

# Bloodborne Pathogen Exposures: Mucous Membranes



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# Outline

- Bloodborne pathogens lists
- Exposure types
- Risk of transmission based on exposure
- VCUHS data of occupational bloodborne pathogen exposures
- PPE: for mucous membrane exposures

# Potential Bloodborne Pathogens

- Human Immunodeficiency Virus (HIV)
- Hepatitis Viruses
- As well as agents that cause...
  - Babesiosis
  - Brucellosis
  - Leptospirosis
  - Creutzfeldt -Jakob Disease
  - HTLV-1 Infections
  - Arboviral Infections
  - Malaria
  - Relapsing Fever
  - Viral Hemorrhagic Fever
  - Syphilis

**Transmission of these agents in the workplace can occur through the following routes:**

• **Parenteral exposure** - The pathogen is introduced directly into the body through a break in the skin, needlestick, or through a cut with a contaminated instrument or glass.

• **Mucous membrane exposure** - Exposure through contact of a mucous membrane in the eye, nose or mouth.

# Risk of Infection after Contact with Infected Blood

## **Percutaneous exposure:**

Prospective studies of several thousand HCWs indicate that the risk of seroconversion:

HIV-infected blood is approximately 0.3%.

Hepatitis B depends on the e antigen (e Ag) status of the patient.

If the patient's blood is positive for the e Ag  
the risk of transmission -30% or about *100 times* that of HIV.

HCV infection is 3% to 10% or about *10 times* the risk following a single exposure to HIV-infected blood.

# Risk of Infection after Contact with Infected Blood

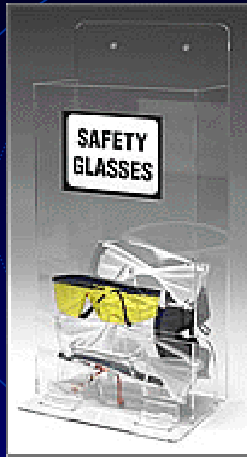
- **Mucous Membrane Exposure:**
  - Risk of HIV Transmission
    - 0.09 % risk of transmission after a mucous membrane exposure to HIV infected blood.
  - Hepatitis B and C
    - Risk of transmission not well documented
    - Presumed to be less than in percutaneous injury
  - *Although the risk of transmission associated with mucous membrane exposures is less, it is not negligible*

# VCUHS

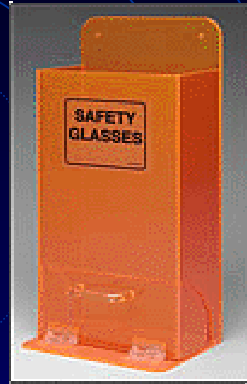
Exposure Type	Count	% total
BBF-Mucous Membrane (Splash)	103	29%
BBF-Needlestick/Sharp	255	71%
	358	100%

**Roughly 1/3 of all employee bloodborne pathogen exposures at VCUHS are Mucous Membrane**

# Personal Protective Equipment



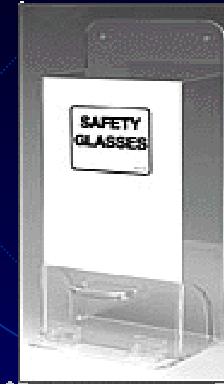
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PPE includes masks, masks with faceshields and goggles



PPE equipment can be found in isolation carts, and wall mounted PPE storage units



# Mucous Membrane Exposures Can be Prevented!!!!!!

- PPE: Masks, faceshields / goggles
  - MUST BE WORN IN ANY PROCEDURE OR PATIENT CARE ACTIVITY THAT POSES A RISK OF BLOOD OR BODY FLUID SPLASH/SPLATTER/AEROSOLIZATION.
  - The include:
    - Phlebotomy and blood cultures
    - Suctioning of gastric or respiratory secretions
    - Removal of medical devices
      - CVC, ET tubes, Foley catheters, IV lines

# Conclusion-1

- Mucous membrane blood and body fluid exposures are known risk factors for the transmission of HIV and Hepatitis B/C
- Of all blood and body fluid exposures at VCUHS; mucous membrane exposure account for 30% nearly *every year*.
- *PPE* (masks, faceshields or goggles) must be worn when a patient care activity poses a risk of BBF splash, spray or aerosolization.

## *Conclusion –2*

### *What should you do?*

- Be sure you communicate this information to your staff and tell them it is your expectation that they comply.
- Be sure that supplies are available for staff.
- Be sure to remind and re-educate when you see non-compliance.
- Document repeated non-compliance, to protect you and the institution.