DISCLAIMER
Regulatory Compliance Overview II provides a generic overview of regulatory compliance. This seminar does not alter or determine compliance responsibilities. Because interpretations and enforcement policy may change over time, we encourage you to routinely check all relevant regulatory agencies directly for the latest updates for clinical and/or organizational guidelines. If you have concerns about any aspect of the safety or quality of patient care in your organization, be aware that you may report these concerns directly to the appropriate Regulatory Agency.

DEFINITIONS
- **Aerobic Exercise** ~ continuous activity that requires the use of increased oxygen to maintain the function of the body's cells
- **Antibody** ~ protein produced by immune cells to fight infection
- **CDC** ~ Centers for Disease Control and Prevention
- **CMS** ~ Centers for Medicare and Medicaid Services
- **Conjunctivitis** ~ an infection and/or inflammation of the inner lining of the eyelid, commonly called ‘pink eye’
- **Cohort** ~ to group together patients with the same active infection, but no other infection
- **Electrically Conductive Loop** ~ complete circuit through which electricity is able to flow
- **Ferromagnetic** ~ able to be attracted by a magnet
- **HBV** ~ Hepatitis B Virus
- **HCV** ~ Hepatitis C Virus
- **HIV** ~ Human Immunodeficiency Virus; the cause of AIDS
- **Impetigo** ~ a bacterial skin infection with pus-filled blisters
- **Irritant Contact Dermatitis** ~ inflammation of the skin due to contact with a substance
- **JCAHO** ~ Joint Commission on the Accreditation of Healthcare Organizations
- **LIP** ~ Licensed Independent Practitioner; most often a physician, but also sometimes a nurse practitioner or other healthcare professional
- **MRI** ~ Magnetic Resonance Imaging
- **MRSA** ~ Methicillin-Resistant Staphylococcus Aureus
- **NIOH** ~ National Institute of Occupational Safety and Health
- **OIG** ~ Office of the Inspector General of the Department of Health and Human Services (DHHS)
- **OSHA** ~ Occupational Safety and Health Administration
- **Projectile** ~ an object as a weapon that is thrown, sent, or cast forward
- **Pulsed Radiofrequency Fields** ~ electromagnetic fields used during MRI to cause tissues of the body to give off magnetic resonance signals
- **Restraint** ~ any physical or chemical method for restricting a patient's movement, activity, or normal access to his or her own body
- **SARS** ~ Severe Acute Respiratory Syndrome
- **Seclusion** ~ involuntary confinement of a patient in a room alone
- **TB** ~ Tuberculosis
- **Type I Latex Allergy** ~ a relatively severe form of latex allergy
- **Type IV Latex Allergy** ~ a relatively minor form of latex allergy
- **UTI** ~ Urinary Tract Infection
- **Ventricular Fibrillation** ~ an ineffective heart rhythm that if not corrected will lead to cardiac arrest and death
- **VRE** ~ Vancomycin-Resistant Enterococci
LESSON 1 ~ INTRODUCTION

LEARNING OBJECTIVES
This course provides essential information for veteran clinical healthcare staff. If you are new to any of the topics presented here, consider taking the full-length course on that topic. This lesson will review and update knowledge of:
- Safety
- Emergency Preparedness
- Infection Control

LESSON 2 ~ SAFETY

LEARNING OBJECTIVES
This lesson covers:
- General Safety
- Fire Safety
- Electrical Safety
- Radiation Safety
- MRI Safety
- Ergonomics
- Back Safety
- Lifting and Transporting Patients
- Slips, Trips, and Falls
- Latex Allergy
- Hazard Communication
- Security and Workplace Violence
- Reporting Incidents

GENERAL SAFETY
Healthcare facilities have many potential hazards. OSHA separates hazards into five categories:
- Biological
- Chemical
- Psychological
- Physical
- Environmental & Mechanical

As shown in the table below:
- Eliminate as many of these hazards as possible.
- Safeguard against exposure to the hazards that cannot be eliminated.

NOTE: Many of the hazards in the table are addressed in greater detail later.

