

APPENDIX A – Occupational Health

Bloodborne Pathogens (BBP): Facts/Risks/Prevention

Facts

As of August 31, 1997, Florida ranked third in the cumulative number of reported adult/adolescent AIDS cases and second in the cumulative number of reported pediatric AIDS cases.

Florida has 14% of the total female AIDS cases reported in the United States and 16% of cases reported in children (aged 12 and under). 12% of Florida's AIDS cases are among people over 49.



Nearly half of Florida's AIDS patients aged 65 or older contracted HIV disease through sex. Only 17% of them became HIV infected through transfusions. Recent estimates of the prevalence of HIV in the United States indicate that one in every 333 Americans is HIV positive. The Florida Department of Health estimates that one in every 170 Floridians is living with HIV infection.

These statistics alert residents to the extent and diversity of HIV infected persons residing within this geographic region. These statistics also highlight the rationale behind the CDC's sanctioning of Standard (Universal) Precautions. That is, all patients are to be considered infected with bloodborne pathogens. Practicing Standard Precautions helps to decrease occupational risks associated with bloodborne pathogens and residents need to inculcate this principle into their patient care activities.

The majority of the exposures is sharps-related and occurs under controlled situations rather than emergency settings. Personal protective equipment (e.g., gowns, gloves, and masks) is available at all clinical sites and residents should utilize these protective barriers whenever the potential for blood exposure occurs. Housestaff also have a responsibility to assure they have the knowledge and training to safely perform invasive techniques before initiating them without assistance.

Risks

Risk of exposure to bloodborne pathogens (BBP) is determined by:

A. Type of BBP:

1. Hepatitis B – 1:4 chances (assuming the source of the exposure is HbsAg positive, especially HbeAg positive, and the healthcare worker is HbsAg negative).
2. Hepatitis B – 1:30 chance if the source is unknown.
3. Hepatitis C – 1:60 to 1:100 chances.
4. HIV – 1:300 chances.

B. Route of Exposure:

1. Needle size – large gauge more risky than smaller gauge.

2. Needle type – hollow bore more risky than solid suture needle.
3. Needle with syringe of fluid – more risky than needle alone.
4. Deep puncture with fluid injection > deep puncture without fluid > Superficial puncture > superficial scratch with bleeding > mucous membrane exposure > nonintact skin exposure > aerosol of blood.
 - a. Large volumes or prolonged contact with blood is associated with mucous membrane and non-intact skin exposure.
 - b. Aerosolizing of blood has not been associated with the acquisition of any BBP.

C. Type of Body Fluid:

- a. Blood is the most risky fluid.
- b. Bloody body fluids are more risky than body fluids without blood.

D. Amount of Inoculums – the greater the inoculums, the greater the risk.

E. Staging of HIV infected source patient:

- a. Amount of circulating virus is highest when source patient has AIDS and/or is experiencing acute antiretroviral syndrome.
- b. Almost all seroconversions have occurred when source was symptomatic or had AIDS.

F. Use of Personal Protective Equipment:

- a. Double gloving more protective than single gloves.
- b. Gloves may decrease exposure volume by 50%.

G. Institution of immediate First Aid Treatment:

1. Physical removal of blood/bloody body fluid from exposed site by squeezing, scrubbing, irrigation, flushing.
2. Bleach (1:10 dilution) only agent that kills Hepatitis B in the environment.
3. Bleach, chlorhexidine, providone-iodine – all equally effective in killing HIV in the environment.

Prevention

A. Use of Personal Protective Equipment

1. Wear gloves to decrease inoculums from sharps injury.
2. Wear gowns, face shields, and gloves to decrease extent of mucous membrane or skin exposure.

B. Elimination of risky practices

1. Do not recap needles.
2. Do not overfill sharps containers.
3. Do not attempt invasive skills without training and/or supervision.
4. Consider all patients as potentially infectious – practice Standard (Universal) Precautions.