items such as bedpans, dressings, or urinary drainage bags.
- After removing gloves.
- After using the toilet, blowing the nose, covering a sneeze, etc.
- Whenever hands are visibly dirty.
- Before eating, drinking, or handling food.

When to use alcohol-based hand rub…

You may use an alcohol-based hand rub almost any time hands should be washed. In fact, the Centers for Disease Control and Prevention (CDC) now recommends alcohol rubs for routine hand decontamination in most clinical situations.

Alcohol-based hand rubs are an alternative to soap and water.

- Provides good protection against spread of infection.
- Less drying to the skin than soap-and-water washing.
- Convenient (you do not need a hand-washing sink to use an alcohol rub).
- An exception is when hands are visible dirty. In that case, wash with soap and water.

Fingernails for Clinical Staff

- Natural nails will be kept less than ¼ inch long by all surgical personnel, all staff involved in sterilization and disinfection processes (i.e. Central Sterile personnel), all direct patient caregivers.
- Research documents that long nails are not adequately decontaminated by routine hand hygiene.
- If nail polish is worn on the natural nail, it cannot be chipped, cracked or peeling. Nail polish is defined as a coating applied to the nail which is designed to be completely removed and replaced on a regular basis.

Fingernails for Clinical Staff

- Jewelry and artificial nails can be good places for bacteria to hide.
- Artificial nails and/or excessive jewelry are not permitted for any associate who has direct patient contact or who cleans or prepares things that patients may use.

Fingernails for Clinical Staff

Artificial nails are not permitted for:

- Surgical personnel
- Staff involved in sterilization and disinfection processes (i.e. Central Sterile personnel)
- Direct patient caregivers

Fingernails for Clinical Staff

Artificial nails include any substances or devices applied to natural nails to augment or enhance nails.

Anything applied to natural nails other than regular nail polish is **NOT permitted**. Studies have clearly shown that the area between the artificial and natural nail cannot be adequately decontaminated.

Anything cured under a UV light and has the potential to lift from the natural nail (ie:gel, acrylic, dipped nails) is considered an artificial nail and **is NOT permitted**. Gel polish applied without a curing process is permitted.

Summary

The chain of infection provides opportunity for pathogens to spread.

Using good hygiene, appropriate PPE, and cleaning processes can interrupt the chain, slowing the spread of disease.

Chain of Infection

Portal of Entry

Portal of entry is where the infectious agent/pathogen enters the body of the at risk person.

If sneeze droplets get into eyes, nose, or mouth this is an example of portal of entry.

Chain of Infection

A **susceptible host** is defined as the person who is at risk to acquire an infection or disease. Examples of persons at risk are those who have a weak immune system, have active diseases or illness, or have not been properly immunized.

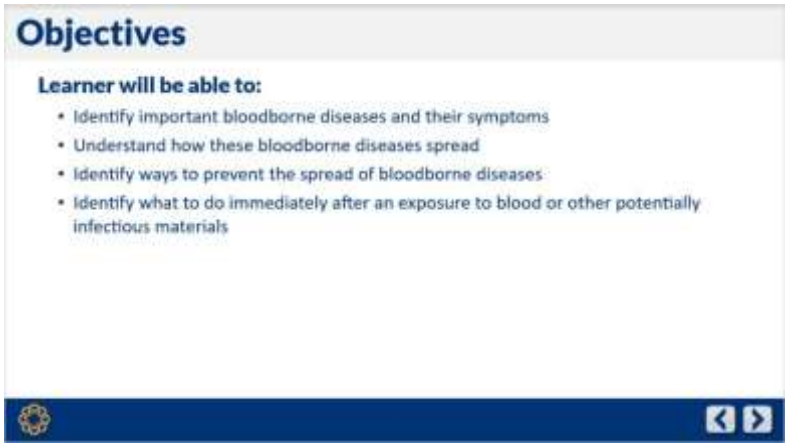
Chain of Infection

A pathogen is an infectious agent that causes disease. Examples include:
bacteria
viruses
fungi
parasites

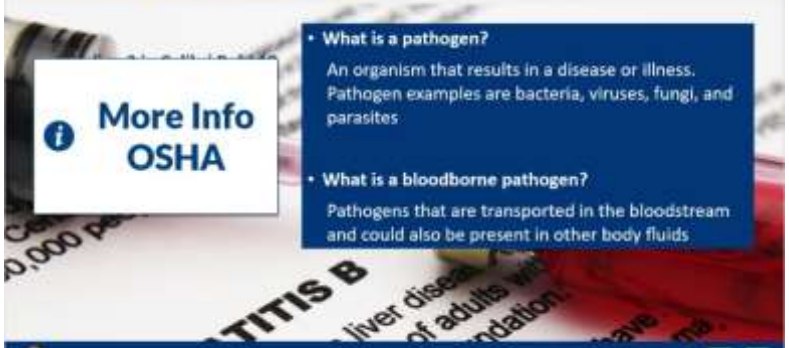
Chain of Infection

The **reservoir** is the place that the infectious agent/ pathogen lives or originates. A reservoir can be an infected person, food, water, animal, or dirt.

Bloodborne Pathogens



Bloodborne Pathogens



Bloodborne Diseases

Healthcare professionals are exposed to human blood and other body fluids every day. This means that we are at risk for exposure to bloodborne pathogens.

As healthcare professionals, we need to understand:

- Important bloodborne diseases and their symptoms
- How these bloodborne diseases spread
- How to prevent the spread of bloodborne diseases
- What to do if exposure to blood or other potentially infectious materials occurs

Bloodborne Diseases

Bloodborne Diseases

Human Immunodeficiency Virus (HIV)

- HIV targets the immune system and results in the disease known as AIDS (Acquired Immunodeficiency Syndrome).
- The body needs a strong, healthy immune system to fight against infections and illnesses.
- Due to immunodeficiency, a superimposed infection or illness can be fatal for a patient with HIV or AIDS.

Bloodborne Diseases

Human Immunodeficiency Virus (HIV)

In the very early stages of HIV infection, the patient may feel like they have the flu. Other HIV signs and symptoms of infection include:

- Swollen lymph nodes
- Visual changes
- Diarrhea
- Night sweats
- Unexplained weight loss
- Rash
- Fatigue
- Shortness of breath
- Frequent pneumonias

Return

Bloodborne Diseases

Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV)

- HBV and HCV both infect the liver and can cause long-term liver damage.
- Up to 85% of those infected with HCV become chronic carriers
- Approximately 5% of patients infected with HBV as adults may develop chronic lifelong infection
- HBV and HCV infections may become life threatening

Bloodborne Diseases

Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV)

Signs and symptoms of HBV and HCV can include:

- Feeling tired
- Loss of appetite
- Mild fever
- Aching muscles or joints
- Diarrhea
- Nausea and vomiting
- Yellowed skin and eyes (jaundice)
- Dark urine
- Light colored stools
- Itching

Bloodborne Diseases

If you are at risk for exposure to blood or other potentially infectious material (OPIM) because of your job, your employer must:

- Offer you the hepatitis B vaccine
- Pay for the vaccine

If you do not want the vaccine, you will need to sign a form. This form states that your employer offered you the vaccine, and you refused. If you change your mind later, you can still receive the vaccine at any time.