<table>
<thead>
<tr>
<th>HAZARD CATEGORY</th>
<th>DEFINITION</th>
<th>EXAMPLES</th>
<th>SAFEGUARDS</th>
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<tbody>
<tr>
<td>Biological</td>
<td>Pathogens</td>
<td>HIV, VRE, MRSA, HBV, HCV, TB</td>
<td>Infection-control measures</td>
</tr>
<tr>
<td>Chemical</td>
<td>Toxic or irritating materials</td>
<td>Detergents, solvents, disinfectants, sterilizing agents, waste anesthetic gases, hazardous drugs, mercury</td>
<td>Engineering controls, work practice controls, appropriate personal protective equipment (PPE)</td>
</tr>
<tr>
<td>HAZARD CATEGORY</td>
<td>DEFINITION</td>
<td>EXAMPLES</td>
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</tr>
<tr>
<td>Psychological</td>
<td>Factors that create or increase emotional stress or strain</td>
<td>Working with terminally ill patients, patient deaths, overwork, understaffing, tight schedules, equipment malfunctions</td>
<td>Stress management, relaxation exercises, meditation</td>
</tr>
<tr>
<td>Physical</td>
<td>Agents with the ability to cause physical harm</td>
<td>Radiation, lasers, noise, electricity and electrical equipment, extreme temperatures</td>
<td>Various, depending on the hazard</td>
</tr>
<tr>
<td>Environmental &amp; Mechanical</td>
<td>Factors that cause or increase the risk of accident, injury, strain or discomfort</td>
<td>Lifting and moving patients, tripping hazards, poor air quality, slippery floors, cluttered or obstructed work areas or passageways</td>
<td>Maintenance of a safe work environment, prompt reporting of hazardous conditions</td>
</tr>
</tbody>
</table>

**FIRE SAFETY**

- **Prevention** ~ Prevention is the best defense against fire.
  
  - To help prevent fires related to the common cause of smoking:
    - Follow your facility's smoking policy.
    - Smoke only in designated areas.
    - Instruct visitors and authorized patients to smoke only in designated areas.
  
  - To help prevent fires related to the common cause of electrical malfunction:
    - Remove damaged or faulty equipment from service.
    - Submit malfunctioning equipment for repair.
  
  - To help prevent fires related to the common cause of equipment misuse:
    - Do not use any piece of equipment before being trained.

- **Safeguards in the Event of Fire** ~ Not all fires can be prevented. Therefore, your facility has fire safety features. These features include:
  
  - Fire alarm systems
  - Fire extinguishers
  - Emergency exit routes and doors
  - Smoke and fire doors and partitions
  - A fire plan

  Be familiar with the location and use of each of these.

- **Response** ~ When in doubt, respond to fires using the RACE protocol:
  
  - **R**: Rescue ~ Rescue all patients from the immediate area of the fire.
  
  - **A**: Alarm ~ Give the alarm by:
    - Calling out for help,
    - Using a manual pull station, and/or
    - Phoning the fire department.
  
  - **C**: Confine ~ Confine the fire by closing the door to the room where the fire started.
Extinguish Evacuate

- If the fire is small enough to put out with a single portable extinguisher, attempt to extinguish. Use the PASS protocol:
  * Pull the pin.
  * Aim the nozzle.
  * Squeeze the trigger.
  * Sweep back and forth across the base of the fire.

- Otherwise, prepare to evacuate patients to an unaffected smoke / fire compartment.

**ELECTRICAL SAFETY**

Most equipment in the healthcare setting is electric. This means there is risk of electric shock. Electric shock can cause:
- Burns
- Muscle spasms
- Ventricular fibrillation
- Respiratory arrest
- Death

**Preventing Accidents**

- To help prevent electrical accidents in your facility:
  - Remove and report electrical hazards. Remove electrical equipment from service if it:
    - Malfunctions
    - Shows signs of damage
    - Shows signs of unusual heating
    - Produces a burning smell when used
    - Shock staff or patients
    - Report the hazard according to facility protocol. Submit the equipment for repair.

- Use electrical equipment properly.
  - Learn how to use equipment before using it.
  - Do not use damaged equipment.
  - Do not use equipment on which liquid has been spilled.
  - Do not operate electrical equipment with wet hands or when standing in water.
  - Do not stack anything on or behind electrical equipment.
  - Turn equipment off before plugging in or unplugging.

- Maintain, test, and inspect equipment. All medical equipment should be inspected and tested on a regular schedule.

**Hazards**

- Other best practices for preventing electrical accidents in your facility are:
  - Use power cords and outlets properly.
    - Do not use outlets or cords with exposed wiring.
    - Report damaged outlets or cords.
    - A hot outlet can be an indication of unsafe wiring. Unplug cords from the outlet. Report the hazard.
    - Do not bend, stretch, or kink power cords.
    - Do not jerk cords from outlets. Pull on the plug.
    - Do not staple, tack, or nail power cords to walls or floors. Use tape, if necessary.
    - Do not rest equipment on power cords.
    - Use only power cords with three-prong plugs. Never use adapters, two-prong plugs, or broken three-prong plugs.

