

# Overview of Bloodborne Pathogens

# Introduction

- Research shows that using safety precautions such as handling all blood and other body fluids as infectious, disposing of sharps safely, and using sharp safety devices have all decreased the number of exposures to bloodborne pathogens
- Prevention can occur only when the facility and health care workers work together as a team
- In order to decrease the spread of disease caused by bloodborne pathogens and other potentially infectious material (OPIM), it is important to know how these diseases are spread, what controls are in place, and your role in this process

# Most Common Bloodborne Pathogens and Diseases

- Hepatitis B Virus (HBV)
  - Causes Hepatitis B
- Hepatitis C Virus (HCV)
  - Causes Hepatitis C
- Human immunodeficiency virus (HIV)
  - Causes Acquired immune deficiency syndrome (AIDS)

Blood tests are used to detect and diagnose HBV, HCV, and HIV, however blood tests will not necessarily show an immediate positive result

# Hepatitis B

- Hepatitis B is a vaccine-preventable liver infection caused by the hepatitis B virus (HBV). Hepatitis B attacks the liver and is spread when blood, semen, or other body fluids from a person infected with the virus enters the body of someone who is not infected.
- Hepatitis B remains a significant health problem worldwide despite availability of a vaccine and antiviral treatment that is highly effective in suppressing viral replication. As of 2022 the estimated global prevalence of Hepatitis B infection was 3.2%, equivalent to 257 million cases of Hepatitis B infection.
- Hepatitis B infection can result in severe health-related consequences, i.e. liver decompensation, cirrhosis, and hepatocellular carcinoma (HCC), all potentially resulting in high morbidity and mortality rates.
- The risk of Hepatitis B infection can be mitigated by completing the HBV vaccine series (three injections)
- Majority of people infected with Hepatitis B recover completely
- Symptoms of Hepatitis B may take up to 12 weeks to develop
- Hepatitis B symptoms include:
  - Jaundice
  - Enlarged liver
  - Abdominal pain
  - Loss of appetite
  - Nausea

# Hepatitis C

- Hepatitis C is a liver infection caused by the hepatitis C virus (HCV). Hepatitis C can range from a mild illness lasting a few weeks to a serious, long-term illness. Hepatitis C is diagnosed as an acute or chronic condition.
- Acute hepatitis C occurs within first 6 months after exposure to the hepatitis C virus. Hepatitis C can be an illness of short-term duration; however, for most people, the acute Hepatitis C infection leads to a chronic infection diagnosed as Chronic hepatitis C, that can be a lifelong infection if left untreated. Chronic hepatitis C can cause serious health problems, such as liver damage, cirrhosis, liver cancer, and death.
- Majority of individuals infected with Hepatitis C display no symptoms, since the virus can remain in the body for a long time before symptoms appear
- Symptoms of Hepatitis C are similar to Hepatitis B symptoms
- Currently, there is no vaccine for the Hepatitis C virus

# HIV and AIDS

- HIV attacks and destroys white blood cells. Over time, the lack of white blood cells decreases the ability of the body to respond to other disease-causing pathogens
- Some infected people can lead seemingly healthy lives for many years until the immune system is finally compromised
- In most cases HIV leads to AIDS
- Currently, there is no FDA approved vaccine for HIV
- Treatments for HIV are antiretroviral medicines called ART, which are designed to control symptoms and work by stopping the virus from replicating in the body. This allows the immune system to repair itself and prevent further damage.

# Bloodborne Diseases

- Bloodborne diseases are spread through contact with an infected patient's blood or other potentially infectious material through the following routes of infection:
  - Sexual contact
  - IV drug use
  - Mother-to-baby infection
- Health care workers are at high risk of exposure to an infected patient's blood or other potentially infectious material through contaminated sharps or splashes onto broken skin or reaches the mucous membranes

# Safety and Exposure to Blood Pathogens

- The Occupational Safety and Health Administration (OSHA) requires health care organizations to develop a safety and blood pathogen exposure control plan. UF Health Flagler Hospital has developed the I-SAF/SEC-Hospital Safety Plan Policy and Procedure and the E – EH – Exposure Control/Response Plan Policy and Procedure that are updated yearly to include changes in technology that reduce or eliminate exposure. Both Policies and Procedures provide protection guidelines for use by all health care workers who might be exposed to pathogens found in blood and other potentially infectious material (OPIM).



# Standard Precautions

## Standard Precautions Practices:

- Refers to treating all blood and other potentially infectious material as though infectious
- Incorporates both Universal Precautions and Body Substance Isolation Practice to protect health care workers against high risk of infection by all pathogens

# Personal Protective Equipment (PPE)

- Personal Protective Equipment (PPE) involves special clothing and equipment to protect against contact with bloodborne germs and other potentially infectious material (OPIM).
- Essential elements of PPE:
  - Gloves
  - Masks
  - Eye protection
  - Face shields to protect workers' mucous membranes
  - Gowns to protect workers' skin and clothing from becoming soiled
  - Resuscitation bags
- **Always:**
  - Ensure PPE fits properly
  - Remove PPE between patients
  - Immediately dispose of PPE after each use

# Preventive/Safe Work Practices(cont.)

- **To minimize risk of coming into contact with pathogens in blood and OPIM, health care workers should:**
  - **Always use required PPE as follows:**
    - Wear a mask and eye protection with risk of getting splashed in the face by OPIM
    - Use a CPR mask when performing CPR
    - Wear a gown and use gloves any time there is risk of contact with blood or other body fluids (including when handling dirty laundry)
  - **Practice proper hand hygiene as follows:**
    - Wash with soap and water or if unavailable, use an approved alcohol-based rub
    - Remove gloves prior to leaving a patient's room and immediately wash with soap and water, or if unavailable, use an approved alcohol-based rub

# Sharps Safety

- According to the Occupational Safety and Health Administration (OSHA), it is estimated that 600,000 to 800,000 needlestick injuries (NSIs) and other percutaneous injuries (PIs) occur annually among health care workers. Therefore the following sharps safety strategies should be followed:
  - Always use sharps safety devices or needleless systems, when available
  - Always follow recommended sharps disposal procedures
  - Never attempt to:
    - Bend or break needles
    - Remove needles from sharps containers

# Incidences of Exposure to Blood Pathogens

- If exposed to blood pathogens:
  - Wash needle-stick or sharps injury immediately with soap and water, not with caustic solutions, such as bleach
  - Flush mucous membranes with generous amounts of water
  - Flush eyes with clean water, saline, or sterile irrigants
- Contracting a bloodborne disease depends on the following factors:
  - Type of exposure
  - Number and type of bloodborne pathogens present in infectious material
  - Current health status of health care workers

# Employee/Student Responsibility

Healthcare employees/students are responsible to:

- Report an incident to charge nurse/nursing supervisor/preceptor immediately as per UF Health Flagler Hospital E – EH – Exposure Control/Response Plan Policy and Procedure
- Complete Incident/Injury Report
- If necessary, change into clean scrub clothing place soiled scrubs in red bag for cleaning by Environmental Services
- Go to Emergency Department to be examined