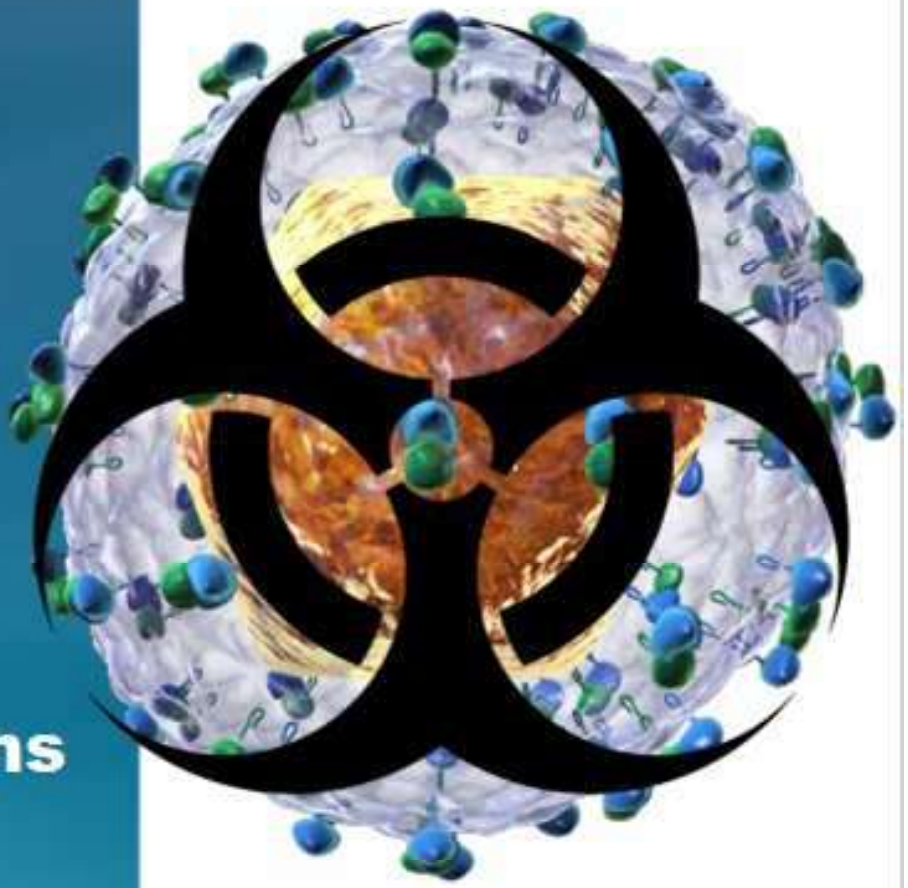
OSHA
Bloodborne Pathogens



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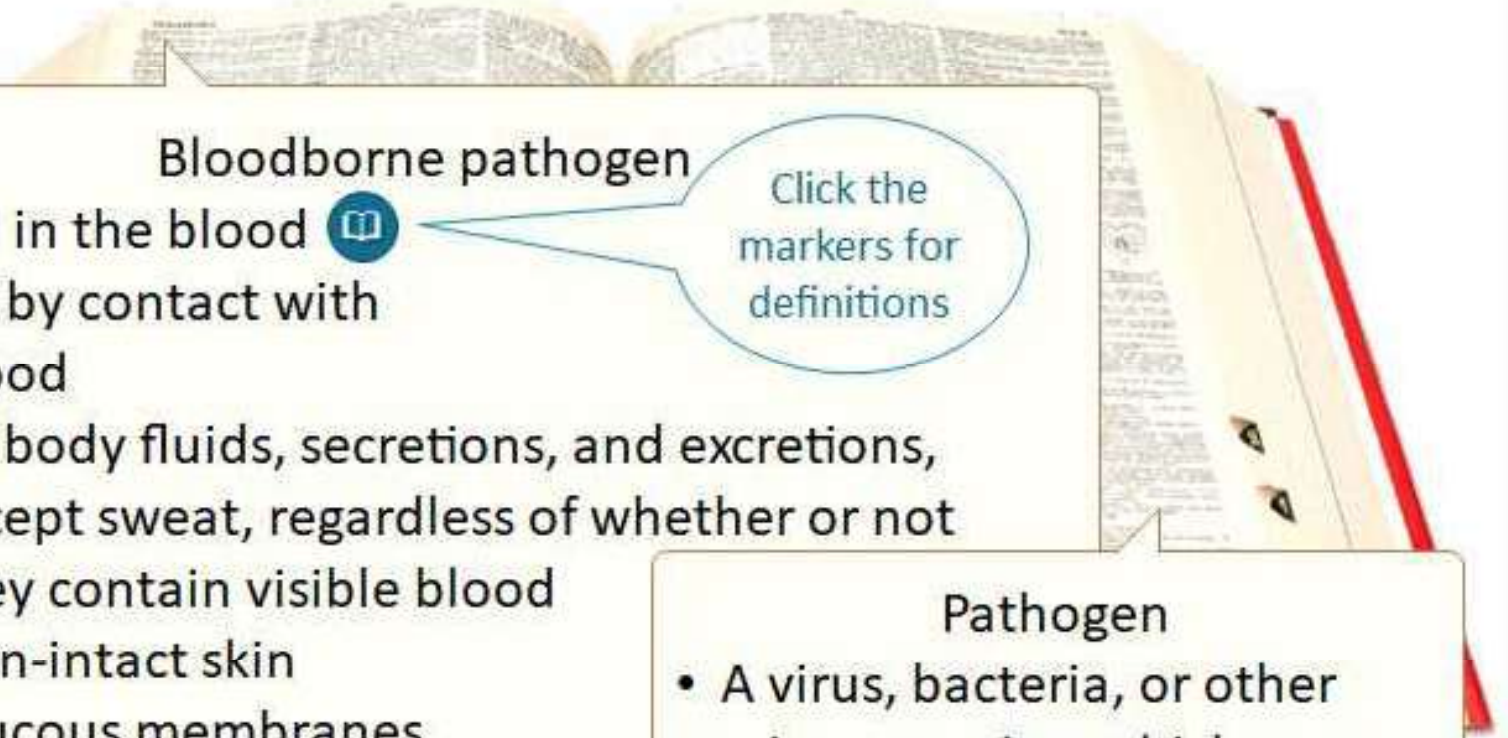
Course Objectives

By the time you complete this course, you should be able to:

- Explain common bloodborne pathogens, their symptoms, and modes of transmission
- Identify the regulatory text and the organization plan
- Analyze the tasks which may put you at risk, and the use of engineering controls, work practices, and personal protective equipment to reduce your risk
- Describe the hepatitis B vaccine
- Demonstrate the actions you should take and persons to contact in an emergency involving blood or other potentially infectious materials
- Recognize signs, labels and color coding associated with biohazards

Common Bloodborne Pathogens

Define Bloodborne Pathogens



Bloodborne pathogen

- Carried in the blood
- Spread by contact with
  1. Blood
  2. All body fluids, secretions, and excretions, except sweat, regardless of whether or not they contain visible blood
  3. Non-intact skin
  4. Mucous membranes

Click the markers for definitions

Pathogen

- A virus, bacteria, or other microorganism which can cause a disease

Click this button to see additional examples of bloodborne pathogens

Bloodborne pathogens

Click x to close

Hepatitis B virus

HIV, which causes acquired immunodeficiency syndrome (AIDS)

Hepatitis C virus

Human T-lymphotrophic virus Type 1

Malaria

Syphilis

Babesiosis (microscopic parasite usually transmitted by a tick)

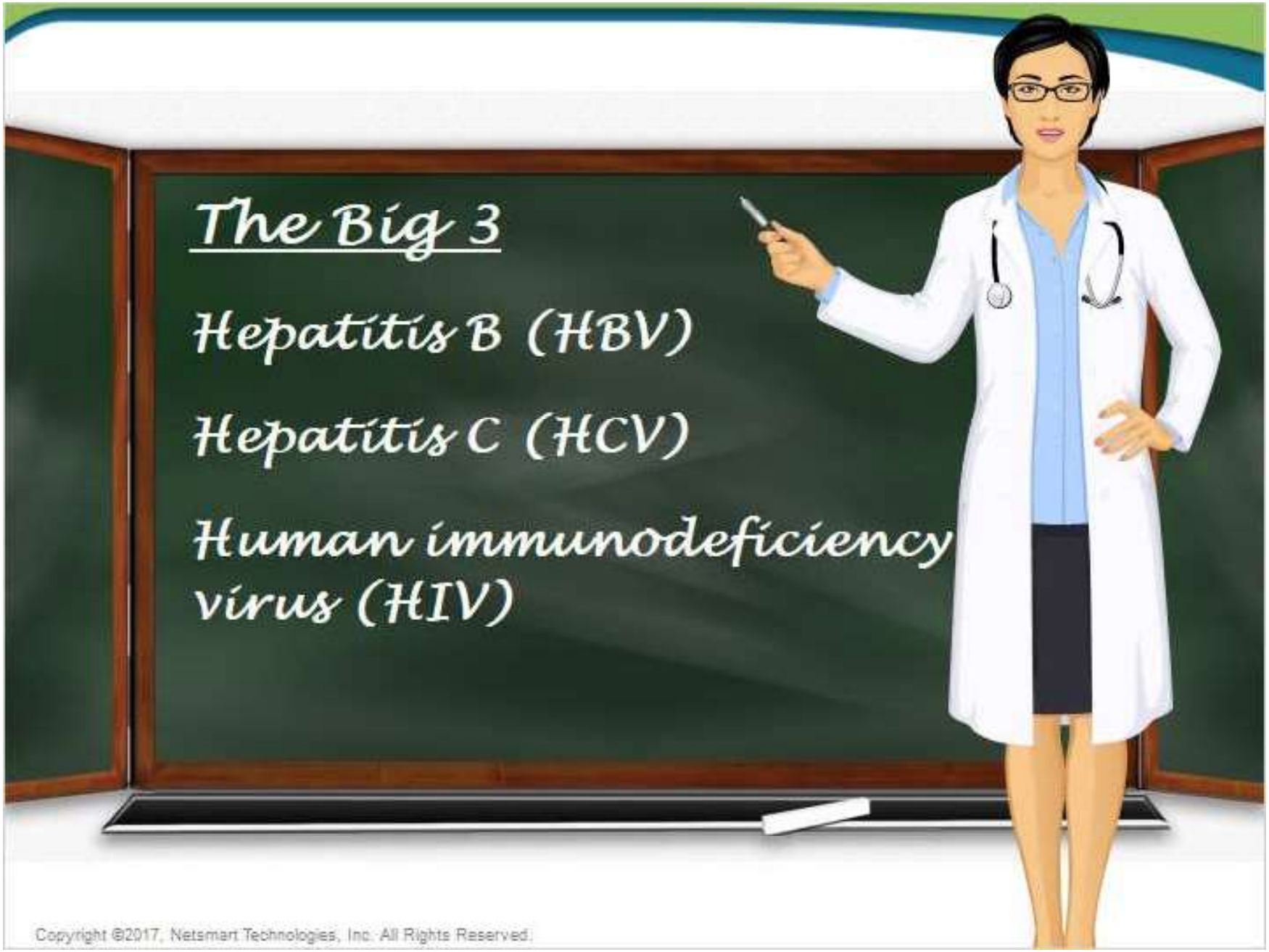
Brucellosis (bacteria usually transmitted by sheep, goats, cattle, or camels)

