



Carolinas HealthCare System
Blue Ridge

Environment of Care & Radiation Safety (EOC)

The Role of Accreditation and Regulatory Agencies

The content of this training module was developed to meet criteria established by *The Joint Commission on Accreditation of Healthcare Organizations*. Founded in 1951, The Joint Commission primary mission is to standardize practices and ensure a minimum standard for the quality of care for patients in American healthcare facilities. This accreditation process has yielded many helpful suggestions for what should be included in an overall safety program, including enhancing the quality of patient care and increasing employee safety awareness and education. In developing its inspection criteria, The Joint Commission incorporates the regulations and standards of agencies, such as the Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and other organizations such as National Fire Protection Association (NFPA). Compliance with these federal laws and standards provides the foundation for Joint Commission accreditation.

The Joint Commission

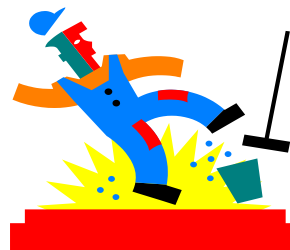
The process of The Joint Commission accreditation is beneficial to healthcare facilities in numerous ways: healthcare professionals learn important strategies for limiting occupational health & safety risks to themselves and coworkers, financial losses may be greatly reduced, patient care may be improved, and most importantly, our facilities become safer places to work.

The Environment of Care standards provide an effective resource for ensuring the safety of our employees, patients, and visitors. There is a BLUE RIDGE EOC Safety Committee which consists of representatives from administration, clinical services, and support services. The EOC Safety committee roles and responsibilities include but not limited to:

1. Promoting awareness and focusing attention on safety issues.
2. Developing facility-specific policies and procedures.
3. Reviewing reports regarding occupational injury and illness trends
4. Evaluating the overall effectiveness of the safety program.

This committee may be contacted through the Director of Facility Services, Randy McNeely: 580-5903.

In addition to system wide policy/procedures and management plans for each of the five components (now available on the intranet), each care team has EOC policies and procedures specific to their area. It is **your responsibility** to be familiar with these policies and any special risks encountered in your care team.



There are five components to the EOC. These are:

- Safe and Secure Environment
- Fire Prevention
- Hazardous Materials and Waste
- Utilities Systems
- Medical Equipment Management

Safe Environment

Safety Guidelines for BLUE RIDGE

- Any practice or condition that might cause injury or damage equipment should be reported immediately.
- No teammates should attempt to lift a heavy object without assistance.
- All electrical cords will be maintained in good condition. Electric cords will not be stretched across stairs, doorways or halls.
- No item may be stored closer than 18 inches from a fire sprinkler head.
- All accidents will be reported immediately to the appropriate supervisor.
- Follow Safety Guidelines as outlined in your Teammates Handbook.

It is the responsibility of every teammate to ensure a safe work environment. Please report any unsafe acts or conditions to your supervisor or manager immediately. Alert Security and your supervisor in response to any weapon or threat of violence.

Personal protective equipment (PPE) refers to protective clothing, helmets, goggles, or other garment designed to protect the wearer's body from injury by blunt impacts, electrical hazards, heat, chemicals, and infection, for job-related occupational safety and health purposes. With regard to PPE, each employee should consider the following.

- Wear PPE as required
- Do not substitute your own choice of PPE
- Standard Prescription eyeglasses purchased for personal use do not provide the impact and side protection of "Safety Glasses"
- General work clothes (e.g. uniforms, scrubs, permeable lab coats, pants, shirts, and/or blouse) are not intended to function as protection against a hazard, and are not considered PPE.
- Complete required training programs.
- Inspect personal protective equipment for damage or defects, and inform the department manager of the need to repair or replace PPE.

Whether you care for patients or do other work that requires lifting, twisting, bending or reaching, there is always the potential for **back injury**. Improper lifting is the most common cause of back injuries. When lifting:

- Keep load close to body
- Bend your knees and hips
- Tighten your abdominal muscles
- Lift with your legs and buttocks
- Avoid twisting when you lift



Safe Patient Handling

Blue Ridge has adopted a Safe Patient Handling Policy in order to provide care that is safe for both patients and teammates.

- To transfer/lift residents/patients you should use an appropriate assistive device if the patient is over 35 pounds.
- Teammates should use gait belts, slide sheets, rollboards, sit/stand lift, total lift, slide board, stand/assist lift or other appropriate lifting devices for the safety of both patients/residents and staff. Staff members should complete appropriate training before utilizing this equipment.
- If a piece of equipment is not working properly, it is the staff member's responsibility to notify to remove it from service until repaired and immediately notify their manager to initiate necessary repair
- Assistance should be asked for if patients are uncooperative with bed mobility.
- Bed should be raised to an appropriate height for staff member.