Bloodborne Diseases

Hepatitis B Vaccine

- The HBV vaccine is very safe and effective.
- For more information on the HBV vaccine, contact your supervisor.
- There is no vaccine for HCV at this time.

Return

Bloodborne Diseases

Symptom Note

- Many patients infected with HBV, HCV, or HIV do not have obvious symptoms. These patients can still spread the disease.
- They may pass the disease to others without even knowing it.

Bloodborne Diseases

Bloodborne Diseases

- These three diseases are common, but bloodborne diseases are not limited to this group.
- Many bloodborne diseases can be spread through blood or other potentially infectious materials.


Exposure and Transmission
Bloodborne pathogens can be spread in different ways.
Spread
Needle Stick
Other
Best Protection


Exposure and Transmission
The Most Common Methods
• Sexual contact (High risk: Unprotected sex)
• High risk: Sharing of drug needles
• Mother and unborn baby fluid exchange
Return


Exposure and Transmission
Needle-stick (or other sharps injury) constitute the highest risk to healthcare professionals for contracting HBV, HCV, or HIV.
Return


Exposure and Transmission
Healthcare professionals can also be exposed to bloodborne pathogens if there is:
• Mucous membrane (eye, nose, mouth) exposure to infectious materials.
• Non-intact skin exposure to infectious materials.
Return

Exposure and Transmission

- Standard precautions protect healthcare workers from exposure to blood and other potentially infectious materials. These precautions are to be implemented whenever a healthcare worker may have contact with patient blood or body fluids.
- Whether or not there is visible blood, Standard Precautions also apply to:
  - All body fluids (except sweat)
  - All secretions
  - All excretions

Always use Standard Precautions when preforming patient care. No exceptions.

Return

Eating and Drinking in Clinical Areas

No eating or drinking permitted in clinical areas!

Eating and drinking by clinical staff will be confined to break areas and the cafeteria.

Eating and Drinking in Clinical Areas

Departments may establish a designated cabinet to store drinks (i.e. water, coffee, canned drinks) for easy access by staff.

The cabinet must be clearly labeled "Staff Only" and must be in an area where there is no handling of blood, body fluids, potentially contaminated equipment, medical records, or devices and poses no risk for occupational exposure to blood or body fluids.

Eating and Drinking in Clinical Areas

- Health care workers will not eat, drink, handle contact lenses, apply cosmetics, or lip balm in any patient area, patient treatment room, or other areas where there is a reasonable likelihood of occupational exposure to blood or body fluids.
- No food or drink shall be stored where blood or other body substances are present (i.e. refrigerators, freezers, cabinets, shelves, work surfaces, etc.).
- Consumption of drinks outside break areas should be done out of the view of patients and visitors where possible.

Other potentially infectious materials (also known as OPIM) which can transmit pathogens include:

- Semen
- Vaginal secretions
- Cerebrospinal fluid (fluid surrounding the brain and spinal cord)
- Synovial fluid (fluid surrounding bone joints)
- Pleural fluid
- Pericardial fluid
- Peritoneal fluid
- Amniotic fluid
- Saliva in dental procedures
- Any body fluid that is visibly contaminated with blood
- All body fluids in situations where it is difficult or impossible to differentiate between body fluids

Make it your practice to use Standard Precautions with every patient to minimize risk of exposure to bloodborne pathogens.

Transmission

The pathogen is not always transmitted with an exposure. Some pathogens carry more risk than others.

The CDC states that the occupational risk of percutaneous exposure to:

- HBV is 22-31%.
- HCV transmission is 1.8%
- HIV transmission is 0.3%.

Amount of exposure

Route of exposure

Amount of virus in infectious material

http://depts.washington.edu/nuaids/providers/guidelines

Bloodborne Diseases

The pathogen is not always transmitted with an exposure. Some pathogens carry more risk than others.

The CDC states that the occupational risk of percutaneous exposure to:

- HBV is 22-31%.
- HCV transmission is 1.8%
- HIV transmission is 0.3%.

What should you do if you are exposed to blood or other potentially infectious materials?

Post Exposure Plan

Quick action can decrease the risk of infection after an exposure. You should seek medical attention immediately.

If you are exposed to blood or other potentially infectious materials, remember the acronym, **W.I.N.**

W ash the exposed area immediately with soap and water.

I dentify the source of the exposure.

N otify your supervisor immediately.

Post Exposure Plan

Quick action can decrease the risk of infection after an exposure. You should seek medical attention immediately.

If you are exposed to blood or other potentially infectious materials, remember the acronym, **W.I.N.**

If you are ever exposed to blood or other bodily fluids, report this immediately to the House Supervisor and your department supervisor. At EWCH notify your CSL and your department supervisor immediately.

Post Exposure Plan

Quick action can decrease the risk of infection after an exposure. You should seek medical attention immediately.

If you are exposed to blood or other potentially infectious materials, remember the acronym, **W.I.N.**

You should immediately report:

- **Needlesticks**
- **Cuts or puncture wounds caused by sharp objects**
- **Splash or spray of blood on your skin**

Post Exposure Plan

Quick action can decrease the risk of infection after an exposure. You should seek medical attention immediately.

If you are exposed to blood or other potentially infectious materials, remember the acronym, **W.I.N.**

Follow instructions from the House Supervisor (or CSL at EWCH) and your department supervisor for incident report completion and follow-up care.

Post Exposure Plan

Quick action can decrease the risk of infection after an exposure. You should seek medical attention immediately.

If you are exposed to blood or other potentially infectious materials, remember the acronym, **W.I.N.**

If you have any questions about bloodborne pathogens, call Infection Prevention at 423-778-7239 or 828-835-7523 (at EWCH). After hours, call the House Supervisor or ask your CSL (at EWCH).

Compressed Gas Cylinder Safety

Standards

This training is required as part of the Occupational Safety and Health Administration Standard 1910.104 and the National Fire Protection Association NFPA 99 Health Care Facilities Code.

NFPA 99 Standard 11.5.2.1.1 - "Personnel concerned with the application and maintenance of medical gases and others who handle medical gases and the cylinders that contain the medical gases shall be trained on the risks associated with their handling and use."

OSHA Occupational Safety and Health Administration
www.osha.gov

NFPA

Objectives

The learner will be able to:

- Apply safe practices and standard procedures regarding the handling of compressed gas cylinders and containers.

Compressed Gas Cylinder Hazards

One of the most common hazards in a health care facility is the storing and handling of medical gas cylinders and containers.

There are two types of hazards associated with medical gas equipment:

Click on each icon to learn more.

Compressed Gas Cylinder Hazards

One of the most common hazards in a health care facility is the storing and handling of medical gas cylinders and containers.

There are two types of hazards associated with medical gas equipment:

Mechanical issues such as physical damage to compressed gas cylinders can occur. Compressed gas cylinders that sustain damage to the regulator or valve can allow the escaping gas to propel the cylinder in a violently dangerous manner. The pin index safety system and gas regulators can be damaged and cause hazards to patients if the wrong gas is delivered.