- Use circuits safely.
  - Do not overload circuits.
  - Label each circuit breaker.
  - Breaker boxes should be accessible at all times.
- Protect patients from electrical shock.
  - Place electrical equipment at a distance from patients.
  - Maintain patient areas. Keep floors dry at all times.
  - Do not touch patients and electrical equipment at the same time.

**RADIATION SAFETY**

Exposure to radiation can increase the risk of cancer. Therefore, it is important to protect against exposure. The three key factors for limiting exposure are:

- **Time** ~ Minimize the amount of time that you are exposed.
- **Distance** ~ Maximize your distance from the radiation source.
- **Shielding** ~ Use appropriate shielding to absorb the energy of radioactive particles.

The goal is to keep your radiation exposure **As Low As Reasonable Achievable (ALARA).**

**MRI SAFETY**

An MRI system is not an inherent biological hazard. However, hazards can arise when certain items enter the MRI system:

- Ferromagnetic objects are attracted to the core of the MRI magnet. This causes them to accelerate toward the core and become dangerous projectiles, the projectile effect.
- Implanted or embedded ferromagnetic objects such as an aneurysm clips will try to align with the magnetic field. This can cause these objects to rip through soft tissues.
- Pulsed radiofrequency fields in the MRI system can produce electric currents in metal implants or monitoring cables. This can result in burns.
- Electronic devices such as pacemakers can malfunction.

MRI safety is largely a matter of ensuring that potentially hazardous items stay outside the MRI field. Therefore:

- Control access to the magnetic field.
- Post signs outside the magnetic field, warning of the projectile effect and the danger of metallic implants.
- Remove metallic objects from clothing and pockets before entering the magnet field.
- Thoroughly screen patients prior to MRI. Ensure that patients do not have MRI unsafe implants or embedded objects.

In addition, patients should be positioned for MRI so that electrically conductive loops are not formed. This will prevent burns.

**ERGONOMICS**

The term ‘Ergonomics’ comes from two Greek words:

- **Ergon** meaning work.
- **Nomos** meaning natural laws.

Ergonomics means designing work to fit the "natural laws" of the human body. Good ergonomic practices can lead to fewer work-related injuries.

Ergonomic best practices are:

- Avoid fixed or awkward postures.
- Avoid lifting without using proper devices or equipment.
- Avoid highly repetitive tasks.
- Provide support for your limbs.
- Use proper posture and body mechanics when sitting, standing, or lifting.
- Avoid reaching, twisting, and bending for tools. Keep tools close to you.
- Use supportive equipment such as wrist supports for keyboards.
- Respond promptly to aches and pains. This can help you take care of slight injuries before they become severe.
BACK SAFETY

Healthcare is a high-risk setting for back pain and injury. Healthcare workers who lift and move patients are at especially high risk for injury. Injury may be prevented through:

- **Proper Care and Operation of the Spine** ~ take proper care of the spine while:
  - **Sleeping**
    * Sleeping on the back is best for back health.
    * Sleeping on the side is next best.
    * Sleeping on the stomach is least healthy for the back.
  - **Standing**
    * Wear good comfortable shoes.
    * Stand up straight.
    * Keep the knees flexed.
    * If you must stand for long periods of time, put one foot on a footrest. Alternate feet every few minutes.
  - **Sitting**
    * Form 90-degree angles at the knees and the hips.
    * When the hands are on a desk or keyboard, also form 90-degree angles at the elbows. The wrists should be kept straight.
  - **Lifting a static load vertically**
    * Bend at the hips and knees.
    * Keep the head up.
    * Maintain the three natural curves of the spine.
    * Hold the load close to the body.
    * Lift with the muscles of the legs.
  - **Lifting or transferring patient**
    * Avoid manual lifting.
    * Use motorized lifts or other assistive devices.

- **Proper Posture** ~ to stand with proper posture, imagine a cord dropped through the center of your head to your feet. If the spine is properly aligned, the cord should pass through the center of the body, in the right-to-left plane. In the front-to-back plane of the body, the cord should pass through:
  - The ear
  - The front of the shoulder
  - The center of the hip
  - The area behind the kneecap
  - The ankle

To practice good posture, imagine the cord attached to the crown of your head. As the cord pulls up:
  - It holds the head high.
  - It pulls the three natural curves (neck, ribcage, low back) of the spine into alignment.