Leptospirosis (bacteria usually transmitted by cattle, pigs, horses, dogs, rodents, and wild animals)

Arboviral infections (virus transmitted primarily by mosquito or tick bites, West Nile virus is an example)

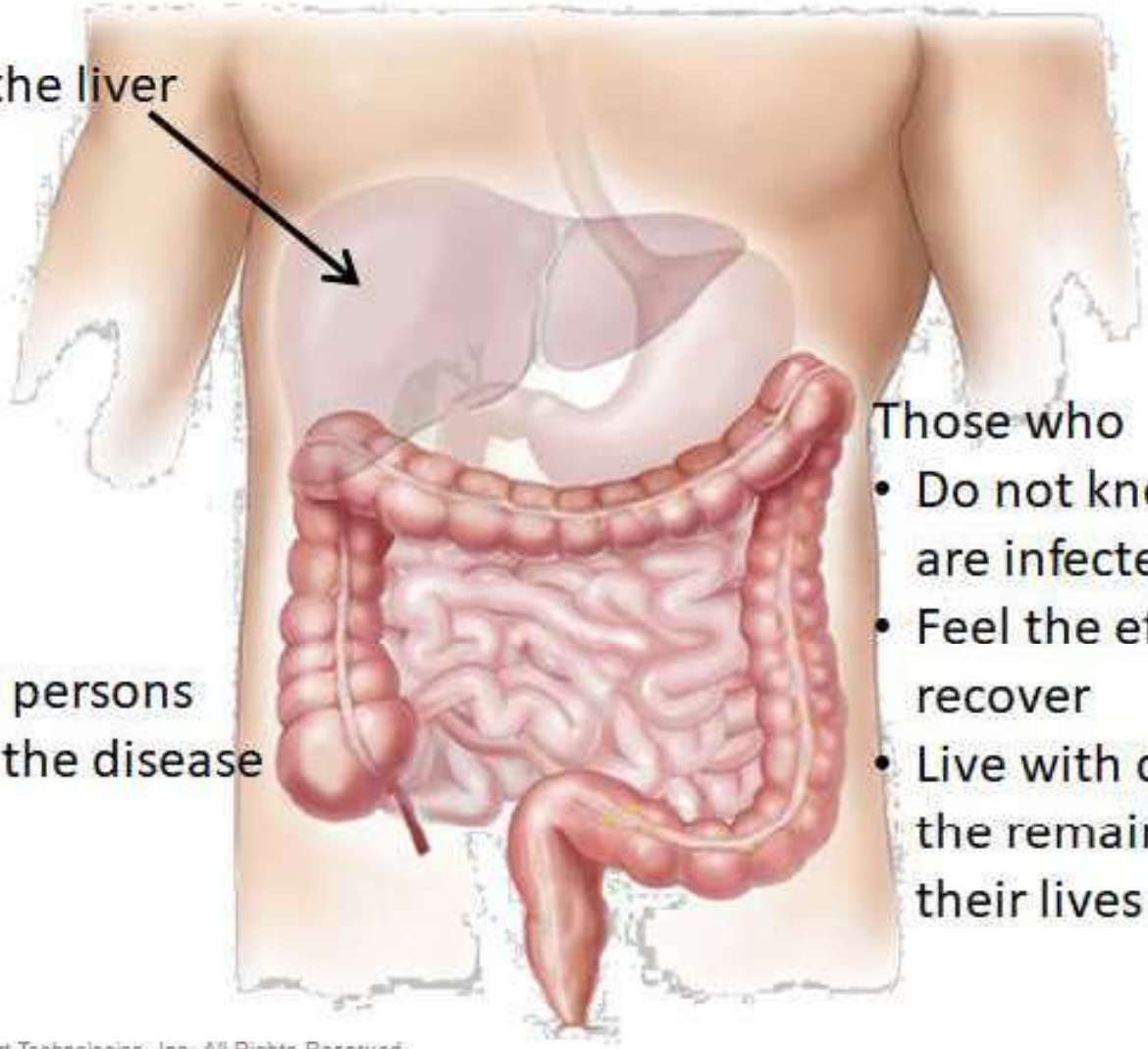
Relapsing fever (bacteria usually transmitted by a tick)

Viral hemorrhagic fever (virus usually transmitted by an animal or insect, Ebola is an Example)



Hepatitis B (HBV)

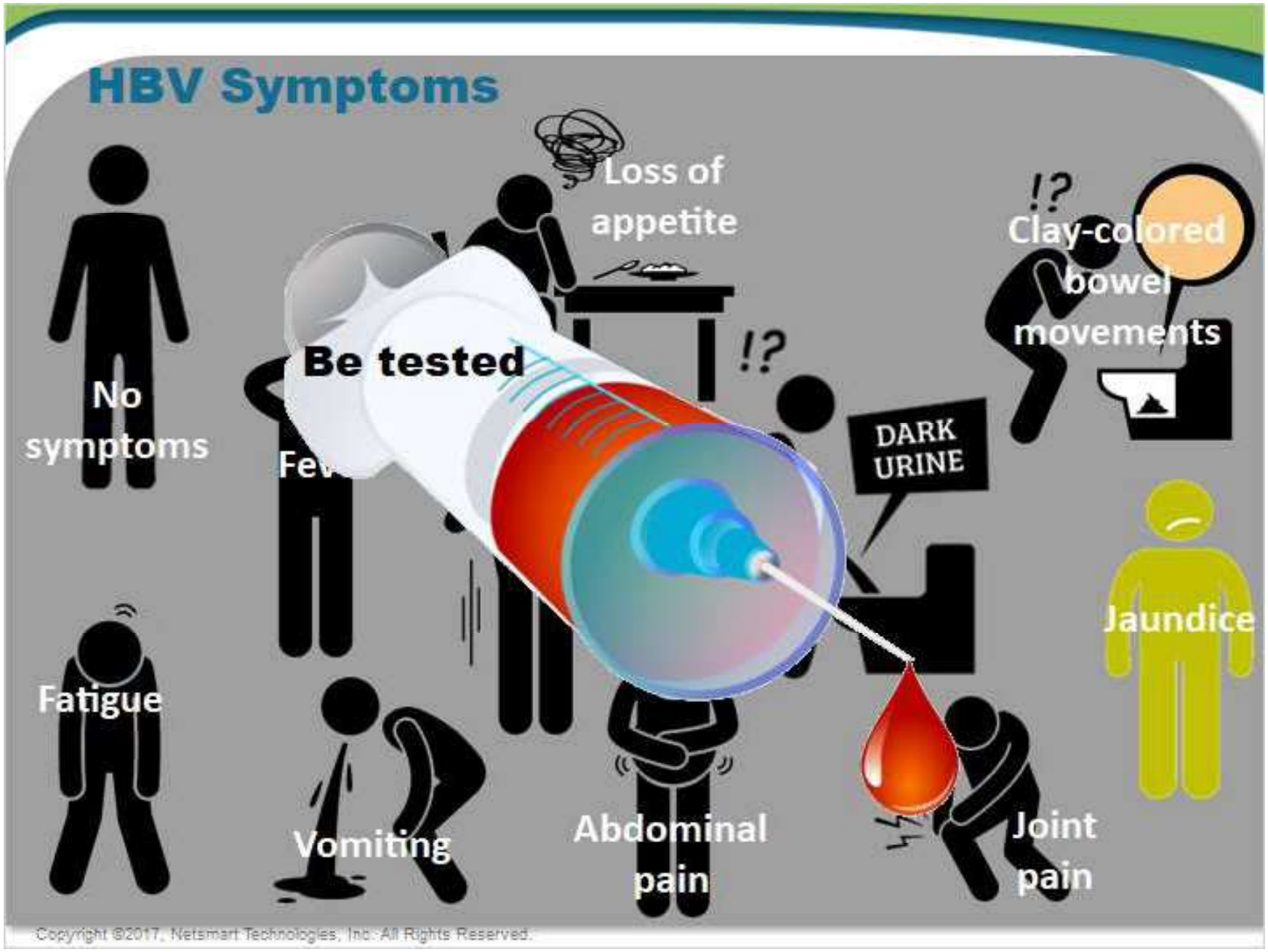
Disease of the liver



All infected persons can spread the disease

Those who

- Do not know they are infected
- Feel the effects and recover
- Live with disease the remainder of their lives


