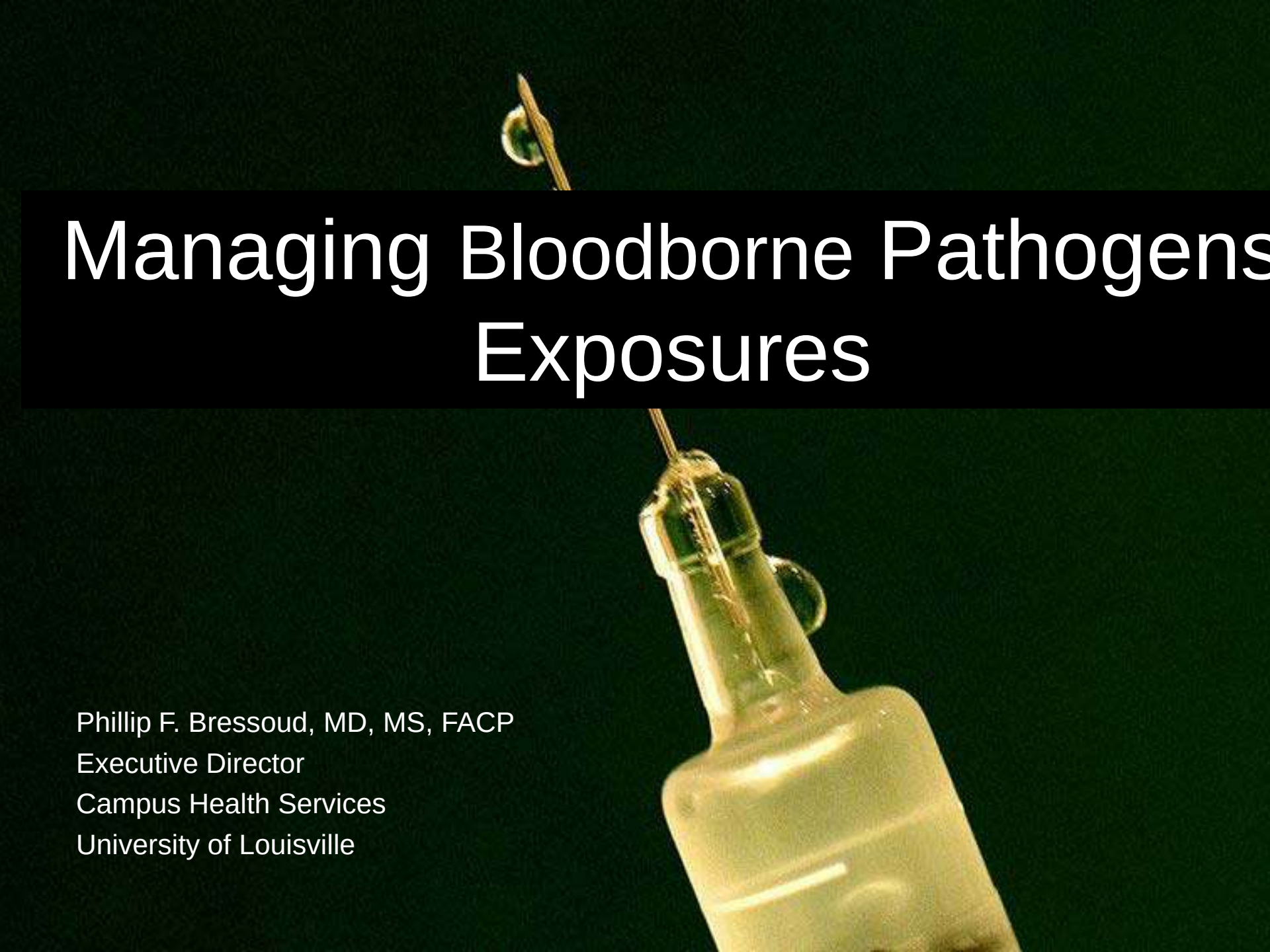
Managing Bloodborne Pathogens Exposures



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Bloodborne Pathogen Standard