- **Regular Exercise** ~ Regular exercise can help prevent back injury. Exercise should include:
  - **Aerobic Exercise** ~ Do aerobic exercise at least three times a week. This contributes to overall fitness and increases blood flow to the spine.
  - **Stretching Exercises** ~ Stretches are gradual, gentle exercises that lengthen important muscles. This increases the ability of muscles to use their full range of motion. Stretch seven days a week.
  - **Strengthening Exercises** ~ Strengthening exercises help build muscle mass by forcing the muscles to work against weight or resistance. Do strengthening exercises four to five days a week.
Consult your physical therapist or physician to find out appropriate exercises for your back.

**LIFTING AND TRANSFERRING PATIENTS**

Healthcare staff who lift and transfer patients are repeatedly exposed to the three major risk factors for injury during physical tasks:

- **Awkward Posture** ~ manual patient handling often involves awkward postures. For example, bending and reaching while lifting or lowering creates an awkward posture.
- **Force** ~ force refers to how hard the muscles have to work. A lot of force is required to lift patients who typically weigh 100 pounds or more.
- **Repetition** ~ this risk factor refers to performing the same motion or series of motions over and over again. Nurses and aides might perform dozens of lifts and transfers in a single shift. They might perform thousands of lifts over a lifetime of nursing.

For years, nurses have been trained to use proper body mechanics and safe lifting techniques to protect against injury during manual patient handling. However, many patient handling tasks are simply unsafe when performed manually. In other words, nurses risk injury even if they use proper body mechanics. Therefore, OSHA recommends that manual lifting should be minimized. If possible, it should be eliminated.

To minimize or eliminate manual lifting, use devices to help with patient lifts and transfers. Available devices include:

- Motorized lifts
- Non-motorized transfer devices such as gait belts, transfer boards, etc.

Before any lift or transfer, the patient should be assessed to determine how to do the transfer safely. This includes determining:

- The appropriate method for the transfer
- The appropriate equipment to use
- How many staff members are needed

To lift or transfer a patient safely, ask these four questions:

- Can the patient perform the transfer unassisted or assist with the transfer?
- What is the appropriate lift or transfer method?
- What equipment is required to perform the lift or transfer safely?
- How many caregivers are required to perform the lift or transfer safely?

**SLIPS, TRIPS AND FALLS**

Slips, trips, and falls in the workplace cause injuries and deaths every year. On the following screens, let's look at tips for preventing:

- **Slips** ~ to help prevent slips:
  - Keep floors clean and dry.
  - Increase the friction of floors with abrasive coatings, non-skid strips, or rubber mats.
  - Secure rugs with skid-resistant backing.
  - Choose slip-resistant shoes. Look for:
    - Soft rubber soles.
    - A large amount of surface area in contact with the floor - no high heels.
    - Patterned soles that increase friction.
  - Post safety signs around slip hazards such as icy sidewalks, wet floors, etc.

- **Trips** ~ to help prevent trips:
  - Keep floors clear and uncluttered.
  - Repair uneven flooring, or post safety signs.
  - Use proper lighting - not too bright and not too dim.
Falls ~ danger zones for falls are:

* Stairs
  * Keep staircases clean and well lit
  * Staircases should have sturdy handrails on both sides. When using the stairs, keep one hand free to hold the handrail.

* Ladders
  * Use a ladder of the height you need.
  * Lock the spreader into position before climbing the ladder.
  * Climb straight up. Do not lean to either side.
  * Hold onto the side rails with both hands while climbing up or down.

* Vehicles and Equipment
  * Keep steps clean and dry.
  * To board a vehicle, take a firm grip on a sturdy handle to pull up.
  * Step down backward to get off the vehicle.

Minimizing Risk ~ When conditions are hazardous such as icy sidewalks or wet floors, avoid slipping and falling by walking like a duck:

* Keep your feet flat and slightly spread apart.
* Point your toes slightly outward.
* Take slow, short steps. Keep your center of balance under you.
* Make wide turns at corners.
* Keep your arms at your sides. This gives additional balance. It also keeps your arms available for support if you fall.

Latex Allergy

Screening and Diagnosis ~ Latex allergy is becoming more and more common. Most reactions to latex are mild. But some can be life-threatening. Screening questions provide good tools for identifying patients at risk for latex allergy. This can help prevent future problems. If a patient answers ‘Yes’ to one or more of the following questions, the patient may be at risk for latex allergy.