CLOSE

Compressed Gas Cylinder Hazards

One of the most common hazards in a health care facility is the storing and handling of medical gas cylinders and containers.

There are two types of hazards associated with medical gas equipment:

General fire and explosions can be caused by incidents involving oxygen, which is an oxidizer. When present, oxygen forms one side of the fire triangle. When added to heat and fuel, a fire and/or an explosion can occur.

CLOSE

Compressed Gas Storage Requirements

- Properly secure individual medical gas cylinders/containers at all times using straps, belts, chains, or designated tank racks.
- Store tanks in a well ventilated area.
  - Keep away from heat or ignition sources.
  - Keep away from electrical circuits.
  - Store cylinders in a dry, cool, well-ventilated, secure area protected from the weather and combustible materials.
- Store flammable gas cylinders away from oxygen, nitrous oxide cylinders, or oxygen charging facilities.

Compressed Gas Storage Requirements (Con't)

Containers shall not be placed in the following:

1. Where they can be tipped over by the movement of a door
2. Where they interfere with foot traffic
3. Where they are subject to damage from falling objects
4. Where exposed to open flames and high-temperature devices

Securing Cylinders and Containers

Cylinders have a high center of gravity. Portable tanks may fall over when being moved if they are stopped suddenly by an object or crack in the floor.

Securing Cylinders and Containers

Oxygen containers shall be secured by one of the following methods while in storage or in use to prevent tipping over caused by contact, vibration, or seismic activity:

1. Securing each individual tank with one or more restraints
2. Securing each tank within a framework, stand, or assembly designed to resist container movement
3. Securing by placing the container against two points of contact

Signs for Storage Areas

- Storage locations shall have precautionary signage that is readable from a distance of 5 feet and displayed on each door or gate of the storage room/enclosure.
- Sign(s) shall include the following wording as a minimum:
  - **Caution**
  - **Oxidizing Gas(es) Stored Within**
  - **No Smoking**
- **The nonsmoking policies shall be strictly enforced.**

Proper Tank Storage

Always physically separate full and empty compressed gas cylinders.

- Do this by using separate racks, physical barriers or color-coding the storage rack.
- If empty and full cylinders are stored within the same enclosure, they must be segregated from each other.

Be sure to label the cylinders clearly (Full/Empty or Full/Not-Full).

- Proper labeling helps avoid confusion and delay if a full cylinder is needed quickly.

Consider any open cylinder to be empty.

- It is ok to use partially-filled cylinders, but they should not be stored with unopened ones.

Transporting Cylinders

- "E" cylinders will be transported in approved carts or cylinder holders designed to accommodate the size of the cylinder and ensure stability and safe use of the cylinder.
- "H" or "G" cylinders will be transported in a four-wheeled cart designed for their size and the cylinders will be capped and chained to the cart to ensure stability and safe use of the cylinder.
- If the regulator is removed from an "H" or "G" cylinder, the protective cap MUST be replaced on the cylinder prior to transport.

Important Reminders

- Never roll a cylinder to move it.
- Never carry a cylinder by the valve.
- Never leave a cylinder open when it is unattended or not operating.
- Never leave a cylinder unsecured.
- Never grease or oil the regulator, valve, or fittings of an oxygen cylinder.
- Never refill a cylinder.
- Never use a flame to locate gas leaks.
- Never attempt to mix gasses in a cylinder.
- Never return a cylinder to the "FULL" rack. (Only the person who brings the cylinder from the tank room can place a cylinder in the "FULL" rack.)

Summary

- Avoid dropping or banging tanks against one another.
- All tanks must be secured in an appropriate storage rack or stand, or individually secured with a chain.
- Do not carry tanks by the valve cap.
- No more than 12 tanks may be stored within a smoke compartment (full or empty).
- Compressed gas storage rooms must be labeled with appropriate signs.
- Always transport tanks in brackets or carts designed for this purpose – do not lay tanks on stretchers or beds for transport.

Electrical Safety

Standards

This training supports the Occupational Safety and Health Administration's Electrical Standard 29 CFR 1910 Subpart S.

1910.302; 1910.308; 1910.331 - 1910.335:

"Exposure to electricity is one of OSHA's "Fatal Four" occupational hazards resulting in death. Electrical safety training is intended to teach employees who work with electrical equipment what the limitations are for non-qualified electricians, and how to avoid exposure to electric shock or electrocution."

OSHA Occupational Safety and Health Administration
www.osha.gov

Objectives

Learner will be able to:

- Utilize electrical safety practices to prevent workplace injury.
- Properly inspect for and report any signs of damage to electrical equipment.

Electrical Safety

Before using electrical equipment:

- Prior to plugging a device in, inspect the equipment for frayed cords, cracked casings, and signs of wear. Also inspect the electrical outlet for any damage.
- If any damage or fraying is noted, do not plug in the equipment. Call for repairs.
  - **Maintenance:** Call for appliances and all non-healthcare related equipment. Exception: Maintenance does service patient beds.
  - **Biomed (Clinical Engineering):** Call for all equipment used in direct patient care except for patient beds.
- Use only power cords with three-prong plugs. Never use adapters, two-prong plugs, or broken three prong plugs.
- **Do not jerk cords from outlets.** Pull on the plug to remove a cord from an outlet.

Electrical Equipment

Do not use electrical equipment if:

- ☒ It is damaged or broken.
- ☒ Liquid has been spilled on the equipment.
- ☒ The floor is wet and you are standing in the wet area.
- ☒ Your hands are wet.
- ☒ It gets hot to the touch.
- ☒ It smells like it is burning when in use.

- Do not stack anything on or behind electrical equipment.
- Never use power strips or extension cords unless they have been supplied by the Maintenance Department.

Equipment Brought Into the Facility

Equipment brought in by patients/visitors also should be inspected before patient use.

- Items such as radios and razors should be battery operated whenever possible.
- Remove the equipment from its power source before inspection.
- The receiving staff member is to inspect it upon receiving for frayed cords, signs of damage, cracks in the casing, failure of internal tests, or potential infection risks.
  - Example: Home CPAP machine

Red Colored Outlets

- All red colored receptacles should continue to provide power during an electrical power failure.
- All diagnostic/supportive patient equipment must remain connected to the red colored power outlets.
- Should a total loss of power occur which includes the red colored outlets, ensure patient safety by supporting patients on positive airway pressure devices. Encourage the patients to remain calm and follow all directions from the Command Center.

Contact Information

For Main, Children's, Erlanger East, North, Riverside Dr., and Dodson Ave:

- **Maintenance:** Dial 423-778-7777.
- **Biomed (Clinical Engineering):** Dial 423-778-2063.

For Bledsoe and Sequatchie Valley:

- **Maintenance:** Dial 423-827-3887 (Scott Copeland) or 423-413-3374 (Mark Blankenship).
- **Biomed (Clinical Engineering):** Dial 423-778-2063.

For Erlanger Western Carolina:

- **Maintenance:** For non-emergent requests, utilize the EasyNet system on the EWCH Intranet. For emergencies, call Plant Operations at 828-835-7630 or ext. 7630.
- **Biomed (Clinical Engineering):** Dial 423-778-2063.