- Federal Law requires employers to develop a blood borne pathogen standard

- Purpose is to protect employees from the health hazards associated with blood borne pathogens

Principals of BBP Program

- Universal Precautions
- Pre-exposure prophylaxis
- Personal Protective Equipment
- Workplace practice controls
- Post-exposure prophylaxis

Principals of BBP Program

Universal Precautions

An approach to infection control in which all **blood** or body fluids are treated as if they are infectious

Principals of BBP Program

Pre-exposure Prophylaxis

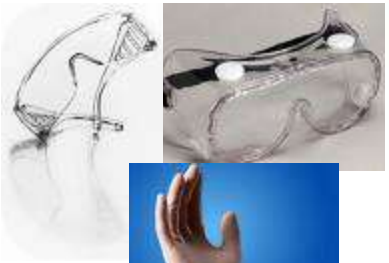
Immunization with Hepatitis B vaccine or other vaccines to prevent future transmission of a BBP

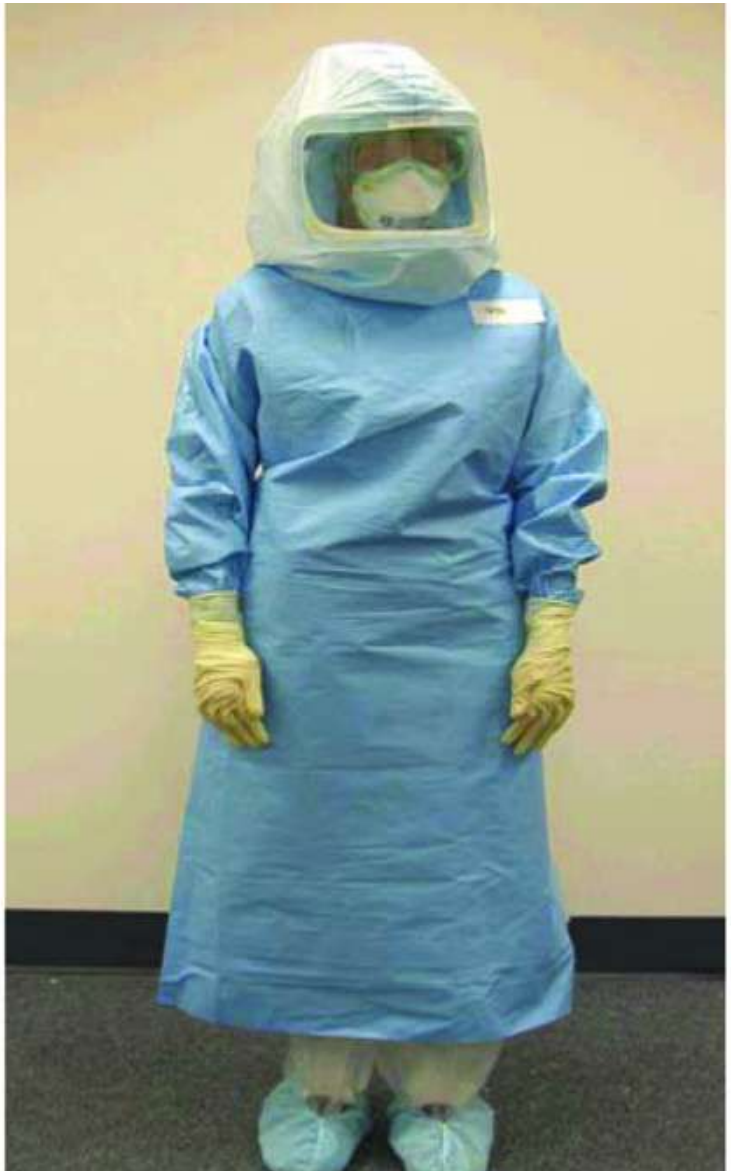
Principals of BBP Program

Personal Protective Equipment







Sometime you can go too far!