* Surgery ~ have you ever had an unexplained problem during surgery?
* Dental Exams ~ have you ever experienced breathing problems during a dental exam?
* Balloons ~ have you ever experienced swelling or wheezing when blowing up balloons?
* Food Allergies ~ are you allergic to any foods, especially bananas, avocados or kiwis?
* Medical Exam/Condoms ~ have you ever developed a rash or discomfort after having a medical exam or using a condom?
* Allergy/Skin Problems ~ do you have a history of allergy or skin problems?

A careful and thorough medical history and physical exam should be performed. For a more definitive diagnosis of latex allergy, test that measure blood levels of anti-latex antibodies may be ordered.

Management ~ Anyone who is allergic to latex should avoid latex products. To help protect a patient from exposure to latex in the healthcare setting:

* Clearly indicate ‘latex allergy’ in the medical record.
* Do not use any latex products, including latex cleaning gloves, in the patient’s room.
* Before entering the patient’s room, remove latex gloves. Wash hands thoroughly with soap and water.

If you are allergic to latex:

* Inform your employer.
* Encourage your facility to provide as many latex-free products as possible.
* Use silk or plastic tape instead of adhesive tape.
* Use non-latex gloves only.
HAZARD COMMUNICATION
To protect workers from exposure to hazardous chemicals, the following groups of people have duties related to communicating information about hazardous materials:

- **Manufacturers** ~ Manufacturers of a hazardous chemical must:
  - Research, create, and distribute a Material Safety Data Sheet (MSDS), which lists the specific hazards of the chemical.
  - Label all containers of hazardous materials with the name of the product, hazard warnings, and the name and address of the manufacturer.

- **Employers** ~ Employers whose employees work with hazardous chemicals must:
  - Maintain a file of MSDS’s for all hazardous chemicals used by workers.
  - Inspect incoming chemicals to verify proper labeling. If a chemical is transferred to an unlabeled container at the facility, the new container must be labeled.
  - Train employees in the use of hazardous chemicals.

- **Employees** ~ Employees who work with hazardous chemicals must:
  - Know which hazardous chemicals are used in their work area.
  - Know where MSDS’s are located on their unit.
  - Know how to read an MSDS.
  - Read all relevant MSDS's before starting a job that may require the use of a hazardous chemical.
  - Read product labels carefully. Follow all instructions. Heed all warnings.
  - Attend all required hazardous chemical training sessions.

SECURITY AND WORKPLACE VIOLENCE
Workplace violence is any violence in a work setting. To help keep your workplace safe from violence:

- **Recognize** aggressive behavior and warning signs of potential violence.
- **Respond** appropriately to the level of aggressive behavior.
- **Report** all unsafe situations immediately.

<table>
<thead>
<tr>
<th>AGGRESSIVE BEHAVIOR</th>
<th>RESPONSE</th>
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</thead>
<tbody>
<tr>
<td>Tension</td>
<td>Remain calm. Listen. Acknowledge the person’s frustration. Try to resolve the problem.</td>
</tr>
<tr>
<td>Disruptiveness</td>
<td>Set clear limits. Remain calm and choose your words carefully, to avoid aggravating the situation. Call security privately if the disruptive behavior continues.</td>
</tr>
<tr>
<td>Loss of Control</td>
<td>Remove yourself from danger and get help. Do NOT try to restrain the person yourself.</td>
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</tbody>
</table>

REPORTING INCIDENTS
This lesson has focused on guidelines and best practices for insuring staff and patient safety. However, mistakes and problems can happen. A breach in safety is referred to as an incident. Common examples of incidents have been mentioned in this lesson:

- Equipment malfunction
- Back injury
- Slip, trip, or fall
- Exposure to hazardous chemicals
- Workplace violence.

All incidents should be reported immediately. Check with your supervisor if you are not familiar with facility procedures for reporting incidents.
LESSON 3 ~ EMERGENCY PREPAREDNESS

LEARNING OBJECTIVES
This lesson covers:
- Disaster Events
- Emergency Response Plans

TYPES OF DISASTER EVENTS
Healthcare organizations must be prepared to respond to disasters such as:
- Natural disasters
- Technological disasters
- Major transportation accidents
- Terrorism
- Nuclear, biological, and chemical events.

To prepare, each facility must:
- Identify events that could occur.
- Determine the probability that each event will occur.
- Develop strategies for dealing with each event.

EMERGENCY RESPONSE PLANS
Facilities document how they will deal with disaster in an Emergency Response Plan. A written plan alone is not enough for an effective response. Staff must be:
- Educated on the procedures in the plan.
- Trained and drilled to respond to disaster according to the plan.

Make sure that YOU are ready to respond to disaster:
- Know the disaster events that pose a risk for your facility.
- Participate in all emergency response training and drills.