HBV Symptoms
Loss of appetite
Clay-colored bowel movements
Be tested
No symptoms
DARK URINE
Jaundice
Fatigue
Vomiting
Abdominal pain
Joint pain
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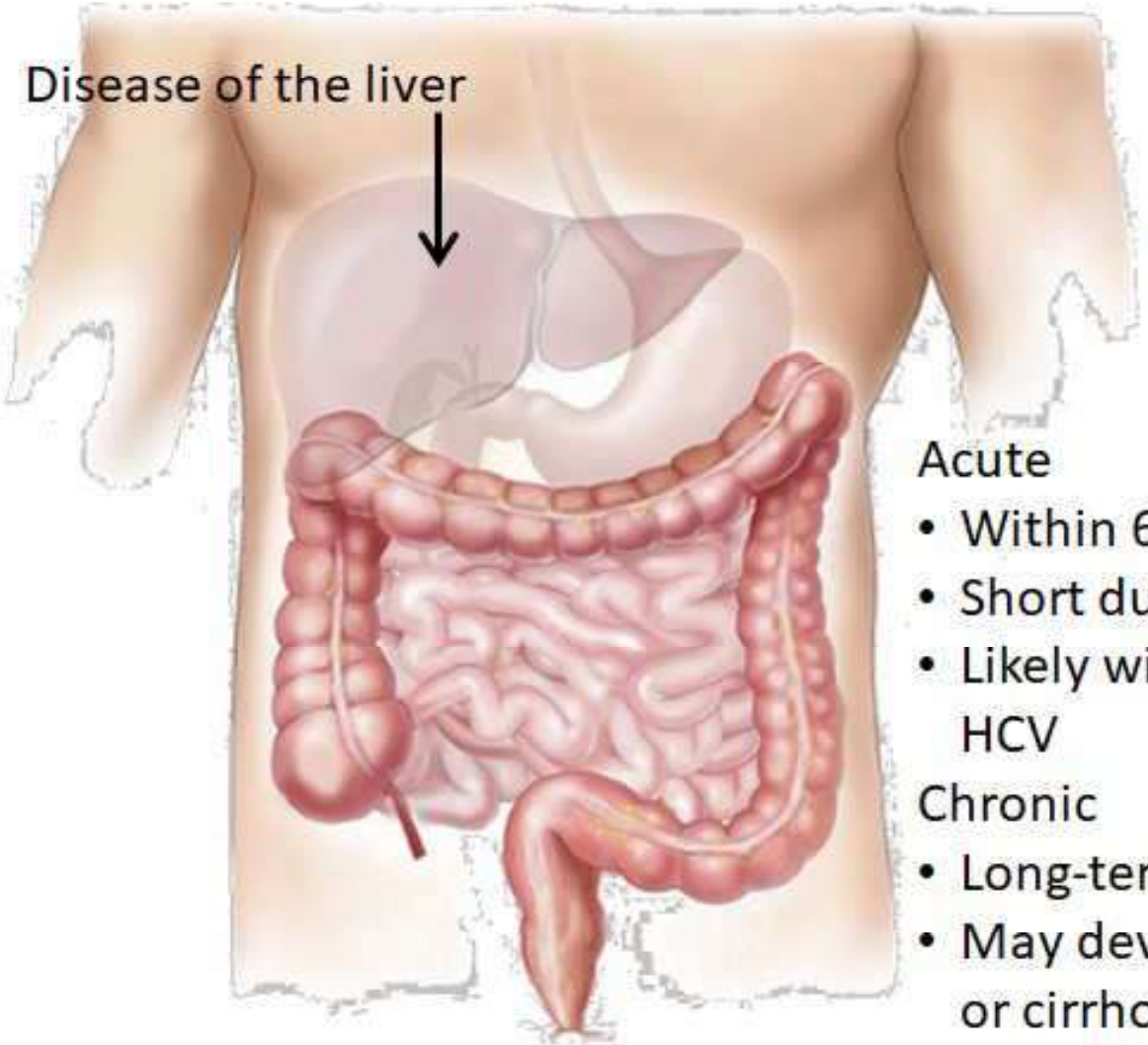
Hepatitis C (HCV)



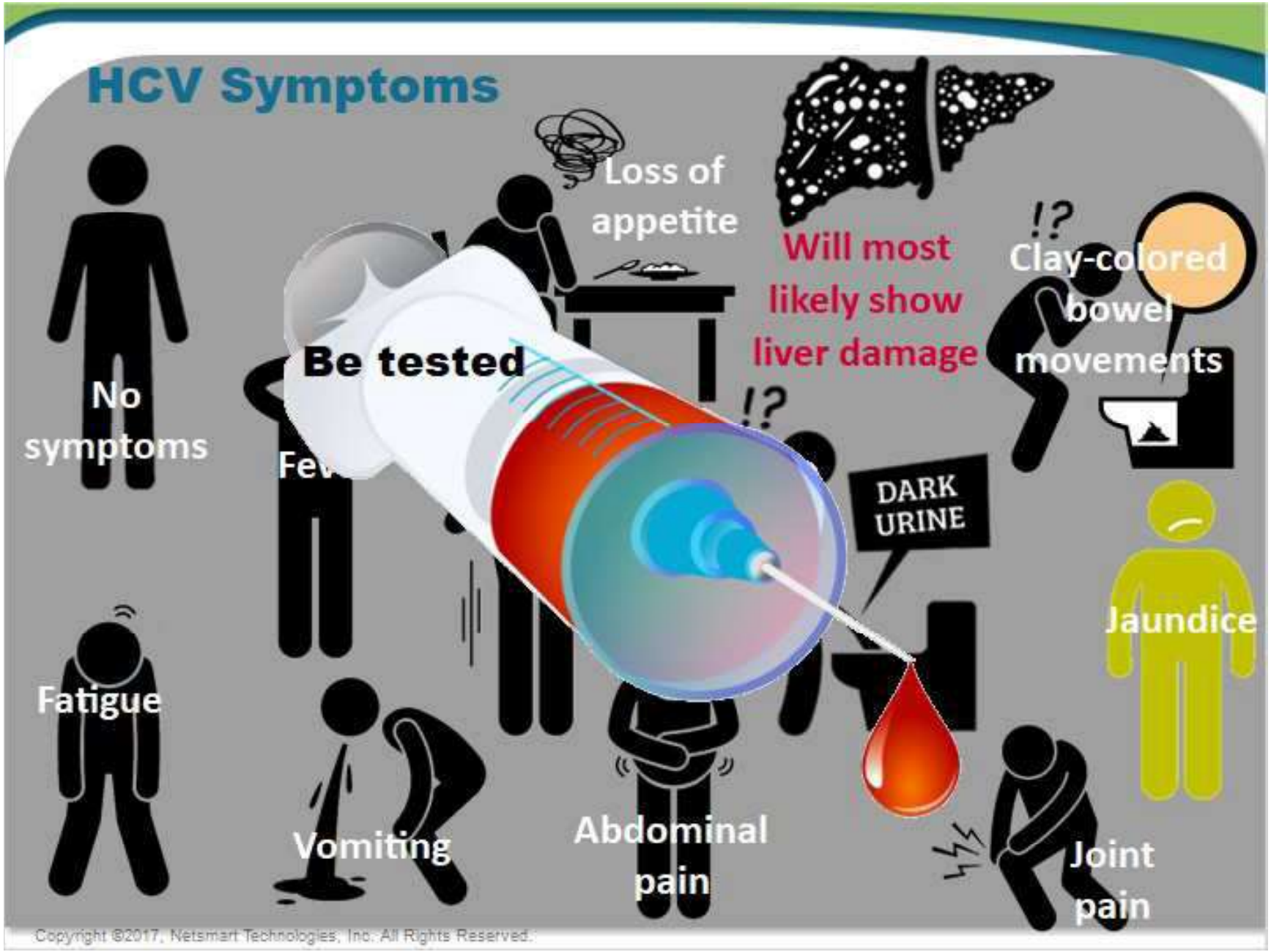
With or without symptoms can spread the disease.

