HealthStream Regulatory Script

Infection Control

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HLC Version: 602

1001

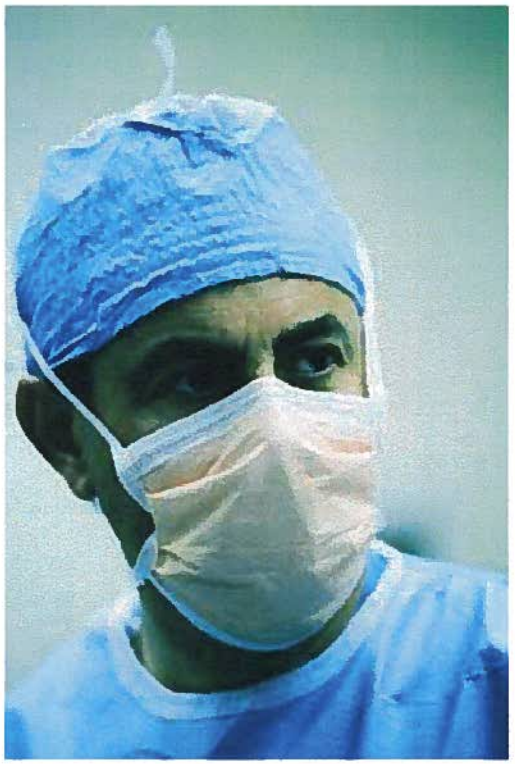
Introduction

Welcome to the introductory lesson on infection control.

As your partner, HealthStream strives to provide its customers with excellence in regulatory learning solutions. As new guidelines are continually issued by regulatory agencies, we work to update courses, as needed, in a timely manner. Since responsibility for complying with new guidelines remains with your organization, HealthStream encourages you to routinely check all relevant regulatory agencies directly for the latest updates for clinical/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 Joint Commission.

IMAGE: 1001.JPG



1002

Course Rationale	
This course will teach you the basics of infection control. You will learn: • How diseases are spread • How to help prevent the spread of disease in the healthcare setting	IMAGE: 1002.JPG 
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1003

Course Goals	
After completing this course, you should be able to: • Recognize the importance of infection control • Identify how infections spread • Recognize how to block the spread of infection • List your responsibilities for infection control	NO IMAGE
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1004

Course Outline	
This introductory lesson gave the course rationale and goals. Lesson 2 discusses the importance of infection control. Lesson 3 describes how infections spread. Lesson 4 explains how to block the spread of infection. Finally, lesson 5 discusses your role and responsibility for infection control.	FLASH ANIMATION Lesson 1: Introduction Lesson 2: The Importance of Infection Control • Healthcare-associated infection Lesson 3: The Chain of Infection • Links in the chain • Breaking the chain Lesson 4: Infection Control Strategies • Hand hygiene • Standard Precautions • Transmission-Based Precautions • Disinfection & sterilization Lesson 5: Employee Health & Personal Responsibility • Vaccinations • Exposure • When You Are Sick
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Lesson 2: The Importance of Infection Control
2001

Introduction & Objectives	
Welcome to the lesson on the importance of infection control. After completing this lesson, you should be able to: • Recognize the significance of healthcare-associated infection (HAI) • Identify the importance of infection control for preventing HAI	FLASH ANIMATION Lesson 2: The Importance of Infection Control • Healthcare-associated infection
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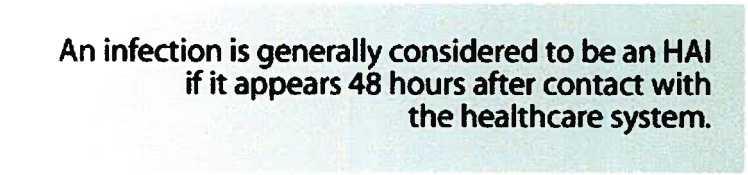
2002
Healthcare-Associated Infection

Sometimes, patients come to the hospital with infections. These infections are **community-acquired infections**.

More often, patients do not have infections when they come to the hospital. Sometimes, these patients develop infections *after* being treated or admitted.

An infection that develops in the hospital or after treatment is a **healthcare-associated infection (HAI)**.

