

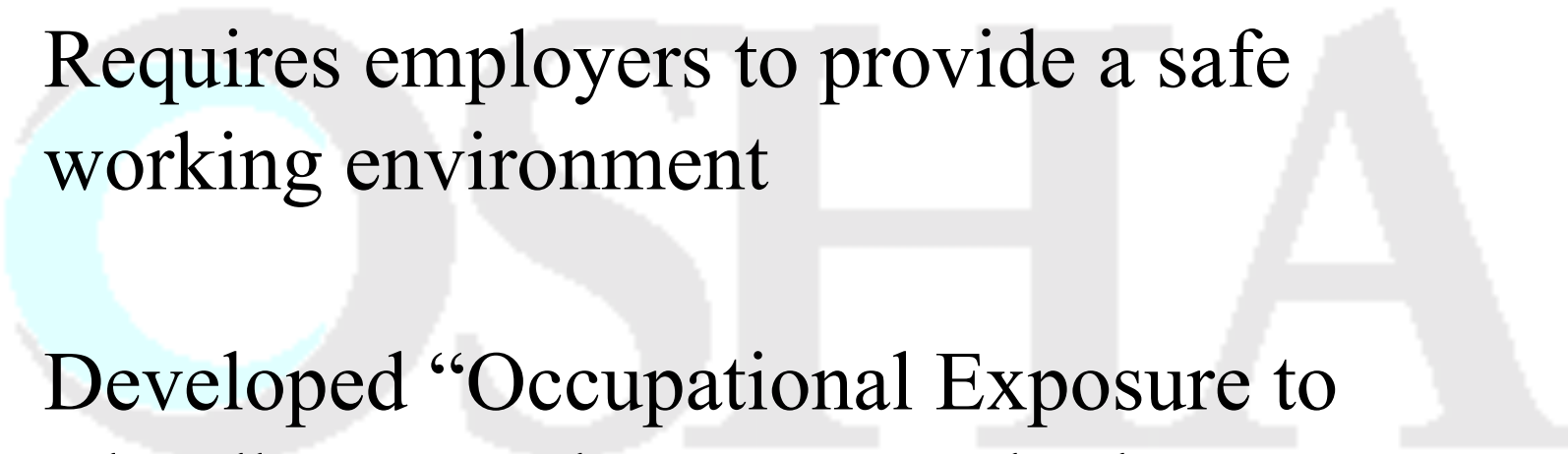


**ECU**<sup>®</sup>

**Bloodborne Pathogen  
and  
Tuberculosis Training**

# Who is OSHA?



- Occupational Safety and Health Admin.
  - Requires employers to provide a safe working environment
  - Developed “Occupational Exposure to Bloodborne Pathogen” Standard
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# Standard Requirements

- Limit occupational exposure to human blood and other potentially infectious materials in the work place
- Provide employee with knowledge of job associated risks
- Provide protective devices/measures that can prevent most exposures
- Written Exposure Control Plan – on line
- Annual training –on line



# What are bloodborne pathogens?

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- Pathogenic microorganisms in the blood or other potentially infectious materials (OPIM) which can cause disease in humans
- Exposure can result in serious illness or death

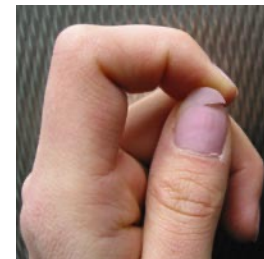
# Who's at risk?

- Anyone with reasonably anticipated skin, eye, mucous membrane, or percutaneous contact with blood or OPIM.



# How are bloodborne diseases transmitted?

- Contaminated sharps injuries (needle sticks, broken glass, scalpel blades)
- Mucous membrane splash (eye, mouth, nose)
- Contact on non intact skin (cuts, rash, blisters, hangnails)





# Blood and OPIM



- Human blood and human blood components
- Semen
- Vaginal secretions
- Amniotic, pericardial, pleural, peritoneal, synovial and cerebrospinal fluids
- Saliva in dental procedures
- Any body fluid that is visibly contaminated with blood
- Any unfixed tissue or organ



# Bloodborne Pathogens of Concern

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- Hepatitis B
- Hepatitis C
- HIV





# Hepatitis B

- A virus that infects the liver
- Can lead to cirrhosis, liver cancer and death
- 20% risk of infection from a contaminated sharp
- Virus can survive in dried blood up to 7 days



# Symptoms of Hepatitis B

- Fatigue
- Loss of appetite, nausea
- Jaundice (yellowing of skin and eyes)
- Fever
- Abdominal pain, joint pain
- May have no symptoms
- Preventable



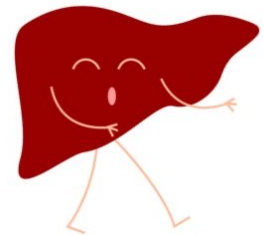
# Hepatitis B Vaccine

- Recommended for all high risk groups
- Free- provided by employee health
- Safe
- 3 shots- initial, 1mo, 6mo.
- Decline- must sign OSHA waiver