Non-Patient Lifting - When performing non-patient related lifting tasks requiring twisting, bending, reaching, etc., there is always the potential for back injury. Improper lifting is the most common cause of back injuries.

- Keep load close to body
- Bend your knees and hips
- Tighten your abdominal muscles
- Lift with your legs keeping back straight
- Avoid twisting when you lift
- Test load by trying to move with your foot – if it doesn't move seek help.
- Ask for help with awkward as well as heavy loads

Secure Environment

- This component of the EOC deals with security of the facilities and grounds of BLUE RIDGE. The areas within our facilities that are designated as “**sensitive areas**” and as such require extended surveillance are:

▪ Emergency Department	▪ Administration Offices
▪ Family Center/Special Care/Pediatrics	▪ Behavioral Health
▪ IT	▪ Medical Records
▪ Pharmacy	▪

- All teammates (and those providing services for BLUE RIDGE) are required to wear **identification badges**. Your badge is an important part of your work attire and your picture must be clearly visible above your waist. The ID badge identifies you as a BLUE RIDGE teammate, assists in security measures, and allows guests to identify you.
- Workplace Violence Awareness

Indicators of Potential Workplace Violence

Note: This list of behaviors is not comprehensive, nor is it intended as a mechanism for diagnosing violent tendencies.

Indicators of potentially violent behavior by an employee may include:

- Increased use of alcohol and/or illegal drugs.
- Unexplained increase in absenteeism; vague physical complaints.
- Noticeable decrease in attention to appearance and hygiene.
- Depression and/or withdrawal.
- Resistance and overreaction to changes in policy and procedures.
- Repeated violations of organizational policies.
- Increased severe mood swings.
- Noticeably unstable, emotional responses.
- Explosive outbursts of anger or rage without provocation.
- Suicidal indications; comments about “putting things in order.”
- Behavior that might indicate paranoia (“everybody is against me”).
- Increasing discussion of problems at home.
- Escalation of domestic problems into the workplace.
- Talk of severe financial problems.
- Talk of previous incidents of violence.
- Empathy with individuals who commit violence.
- Increase in unsolicited comments about firearms, other dangerous weapons, and violent crimes.

*** Please report to your manager/supervisor/ or security any potential suspicious behaviors**

Fire Prevention

Your role in the event of fire is to provide a safe and effective response. When following the **RACE** guidelines, communicating the alarm may be different in your facility. Follow your facilities fire plan in the EOC manual.

Valdese Hosp. – pull alarm and dial 7200 giving code and location	Grace Hosp. – pull alarm and dial 2100 giving code and location
College Pines – pull alarm, notify skilled charge nurse who will call code red	Grace Ridge – pull alarm, charge nurse will dial 911
Grace Heights – Pull alarm and notify skilled charge nurse who will call code red	

BLUE RIDGE uses the acronyms **RACE** and **PASS** to help you remember your role in the event of a fire.

RACE

- R** Rescue the patient
- A** Sound the Alarm
- C** Contain the fire
- E** Extinguish the fire



PASS

- P** Pull the pin
- A** Aim low – at the fire’s base
- S** Squeeze the handle
- S** Sweep from side to side

Defend-In-Place Strategy

Unlike most other buildings and use groups addressed by the *Code*, the least desirable emergency action in a health care occupancy is the wholesale relocation or evacuation of patients. For this reason, a “defend-in-place” strategy is used.

The defend-in-place strategy is implemented using a *total concept* approach. The total concept approach provides an assortment of features that are deemed necessary to avoid the movement of patients to the outside during a fire. Of course, those patients who might be perilously close to the effects of the fire are given a range of protection features such as being moved to an adjacent smoke compartment on the same floor.

Requirements for allowable building construction types, sprinklers, alarm and detection systems, and staff training work in harmony to help ensure that a patient can be safely and adequately protected regardless of where a fire starts.

Fire safety guidelines:

- Take all fire alarms seriously and treat them as if there is an actual fire.
- If your work area is involved in a fire drill, your response will be monitored as if it were a real fire.
- Never block fire doors. Clear hallways of obstacles. Always use the exits at the stairwells.
- Store items at least 18" below ceiling – keeping space clear around sprinkler heads.
- Never open a door unless you first feel it with the back of your hand. If it is hot, **Do Not Open**.
- Know the location of the oxygen shut-off valve.
- Know the location of alarm pulls, extinguishers, fire doors and evacuation routes.