IMAGE: 2002.JPG



2003

Healthcare-Associated Infection: Frequency	
In recent decades, the rate of HAI has increased. Reasons include: • People coming to the hospital are sicker. This puts them at greater risk for infection. • Antibiotic-resistant infections have become more common. These infections can spread rapidly in the healthcare setting.	IMAGE: 2003.JPG 
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2004

Healthcare-Associated Infection: Incidence	
Approximately two million hospital patients develop HAI each year. This is about 10% of all patients admitted to the hospital. Death from HAI may be as high as 90,000 patients per year. Caring for patients with HAI costs billions of dollars each year.	IMAGE: 2004.GIF **Costs of HAI:** ▸ Health ▸ Life ▸ Money
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2005

Healthcare-Associated Infection: Prevention	
A good infection control program can help: • Protect patients from HAI • Protect hospital visitors and staff from infection You play a key role in helping to prevent the spread of disease in your facility. You must: • Know the infection control practices used in your facility • Carefully follow those practices	IMAGE: 2005.GIF *Everyone* who works at your healthcare facility needs to do his or her part to prevent the spread of infection. 
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2006

Review	
Healthcare-associated infection (HAI): a. Is never fatal b. Develops in all hospitalized patients c. Develops after a patient has contact with the healthcare system d. All of the above e. None of the above	MULTIPLE CHOICE INTERACTION Correct: C A: Incorrect. HAI leads to the death of as many as 90,000 patients each year. The correct answer is C. B: Incorrect. HAI develops in about 10% of hospitalized patients. The correct answer is C. C: Correct. D: Incorrect. The correct answer is C. E: Incorrect. The correct answer is C.
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2007

Summary	
You have completed the lesson on the importance of infection control. Remember: • Many patients develop HAI each year. • A good infection control program can help prevent HAI in patients. • A good infection control program also protects hospital staff and visitors. • All facility employees must do their part to prevent the spread of infection.	NO IMAGE
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LESSON 3: The Chain of Infection
3001

Introduction & Objectives	
Welcome to the lesson on the chain of infection. After completing this lesson, you should be able to: • List the links in the chain of infection • Identify the weakest link in the chain.	FLASH ANIMATION Lesson 3: The Chain of Infection • Links in the chain • Breaking the chain
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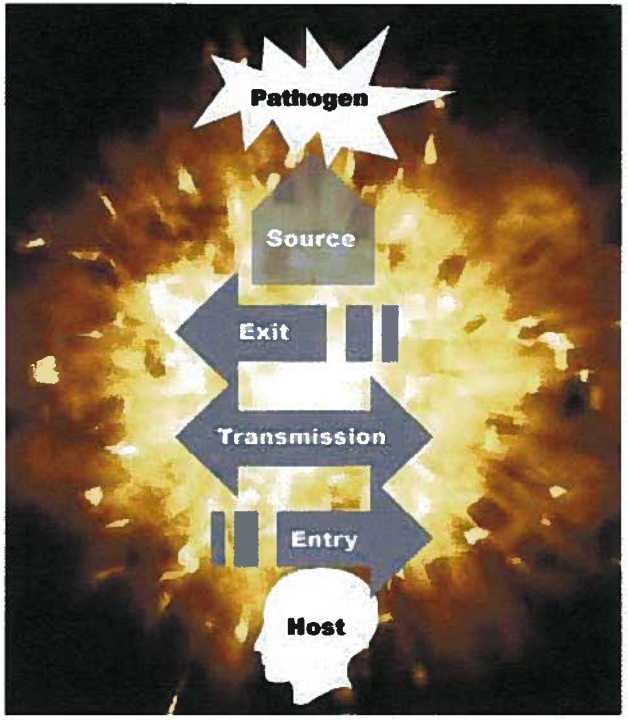
3002

The Chain of Infection

How do infections spread from person to person?

The process is called the **chain of infection.**

IMAGE: 3002.JPG



3003

Infectious Agents

The elements needed to transmit an infection include:

- **Infectious agent**
- **Reservoir**
- **Portal of exit**
- **Method of transmission**
- **Portal of entry**
- **Susceptible host**

Click on each of the elements above for a basic definition.

We will discuss each of these elements in greater detail on the following screens.

CLICK TO REVEAL

Infectious agent
Any disease-causing germ (pathogen). This includes viruses, fungi, bacteria, and parasites.