For all other locations: Check with your supervisor.

Summary

- Inspect electrical equipment for frayed cords, cracked casings, and signs of wear. Also inspect electrical outlets for any damage.
- Contact the Maintenance Department or Biomed (Clinical Engineering) if any damage to electrical equipment is found and take the equipment out of service.
- Do not jerk cords from outlets. Pull on the plug to remove a cord from an outlet.
- Never use power strips or extension cords unless they have been supplied by the Maintenance Department.
- For equipment brought into the facility by patients/visitors for patient use, the receiving staff member is to inspect it upon receiving for frayed cords, signs of damage, cracks in the casing, failure of internal tests, or potential infection risks.

Standards

This training supports the OSHA Standard 29 CFR 1910.1200 and the Tennessee Hazardous Chemical Right to Know Law in the Tennessee Occupational Safety and Health Act of 1972 Title 50, Chapter 3:

"Employer compliance with the federal hazard communication standard for chemicals and other compliance requirements: In addition to the requirements set forth in 29 CFR 1910.1200 each employer must also comply with the following:

(A) Employers shall keep a record of the dates of training sessions given to their employees;
(B) The hazard communication program and employee information and training required of employers pursuant to 29 CFR 1910.1200 and the education and training program pursuant to subdivision (1) shall require annual refresher training after the initial training pursuant to 29 CFR 1910.1200 is conducted, unless the commissioner grants an exemption from annual refresher training."

OSHA Occupational Safety and Health Administration

Objectives

Learner will be able to:

- Identify the six elements that make up a chemical label in accordance with the Globally Harmonized System.
- Highlight important information that can be referenced on a Safety Data Sheet (SDS).
- Navigate to the hyperlink for oneSOURCE located on the Erlanger Intranet in order to access Safety Data Sheets.

Classification and Labeling of Chemicals

Globally Harmonized System (GHS) of Labeling Chemicals

All chemical labels are required to have 6 elements:

- Product Identifier
- Pictograms
- Signal Words
- Hazard Statements
- Precautionary Statements and Pictograms
- Supplier Identification

OSHA requires Safety Data Sheets (SDS) to follow a uniform format in order to:

- Make it easier for users to locate and understand the information they are seeking.
- Improve SDS effectiveness.
- Improve the accuracy of the information.

GHS Label

Click on each circle to learn more.

GHS Label

GHS Label

GHS Label

GHS Label

GHS Label

Click on each circle to learn more.

GHS Label

Click on each circle to learn more.

GHS Symbols/Pictograms

- Pictograms are used to communicate hazards of the chemical.
- When a chemical has multiple hazards, different pictograms are used to identify the various hazards.

Click on the image to view the GHS Symbols/Pictograms.

Accessing SDS Sheets for Hazardous Chemicals

Safety Data Sheets contain additional information including first aid measures, how to clean up a spill, handling/storage, personal protective equipment, etc.

- They can be accessed by going to the Erlanger Intranet. Under the Employee Links section, click the link to "oneSOURCE".

Click on the image for a job aid on how to access SDS sheets in oneSOURCE.

Safety Data Sheet

Click on the image to view an example of a Safety Data Sheet (SDS).

Summary

- OSHA requires a standard labeling of chemicals to make it easier for users to locate and understand the information they are seeking.
- Safety Data Sheets contain additional information including first aid measures, how to clean up a spill, handling/storage, personal protective equipment, etc.
- Safety Data Sheets can be accessed by going to the Erlanger Intranet and under the Employee Links section, clicking the hyperlink for oneSOURCE.

Medical Gas Safety

Objectives

The learner will be able to:

- Apply safe practices and standard procedures regarding the maintenance and administration of medical gases.

Standards

This training is required as part of the Occupational Safety and Health Administration Standard 1910.104 and the National Fire Protection Association NFPA 99 Health Care Facilities Code.

NFPA 99 Standard 11.5.2.1.1 - "Personnel concerned with the application and maintenance of medical gases and others who handle medical gases and the cylinders that contain the medical gases shall be trained on the risks associated with their handling and use."

OSHA Occupational Safety and Health Administration www.osha.gov

NFPA

Cylinder/Container Storage Requirements

- Use a first-in, first-out (FIFO) inventory system to prevent full containers from being stored for long periods of time.
- **Label empty cylinders to prevent confusion.**
- When returning empty cylinders to the tank room/loading dock, properly close the cylinder valve/knob and **secure the tank in a vertical position.**

Threshold Pressure

When the facility employs cylinders with integral pressure gauge, it shall establish the threshold pressure at which a cylinder is considered empty.

FULL

A cylinder is considered empty when the pressure Reaches 500 psi.

< 500 psi = EMPTY

EMPTY

Medical Gas Safety: Full vs. Empty Tanks

Important Note:

1. Do not store FULL tanks with PARTIAL/EMPTY tanks.
2. All tanks must be in a stand.
3. Rule of thumb – An opened tank is considered NOT FULL.

Proper Tank Storage at Erlanger Health

Cylinder Handling

Place all cylinders so the valve is accessible at all times.

- The valve should be closed when the cylinder is not in use.
- Do not allow oil or grease to come in contact with cylinders or valves.
- Always use the proper regulator for the gas in the cylinder.

Cylinder Use

Open the cylinder valves SLOWLY and stand to the side of regulator when opening the valve (to avoid being impaled by faulty valve).

- Crack the valve (open slightly until the high pressure gauge stops then open the valve all the way).
- Point the valve away from you and warn others nearby before opening any valve.
- Never insert an object into a valve opening to remove a stuck cap. Doing so may damage the valve and cause a leak. Do not attempt to repair a cylinder or the valves.
- Move leaking cylinders to a safe place if it is safe to do so, and call the supplier as soon as possible.

Built On Regulators

Most tanks for standard use/transporting patients have a built on regulator.

These regulators DO NOT get removed.

Cylinder Securement While in Use

- When small-size (A, B, D, or E) cylinders are in use, they shall be attached to a cylinder stand or to medical equipment designed to receive and hold compressed gas cylinders. **Cylinder holders should be attached to the patient bed prior to movement.**
- Individual small-size (A, B, D, or E) cylinders that are **available for immediate use** in patient care areas **shall not be considered to be in storage**.
- Cylinders shall not be chained to a portable or moveable apparatus such as a patient bed or oxygen tent.

Medical Gas Administration

- All smoking materials (matches, lighters, cigarettes, lighter fluid, tobacco, etc.) shall be removed from patients receiving medical gas therapy.
- Sparking toys are not permitted in any patient care space.
- Oil, grease, or other flammable substances shall not be used in or near oxygen equipment.
- Defective equipment shall be immediately removed from the space.

Important Reminders

- Never roll a cylinder to move it.
- Never carry a cylinder by the valve.
- Never leave a cylinder open when it is unattended or not operating.
- Never leave a cylinder unsecured.
- Never grease or oil the regulator, valve, or fittings of an oxygen cylinder.
- Never refill a cylinder.
- Never use a flame to locate gas leaks.
- Never attempt to mix gasses in a cylinder.
- Never return a cylinder to the "FULL" rack. (Only the person who brings the cylinder from the tank room can place a cylinder in the "FULL" rack.)