BLUE RIDGE is a smoke free environment. THANK YOU FOR NOT SMOKING



Hazardous Materials and Wastes

- You have the right to know about chemical work hazards in your work area. The Hazardous Materials and Wastes policy and procedure found in the EOC manual, the **Material Safety Data Sheets (MSDS)**, and product label exist to communicate this information to you.
- An electronic MSDS system is also available through the BLUE RIDGE Intranet system. “**MSDS On-line**” is an electronic quick reference library located in the “Quick Links” on the opening page of the BLUE RIDGE Intranet.
- The MSDS tells you how to safely use, handle, store, and dispose of a specific chemical product. They also alert you to any health hazard. Before using any product, **read the label and the MSDS**. If you still have questions, contact your supervisor. Know the location of your care team's MSDS and your facility's master copy.

******The term *Safety Data Sheet (SDS)* will be used with the new Global Harmonized System (GHS). The previous term *Material Safety Data Sheet (MSDS)* will be phased out. By June 1, 2015, manufacturers must produce the new SDS in the uniform specified format. *Safety Data Sheets* will accessible using the same online system currently in place. ******

Blood and Body Fluids Spill

- Immediate clean up using spill kit. Environmental Services can assist with large spills.
- Use contact precautions and PPE – gloves, goggles, gown, face shield or mask as indicated.
- Put contents in red BIOHAZARD bag
- Clean thoroughly with cleaning solution.

Mercury Spill (a gallon or less)

- Evacuate and alert persons in spill area
- Assess type and size of spill – consult MSDS
- Call Plant Operations and give location of spill.
- Grace Hospital, contact 580-5910
- Valdes Hospital, contact 879-7627
- After hours, contact the House Nursing Supervisor, who will contact Plant Ops.

Cytotoxic Wastes

- Cytotoxic waste is disposed of in yellow chemo safety containers for incineration
- Chemotherapy spills are treated with the chemotherapy spill kit

Radioactive Spill

- Remove contaminated clothing
- Wash with soap and water or decontamination scrub
- Blot up liquids while wearing gloves
- Report spill to Nuclear Medical Technician
- Radiation Accident: follow EOC policy EOC:14

Medical Gases

- Cylinders must be stored in an assigned location, chained or in racks
- Storage rooms must be dry, cool, and well ventilated
- Flammable gases are not stored with oxidizing gases
- Cylinders are used in order in which they are received from the supplier
- Safe methods of moving cylinders are used
- A medical gas PowerPoint presentation is located on the BLUE RIDGE Intranet and reviews information related to the basic medical gas systems for each acute care facility.

Utilities Systems

Because hospital utility systems (electrical, telephone, air etc.) have a critical relationship with the hospital environment and thus the safety and comfort of patients, BLUE RIDGE has Utility Management plan in place. The capabilities, limitations and special applications of the utility systems in your area are outlined in your care team policy and procedures. These policies also describe your role in the use of alternative sources if utility systems are interrupted, clinical interventions if utility systems fail, and acquiring replacement equipment.

Any teammates may turn off medical gasses to a patient care area. In the event of a life threatening fire or disaster, the following criteria shall be met before a teammate closes an oxygen valve:

- There must be a nurse manager, nurse, or teammates that is qualified to provide patient care and is able to administer proper treatment in the event of a fire and lack of oxygen.
- The teammates shall have reviewed the oxygen shut off valve procedures hand out with their supervisor and is knowingly confident with shut down procedures (EOC:67)

Utilities systems failures should be reported to the Customer Service Center @ Extension 1111.

Provide a description, location of event, time occurring, and your name and contact information.

Medical Equipment Management

Medical equipment is managed, inspected, assessed for risk and maintained by the Biomedical Engineering Care Team. Medical equipment is labeled with an inspection sticker identifying the last service date and when the next service is scheduled. Service histories are also maintained for each device and are available upon request to for any clinical department.

In the event of broken or malfunctioning equipment:



- Remove the device from active service and use backup
- Identify the equipment as defective with an easily recognized label. An Orange “Defective Do Not Use” sticker is the preferable method of tagging defective the equipment
- Notify your immediate supervisor
- Contact Biomedical Engineering or complete / submit a service work order including the equipment’s asset control number, a description of the problem, your name and phone number.

Prior to use, all medical equipment entering the facility for the purpose of being utilized to monitor, diagnose, treat or care for patients is inventoried and inspected to ensure that each device is operationally safe and free from electrical hazards by Biomedical Engineering.