Reservoir
Where the pathogen lives or comes from. A reservoir can be an infected person. Food, water, an animal, and dirt can also be reservoirs.

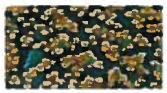
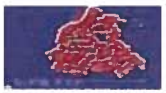
Portal of exit
The way the pathogen leaves its reservoir. For example, suppose the reservoir is a person, and the pathogen is a cold virus. The pathogen can exit the person's nose or mouth through a sneeze or a cough.

Method of transmission
How the pathogen moves from the reservoir to the susceptible host. In the sneeze example above, the pathogen is carried in the sneeze droplets. Other examples of transmission modes are sexual contact, animal bite, and needle stick.

Portal of entry
Where the pathogen enters the body of the susceptible host. In the sneeze example, the sneeze droplets could land on the susceptible host's eyes, nose, or mouth. These areas would be the portal of entry. Broken skin is another common portal of entry for pathogens.

Susceptible host
Person who could get sick with a particular infection. In the sneeze example, almost everyone is a susceptible host when it comes to cold viruses. In other cases, some people are susceptible to a particular infection, and others are not. Factors such as weak immunity or lack of vaccination can make a host susceptible to disease.

3004

Infectious Agent	
Bacteria and viruses are the most common cause of HAI. Fungi also can cause HAI. However, this is less common. Examples of bacteria that can cause infection are: • *Staphylococcus aureus* • *E. coli* • *Mycobacterium tuberculosis* Examples of viruses that can cause infection are: • Influenza • Hepatitis B • Varicella zoster (chickenpox and shingles virus)	FLASH ANIMATION    CDC/Janice Carr /Jeff Hageman CDC/Janice Carr CDC/Janice Carr    CDC/Erskine Palmer/ M.L. Martin CDC CDC/Erskine Palmer/B.G. Partin
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3005

Reservoir

Pathogens come from **reservoirs**.

The most common reservoir (or source) for HAI is an infected person.

Other potential reservoirs are:

- Food
- Medications
- Dust
- Medical equipment
- Computers

IMAGE: 3005.jpg

3006

Portal of Exit	
The portal of exit is the way a pathogen leaves its reservoir. Portals of exit from an infected person include: • The mouth, through coughing or speaking • The nose, through sneezing • Cuts, scratches, punctures, or wounds that allow blood to leave the body • Other openings in the body that allow body fluids to escape	FLASH ANIMATION   
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3007

Method of Transmission	
The method of transmission is how a pathogen travels. From person to person, a pathogen can travel by: • Contact. This can be direct skin-to-skin contact. It also can be indirect contact. Indirect contact happens when an infected person touches a surface. Later, the susceptible host touches the same surface and picks up the pathogen. • Droplet. Respiratory droplets come from coughs, sneezes, or talking. They can travel only a few feet through the air. • Airborne respiratory particles. These tiny particles can travel a long way through the air from the reservoir to the susceptible host. • Bodily fluids. Blood and other bodily fluids can transmit disease if they contact a susceptible host's broken skin or mucous membranes [glossary].	FLASH ANIMATION    
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3008

Portal of Entry	
A pathogen must enter a host to cause an infection. This happens through a portal of entry. Examples of portals of entry are: • Broken skin • Mucous membranes • Catheter access sites • Surgical wounds	FLASH ANIMATION   
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3009

Susceptible Host

A pathogen must find a susceptible host to cause infection.

Some people are more susceptible to infection than others.

Many hospital patients are particularly susceptible to infection. These patients include:

- Surgical patients
- Patients with weakened immunity because of certain types of disease
- Patients with weakened immunity because of taking certain drugs

The very old and the very young have weaker immunity.

IMAGE: 3009.JPG

3010
The Weakest Link in the Chain

To prevent the spread of infection, a link in the chain of infection must be broken.