LESSON 4 ~ INFECTION CONTROL

LEARNING OBJECTIVES
This lesson covers:
- Healthcare-Associated Infection (HAI)
- Hand Hygiene
- Antibiotic Resistance
- The Bloodborne Pathogens Standard
- Standard Precautions
- Transmission Based Precautions
- Personal Protective Equipment
- Personal Responsibility

HEALTHCARE-ASSOCIATED INFECTION
- **Impact** ~ Healthcare-associated infection (HAI) is an infection that develops after contact with the healthcare system. HAI can be very costly, in terms of:
  - Patient life and health
  - Healthcare dollars

- **Cause** ~ HAIs may be caused by bacteria, viruses, fungi, or parasites. These ‘germs’ may come from:
  - Environmental sources such as dust, etc.
  - Patients
  - Staff members
  - Hospital visitors
Depending on the agent, infection may be transmitted person-to-person via the:

- Contact route
- Droplet route
- Airborne route

Infection control for each of these modes of transmission will be discussed in greater detail later in the lesson.

**Prevention** ~ Best practices for preventing HAI are related to:

- **Hand Hygiene** ~ The single most important factor for preventing the spread of infection is proper hand hygiene. Hands should be washed or decontaminated before and after each direct patient contact.
  - Current CDC guidelines recommend the use of:
    - Soap and water for washing visibly soiled hands
    - Alcohol-based hand rubs for routine decontamination of hands between patient contacts.
  - When washing with soap and water:
    - Remove rings, jewelry and watches
    - Pre-wet hands with water
    - Use an appropriate amount of soap
    - Rub all surfaces of the hands and wrists for 15 seconds
    - Rinse thoroughly under running water
    - Dry hands with a disposable towel
  - When decontaminating hands with an alcohol rub:
    - Apply the amount of rub recommended by the manufacturer
    - Rub all surfaces of the hands and wrists until hands are dry

- **Environmental Hygiene** ~ Environmental hygiene also can help prevent HAI. Best practices for environmental hygiene are:
  - Maintain a clean environment. There should be no visible dust or soiling.
  - Clean, disinfect, or sterilize medical equipment after each use.
  - Dispose safely of clinical waste.
  - Launder used and infected linens safely and effectively.
  - Follow appropriate guidelines for kitchen and food hygiene.
  - Maintain an adequate pest-control program.

- **Invasive Procedures** ~ Many HAI are related to invasive procedures, especially:
  - Catheterization
  - IV line placement

  The most common type of HAI is Urinary Tract Infection (UTI) associated with indwelling urinary catheters. Therefore:
  - High-risk procedures such as catheterization should be performed only when absolutely necessary.
  - Catheters should be removed as soon as possible.
  - Instruments and equipment used for invasive procedures should be properly sterilized before use. They should be used with aseptic technique.

- **Antibiotic Use**
  - **Antibiotic Resistance** ~ Widespread use of antibiotics began in the 1940’s. Penicillin and other antibiotics were hailed as miracle drugs. They were able to cure previously untreatable bacterial illnesses. However, bacteria are very adaptable. They have the ability to change genetically to resist the effects of antibiotics. The more antibiotics are used, the more common resistant strains of bacteria become. Clinically important examples are:
    - Methicillin Resistant Staphylococcus Aureus (MRSA)
    - Vancomycin Resistant Enterococci (VRE)
* Drug resistant Streptococcus Pneumonia (DRSP)
* Multidrug resistant Mycobacterium Tuberculosis (MDR-TB)

**Impact of Resistance** ~ Antibiotic resistance is a significant health problem. It affects:
* Drug Choice: When an infection is resistant to the antibiotic of choice, other antibiotics must be used instead. These second-choice drugs are typically:
  ° Less effective against the bacteria
  ° More toxic to the patient
  ° More expensive
* Patient Health: Patients with resistant infections tend to have:
  ° Lengthier illness
  ° Higher medical bills
  ° Greater risk of death
* The Healthcare System:
  ° Antibiotic-resistant strains contribute significantly to HAI.
  ° More than 70% of all bacteria that cause HAI are found to be resistant to one or more commonly used antibiotics.