Acute

- Within 6 months of exposure
- Short duration
- Likely will progress to chronic HCV

Chronic

- Long-term
- May develop into liver cancer or cirrhosis of the liver


HCV Symptoms
Loss of appetite
Will most likely show liver damage
Clay-colored bowel movements
Be tested
No symptoms
DARK URINE
Jaundice
Fatigue
Vomiting
Abdominal pain
Joint pain
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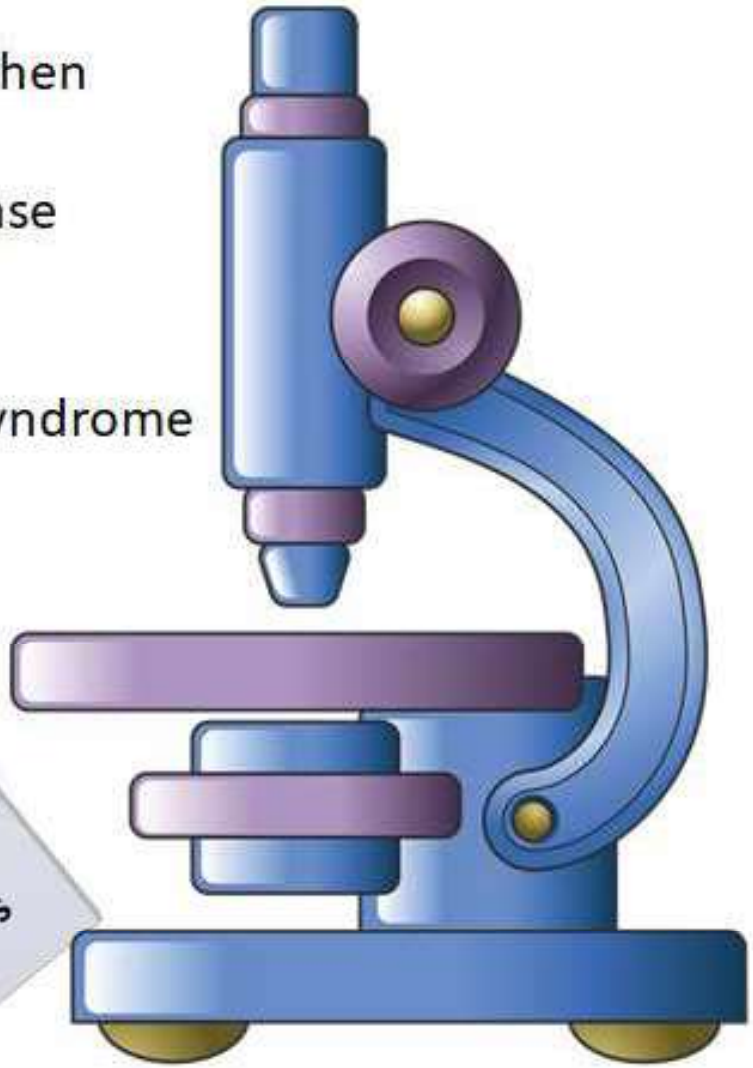
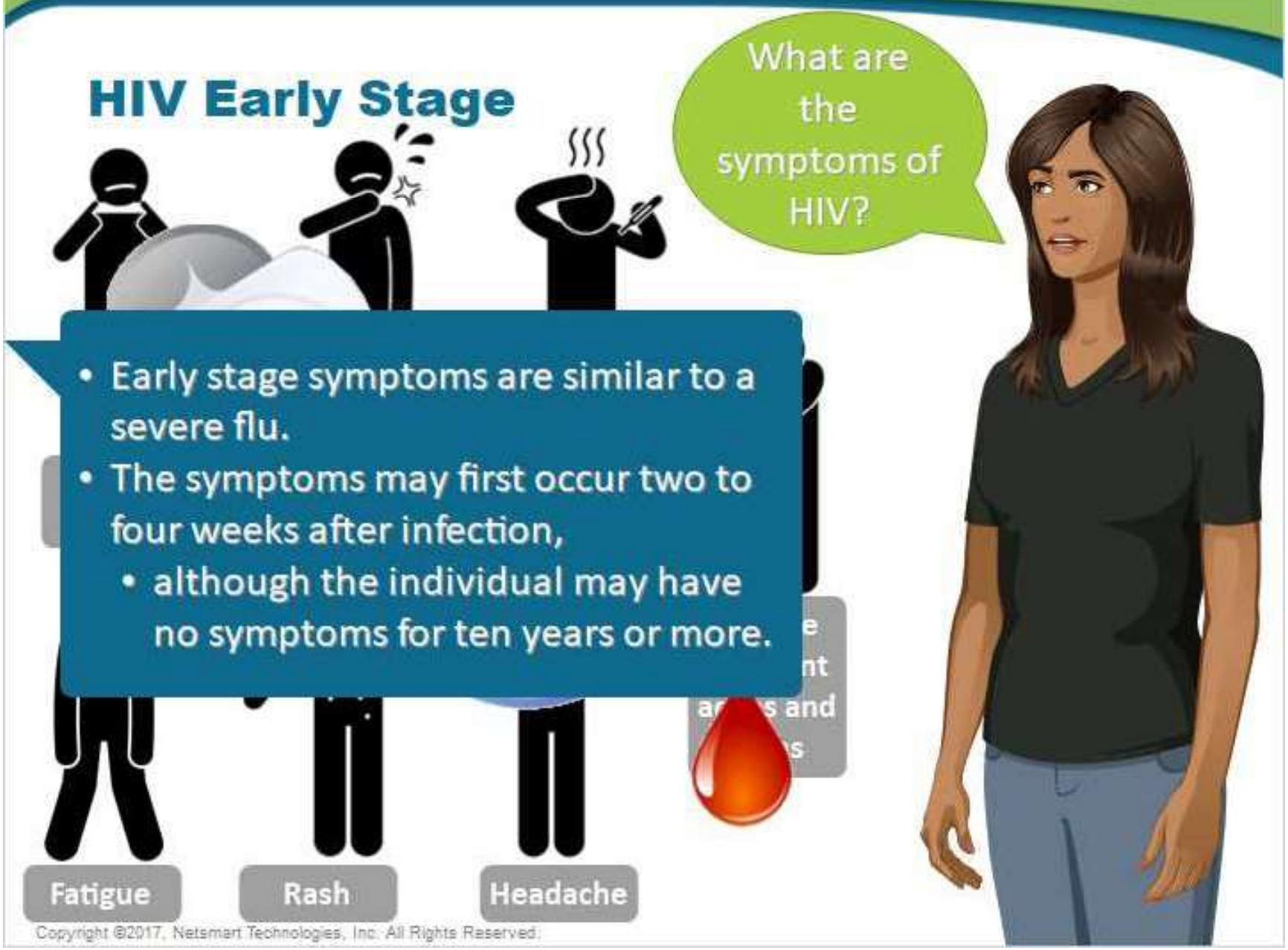
HIV (Human Immunodeficiency Virus)

- Attacks and destroys T cells
  - Uses T cells to replicate itself, then destroys them
- Once infected it is a lifetime disease
  - Can be treated
- Some, not all, develop AIDS
  - Acquired Immunodeficiency Syndrome
  - Can lead to death



HIV Early Stage



HIV Late Stage

Late stage HIV symptoms include:

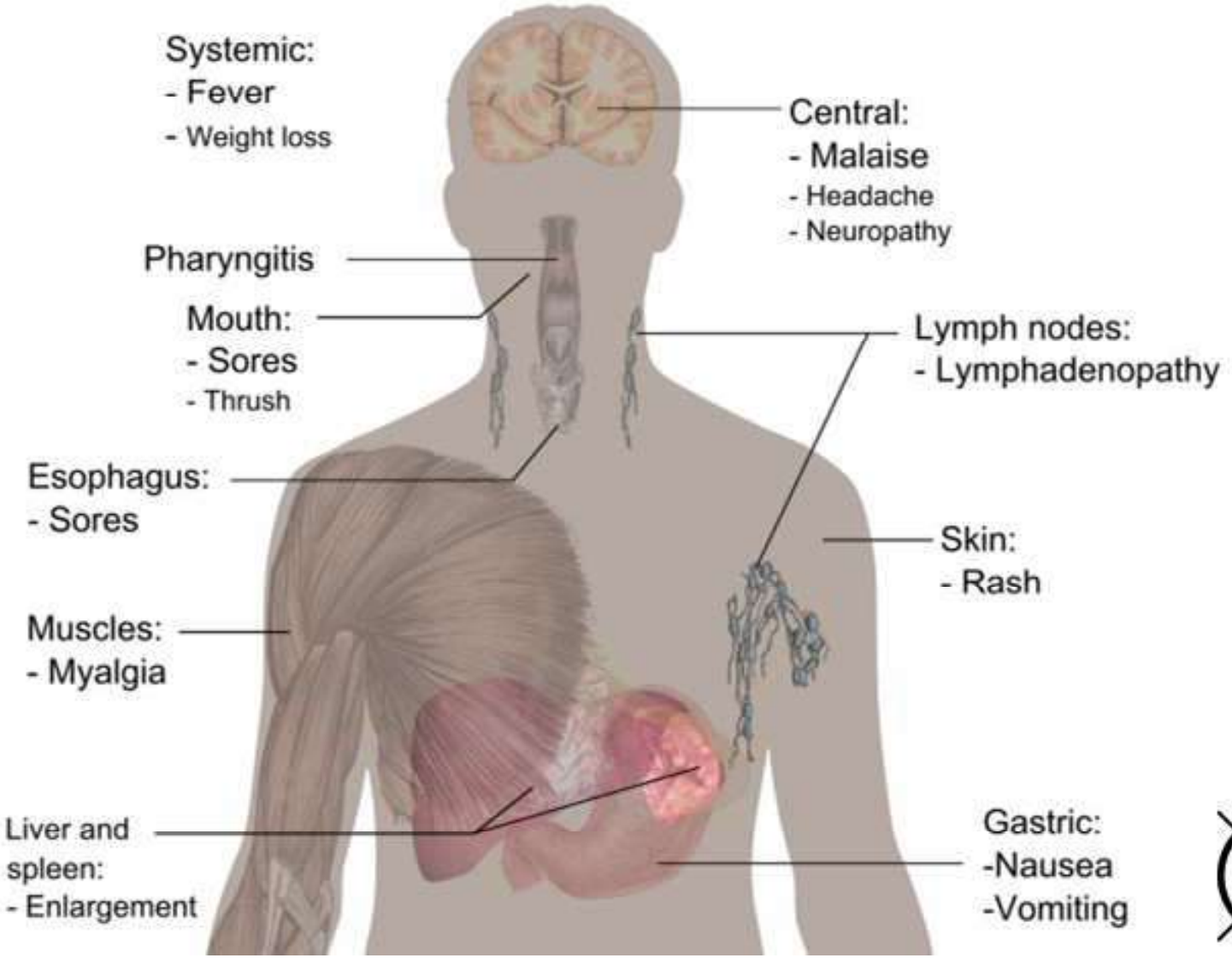
- Rapid weight loss
- Recurring fever or profuse night sweats
- Extreme and unexplained tiredness
- Prolonged swelling of the lymph glands in the armpits, groin, or neck
- Diarrhea that lasts for more than a week
- Sores of the mouth, anus, or genitals
- Pneumonia
- Red, brown, pink, or purple blotches on or under the skin or inside the mouth, nose or eyelids
- Memory loss, depression, and other neurologic disorders

Click to view the symptoms

Main symptoms of

Acute HIV infection

Click x to close



Transmission

Th

T

- any

ex

con

- A

contain

blood

For YOUR safety, treat all body fluids as a potential source of risk.