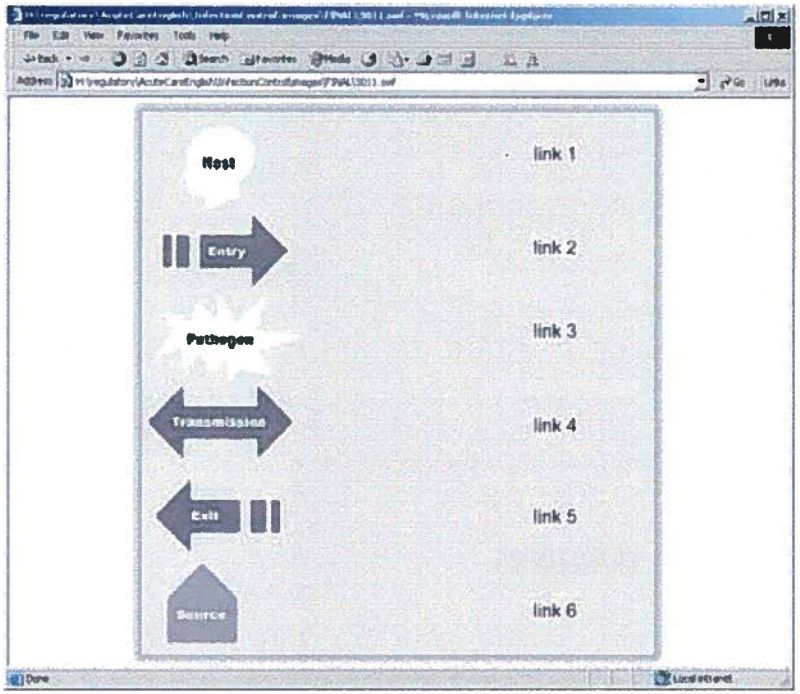
IMAGE: 3010.JPG

The weakest link in the chain is the method of transmission.

Therefore, most infection control strategies attack this link.

We will take a closer look at these and other strategies in the next lesson.

3011

Review	
Assemble the chain of infection in order.	FLASH INTERACTION: 3011.SWF 
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3012

Review	
The weakest link in the chain of infection is the: a. Reservoir b. Portal of entry c. Susceptible host d. Method of transmission	MULTIPLE CHOICE INTERACTION [CORRECT ANSWER: D] [RESPONSE FOR CHOICE A: Incorrect. [RESPONSE FOR CHOICE B: Incorrect. [RESPONSE FOR CHOICE C: Incorrect. [RESPONSE FOR CHOICE D: Correct.
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3013

Summary	

You have completed the lesson on the chain of infection.
 	
Remember:
• There are six links in the chain of infection:
  • Infectious agent
  • Reservoir
  • Portal of exit
  • Method of transmission
  • Portal of entry
  • Susceptible host
• To prevent the spread of infection, a link in the chain must be broken.
• The weakest link in the chain is transmission. Most infection control strategies target this link.
	NO IMAGE

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Lesson 4: Infection Control
4001

Introduction & Objectives	
Welcome to the lesson on infection control. After completing this lesson, you should be able to: • Recognize good hand hygiene practices • Identify the major elements of Standard Precaution • List types of Transmission-Based Precautions • Define disinfection and sterilization	FLASH ANIMATION Lesson 4: Infection Control Strategies • Hand hygiene • Standard Precautions • Transmission-Based Precautions • Disinfection & sterilization
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4002

Hand Hygiene: Handwashing

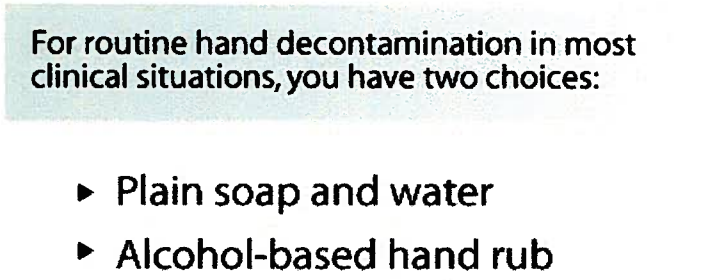
Proper hand hygiene is the single best way to stop the spread of infection.

Hands should be washed:

- With warm water and soap
- Using friction for at least 15 seconds
- At the beginning and end of the work shift
- Before eating, drinking, or applying cosmetics
- Following contact with contaminated items or surfaces
- After gloves are removed
- After using the bathroom or blowing the nose
- Before handling food, drugs, or cleaning supplies
- Before and after each patient contact

IMAGE: 4002.JPG

4003

Hand Hygiene: Alcohol Rubs	
Alcohol rubs can be used instead of soap and water for hand hygiene. These rubs are very effective at removing pathogens from the hands. To use an alcohol rub: • Apply enough rub to cover all of both hands. • Rub hands until dry. Do not rinse or wipe dry. You may use an alcohol rub almost any time hands should be washed. In fact, the CDC [glossary] currently recommends alcohol rubs for routine hand hygiene in most clinical situations. An exception is when hands are visibly dirty. In this case, wash with soap and water.	IMAGE: 4003.JPG 
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4004

Hand Hygiene: Other

Jewelry and artificial nails can interfere with good hand hygiene.