Key Points

- Always wear eye protection when working with compressed gases.
- Never refill a cylinder or use a cylinder for storing any material.
- The greatest hazard to a user of compressed gases is asphyxiation.
- Remember, except for oxygen and air, all medical gasses are an asphyxiant.

Medical Gas Safety: Shut-Off Valves

- Medical gas shut-off valves are located in patient care areas near nursing stations and procedure rooms. The shut-off valves are inside a 12" square cut-out in the wall, covered by a clear plastic door that can be removed by pulling on the metal ring attached to the center of the plastic door.
- Medical gas shut-off valves are generally separated into zones (controlling a group of rooms/suites) or are dedicated to a single room/suite.

Medical Gas Safety: Shut-Off Valves (Con't)

- Those who can give the approval to close the valves are:
  - Incident Commander, Administrator On-Call, or in their absence the Clinical Staff Leader on the nursing unit with the assigned Respiratory Therapist for the unit.
- The valve may be closed by:
  - Coordination with the unit's Clinical Staff Leader/ Charge Nurse and/or the assigned Respiratory Therapist for the unit.

Preparing to Shut Off Valves

- Identify all rooms and/or patients that are being supplied medical gases and **provide alternative sources** (i.e. prepare for shut-off with medical gas cylinders and have additional cylinders delivered.)
- Identify which medical gas line shut-off valve controls which group of rooms.
- **Ensure the staff present are competent to perform bag mask ventilation in the event that the gases are shut off.**

Summary

- A cylinder is considered empty when the pressure reaches 500 psi.
- Always use the proper regulator for the gas in the cylinder.
- Store full tanks and empty tanks separately.
- No more than 12 tanks may be stored within a smoke compartment (full or empty).
- All smoking materials (matches, lighters, cigarettes, lighter fluid, tobacco, etc.) shall be removed from patients receiving medical gas therapy.
- If medical gases are to be shut off in an emergency, ensure the staff present on the unit are competent to perform bag mask ventilation.

Emergency Preparedness

Standards

Erlanger is an NIAHO accredited organization which requires all employees to be trained on emergency preparedness policies and procedures.

This EOL meets requirements for NIAHO PE.6 which states, "The organization shall establish and maintain a comprehensive emergency preparedness program that meets the requirements of 42 CFR 482.15."

42 CFR 482.15(d)(1): Training Program – The hospital must do all of the following:

- (i) Initial training in emergency preparedness policies and procedures to all new and existing staff, individuals providing services under arrangement, and volunteers, consistent with their expected role.
- (ii) Provide emergency preparedness training at least every 2 years.
- (iii) Maintain documentation of the training.
- (iv) Demonstrate staff knowledge of emergency procedures.
- (v) If the emergency preparedness policies and procedures are significantly updated, the hospital must conduct training on the updated policies and procedures.

Objectives

Learner will be able to:

- Understand the difference between disasters and emergencies.
- Know how to locate and view the Emergency Operations Plan for the organization and for a specific department.
- Review the order of evacuation if directed to do so by the fire department.

Disasters and Emergencies

Be Prepared

- Disasters differ from emergencies in that an organization or group can usually handle the care, treatment or service needs in an emergency.
- Disasters are too big for a single group to deal with and are often associated with large scale emergency situations.
- Disasters have been classified as:
  - Natural
  - Technological
  - Major transportation accidents
  - Terrorism
  - Nuclear, biological, chemical, and radiologic events

LEARN MORE...

(Click each box below to get more information.)

Appropriate Response

Evacuation

Appropriate Response

Identify:

- What disasters could impact this area?
- What is the probability it will?
- What strategies are necessary for dealing with each event?

Prepare:

- Every healthcare facility should have a documented Emergency Operations Plan (EOP).
- Erlanger Health has an Emergency Management Plan: All Hazards Policy.
- Erlanger Western Carolina has an Emergency Operations Plan Policy.
- Your department's EOP can be found by searching PolicyStat for EOP or Emergency Operation Plan along with your department name.

Order of Evacuation

Patients who are in eminent danger should be evacuated immediately.

- When directed by the fire department, evacuation of patients from the danger zone should happen in this order:
  1. Walking patients
  2. Wheelchair patients
  3. Bed or stretcher bound patients

- You should:
  - ☑ Know exit and evacuation routes.
  - ☑ Keep exit routes clear.
  - ☑ Know where to find equipment for evacuating patients.
  - ☑ Know how to use this equipment.

Evacuation

Horizontal Evacuation is the first action to move patients from the danger zone. This means that patients are moved down the hall and through at least one set of fire or smoke doors.

Vertical Evacuation is only ordered by the Fire Department. This involves moving patients down the stairs to a lower floor or safe area of the facility.

Summary

- Disasters are too big for a single group to deal with and are often associated with large scale emergency situations.
- Your department's EOP can be found by searching PolicyStat for EOP or Emergency Operation Plan along with your department name.
- When directed by the fire department, evacuation of patients from the danger zone should happen in this order: walking patients, wheelchair patients, bed or stretcher bound patients.
- Know exit and evacuation routes. Keep exit routes clear.
- Know where to find equipment for evacuating patients and know how to use this equipment.

Fire Safety

Standards

This training is required by the National Integrated Accreditation for Healthcare Organizations:

PE.2 LIFE SAFETY MANAGEMENT SYSTEM:

SR.4 "The fire control plan shall provide for training of staff in the following areas (NFPA 101-2012, 18.7.2.2 & 19.7.2.2):

SR.4a Use of alarms;
SR.4c Transmission of alarm to fire department;
SR.4d Emergency phone call to fire department;
SR.4e Response to alarms;
SR.4f Isolation of fire;
SR.4f Evacuation of immediate area;
SR.4g Evacuation of smoke compartment;
SR.4h Preparation of floors and building for evacuation; and,
SR.4i Extinguishment of fire."

Objectives

Learner will be able to:

- Respond to the smell of smoke or the observation of smoke or fire by rescuing, alarming, confining, and extinguishing/evacuating.
- Properly use a fire extinguisher by using the PASS method.
- Review the units of defense and evacuation procedures.
- Locate the Life Safety Management/Emergency Operations plan for each department.

RACE Procedure

If you smell something burning, and/or observe smoke or fire, remember to R-A-C-E.

Remove persons from immediate danger.

Activate the nearest alarm.

Confine the fire.

Extinguish or evacuate.

Rescue/Remove

Rescue persons from the immediate fire scene/room.

- Rescue patients from injury by removing them from the immediate fire area or shielding them from the fire hazard.

Interlock arms to create a lift for the patient.

Activate the Nearest Alarm

If you smell something burning, and/or observe smoke or fire:

1st - PULL THE CLOSEST FIRE PULL STATION!

2nd - If you cannot locate a pull station or it malfunctions:

- **In-Hospital (TN Campuses):** Dial 6911 and call a Facility Alert + Fire/Smoke Alarm + Location.
- **In-Hospital (Erlanger Western Carolina):** Dial 20 and wait for the tone, the dial #11 to call a Code Red + Location and repeat three times.
- **Out-of-Hospital Locations:** Dial 911 and provide details to the operator.