Click for extended list of body fluids

Other possible sources of transmission include:

- Cerebrospinal fluid
- Synovial fluid
- Pleural fluid
- Pericardial fluid
- Peritoneal fluid
- Saliva in dental procedures
- Tissue or organ from a human
- Some cultures

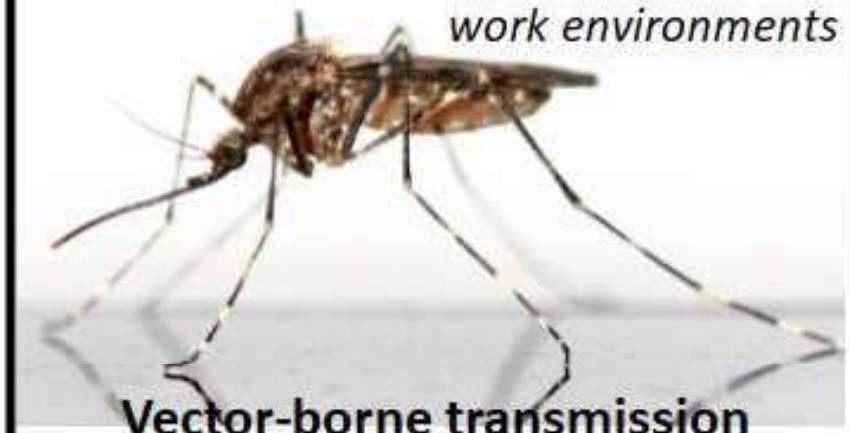
Modes of Transmission

✓ Direct contact

✓ Indirect contact

✓ Respiratory droplet transmission

Unlikely in most work environments



Vector-borne transmission

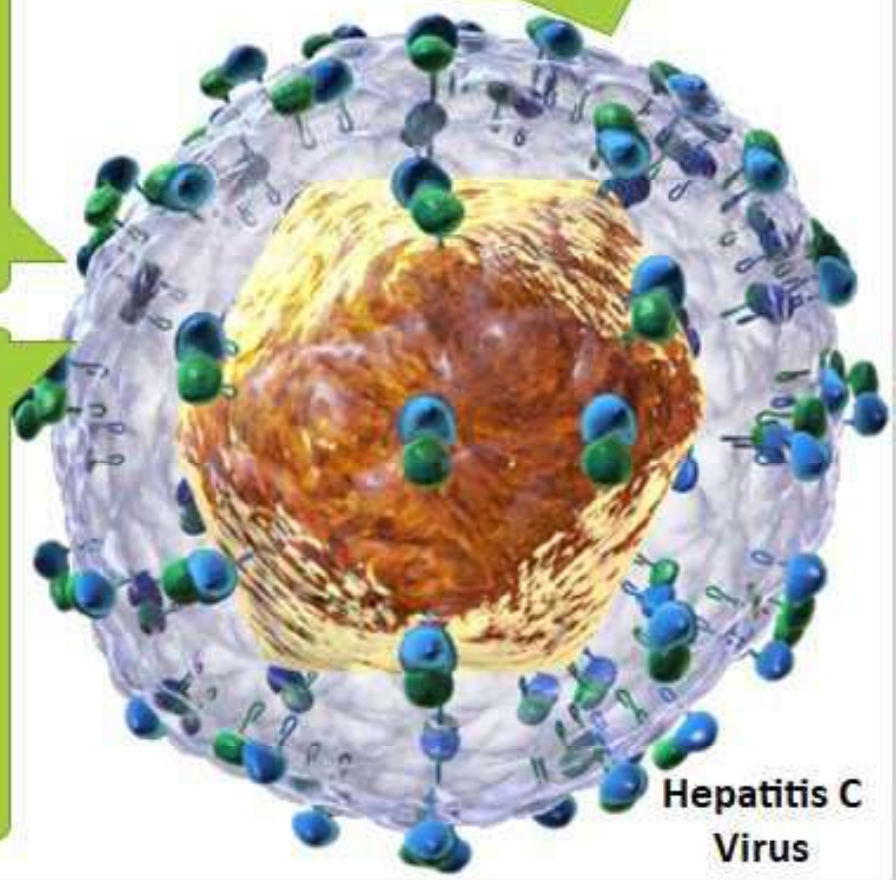
How Could I Be Exposed?

If you come into contact with
- a contaminated surface
- improperly handled regulated waste
- laundry

you could become infected

Direct contact such as
- a needle stick or cut by a sharp object
- a bite
- bodily fluid splashed into your eye, mouth, an open cut or sore

Viruses can survive outside the body for days



Hepatitis C Virus

Activity

A bloodborne pathogen can be spread by contact with: (Select all that apply)

- [x] Blood
- [x] All body fluids, secretions, excretions (except sweat)
- [x] Non-intact skin
- [x] Mucous membranes

Activity

A person with Hepatitis B (HBV) or Hepatitis C (HCV) will always show symptoms.

- ( ) True
- (•) False
- ( ) True for Hepatitis B only
- ( ) True for Hepatitis C only

Activity

Persons infected with HIV _____ develop(s) AIDS.

- ○ Always
- ○ Never
- ◉ Sometimes

Activity

In your work environment, you are most likely to be exposed to HBV, HCV, or HIV by:

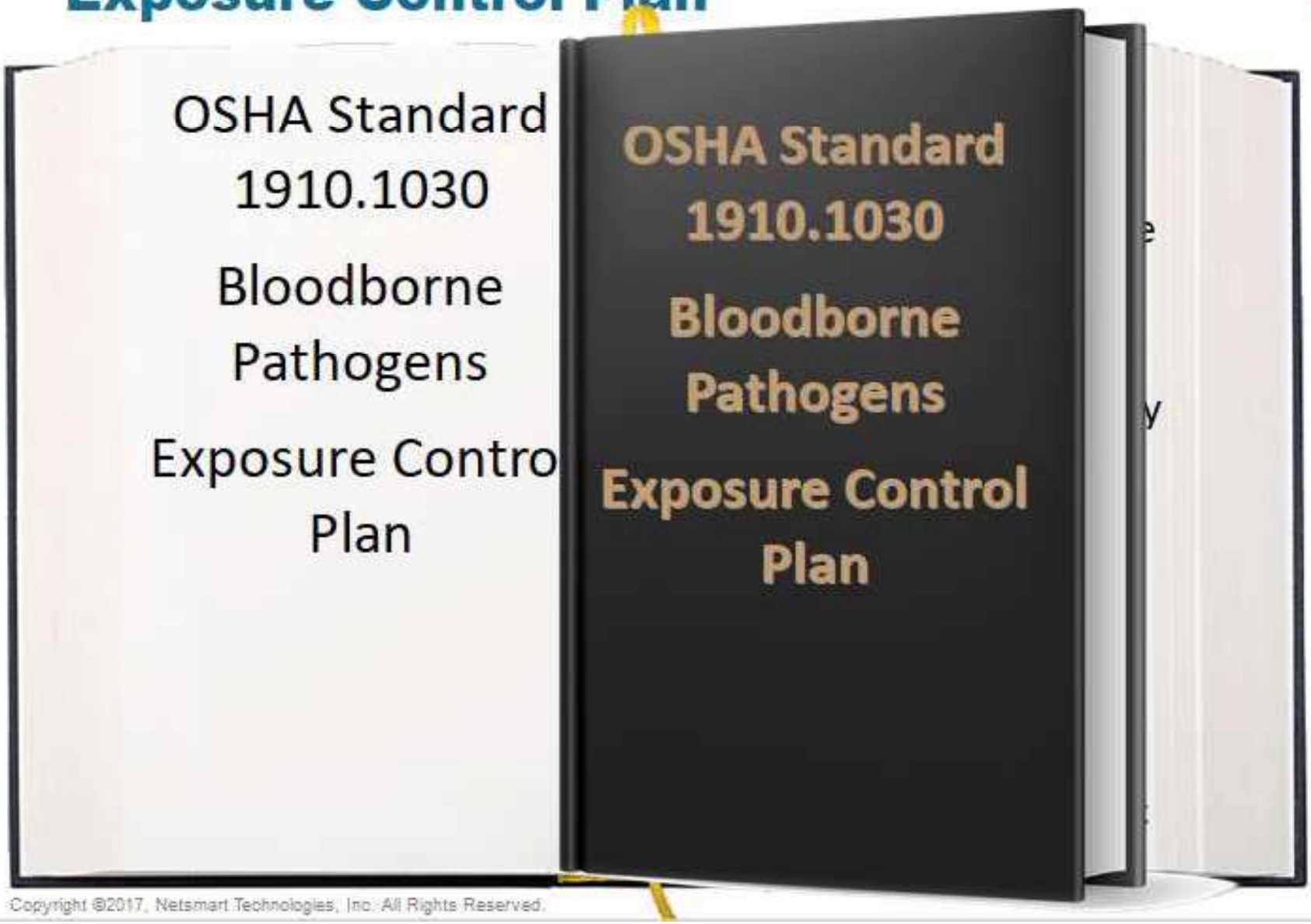
- ◉ Direct contact, indirect contact, respiratory droplet transmission
- ○ Direct contact, respiratory droplet transmission, vector-borne transmission
- ○ Respiratory droplet transmission, vector-borne transmission, indirect contact

OSHA Regulation and Organization Plan

OSHA Standard 1910.1030

- develop an exposure control plan
- implement the use of universal precautions
- ensure the use of engineering and work practice controls
- provide appropriate personal protective equipment (PPE)
- make Hepatitis B vaccines available to workers with occupational exposure
- provide post-exposure evaluation and follow-up should an exposure occur
- communicate any potential hazards using labels and signs
- provide information and annual training to workers

Exposure Control Plan



Activity

An Exposure Control Plan is a plan developed by OSHA.