They also can be good places for bacteria to hide.

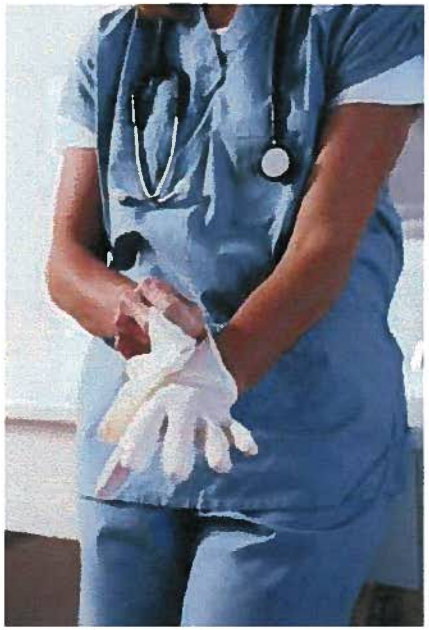
Therefore, healthcare workers should not wear artificial nails or an excessive amount of jewelry if they:

- Have direct patient contact
- Clean or prepare things that patients may use

Natural nails should be kept no longer than ¼ of an inch long.

IMAGE: 4004.JPG

4005

Standard Precautions	
Proper hand hygiene is one part of Standard Precautions. Standard Precautions are a set of tools for blocking the spread of bloodborne disease. To decide whether you need to use Standard Precautions, ask yourself: *Is it possible that I could have contact with patient blood or other body fluids during this task?* If the answer is "yes," you must use Standard Precautions. The patient's diagnosis does not matter. **Standard Precautions are used with all patients.**	IMAGE: 4005.JPG 
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4006

Standard Precautions: Engineering Controls

Standard Precautions include the use of engineering controls.

Engineering controls are devices with built-in safety features. These features eliminate or minimize the risk of exposure to blood and body fluids. They should be examined and maintained on a regular basis.

Common examples of engineering controls are:

- Sharps disposal containers
- Needle-less systems
- Safety needles

IMAGE: 4006.JPG

4007

Standard Precautions: Work Practice Controls

Standard Precautions also include work practice controls.

Work practice controls are ways of doing your job that minimizes your risk of exposure to blood and body fluids.

Handwashing is an example of a work practice control.

Other examples of work practice controls are:

- Never recap used needles
- Never point a needle toward any part of your body
- Never bend or break used needles by hand
- Always place used needles in a sharps disposal container

IMAGE: 4007.JPG

4008

Standard Precautions: Personal Protective Equipment

Standard Precautions may require the use of personal protective equipment (PPE).

PPE consists of protective coverings that minimize the risk of exposure to blood or body fluids. For example:

- Gloves
- Gowns
- Face shields
- Masks
- Ventilation devices

Standard Precautions require you to use PPE in cases such as these:

- Gloves must be worn if there is a possibility of contact with blood or body fluids.
- A mask, protective eyewear, and a gown must be worn if there is a possibility of splashes or sprays of blood or body fluids.

IMAGE: 4008.JPG

4009

Transmission-Based Precautions	
Remember: 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** Click on each type of precautions to learn more.	CLICK TO REVEAL **Contact Precautions** Contact Precautions are used when a patient has, or may have, a disease spread by direct or indirect contact. Some examples of conditions that call for Contact Precautions are: • Scabies • Drug-resistant infections • Major wound infections • Herpes simplex To learn more, see the "Transmission-Based Precautions: Contact and Droplet" course. **Droplet Precautions** Droplet Precautions are used when a patients has, or may have, a disease spread by respiratory droplets. Some examples are: • Rubella • Diphtheria • Influenza • Meningococcal meningitis To learn more, see the "Transmission-Based Precautions: Contact and Droplet" course. **Airborne Precautions** Airborne Precautions are used when a patient has, or may have, a disease spread by tiny airborne particles. Some examples are: • TB • Measles To learn more, see the "Transmission-Based Precautions: Airborne" course.
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4010