# Hepatitis C

- Most common chronic blood borne infection in US
- 65% of HCV cases were born between 1945 and 1975
- Causes liver damage, cirrhosis and liver cancer
- Leading reason for liver transplants



# Symptoms of Hepatitis C



- Similar to Hepatitis B
- May occur within 2 weeks to many years
- 50% don't know they are infected

# Hepatitis C Vaccine

- **There is NO vaccine**
- Treatment available after infection, 95% cure rate
- There are ~400,000 needlesticks annually related to HCV infected patients





# HIV/AIDS



- Attacks the body's immune system
- Unable to fight off other infections
- NO vaccine and NO cure
- Average of 40,000 newly diagnosed cases each year in the U.S.



# Symptoms of HIV

- Mild flu-like symptoms initially (fever, swollen glands)



- May be free of symptoms for months to many years
- Eventually leads to AIDS and death



# Risk of Infection after Occupational Exposure

- Hepatitis B ~20% if no history of vaccination
- Hepatitis C ~2%
- HIV ~0.2%



# How can I protect myself?

- Standard Precautions- All blood and body fluids are treated as if infectious for blood borne pathogens
- Personal protective equipment
- Safe work practices
- Engineering controls



# Personal Protective Equipment (PPE)

- Provides a barrier between you and infectious material



- Should be available in appropriate size and type needed, at no cost to employee





# PPE Selection Based on Anticipated Exposure

- Gloves- any time contact with blood or other body fluids may occur
- Masks and eye protection- if there is any chance of splashing into the mouth nose or eyes
- Gowns/lab coats, shoe covers- risk of splattering or spilling on clothes or skin



# Safe Work Practice

- Depends on you!
- Examples - proper handwashing,  
getting Hep B vaccines  
proper handling of sharps  
proper disposal of infectious  
waste  
-wearing appropriate PPE



# Handling Sharps



- Needles should NOT be bent, recapped, removed, or broken
- Use tongs, or dust pan and broom to pick up contaminated broken glass (not hands!)
- Discard all needles and sharps in closable, leak proof, puncture resistant sharps containers



# Engineering Controls

- Devices that reduce employee risk by isolating or removing the hazard

Examples:

Sharps containers

Safety medical devices

Negative pressure rooms





**WARNING:**

**DO NOT OVERFILL  
OR FORCE SHARPS  
INTO CONTAINER!!**

**Change when no  
more than 2/3 full**



# Needlestick Safety and Prevention Act

- OSHA Mandates adoption of safety devices
- Engineering and work practice controls shall be used to eliminate or minimize employee exposure



# International Biohazardous Waste Symbol

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# Biohazardous Waste

- Discard contaminated sharps in approved sharps containers
- Discard all other infectious material in red biohazard trash bags
- Picked up by biohazard waste technicians
- Incinerated
- Do NOT throw regular trash in red bags!



# Blood or OPIM Spill Procedure

- Prevent accidental exposure to others
- Wear appropriate PPE
- Absorb spill (paper towels or biohazard spill kit)
- Spray approved disinfectant or 1:10 bleach solution, set for 10 min. or air dry
- Dispose of all cleaning materials and PPE in biohazard trash bag

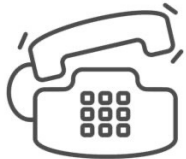


# What if I am exposed?

- Wash with soap and water
- Splash to mucous membranes- rinse or flush with water for 15 min.
- Have source patient remain available
- Notify your supervisor



# Who needs to know?



## Contact:

ECU Office of Prospective Health

**252-744-2070**

Contact ECU Health if exposed at hospital

(After hours contact ECU Health Nursing Coordinator)

**252-847-4386**

For exposure at ECU

After 5 pm, on weekends or holidays, use the ECU Health  
Emergency Department for follow-up.

See ECU Infection Control Policy for Source Patient  
Evaluation Algorithm

# Post Exposure Surveillance

- Review medical history of source patient
- Baseline blood tests - HEP B & C and HIV of source patient
- HIV results in less than 2 hrs
- Confidentiality is maintained



# Post – Exposure Followup for ECU Employees



- Baseline labs drawn 6 wks, 3 mo, and 6 mo
- Evaluation for post exposure prophylaxis (PEP)
- PEP reduces risk of infection up to 80%



A photograph of a large, multi-story, light-colored building with many windows, identified as the Brody School of Medicine. The building is set against a clear blue sky. In the foreground, there is a green lawn and some trees with autumn-colored leaves. A semi-transparent white box with a black border is overlaid on the center of the image, containing the title text.