Radiation Safety

Radioactive materials are utilized in Nuclear Medicine and Nuclear Cardiology for the purpose of diagnostic imaging. Patients receive very low doses of radiation in the form of capsules or a liquid which is given to the patient by injection. All radioactive doses are stored in lead containers that exhibit a radioactive sticker and are delivered to the nuclear medicine care team from a local Nuclear pharmacy. All radioactive materials are stored in a central location called a “hot lab”.

This room has a sign on the door designating that radioactive materials are stored there. Nuclear Medicine personnel, delivery persons from the radio pharmacy, and physicians whose names appear on the radioactive license, are the only ones authorized to enter the “hot lab”. Others who have received proper training in the handling of radioactive materials may enter under special circumstances.

The cameras in Nuclear Medicine and Nuclear Cardiology do not emit radiation. There is no danger associated with entering these rooms.

If you will be spending a significant amount of time around a patient who has received a Nuclear Medicine dose or routinely work with radiation, you can wear a radiation monitoring device known as a personal dosimeter. Personal dosimeters are available in Radiology and are worn on your clothing to



measure the amount of radiation you have received. It takes approximately one month to receive the results. Results are posted in Radiology.

Minimizing Exposure

Exposure to radiation can be minimized by limiting time spent around radioactive areas or around patients who have been dosed with radiation. Also, distance from the source is an important factor. Exposure dramatically decreases with increasing distance. At a distance of three feet from the source of radiation, the exposure to radiation will be minimal.

Each day, room surveys are conducted in Nuclear Medicine and Nuclear Cardiology by using a survey meter or “Geiger counter”. Readings are taken to detect contamination of radioactive materials in the room. Survey meters can also be used to determine instantly if an unknown liquid is radioactive. A nuclear medicine technologist or radiology supervisor can assist you with this device.

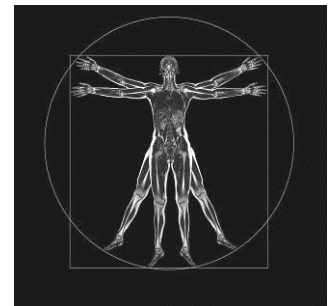


The Radiation Safety Officer (RSO) oversees all radiation protection practices. The RSO’s name and phone number are posted in the nuclear medicine “hot lab”. The RSO must be contacted in the event of a radiation emergency. The radioactive materials license and Policies and Procedures for handling radioactive materials are available for review in the Nuclear Medicine Care team.

If you must enter Nuclear Medicine or Nuclear Cardiology and do not have a key, a radiology supervisor can assist you. The door to the “hot lab” must be locked at all times for security reasons. You may not enter unless accompanied by approved personnel. If you notice suspicious activity in the Nuclear Medicine or Nuclear Cardiology areas, contact Nuclear Medicine personnel immediately.

Magnetic resonance imaging (MRI)

Magnetic resonance imaging (MRI) was applied to health care in the late 1970s to provide never-before-seen two- and three-dimensional views of body tissue and structure. Today, more than 10 million MRI, or MR, scans are done in the United States each year. While the capabilities of the MRI scanner are well recognized, its inherent dangers may not be as well known. The following types of injury can and have occurred during the MRI scanning process:



- “Missile effect” or “projectile” injury in which ferromagnetic objects (those having magnetic properties) such as ink pens, wheelchairs, and oxygen canisters are pulled into the MRI scanner at rapid velocity.
- Injury related to dislodged ferromagnetic implants such as aneurysm clips, pins in joints, and drug infusion devices.
- Burns from objects that may heat during the MRI process, such as wires (including lead wires for both implants and external devices) and surgical staples, or from the patient’s body touching the inside walls (the bore) of the MRI scanner during the scan.
- Injury or complication related to equipment or device malfunction or failure caused by the magnetic field. For example, battery-powered devices (laryngoscopes, micro-infusion pumps, monitors, etc.) can suddenly fail to operate; some programmable infusion pumps may perform erratically; and pacemakers and implantable defibrillators may not behave as programmed.
- Injury or complication due to failure to attend to patient support systems during the MRI. This is especially true for patient sedation or anesthesia in MRI arenas. For example, oxygen canisters or

infusion pumps run out and staff must either leave the MRI area to retrieve a replacement or move the patient to an area where a replacement can be found.

- Acoustic injury from the loud knocking noise that the MRI scanner makes.
- Adverse events related to the administration of MRI contrast agents.
- Adverse events related to cryogen handling, storage, or inadvertent release in superconducting MR imaging system sites.