Disinfection and Sterilization	
Another aspect of infection control is disinfection and sterilization. Routine patient care can lead to contamination of: • Environmental surfaces • Patient equipment • Medical devices Decontamination is achieved by: • Cleaning • Disinfecting • Sterilizing OSHA requires decontamination of equipment contaminated with blood or potentially infectious material.	IMAGE: 4010.JPG **A surface can become contaminated if:** • **You touch it with your gloved hand after touching a patient.** • **It is touched by a patient.** • **An aerosol or splatter generating procedure is done close by.**
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4011

Disinfection & Sterilization: Cleaning	
The first step in the decontamination process is **cleaning**. This removes visible debris. Some items must be soaked in a detergent solution. It is important to follow the manufacturer instruction for cleaning. You should also read the chemical instructions before use. After soaking, items generally are: • Scrubbed using friction • Rinsed with water • Dried to remove excess water	IMAGE: 4011.JPG **The FDA, CDC, EPA and OSHA stress the importance of properly cleaning electronic equipment. Use of excess cleaners and disinfectants has been associated with reports of fires. This may place the healthcare provider and patient in danger.**
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4012

Disinfection & Sterilization: Disinfection	
After cleaning, some items are disinfected to destroy pathogens. There are two types of disinfection: • **Low-level disinfection** • **High-level disinfection** Click on each to learn more.	CLICK TO REVEAL **Low-level disinfection** Low-level disinfection destroys most pathogens. Spores and some viruses may remain alive. This type of disinfection is used for low-risk items. These are items that come into contact with intact skin only. An example is environmental surfaces. **High-level disinfection** High-level disinfection destroys all pathogens. This type of disinfection is used for moderate-risk items. These are items that may come into contact with mucous membranes or non-intact skin. Examples are devices that will be placed in a patient's mouth during a procedure.
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4013

Disinfection & Sterilization: Disinfection	
Disinfection is generally performed by soaking items in a solution. The disinfectant solution must be: • Appropriate for the item • Approved by the FDA for disinfecting medical items Items must be soaked for the required amount of time. Some instruments may be disinfected automatically in machines. Always follow your facility's policies for proper disinfection procedures.	IMAGE: 4013.JPG  Disinfection may require soaking for ten to fifteen minutes or longer. This soak time is needed to make sure that microbes are killed. Always allow the required soak time!
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4014

Disinfection & Sterilization: Sterilization

Sterilization destroys *all* microbes. This includes viruses and all spores.

Sterilization is used for high-risk items. These are items that come into contact with sterile tissues or the bloodstream. Examples are:

- Surgical instruments
- Implantable devices [glossary]
- Intravascular devices [glossary]

Sterilization methods commonly used in the healthcare setting are:

- Steam autoclave
- Gas sterilization with ethylene oxide (EtO)

Specific training is required to perform instrument sterilization.

IMAGE: 4014.JPG

4015

Disinfection & Sterilization: Aseptic Technique

Using properly sterilized items is one part of aseptic technique.

Aseptic means "without microorganisms." Aseptic technique is critical for protecting patients from infection during invasive procedures.

For example, surgery is one important area where aseptic technique must be used.

Aseptic technique for surgery includes:

- Using sterilized items (as mentioned above)
- Hand hygiene and the surgical scrub
- Wearing proper surgical attire
- Decontaminating the patient's skin at the site of the procedure
- Maintaining the sterile field

IMAGE: 4015.JPG

4016

Review	
Which patient groups require the use of Standard Precautions? a) All patients b) Only patients with AIDS c) Only patients with HIV infection d) Only patients with HBV or HCV infection e) Both C and D	MULTIPLE CHOICE INTERACTION [CORRECT ANSWER: A] [RESPONSE FOR CHOICE A: Correct. Standard Precautions are used with all patients. [RESPONSE FOR CHOICE B: Incorrect. The correct answer is A. Standard Precautions are used with all patients. [RESPONSE FOR CHOICE C: Incorrect. The correct answer is A. Standard Precautions are used with all patients. [RESPONSE FOR CHOICE D: Incorrect. The correct answer is A. Standard Precautions are used with all patients.
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4017