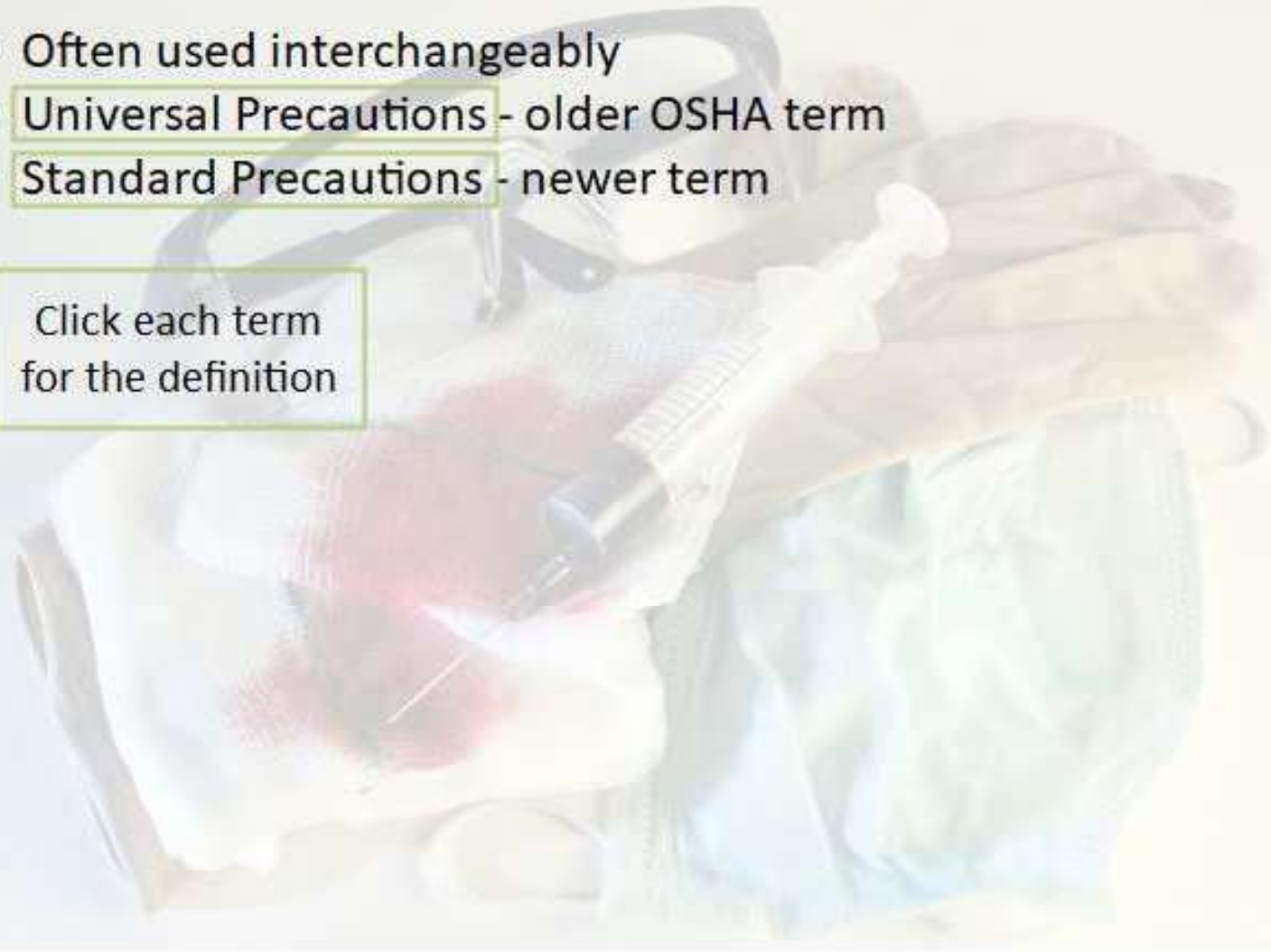
- ○ True
- ◉ False

Risks and Risk Reduction

Universal vs Standard Precautions

- Often used interchangeably
- Universal Precautions - older OSHA term
- Standard Precautions - newer term

Click each term
for the definition



Universal vs Standard Precautions

- Often u
- Univers
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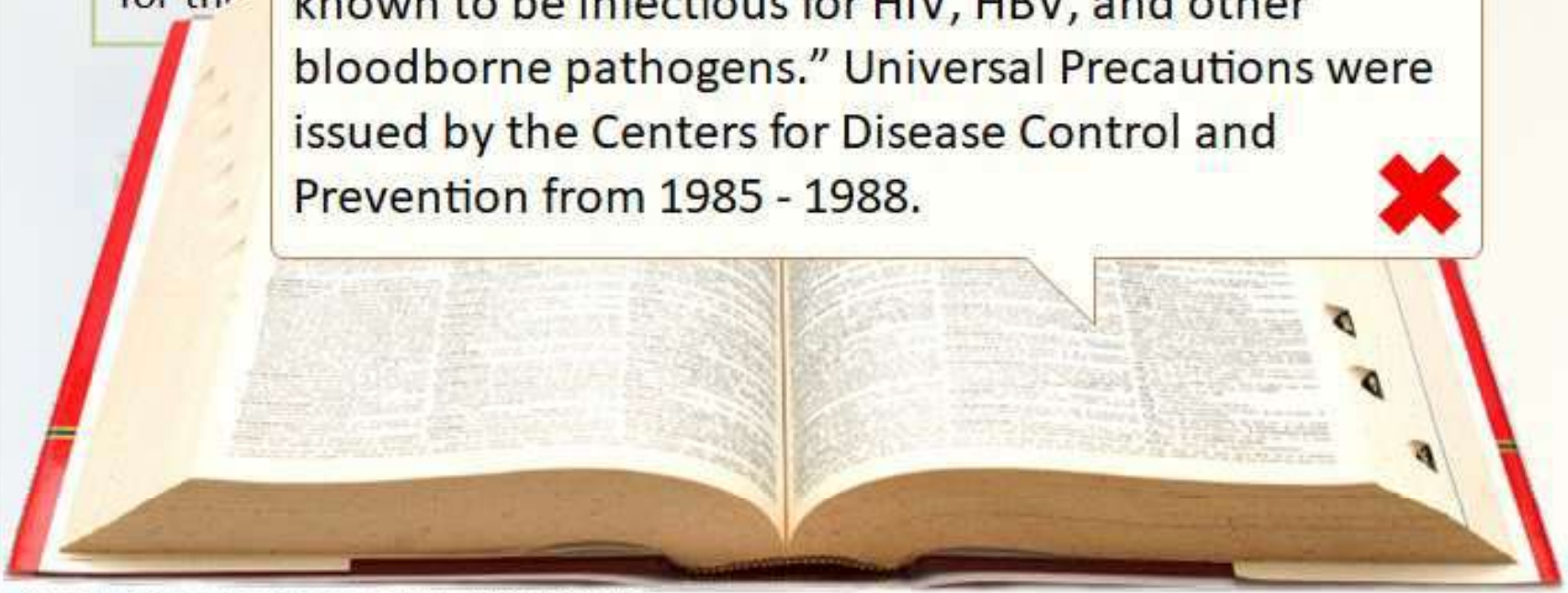
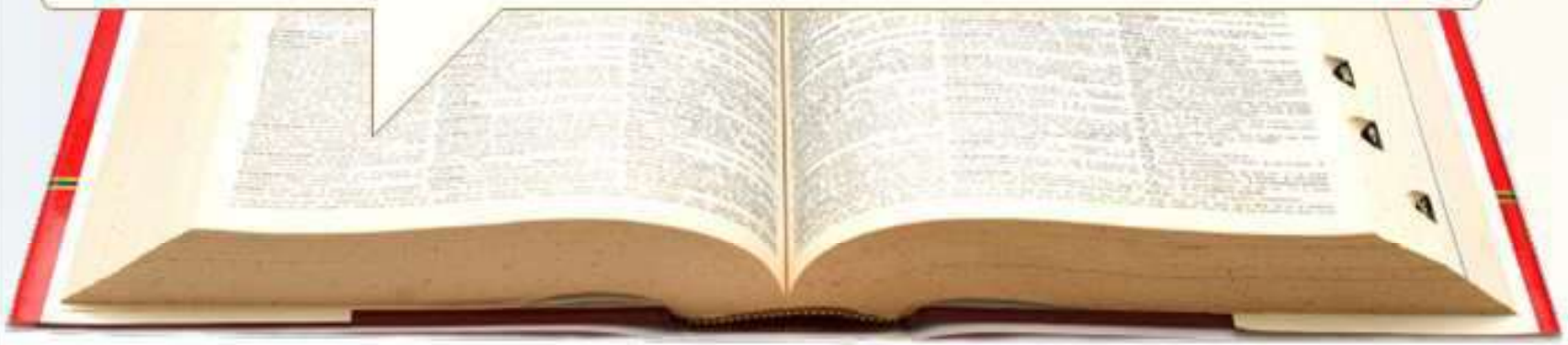
for the

Universal Precautions is used in the language of the OSHA Standard. The definition from the Standard is "an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens." Universal Precautions were issued by the Centers for Disease Control and Prevention from 1985 - 1988.