In general, no device or equipment is allowed into the MRI environment unless it is proven to be MR Safe or MR Conditional. MR Safe items pose no known hazard in all MRI environments, and MR Conditional items have been demonstrated to pose no known hazards in a specified MRI environment with specified conditions of use. The Safety of “MR conditional” items must be verified with the specific scanner and MR environment in which they will be used.

Ferromagnetic Objects

buffing machines, chest tube stands, clipboards (patient charts), gurneys, hairpins hearing aids, identification badges, insulin pumps, keys, medical gas cylinders, mops nail clippers and nail files, oxygen cylinders, pulse-oximeters, pacemakers, pagers, paper clips, pens and pencils, IV poles, prosthetic limbs, shrapnel, sandbags (with metal filings), steel shoes, stethoscopes, scissors, staples, tools, vacuum cleaners, watches, wheelchairs, etc.

Joint Commission Recommendations and Strategies/BLUE RIDGE Adaptations

1. BLUE RIDGE restricts access to all MRI sites by implementing the zoned concept as defined in the ACR Guidance Document for Safe MR Practices: 2007. The zoned concept provides for progressive restrictions in access to the MRI scanner:
Zone I: General public (Outpatient Waiting Rooms)
Zone II: Unscreened MRI patients (MR Suite)
Zone III: Screened MRI patients/personnel under constant direct supervision of trained MR personnel (MR Control Room)
Zone IV: Screened MRI patients/personnel under constant direct supervision of trained MR personnel. Only equipment deemed MR conditional or Safe may enter. (MR Scan Room)
2. **Only trained MRI personnel are allowed to screen patients.** This is accomplished through either a two or three part process providing multiple opportunities for a patient to answer questions about any metal objects they may have on them, any implanted devices, drug delivery patches, tattoos, and any electrically, magnetically, or mechanically activated devices they may have. If the patient is unconscious or unable to answer questions, a patient’s family member or surrogate decision maker can provide assistance. If this person is unsure, other means to determine if the patient has implants or other devices that could be negatively affected by the MRI scan will be employed (e.g., look for scars or deformities, scrutinize the patient’s history, use plain-film radiography, etc.).
3. **Only MRI trained personnel may approve entrance into the MR Scan Room.** All patients, non-patients, family members and ancillary staff are required to undergo an extensive screening process with appropriate documentation prior to entry into the MR Scan Room . **IMPORTANT! THE MAGNET IS ALWAYS ON, EVEN WHEN A PATIENT IS NOT BEING IMAGED!!!**

4. The MRI technologist must have the patient's complete and accurate medical history to ensure that he/she can be safely scanned. Implants of concern are checked against product labeling or manufacturer literature specific to that implant, or through peer-reviewed published data regarding the device or implant in question.
5. All direct care providers are required to attend annual MRI safety education provided through the BLUE RIDGE Environment of Care. Additionally, all Radiology personnel are required to attend video lectures that explain the potential for accidents and adverse events in the MRI environment.
6. Precautions are taken to prevent patient burns during scanning, which include:
 - Ensuring that there is no equipment or items that form conductive loops.
 - Utilizing non-conductive padding to insulate the patient's skin and tissues when necessary.
 - Cold compresses and or ice packs may be placed on EKG leads, surgical staples, and tattoos to minimize heating.
7. Only equipment (e.g., fire extinguishers, oxygen tanks, physiologic monitors) that have been tested and approved for use during MRI scans will be used.
8. Patients with previous contrast reactions within the Radiology dept., asthmatics, and patients with allergies in general are considered to be at a higher risk of having an adverse reaction to MR contrast. At present, there are no well defined policies for patients who are at risk for adverse contrast related incidents. However, the following recommendations are suggested: Patients who have previously reacted to one MR contrast agent can be injected with another agent if they are restudied. At-risk patients can be pre-medicated with corticosteroids and, occasionally, antihistamines. All patients with asthma, a history of allergic respiratory disorders, prior iodinated or gadolinium (MR contrast) should be followed more closely as they are at a higher risk of adverse reaction.
9. Never attempt to run a "CODE BLUE" within the MR scan room itself. In case of a medical emergency, appropriately trained and certified MR personnel will immediately remove the patient to a designated safe location. **BLUE RIDGE MRI REQUIRES THAT THE PATIENT BE COMPLETELY REMOVED FROM THE MAGNETIC FIELD AND PLACED IN A PREDETERMINED MAGNETICALLY SAFE LOCATION BEFORE REQUESTING A CODE RESPONSE.**