Principals of BBP Program

Work Place Practice Controls

- Needle disposal boxes
- Needless IV systems
- Alcohol Hand Sanitizers
- Device Formularies

Principals of BBP Program

Post-Exposure Prophylaxis

Utilization of medications, vaccines and/or immunoglobulin in the event of an TRUE BBP in cases where all other components of BBP program fail

Characteristics	No	(%)
Mean Age (± SE)	26±3.2 years	
Gender		
Male	59	(63.4)
Female	34	(36.5)
Departments		
Medicine and allied	18	(19.3)
Surgery and allied	37	(39.7)
Obstetrics and Gynecology	17	(18.2)
Lab sciences: Pathology, Microbiology, biochemistry	21	(22.5)
Non-clinical	12	(12.9)
Year of residency		
1st Year	37	(39.7)
2nd Year	29	(31.1)
3rd Year	27	(29.2)
Undergone any training on		
HIV/AIDS and Universal precaution	15	(16.1)

Occupational exposure with level of training of Resident Doctors

Level of training	Number of exposure				
	None	Once	Twice	>Twice	Total
First Year	23 (62.1)	6 (16.2)	3 (8.1)	5 (13.5)	**37**
Second Year	12 (41.3)	7 (24.1)	3 (10.3)	7 (24.1)	**29**
Three Year	04 (14.81)	7 (25.9)	8 (29.6)	8 (29.6)	**27**
Total	**39 (41.9)**	**20 (21.5)**	**14 (15)**	**20 (21.5)**	**93**

Characteristics	**No of Participants**	**(%)**
Exposure while patient care		
Never	39	(41.9)
Only once	20	(23.6)
Twice	14	(12.9)
More than twice	20	(21.5)
Status of the Source		
HIV Positive	04	(07.4)
HIV Negative	06	(11.1)
HIV Status Un-know	35	(64.8)
Source Unknown	09	(16.6)
Reported the injury/exposure to authorities		
Not aware of it	09	(16.6)
Not reported, but aware about it	20	(37)
Yes	25	(46.2)
Total episodes of injury	96	

On average, exposure risk decreases for most residents as they progress through their residency.

This can be specialty specific and in fact, for residents who report exposures the risk increases over the same period.

Gaidhane et al. Occupational Exposure To HIV And Practices Of Universal Safety Precautions Among Residents Doctors . *Internet J Health.* 2009 8(2):

Was I exposed?

In order to have an exposure two things must happen:

1. The body fluid must contain live organisms

AND

2. The contaminated fluid must enter the body

High Risk Fluids

- Blood
- Semen
- Vaginal secretions
- Spinal fluid
- Pleural fluid
- Peritoneal fluid
- Pericardial fluid
- Amniotic fluid
- Synovial fluids
- Saliva dental procedures
- **Any bloody body fluid**

Low or Non-Risk Fluids

- Vomit
- Feces
- Urine
- Sweat
- Nasal discharges
- Saliva (non dental)
- Tears

Was I exposed?

- Agents that are routinely considered during an exposure evaluation are:
  - Hepatitis B
  - Hepatitis C
  - HIV
- Depending on the patient's history and diagnosis, other microbial agents may be important to consider

Requirements to acquire a BBP related disease

The body fluid must be infected with at least one BBP agent

AND

The fluid must enter the body during the exposure

Was I exposed?

Only the exposed individual can ultimately determine if they were exposed!

Example:

Only you can determine if something splashed into your eye

Was I exposed?

I think I was exposed!

Now what?