3rd - **Immediately shut all doors and await further instructions.**

Fire alarm pull stations are located at each exit.

Patient Care Areas

If you are in a patient care area and the fire alarm goes off:

Immediately shut all doors to all patient rooms and await further instructions.

Confine

Confine the fire and smoke by closing ALL doors to rooms and areas.

- Close all fire doors.
- Never block egress routes.
- Never leave or prop fire doors open.

Extinguish

If the fire is small, use a fire extinguisher. Remember to P-A-S-S:

Pull the pin from the extinguisher.

Aim the nozzle at the base of the fire.

Squeeze the lever.

Sweep side to side.

Extinguish

Evacuate: Out-of-Hospital Clinics and Office Buildings

If you are in an out-of-hospital clinic, practice, or office building:

- If your area is alarming, evacuate the building.
- If your area is not alarming and smoke or flame is not present, shelter in place.

Evacuate: In-Hospital/Outpatient Surgery Center

- In a health care occupancy, the "defend-in-place" concept is vital to life safety. **The first unit of defense is the room.**
- The unit concept increases the chances that patients will not require evacuation from the hospital building.
- In the event that evacuation does become necessary, the unit concept allows for movement to areas of refuge while the evacuation is being staged.

Evacuate: Units of Defense

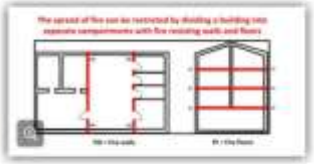
1st **Unit of Defense: Defending in Place.**
- Stay within my smoke compartment.

2nd **Unit of Defense: Horizontal Evacuation.**
- If I must evacuate my smoke compartment, I would do so horizontally before vertically.

3rd **Unit of Defense: Floor Assembly.**
- The floor assemblies are meant to prevent the vertical spread of fire.

4th **Unit of Defense: Building Itself.**
- The structural rating must allow the building to remain intact and contain the fire for a given period of time.

Before an emergency happens, know your unit fire exits and evacuation routes.



Evacuate: Units of Defense (Con't)

5th **Unit of Defense: The Exit, or Vertical Evacuation.**

⚠ Only the **Fire Department** can order **vertical** evacuation.

When fire department personnel are on the scene, they will help extinguish the fire and evacuate the patients.

Medical Gas Shut-Off Valves

Remember When Evacuating:

- **At Tennessee Hospitals:** Only the unit's **Clinical Staff Leader/Charge Nurse** in coordination with the assigned **Respiratory Therapist for the unit** are authorized by Erlanger to shut off flammable gas lines during an evacuation of a smoke compartment.
- **At Erlanger Western Carolina:** The Clinical Staff Lead for the unit, Safety Officer, Fire Marshall, or Incident Commander may accomplish the physical act of shutting off the zone valves.

Find Your Area's Emergency Plan

You can view the Emergency Plan specific to your department by searching for your department within PolicyStat and applying the filter for Life Safety Management/Emergency Operations Plans.

Summary

- If you smell something burning and/or observe fire or smoke, remember to R-A-C-E:
  - Remove persons from immediate danger.
  - Activate the closest fire alarm pull station.
  - Confine the fire and smoke by closing all doors.
  - Extinguish the fire using the PASS method.
- The first unit of defense is defending in place. If you must evacuate your smoke compartment, you will do so horizontally. Only the fire department orders vertical evacuation.
- In Tennessee, only the unit's Clinical Staff Leader/Charge Nurse in coordination with the assigned Respiratory Therapist for the unit are authorized by Erlanger to shut off flammable gas lines during an evacuation of a smoke compartment.

Knowledge Check

True or False. When a fire alarm goes off in a patient care area, the first response is to shut the doors to all patient rooms and await further instructions.

- (•) True
- ( ) False

Submit

Knowledge Check

What is the first unit of defense in a healthcare occupancy?

- ( ) Horizontal evacuation
- ( ) Vertical evacuation
- (•) Defending-in-Place
- ( ) Building's structural integrity

Submit

Knowledge Check

True or False. The fastest way to alert the facility and call the fire department is to pull the nearest fire pull station.

- (•) True
- ( ) False

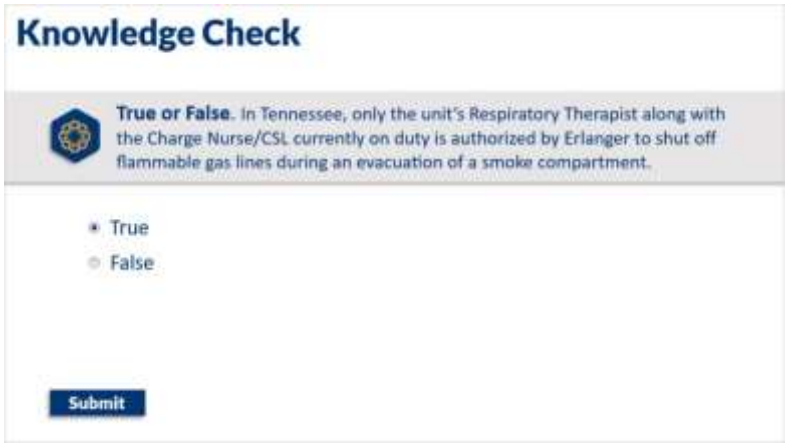
Submit

Knowledge Check

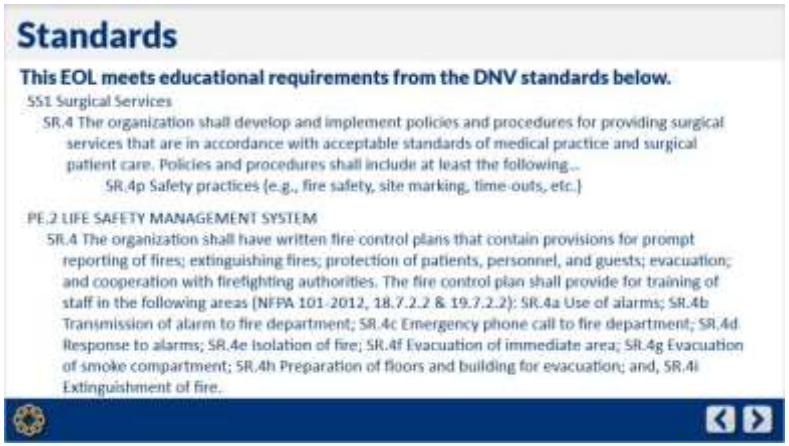
Who can order a vertical evacuation of a healthcare occupancy?