# **Tuberculosis and Respiratory Protection Program**

  
BRODY  
SCHOOL OF MEDICINE

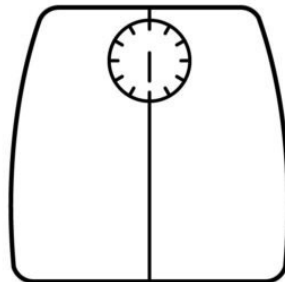
# Transmission

- Caused by a tiny germ called *Mycobacterium tuberculosis*
- Spread when someone with active TB disease coughs, talks, laughs, sneezes, or spits TB bacteria into the air
- Uninfected person breathes in TB bacteria



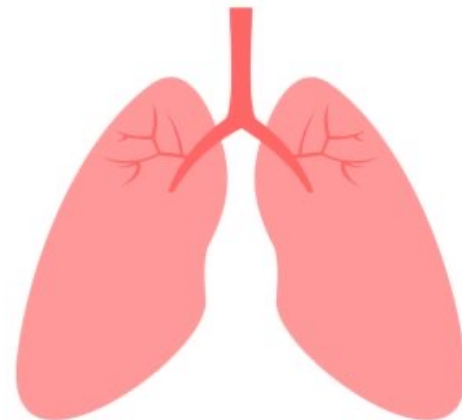
# Signs & Symptoms

- Cough > 2weeks
- Fever
- Weight loss
- Night sweats
- Bloody sputum



# High Risk for TB

- Immunocompromised
- People living in close conditions
- Economically disadvantaged
- Foreigners



# MTB in the World



- Six countries in Asia account for more than 50% of TB epidemic
    - India
    - China
    - Bangladesh
    - Pakistan
    - Indonesia
    - the Philippines
- 

# TB in North Carolina

The background of the slide features the Seal of the State of North Carolina. The seal is circular with a rope-like border. Inside the border, the text "THE GREAT SEAL OF THE STATE OF NORTH CAROLINA" is written around the top, and "APRIL 12, 1776" is at the bottom. The central image depicts two female figures: Liberty on the left holding a staff with a Phrygian cap, and Justice on the right holding a scale. Below them is a cornucopia overflowing with various fruits and vegetables.

- North Carolina's number of MTB cases ranks 27th in the nation in 2020.

# TB Testing

- A TB skin test or PPD will show if you have any TB bacteria in your body.
- All employees that are potentially exposed to TB are required to receive a skin test annually and/or complete a symptom screen.



<b>LATENT TB INFECTION</b>	<b>ACTIVE TB DISEASE</b>
<b>Exposed to active TB disease</b>	<b>Infection has progressed to active disease</b>
<b>Positive TB skin test</b>	<b>Positive TB skin test</b>
<b>No symptoms</b>	<b>Will have symptoms</b>
<b>Negative chest xray</b>	<b>Positive chest xray</b>
<b>WILL NOT INFECT OTHERS</b>	<b>CAN INFECT OTHERS</b>



# What if I have Latent TB Infection?



- 90% of healthy people with TB infection will never develop TB disease.
- Should be evaluated for prophylaxis medications by the health department or a private physician.
- Prophylaxis meds reduce lifetime risk of developing active TB disease by 95%
- Be aware of signs and symptoms of active TB disease

# Multi-drug resistant TB strains (MDR TB)



- Occurs when patients do not complete treatment; all TB germs in body not killed
- Occurs when TB germs mutate, can survive standard TB treatment
- Difficult to diagnose, control, and cure
- MDR-TB becoming more prevalent

# Prevent MDR TB

- **Must take daily medication as prescribed for active TB disease**
- **Therapy directly observed by Public Health**
- **It's the Law!**

# How do Healthcare Workers avoid exposure to TB?



- Notice if patients have symptoms of TB and offer tissues and masks.
- Utilize “negative pressure” rooms to prevent the spread of tuberculosis
- Patient should wear mask outside room and during transport to other departments
- All employees who work with potential TB patients must be fit tested for an approved respirator to wear when working with infectious individuals.

# N-95 Respirator

- Remember your size
- Fit testing is required annually
- Done during new employee orientation and annually



# N-95 Respirator

Notify Prospective Health  
of facial changes:

large amount of weight gain or loss  
facial trauma and/or surgery  
growth or shaving of beard



If unable to wear mask, you will  
be instructed in the use of a PAPR.

# Power Air-Purifying Particulate Respirators (PAPR)



# What do I do if I'm exposed to TB at work?

- You are notified by Infection Control of suspected/confirmed exposure to patients seen in your area that have been diagnosed with TB
- After notification, call Employee Health to schedule a TB skin test.
- A TB skin test is done at the time of exposure and 2 months after the exposure



# TB Exposure Continued

If you develop a positive TB skin test after workplace exposure:

You will be evaluated for active TB with a CXR and presence of symptoms

You will be treated with preventive medication



# *Office of Prospective Health*

THE BRODY SCHOOL OF MEDICINE AT EAST CAROLINA UNIVERSITY



**BRODY**  
SCHOOL *of* MEDICINE