Exposure Management

- Local wound care—Wash the wound well with soap
- Gather information about the source patient

Exposure Management

Risk Assessment

--Type of Exposure (mucus membrane, sharp, non intact skin, bite)

--Type and quantity of fluid and presence of blood if appropriate

--Source Patient's HIV, Hepatitis B and C status if known

--Health Care Worker's (student's) HIV , Hepatitis B and C status

Exposure Management

- **Source Testing**
  - Hep B Surf Antigen
  - Hep C Antibody
  - RAPID HIV Antibody
  - Viral load/CD4 count if known positive for HIV
- **Health Care Worker (student)**
  - Hep B Antibody if unknown
  - Hep C Antibody
  - HIV Antibody
  - Pregnancy testing if starting medications
  - CMC/CMP Q WK on treatment

Exposure Management

- Post Exposure Prophylaxis (PEP)
  - Thought to reduce HIV transmission by 80%
  - Ideally should be started within one hour of exposure
  - Initiation of PEP is dependent up the amount of fluid and the viral load of the source patient
    - Low Risk -No therapy vs ? AZT
    - Moderate - Combivir/Kaletra
    - High Risk - Combivir/Kaletra

Exposure to HIV

- Risk of transmission is 0.3% (1/200-250) from all needle stick injuries
- Risk of transmission is 0.09% for splash injuries
- Risk of transmission via skin exposure is unknown but REAL
- Risk increases with co-infection with Hep C

Exposure to HIV

- As of 1997, 52 confirmed and 114 probable conversions
- 47of the 52 confirmed
  - 45 percutaneous (41 hollow bore)
- 80% of patients who convert after an exposure will have a viral syndrome within 25 days of exposure

Exposure to HIV

- There have been three instances of delayed HIV infection in people where the HIV antibody was negative at 6 months
- Simultaneous Hepatitis C infections were identified in 2 conversions

Exposure to HIV

- Follow up Testing
  - Low Risk
    - Repeat HIV at 6 months
  - Moderate and High Risk
    - Repeat testing at 6 weeks, 12 weeks and 6 months
  - Onset of viral illness within 30 days of exposure consider HIV/Hepatitis C PCR testing

Exposure to HIV

- Remember to consider how you will initiate antiviral therapy on off-site and out of town rotations
- Ideally access to appropriate drugs should take no longer than 1-2 hours
- Emergency departments may not be prepared to deal with these types of exposures

Exposure to Hepatitis B

Exposure to Hepatitis B

- Risk of transmission is variable and dependent upon the presence of “e” antigen
- When “e” antigen is present transmission rate is approximately 30%
- Immunization is protective so long as antibody develops within 4-8 weeks after 3rd immunization (Why we require a antibody titer)

Exposure to Hepatitis B

- Be sure to check your antibody titer 4-8 weeks after the last shot of the series.
- Know your antibody status

Exposure to Hepatitis B

- Healthcare workers need to know their antibody status
  - Be sure to have you titer measured 4-8 weeks after your last dose of vaccine
  - If antibody negative after 3rd dose, initiate second series
  - If antibody negative after 2nd series, counsel regarding exposures

Exposure to Hepatitis B

- Best prevention is immunization (pre-exposure prophylaxis)
- If HCW not antibody positive, Hepatitis B Immune globulin can be given up to 7 days following exposure
  - Ideally give HBIG 1-2 days after exposure (70%) effective

Exposure to Hepatitis C

Exposure to Hepatitis C

- Transmission rate is approximately 3% for each exposure
- 85% or more of acute infections become chronic
- 70% of those infected develop chronic liver disease
- no vaccine
- immunoglobulin not protective

Exposure to Hepatitis C

- Real seroconversion rate appears to be about 1.8%
- May be as high as 10% when using HCV viral loads
- Treatment following exposure is controversial
  - ?interferon
  - ?ribavirin
  - Post exposure prophylaxis not recommended

Conclusions

- We assume you have just forgotten everything you have just learned
- You will receive a needle stick card—attach it to your ULH security card or put in it your wallet
- CALL 852-6446 24 hours a day

We assume you have just forgotten everything you have just learned so just call!

Please keep your exposure card with your ID at all times.