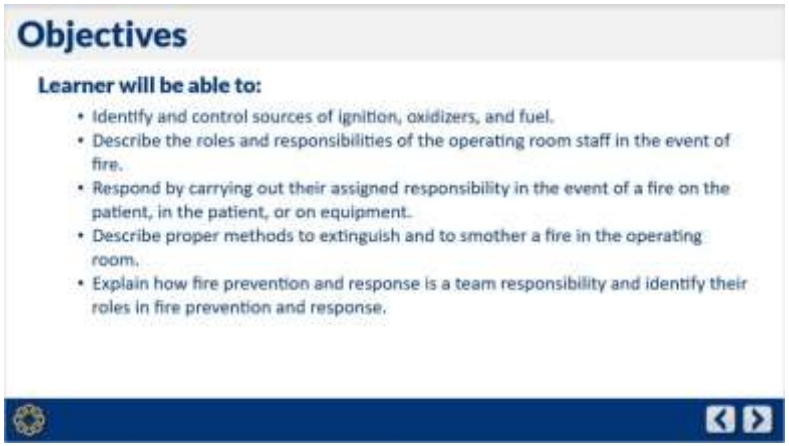
- ( ) Charge Nurse/Clinical Staff Leader
- ( ) House Supervisor
- ( ) Chief Executive
- (•) Fire Department

Submit



Operating Room (OR) Fire Safety





What Procedures Have High Fire Risk?

Any procedure in the OR carries a risk of fire. These are procedures that carry high risk of OR fire.

Examples include:

- Lesion removal on the head, neck, or face
- Tonsillectomy
- Tracheostomy
- Burr hole surgery
- Removal of laryngeal papillomas
- Any procedure above the xiphoid process

What Procedures Have High Fire Risk?

Other procedures with frequently reported fires include:

- Cervical conization
- Cesarean section
- Facial surgery
- Infant surgeries (eg, patent ductus arteriosus)
- Oral surgery
- Pneumonectomy

The Fire Triangle

Fire requires the three elements of the fire triangle to ignite and be sustained. By controlling these three elements, you can prevent and stop fire in the operating room.

- Ignition sources
- Fuels
- Oxidizers

Ignition Sources

Sources of ignition should always be handled with caution.

Examples of ignition sources include:

- Electrical equipment
- Electrosurgical unit (ESU)
- Argon beam coagulator
- Power tools (e.g., drills, burrs)
- Laser
- Fiber-optic light
- Defibrillator

Controlling Ignition Sources

Electrical Equipment:

- Inspect electrical cords and plugs for integrity and remove from service if broken
- Check biomedical inspection stickers on equipment for a current inspection date and remove the equipment from service if inspection date is not current
- Do not bypass or disable equipment safety features
- Follow manufacturer's recommendations for use
- Keep fluids off of electrical equipment
- Do not use an ignition source to enter the bowel when it is distended with gas

Controlling Ignition Sources

Electrodes and Electrosurgical Unit (ESU):

- Store the ESU pencil in a safety holster when not in use
- Keep surgical drapes or linens away from activated ESU
- Do not use to enter the bowel when it is distended with gas
- Keep the ESU active electrode away from oxygen or nitrous oxide
- Keep the active electrode tip clean
- Use only ESU manufacturer approved active and return electrodes
- Use approved protective covers as insulators on the active electrode tip, NOT a red rubber catheter or packing material
- Activate the active electrode only in close proximity to target tissue and away from other metal objects
- Moisten drapes or place absorbent towels and sponges in close proximity to the ESU active electrode

Image: AORN eGuidelines+. Aortic arch reconstruction. (n.d.). Association of perlOperative Registered Nurses. https://aornguidelines.org/glance/content?gbasid=547888

Controlling Ignition Sources

Electrodes and Electrosurgical Unit (ESU) - continued:

- Inspect minimally invasive ESU electrodes for impaired insulation; remove electrode from service if insulation is not intact
- Use "cut" or "blend" settings instead of coagulation
- Use the lowest power setting for the ESU
- Ensure only the person controlling the active electrode activates the ESU
- Remove the active electrode from electrosurgical or electrocautery unit before discarding
- Place wet sponges around the endotracheal tube cuff if the surgeon is operating in close proximity to the endotracheal tube
- Use wet sponges or towels around the surgical site
- Have water or saline and the appropriate type of fire extinguisher available

Controlling Ignition Sources

Laser:

- Use a laser-resistant endotracheal tube when using a laser during upper airway procedures
- Place wet sponges around the endotracheal tube cuff if the surgeon is operating in close proximity to the endotracheal tube
- Use wet sponges or towels around the surgical site
- Do not use to enter the bowel when it is distended with gas
- Ensure only the dedicated person controlling the laser beam activates the laser
- Have water or saline and the appropriate type of fire extinguisher available
- Place the light source in standby mode or turn it off when not in use
- Inspect light cables before use and remove them from service if broken light bundles are visible

Image: AORN Fire Safety. (n.d.). Association of perlOperative Registered Nurses. https://cine-med.com/aornonline/overview.php?cat=2&id=2017&video=4

Controlling Ignition Sources

Defibrillator:

- Select defibrillator paddles that are the correct size for the patient
- Use only manufacturer-recommended defibrillator paddle lubricant
- Place defibrillator paddles appropriately

Image: LIFEPAK®20e(n.d.). Stryker. https://www.stryker.com/content/dam/stryker/ems/products/lifepak-20/eu/resources/3307148_emea-en_lifepak_20e_brochure.pdf

Fuel Sources

Sources of fuel include any combustible material in the operating room, like:

- Patient
- Personnel
- Drapes
- Gowns
- Towels
- Sponges
- Dressings
- Tapes
- Linens
- Head coverings
- Shoe covers
- Collodion
- Alcohol-based skin preparations
- Human hair
- Endotracheal tubes

Fuel Sources

Use the following strategies to help control fuel sources:

- Use moist towels around the surgical site when using a laser
- During throat surgery, use moist sponges as packing in the throat
- Use water-based ointment and not oil-based ointment in facial hair and other hair near the surgical site
- Prevent pooling of skin prep solutions
- Remove prep-soaked linen and disposable prepping drapes
- Allow skin-prep agents to dry and fumes to dissipate before draping
- Allow chemicals (eg, alcohol, collodion, tinctures) to dry
- Conduct a skin prep "time out"

Oxidizers

Use oxidizers with caution, ensuring that control is maintained.

Oxidizers include:

- Nitrous oxide
- Oxygen
- Open oxygen sources - masks, nasal cannula
- Closed oxygen sources – endotracheal tube, anesthesia circuit
- Oxygen-enriched environment

Oxidizers

Oxidizers

Use oxidizers with caution, ensuring that control is maintained.

Ensure control of oxygen.

- Inform the surgeon that an open O_2 source is being used
- Stop supplemental O_2 or nitrous before and during the use of an ignition source
- Check the anesthesia circuits for possible leaks
- Turn off the O_2 at end of each procedure
- Keep the oxygen percentage as low as possible

Oxidizers

Use oxidizers with caution, ensuring that control is maintained (cont'd).

- Tent drapes to allow for free air flow
- Use an adhesive incise drape
- Inflate the endotracheal tube cuff with tinted saline
- Evacuate the surgical smoke from small or enclosed spaces
- Pack wet sponges around the back of the patient's throat
- If O_2 is being used, suction the patient's oropharynx deeply before using the ignition source

Oxidizers

Use oxidizers with caution, ensuring that control is maintained (cont'd).