Review	
A high-risk item such as a scalpel blade should be _____ prior to being used on a patient. a. Sterilized b. Low-level disinfected c. High-level disinfected	MULTIPLE CHOICE INTERACTION [CORRECT ANSWER: A] [RESPONSE FOR CHOICE A: Correct. [RESPONSE FOR CHOICE B: Incorrect. The correct answer is A. High-risk items should be sterilized. [RESPONSE FOR CHOICE C: Incorrect. The correct answer is A. High-risk items should be sterilized.
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4018

Summary	
You have completed the lesson on infection prevention. Remember: • The single most important thing you can do to stop the spread of disease is to practice proper hand hygiene. • Standard Precautions protect against the spread of bloodborne disease. These Precautions should be used with all patients. • Standard Precautions include engineering controls, work practice controls, and the use of PPE. • Patients with certain diseases must be isolated with Contact Precautions, Droplet Precautions, or Airborne Precautions. This is *in addition to* Standard Precautions. • Items become contaminated during patient care. Items must be decontaminated by cleaning, disinfecting, and/or sterilizing. • Using sterilized items is one part of aseptic technique. Aseptic technique should be used during all invasive procedures. This protects patients from infection.	NO IMAGE
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Lesson 5: Employee Health & Personal Responsibility
5001

Objectives	
Welcome to the lesson on employee health and personal responsibility. After completing this lesson, you should be able to: • List immunizations for healthcare workers • Describe exposure follow-up practices	FLASH ANIMATION Lesson 5: Employee Health & Personal Responsibility • Vaccinations • Exposure • When You Are Sick
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5002

Immunizations

To protect themselves and others, healthcare workers should have immunity to vaccine-preventable diseases. These diseases include:

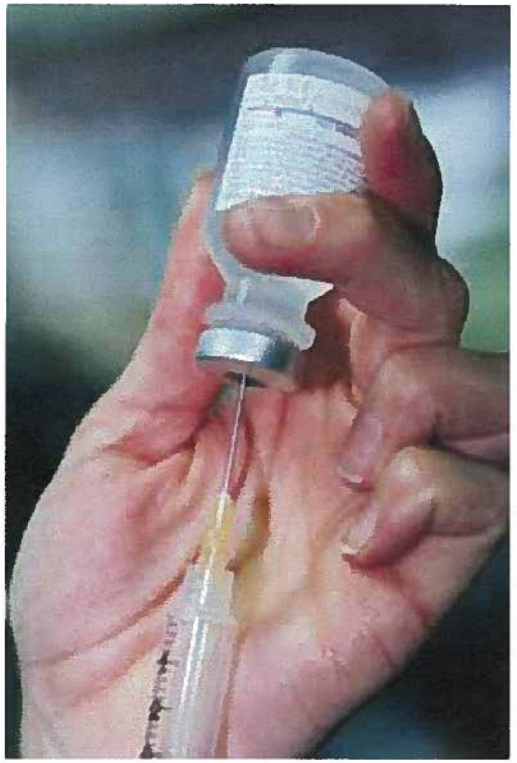
- Hepatitis B
- Measles
- Varicella (chickenpox / shingles)
- Rubella
- Mumps
- Influenza

Ask your supervisor for more information on the immunization program at your facility.

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

- Immune status
- Need for immunization

IMAGE: 5002.JPG



5003

Exposure to Bloodborne Pathogens

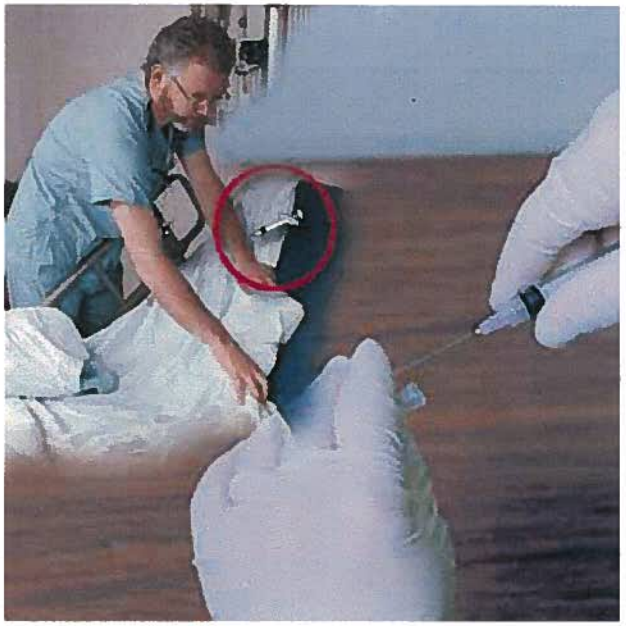
If you are ever exposed to blood or other bodily fluids, report this ***immediately***.