Universal vs Standard Precautions

Standard Precautions expands the definition of Universal Precautions. The definition from OSHA's "Healthcare Wide Hazards" document is "Standard Precautions apply to 1) blood; 2) all body fluids, secretions, and excretions, except sweat, regardless of whether or not they contain visible blood; 3) non-intact skin; and 4) mucous membranes. Standard precautions are designed to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection in hospitals."



Reduce Your Risk

Engineering controls which are devices designed to isolate or remove hazards of bloodborne pathogens from your environment.

Work practices are the organization-wide processes and procedures designed to protect you from exposure.

Personal protective equipment (PPE) includes gloves, goggles, glasses, face shields, gown or special uniforms, etc.

Engineering Controls

Sharps disposal container

Needleless systems

Self-sheathing needles

Biohazard bag

Plastic capillary tubes

Work Practice Controls

Hand Hygiene

Washing your hands with soap and water is the preferred method for hand hygiene

Wet hands with clean running water

Apply soap

Lather front and back of hands, between fingers, under fingernails

Scrub at least 30 seconds

Rinse under running water

Air dry hands or use clean towel

Must be alcohol-based and at least 60% alcohol

Read the dispenser to determine the proper amount to apply

Apply to one hand

Rub over the front and back of your hands and fingers until the sanitizer has dried

Wash your hands with soap and water as soon as it is feasible

Handling and Disposal of Sharps

A sharp is an object that has an edge or a point that is able to cut or pierce the skin, such as a syringe.

All tools used on a client should be considered to be contaminated and treated accordingly.

Sharps Do and Don't

Promptly dispose of all sharps

Deposit in sharps disposal container

Sharps Do and Don't

Do use the one-handed technique if recapping is required

Use a one-handed scoop motion to slide the cap over the needle, then push against a hard surface to secure the cap

Sharps Do and Don't

Do use tongs or forceps to pick up a piece of glass which has broken, then dispose properly

Sharps Do and Don't

Don't replace a needle cap by holding the needle in one hand and the cap in the other

Don't bend or remove a sharp with your hands, always use a mechanical device

Handling Laundry

- wear gloves and use puncture-resistant gloves when sorting contaminated laundry
- wear appropriate protective clothing
- handle contaminated laundry as little

- place contaminated laundry with general laundry
- sort or pre-rinse contaminated laundry in client areas
- touch laundry with bare hands
- leave damp laundry in machines

- consider all laundry that has or could have touched a contaminated surface as contaminated laundry
- have a sharps disposal container available where laundry is processed

Cleaning Contaminated Surfaces and Items

Following a procedure which included exposure of blood or OPIM

ems which have or
minated by
pathogens should be cleaned per
the organization's written schedule

When?

Prior to shipping any equipment for repair or cleaning

When a surface or item has obviously been contaminated

At the end of each shift

Immediately after a spill of blood or OPIM (or as soon as feasibly possible)

Cleaning Solutions

to clean surfaces contaminated by HBV or HIV

Difficult or Frequently Touched Surfaces

Use a protective cover

Regulated Wastes Defined

"liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials"

Disposal of Regulated Wastes

Do

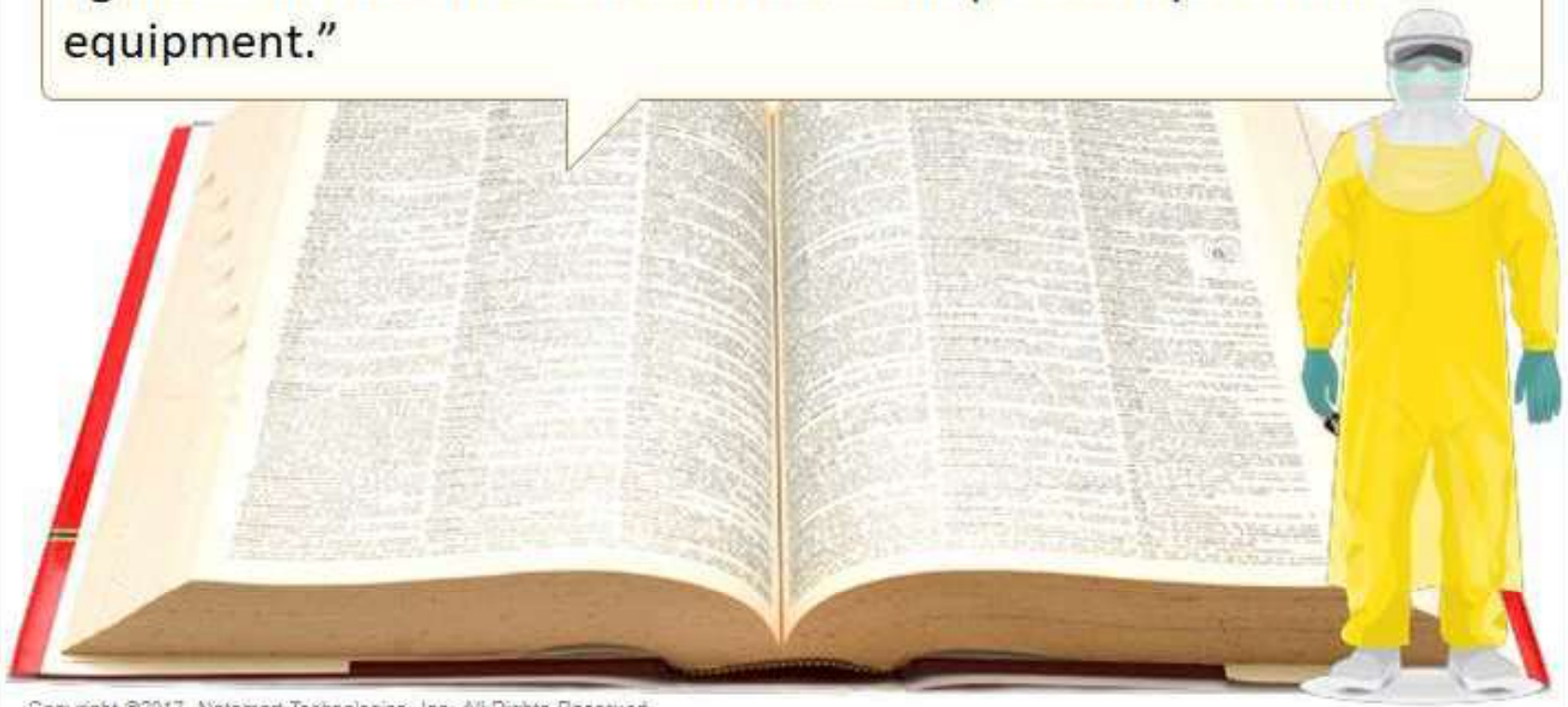
- store regulated wastes in a closeable, leak-proof container
- properly label container as hazardous waste
- ensure sharps are placed in a puncture-resistant container
- dispose of waste following applicable state and local laws
- clean and decontaminate bins or pails used to transport regulated wastes

Don't

- place an item containing infected material in a container where it could be compressed and release pathogens

Personal Protective Equipment (PPE)

"Specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment."



PPE Examples

Gloves
Gown
Laboratory coat
Apron
Goggles
Glasses
Face shield
Mask
Shoe covers
Mouthpiece
Resuscitation bag
Ventilation device
Other task specific clothing or device

Selecting PPE: Q&A

Is it likely that I will touch

Is it possible while doing

Do I have an open cut or sore?

contact with bloodborne pathogens?

Not every piece of Personal Protective Equipment (PPE) is necessary in all circumstances or environments.

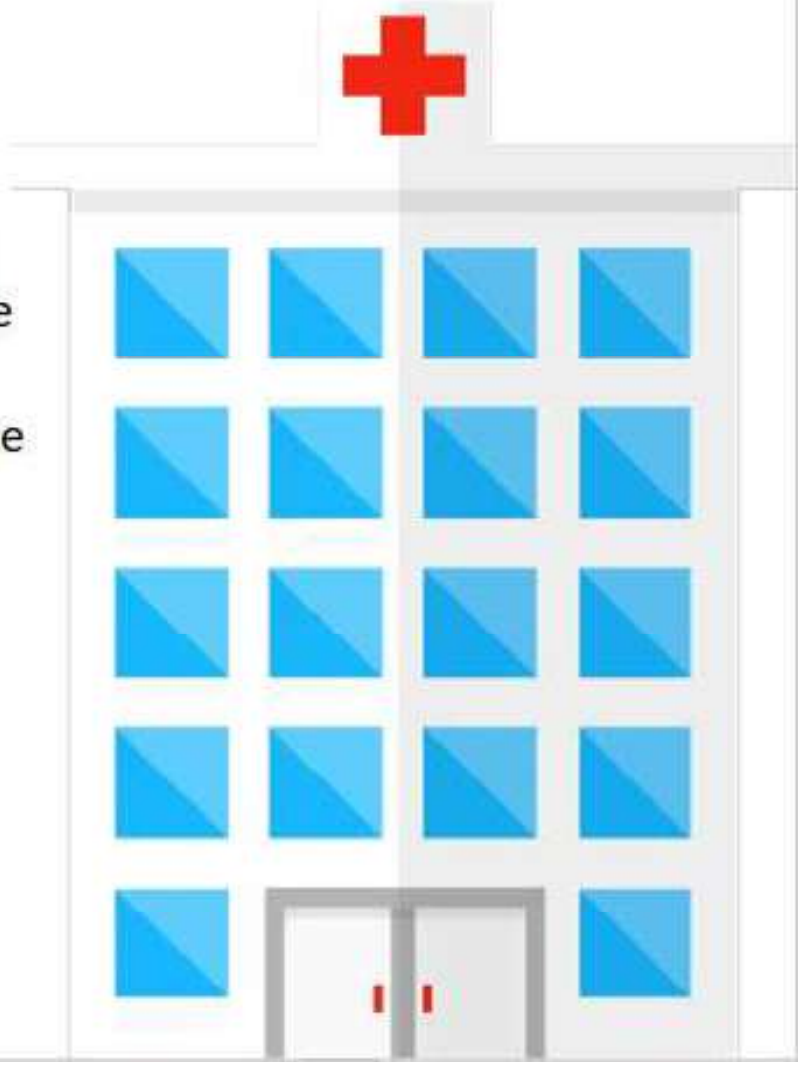
Use a mask or ventilation device.

will cover that area.