Oxygen delivery during head, face, neck, and upper chest surgery:

- Inform the surgeon that an open O_2 source is being used
- Stop supplemental O_2 or nitrous before and during the use of an ignition source
- Check the anesthesia circuits for possible leaks
- Turn off the O_2 at end of each procedure

Exceptions:

- Patient verbal response required during surgery (eg, carotid artery surgery, neurosurgery, pacemaker insertion)
- Open oxygen delivery required to keep the patient safe

The Fire Triangle

In preparation for and throughout the entirety of each procedure be thinking about controlling all three elements of the fire triangle.

- Ignition sources
- Fuels
- Oxidizers

What Is Your Responsibility?

- The surgical team should discuss types of fire - small, large, endotracheal, equipment, etc.
- Fire response roles should be assigned to each individual prior to procedure start.
- This is especially important for new individuals joining a team.
- Click on the worksheet to the right to view AORN's table showing roles to be paired with fire response tasks.
- All operating room asscociate will participate in a mock fire drill.

Click on Picture for PDF Resource

Fire Prevention is a Team Effort

Each person in the OR has a responsibility in controlling the elements of the fire triangle and preventing and controlling fire.

- **Surgeon** – Controls the Ignition Source
- **Perioperative Staff** (Circulator, Surgical Techs,etc...) - Manage the Fuels
- **Anesthesia** – Minimizes Oxidizers

Fire Risk Assessment

Prior to every procedure a fire risk assessment must be completed and documented in the patient's electronic medical record.

- Perform before the start of every procedure
- All members of the team participate in the Fire Risk Assessment
- Assessment must be communicated during the "time out"
- Assessment must be documented in the patient's electronic medical record

Fire Risk Assessment

Prior to every procedure a fire risk assessment must be completed and documented in the patient's electronic medical record.

Fighting Fires on a Patient

Responsibilities in the event of a fire on a patient

- Announce the fire (Whoever Sees it!)
- Pull the nearest fire pull or call 6911 if unavailable (Circulator/Nurse)
- Attempt to extinguish with water or saline (Scrub tech)
- Remove burning materials from patient (Scrub tech/ Surgeon)
- Extinguish on floor (Scrub Tech/Surgeon)
- Turn off oxygen source (Anesthesia)
- Obtain a fire extinguisher as last response (Nurse)
- Save all involved materials (Nurse/Scrub tech)

Fighting Fires on a Patient

Responsibilities in the event of a fire on a patient

- Assess the surgical field for a secondary fire on the underlying drapes or towels (Team)
- Assess the patient for injury (Surgeon / Scrub Tech / Nurse)
- Report injuries to the physician (Nurse)
- Document assessment (Nurse / Surgeon)
- Notify appropriate chain of command (Nurse)

Fighting Fires on a Patient

How to smother a fire

- Hold towel between fire and patient airway
- Drop the end of towel closest to the head
- Drop the other end of towel over the fire
- Sweep hand over towel from head toward feet
- Raise the towel
- Keep your body away from fire
- **DO NOT PAT**

Fighting Fires on a Patient

Extinguishing a Fire Using Solution

- Use a nonflammable liquid such as saline or water
- Aim at the base of the fire
- Remember: drapes may be impermeable

Equipment Fire

What to do if an equipment fire occurs

- Disconnect the equipment from the electrical outlet
- Remove the working end of the equipment from the sterile field
- Pull the fire pull, if unavailable call 6911
- Shut off the electricity to the equipment if you are unable to remove the plug from the outlet
- Shut off gases to the equipment
- Assess the size of fire
- Determine if equipment can be safely removed from the OR
- Determine if personnel should evacuate the OR
- Extinguish the fire using extinguisher, if appropriate
- Perform responsibilities for All Fires mentioned earlier

Fire in a Patient

Fighting fires involving an endotracheal tube

- Announce the fire (Anyone who observes the fire)
- Collaborate and assist the anesthesia professional with:
  - disconnecting and removing the breathing circuit (Anesthesia)
  - turning off the flow of oxygen (Anesthesia)
  - pouring saline or water into the airway (Scrub Tech/Surgeon)
  - removing the endotracheal tube and any segments of the burned tube (Anesthesia)
  - examining the airway (Anesthesia)
  - re-establishing the airway (Anesthesia)
  - Call for additional assistance (Nurse)

Fire Prevention is a Team Effort

- Nurses
- Surgical technologists
- Surgeons
- Assistants
- Environmental Services associates
- Administration team members
- Everyone else not mentioned

Responsibilities of Everyone - All Fires

- Alert team members to the presence of a fire
- Stop the flow of breathing gases to the patient
- Extinguish the fire by smothering or using water or saline
- Push the back table away from the sterile field and keep it sterile.
- Remove the burning material from the patient
- Assess for a secondary fire
- Assess the patient for injuries

Evacuation Steps: Use "RACE"

R Rescue
A Alarm
C Confine
E Evacuate

Fire Extinguisher: Use "PASS"

P Pull the pin
A Aim nozzle at the base of the fire
S Squeeze the handle
S Sweep the stream over the base of the fire

A CO_2 fire extinguisher is the best choice for fire extinguishers in the operating room or procedure area.

Responsibilities After A Fire

- Notify (Charge Nurse/Coordinator/Manager)
- Act as a liaison to the families (Charge Nurse or Administrator)
- Gather involved materials and supplies
- Enter an occurrence/e-Safe report

Knowledge Check

The three key elements in the fire triangle are ignition sources, oxidizers, and fuels.

- True
- False

Submit

Knowledge Check

Whenever all three parts of the fire triangle are present, there is increased risk of fire. This includes areas such as Operating Rooms and procedure areas.

- (•) True
- ( ) False

Submit

Knowledge Check

Ignition sources include _____. (Select all that apply).

- [x] Electrosurgical unit
- [x] Laser
- [x] Argon beam coagulator
- [x] Fiber optic light source

Submit

Knowledge Check

Oxidizers include (Select all that apply).

- [ ] Room air
- [x] Oxygen and nitrous oxide
- [ ] Neon
- [ ] Carbon
- [ ] Salt

Submit

Knowledge Check

Patients with their heads draped are more susceptible to fire because supplemental oxygen can accumulate under the drapes

- (•) True
- ( ) False

Submit

Knowledge Check

When an electrosurgical unit (ESU) cautery pencil is not in use it should be resting on top of the surgical drapes.

- ○ True
- ◉ False

Submit

Knowledge Check

As a safety measure, sterile water or saline must be on the back table prior to the use of an electrosurgical unit, laser, or argon beam coagulator.

- ◉ True
- ○ False

Submit

Knowledge Check

The following action(s) can decrease the chance of fire in the OR or procedural area. Select all that apply.

- ☑ Limit oxygen given to patient (i.e., 30% concentration instead of 100%).
- ☑ Combine oxygen with air.
- ☑ Use moist laparotomy sponges in oxygen-enriched environments (e.g., chest).
- ☑ Prevent pooling of alcohol-based preps, and allow prep solution to dry at least 2-3 minutes.

Submit

Knowledge Check

Materials and devices involved in a fire must be saved to be used in fire investigation.

- ○ False
- ◉ True

Submit