**Prevention of Resistance** ~ Healthcare professional must take an active role in preventing the spread of antibiotic resistance. Strategies include:
* Preventing infection: One of the best techniques we have to prevent infection vaccination. Patients should be kept up on appropriate vaccinations. Healthcare workers also should receive appropriate vaccinations.
* Diagnosing and treating infection effectively: Effective diagnosis means identifying the cause of infection so that the right treatment may be given. Effective treatment includes using specific antibiotics when antibiotics are necessary. A specific antibiotic is targeted to the identified infectious agent. Use of broad spectrum antibiotics or multiple antibiotics should be avoided.
* Using antibiotics prudently: An important part of using antibiotics prudently is NOT giving into patient demands for antibiotics for viral illnesses such as colds, flu, etc. patients must be educated accordingly.
* Preventing spread of infection: Remember the single best method for preventing spread of infection is hand hygiene. This makes proper hand hygiene an important tool in the fight against antibiotic resistance as well. Appropriate Isolation Precautions should also be used to prevent spread of infection in the healthcare setting.

**Bloodborne Pathogens** ~ Bloodborne diseases are spread from person to person when there is exposure to infected blood, other bodily fluids, non-intact skin or moist body tissues.

Important bloodborne diseases include AIDS, Hepatitis B and Hepatitis C.

**Bloodborne Pathogens Standard** ~ The Bloodborne Pathogens Standard (BPS) helps protect workers from exposure to HIV and other bloodborne pathogens. The Bloodborne Pathogens Standard:
* Cover any worker who might come in contact with blood or other potentially infectious materials (OPIM) as part of his or her job.
* Requires employers to take certain steps to help protect these workers.

One of the key parts of the BPS is to require the use of Standard Precautions.

**Standard Precautions** ~ Standard Precautions should be used in the care of all patients, regardless of their diagnosis. These precautions apply to patient:
* Blood
* Body fluids
* Secretions and excretions – except sweat
* Non-intact skin
* Mucous membranes
The major provisions of Standard Precautions are summarized in table form below. Note: In the table, the term ‘bodily fluids’ is used to indicate all patient fluids to which Standard Precautions apply. Standard Precautions are to be used in the care of all patients.

<table>
<thead>
<tr>
<th>Handwashing</th>
<th>Wash/decontaminate hands:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• After touching bodily fluids or contaminated items</td>
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<tr>
<td></td>
<td>• After removing gloves</td>
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<tr>
<td></td>
<td>• Between patient contacts</td>
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<table>
<thead>
<tr>
<th>Gloves</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>• Wear gloves when touching bodily fluids or contaminated items.</td>
</tr>
<tr>
<td></td>
<td>• Put on clean gloves before touching mucous membranes or non-intact skin.</td>
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<tr>
<td></td>
<td>• Change gloves between ‘dirty’ and ‘clean’ tasks on the same patient.</td>
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<tr>
<td></td>
<td>• Remove gloves promptly after use – before going to another patient.</td>
</tr>
<tr>
<td></td>
<td>• Wash hands immediately.</td>
</tr>
</tbody>
</table>

| Mask, Eye Protection, Face Shield, Gown | Use personal protective equipment (PPE) as necessary to protect against splashes or sprays of bodily fluids. |

<table>
<thead>
<tr>
<th>Patient-Care Equipment and Linens</th>
<th>Equipment and linens soiled with bodily fluids should be handled in a way that avoids cross-contamination.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Clean and reprocess reusable equipment appropriately before use on another patient.</td>
</tr>
<tr>
<td></td>
<td>• Discard single-use items appropriately.</td>
</tr>
</tbody>
</table>

| Environmental Control | Environmental surfaces should be cleaned and disinfected on a routine basis. |

<table>
<thead>
<tr>
<th>Bloodborne Pathogens</th>
<th>Use sharps such as needles, scalpels, etc. carefully and appropriately. For example, do not bend or recap needles.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Take care to prevent accidental sticks.</td>
</tr>
</tbody>
</table>

| Patient Placement | Patients who contaminate the environment should be placed in private rooms. |

- **Needlestick Prevention** ~ The BPS has rules to protect against sharps injury:
  * Facilities must adopt the use of safer needle devices.
  * Contaminated needles and other contaminated sharps should not be bent or recapped.
  * Shearing or breaking of contaminated needles is prohibited.
  * Contaminated sharps should be placed in appropriate containers. These containers must be puncture-resistant, appropriately labeled or color-coded, and leak-proof on the sides and bottom.

- **Airborne Precautions** ~ Airborne diseases are transmitted from person to person via tiny particles. These particles:
  * Are produced when an infected person sneezes, coughs or talks.
  * Can remain suspended in the air for long periods of time.
  * Can travel long distances on air currents.

  Transmission occurs when a healthy person inhales an infectious particle. Infection and disease symptoms then may occur.