PPE: Your Organization's Obligations

- Provide appropriate personal protective equipment (PPE).
- The employer shall launder, clean, and dispose of PPE at no cost to the employee.
- The employer shall repair or replace PPE as needed.

You are not allowed to launder these items off the premises.



PPE: Your Obligations

- Remove any PPE as soon as feasible once it is contaminated by blood or OPIM.
- Remove PPE before you leave your work area.
- Place soiled or contaminated PPE in the appropriate container for disposal, storage, decontamination, or laundry.
- Do not remove any PPE from the organization's premises, unless it is a specific requirement of your job, then handle as instructed.

Activity

The preferred method for hand hygiene is:

- (●) Soap and water
- ( ) Sanitizer
- ( ) Neither is preferred over the other

Activity

Which precautions standard is newer?

- (●) Standard Precautions
- ( ) Universal Precautions

Activity

Which of these should you do? Select all that you should do.

- [ ] Bend or remove a sharp with your hand(s)
- [x] Deposit in sharps disposal container
- [x] Dispose of sharps promptly
- [x] Pick up broken glass with tongs or forceps
- [ ] Pick up broken glass with your hand(s)
- [ ] Replace a needle cap using two hands
- [x] Use one-handed technique if recapping is required

Activity

Wearing puncture resistant gloves may be helpful when performing many tasks. It is critical to wear them when:

- (•) Sorting laundry
- ( ) Cleaning contaminated surfaces
- ( ) Disposing of regulated wastes

Activity

When should surfaces be decontaminated? (Select all that apply)

- [x] Following a procedure which included exposure of blood or other potentially infectious materials (OPIM)
- [x] When a surface or item has obviously been contaminated
- [x] Immediately after a spill of blood or OPIM (or as soon as feasibly possible)
- [x] At the end of each shift
- [x] Prior to shipping any equipment for repair or cleaning

Activity

The OSHA Standard requires both you and your employer to do certain tasks. Drag each task to the either ME or EMPLOYER.

Provide appropriate personal protective equipment (PPE)

Repair or replace PPE as needed

Remove any personal protective equipment (PPE) as soon as feasible once it is contaminated

Place soiled or contaminated PPE in the appropriate container

Launder, clean, and dispose of PPE

Remove PPE before leaving work area

Me	Employer

Tasks will only "stick" on the correct answer.

About the Hepatitis B Vaccine

Why the Vaccine

Why the vaccine?

If a healthcare worker has a risk of occupational exposure to the Hepatitis B virus (HBV), their employer must provide the HBV vaccine at no charge **within ten working days** of initial assignment.

1. To prevent transmission from client to employee.
2. To prevent transmission from employee to client.

HBV Vaccine Facts

Hepatitis B vaccine is a series of three or four shots given over a six-month period.

The vaccine is considered safe with only minor discomfort located at the site of injection.

Persons with an allergy to yeast should not take the vaccine.
If you have had a previous allergic reaction to the HBV vaccine, you should not take the vaccine.

The risk of severe reaction to the vaccine is far less than the risk of contracting the Hepatitis B virus.

Your Rights and Obligations

If you have already had the vaccination,
have had antibody testing which shows immunity,
or if medical reasons prevent you from receiving the vaccine,
you are not required to receive the vaccine.

Your employer will ask for documentation for their records.

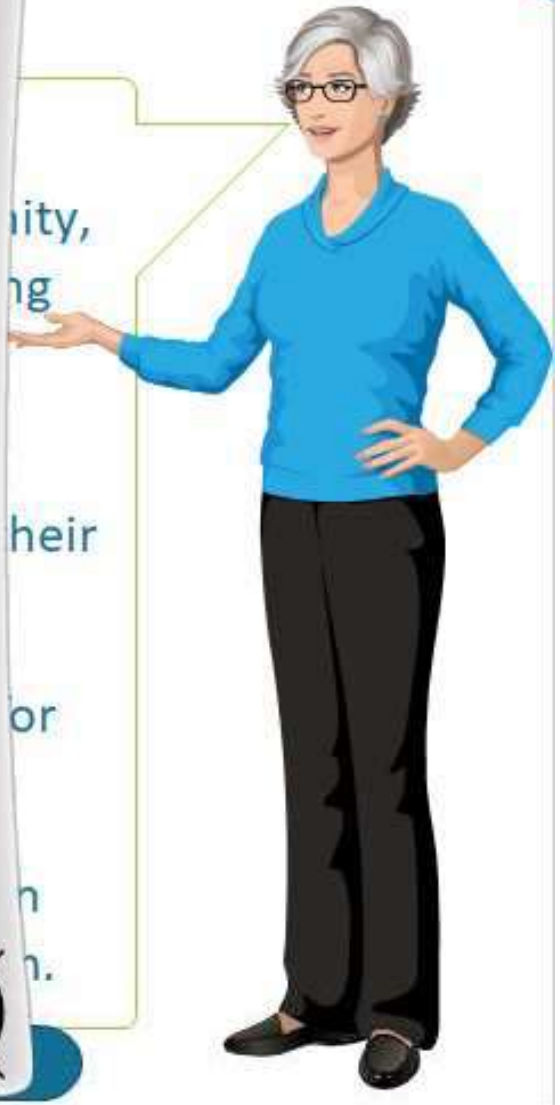
You also have the right to decline the vaccine for your own reasons.

In this case, your employer is required to obtain your signature on a Hepatitis B Declination form.

Click to view form

HEPATITIS B DECLINATION (MANDATORY)

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.



Your Employer's Obligations

Your employer must

- Document exceptions to the Hepatitis B vaccine requirement.
- Document you have declined the vaccine and are aware of your rights.
- Offer you the vaccine at a later date if you should change your mind.
- If the U.S. Public Health Service determines in the future that a booster dose of the vaccine is recommended, your employer will also make that booster available to you at no charge.

Activity

My employer can require me to have the Hepatitis B vaccine unless: (Select all that apply)

- [x] I have a test which shows antibodies.
- [x] I have a medical reason not to receive the vaccine.
- [x] I don't want the vaccine.
- [ ] There are NO exceptions to taking the vaccine.

Activity

I must sign a form for my employer if I don't want the vaccine.

- (•) True
- ( ) False

Response Actions

Emergency Involving Blood or OPIM





If you are cut, receive a needlestick or have an open sore: Wash with soap and water	If there is contact with your nose, mouth, or unbroken skin: Flush with water	If there is contact with your eyes: Irrigate with water, saline, or sterile irrigants	Notify your supervisor or department responsible for handling exposures	Get medical assistance immediately

Exposure Follow-up

- Provide you with a confidential medical evaluation and follow-up
- Document the type and circumstances of an exposure
- Test of the source individual's blood - if consent is obtained
- Test of your blood - if consent is obtained
- Provide you with post-exposure prophylaxis
- Provide you with counseling
- Provide you with evaluation of the reported illness
- Provide your healthcare professional with certain information
- Obtain your healthcare professional's written opinion

Medical Evaluation

Your employer must immediately provide you access to a confidential medical evaluation.

You also have the right for any follow-up recommended by the healthcare professional.

Beyond the Evaluation

- You have the right to consent to have your blood collected and tested
- You may consent to have blood collected for a baseline, but not tested at that time
- Your employer does not have rights to your test results
- You have the right to receive post-exposure prophylaxis
- You have the right to receive counseling
- You have the right to receive evaluation of any reported illness

Activity

Following exposure to blood or other potentially infectious material, you should: (Put in the correct order)

Wash/flush the area of contact

Notify your supervisor

Get medical assistance

Activity

In the event you are potentially exposed to a bloodborne pathogen, your employer has the right to request both you and the source person have your blood tested. The employer then has the right to see the results.

- ○ True
- ◉ False

Signs, Labels and Color Coding

Communication of Biohazards

Activity

Biohazards are communicated by the color(s):

- [x] Fluorescent orange
- [ ] Fluorescent pink
- [ ] Fluorescent red
- [x] Red
- [x] Red-orange

Course Summary

Objectives Review

You should be able to:

- Explain common bloodborne pathogens, their symptoms, and modes of transmission
- Identify the regulatory text and the organization plan
- Analyze tasks which may put you at risk and use of engineering controls, work practices, and personal protective equipment to reduce your risk
- Describe the hepatitis B vaccine
- Demonstrate the actions you should take and persons to contact in an emergency involving blood or other potentially infectious materials
- Recognize signs, labels and color coding associated with biohazards