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

<table>
<thead>
<tr>
<th>Exposure Type</th>
<th>Count</th>
<th>% total</th>
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</thead>
<tbody>
<tr>
<td>BBF-Mucous Membrane (Splash)</td>
<td>103</td>
<td>29%</td>
</tr>
<tr>
<td>BBF-Needlestick/Sharp</td>
<td>255</td>
<td>71%</td>
</tr>
<tr>
<td>Total</td>
<td>358</td>
<td>100%</td>
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</tbody>
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Personal Protective Equipment

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.