- **Diseases** ~ Important airborne, or potentially airborne, diseases include:
  * Chickenpox and shingles
  * Measles
  * Tuberculosis (TB)
  * SARS
  * Smallpox
To prevent the transmission of airborne diseases in the healthcare setting, Airborne Precautions are used, along with Standard Precautions, in the care of all patients with a diagnosed or suspected airborne-transmitted disease.

<table>
<thead>
<tr>
<th>Patient Placement</th>
<th>Patients on Airborne Precautions are isolated in private rooms with special air handling and ventilation systems. If a private room is not available, patients are cohorted.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Protection</td>
<td>Healthcare staff must wear personal respirators whenever they enter an airborne isolation room.</td>
</tr>
<tr>
<td>Patient Transport</td>
<td>Patient transport should be limited as much as possible.</td>
</tr>
</tbody>
</table>

- **Tuberculosis (TB)** ~ TB is an airborne disease. Therefore, Airborne Precautions apply. In addition, both the CDC and OSHA have specific guidelines for preventing transmission of TB in the healthcare setting.
  * CDC Guidelines
  * OSHA TB Enforcement Policy

- **Contact Precautions** ~ Contact transmission of disease occurs via direct or indirect person-to-person contact. This form of transmission is the most important and common cause of HAI.
- **Diseases** ~ Examples of contact diseases are:
  * Hepatitis A
  * Respiratory Syncytial Virus Infection
  * Impetigo
  * Conjunctivitis
  * Viral Hemorrhagic Infections

To prevent contact transmission of diseases in the healthcare setting, Contact Precautions are used, along with Standard Precautions, in the care of all patients with a diagnosed or suspected contact-transmitted disease.

<table>
<thead>
<tr>
<th>Patient Placement</th>
<th>Patients on Contact Precautions are isolated in private rooms or cohorted.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gloves, Gowns, and Hand Antisepsis</td>
<td>Healthcare staff must use gloves and gowns as necessary to prevent unprotected exposure to patients on Contact Precautions. Hands should be decontaminated immediately after removing gloves.</td>
</tr>
<tr>
<td>Patient Transport</td>
<td>Patient transport should be limited as much as possible.</td>
</tr>
<tr>
<td>Patient-Care Equipment</td>
<td>Non-critical equipment should be dedicated to a single patient or cohort on Contact Precautions. If this is not possible, equipment should be cleaned and disinfected between patients.</td>
</tr>
</tbody>
</table>

- **Droplet Precautions** ~ Droplet transmission happens via large respiratory droplets. These droplets:
  * Are generated during coughing, sneezing, talking, etc.
  * Travel a short distance through the air up to three feet.

Droplets may land on the mucous membranes of a nearby person’s eyes, nose or mouth. Disease transmission then may occur.

Differences between Airborne and Droplet Transmission:
- Tiny Respiratory Particles vs. Larger Respiratory Droplets
- Long Travel Distance Through Air vs. Short Travel Distance Through Air

- **Diseases** ~ Examples of droplet diseases are:
  * Mumps
  * Rubella
  * Influenza
To prevent the transmission of droplet diseases in the healthcare setting, Droplet Precautions are used, along with Standard Precautions, in the care of all patients with a diagnosed or suspected droplet-transmitted disease.

<table>
<thead>
<tr>
<th>Patient Placement</th>
<th>Patients on Droplet Precautions are isolated in private rooms or cohorted. If a private room is not available and cohorting is not possible, patients should be placed at least three feet away from the nearest other patient or visitor.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masks</td>
<td>Healthcare staff should use masks whenever caring for or working within three feet of a patient on Droplet Precautions.</td>
</tr>
<tr>
<td>Patient Transport</td>
<td>Patient transport should be limited as much as possible.</td>
</tr>
</tbody>
</table>

**Person Protective Equipment** ~ Personal Protective Equipment (PPE) is an important component on infection control. PPE helps to prevent the spread on microorganisms both:
- From patient to healthcare worker
- From healthcare worker to patient

Review the screens describing Standard Precautions, Airborne Precautions, Contact Precautions and Droplet Precautions for appropriate use of key items of PPE. Note the use of gloves, masks, goggles, gowns and respirators.

**Personal Responsibility** ~ As a healthcare worker, you have personal responsibilities for infection control in your facility. Maintain immunity to vaccine-preventable diseases such as:
- Hepatitis B
- Measles
- Varicella or chickenpox
- Rubella
- Mumps

Report all unprotected exposures, such as accidental needlesticks. Stay home from work when you are sick.