This means that you should ***immediately*** report:

- Needle-stick
- Cut or puncture from any other contaminated sharp
- Splash or spray of blood onto unprotected areas

When you report an occupational exposure, your facility is responsible for making sure that you receive appropriate follow-up.

IMAGE: 5003.JPG



5004

Exposure to Other Communicable Diseases

At times, you may have contact with a patient before he or she is diagnosed with a disease that calls for isolation precautions.

If this happens, you may need to report to occupational health for:

- Assessment
- Testing
- Other follow-up procedures

Sometimes, you will have immunity to the disease in question. In this case, nothing more will need to happen.

Other times, you may have to stay home from work for a few days. You may also receive medications to keep from getting sick, depending on the patient's diagnosis.

Your supervisor and occupational health professionals will provide information and follow-up.

IMAGE: 5004.JPG

5005

When You Have a Communicable Disease	
If you have an 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 [glossary] • Vomiting or diarrhea • Coughing or sneezing • Unexplained rash	IMAGE: 5005.JPG Keep your patients safe by staying home when you are sick! 
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5006

Review	
Report to your supervisor immediately if: a. You cut yourself with a contaminated scalpel. b. You stick yourself with a contaminated needle. c. You are splashed in the face with blood, and you are not wearing goggles or a mask. d. All of the above e. None of the above	MULTIPLE CHOICE INTERACTION Correct: D A: Not quite. The correct answer is D. All of these exposures should be reported immediately. B: Not quite. The correct answer is D. All of these exposures should be reported immediately. C: Not quite. The correct answer is D. All of these exposures should be reported immediately. D: Correct. E: Incorrect. The correct answer is D. All of these exposures should be reported immediately.
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5007

Summary	
You have completed the lesson on employee health and responsibilities Remember: • Make sure you have been vaccinated against important diseases. • Report unprotected blood or body fluid exposures to your supervisor immediately. • Report any unprotected contact with communicable disease. • Do not come to work if you are sick.	NO IMAGE
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Glossary

antibacterial
containing chemical agents that reduce or inhibit microbes

blood
blood or blood products including serum, packed cells, and plasma

body substances
any body fluid, secretion, or excretion: urine, feces, amniotic fluid, joint fluid, cerebrospinal fluid, wound drainage, saliva, breast milk, and others

CDC
Centers for Disease Prevention and Control

communicable disease
disease that can be transmitted directly or indirectly from one person to another

community-acquired infection
infection acquired by a patient prior to admission to a medical facility

conjunctivitis
highly contagious infection of the clear covering over the white part of the eye

contamination
introduction of infectious material onto a clean or sterile surface

disinfection
process of using chemical agents to kill most infectious organisms

environmental surface
items in the physical environment with which patients and staff routinely come in contact

ethylene oxide
chemical used to sterilize heat-sensitive or delicate equipment that cannot be steam-autoclaved

immunization
protection against disease

implantable device
sterile medical device introduced into a patient using an invasive procedure and remaining in the patient for a period of time

intravascular device
sterile device that enters the bloodstream

invasive procedure
procedure requiring entry into the body or sterile tissue of a patient

healthcare-associated infection
infection that develops after treatment at or admission to a medical facility

mucous membranes
moist body lining, such as the lining of the nose and mouth

pathogen
microorganism or substance that can cause disease

PPE
personal protective equipment

PPE
Post-exposure prophylaxis

spore
thick-walled reproductive form of an infectious agent capable of surviving extreme conditions

sterilization
process of killing all vegetative microorganisms as well as spores by exposure to heat, steam, or chemical agents

vaccine-preventable disease
disease for which there are known vaccines that will prevent infection