BLOOD BORNE PATHOGENS

UNIVERSITY OF ARKANSAS

OFFICE OF ENVIRONMENTAL HEALTH AND SAFETY
OSHA BLOOD BORNE PATHOGEN STANDARD

(29 CFR 1910.1030) REQUIRES BLOOD BORNE PATHOGEN TRAINING FOR ALL PERSONNEL WHO MAY COME IN CONTACT WITH BLOOD BORNE PATHOGENS.

The more you know, the better you will perform in real situations!
BLOOD AND OTHER POTENTIALLY INFECTIOUS MATERIALS COVERED UNDER THE OSHA STANDARD INCLUDE:

**BLOOD**
- HUMAN BLOOD
- BLOOD PRODUCTS
- BLOOD COMPONENTS

**OTHER POTENTIALLY INFECTIOUS MATERIALS (OPIM)**
- HUMAN BODY FLUIDS
- UNFIXED HUMAN TISSUE OR ORGANS
- CELLS CONTAINING HIV OR HBV
WHAT IS A BLOOD BORNE PATHOGEN (BBP)?

Blood borne pathogens are microorganisms, such as viruses and bacteria, that are carried in the blood, and that can cause disease in humans.
COMMON BBP DISEASES

HEPATITIS B (HBV)

HUMAN IMMUNODEFICIENCY VIRUS (HIV)

HEPATITIS C (HCV)

MALARIA

BRUCELLOSIS

SYPHILIS
HEPATITIS IS INFLAMMATION OF THE LIVER CAUSED BY DRUGS, TOXINS, AUTOIMMUNE DISEASE, OR INFECTIOUS AGENTS.
HEPATITIS B (HBV)

- 1-1.25 MILLION AMERICANS CHRONICALLY INFECTED

- SYMPTOMS INCLUDE: FATIGUE, ABDOMINAL PAIN, LOSS OF APPETITE, INTERMITTENT NAUSEA, VOMITING, JAUNDICE

- MAY LEAD TO CHRONIC LIVER DISEASE, LIVER CANCER, AND DEATH
• HBV CAN SURVIVE FOR AT LEAST A WEEK IN DRIED BLOOD
• SYMPTOMS CAN OCCUR 1-9 MONTHS AFTER EXPOSURE
• VACCINE AVAILABLE SINCE 1982
HEPATITIS B VACCINATION

STRONGLY ENDORSED BY MEDICAL COMMUNITIES

AVAILABLE FREE TO ALL AT RISK EMPLOYEES

AVAILABLE AT THE PAT WALKER HEALTH CENTER

EMPLOYEE MUST SIGN WAIVER IF VACCINATION IS DECLINED

CONTACT THE PAT WALKER HEALTH CENTER FOR MORE INFORMATION
HUMAN IMMUNODEFICIENCY VIRUS (HIV)

- VIRUS THAT CAUSES AIDS
- DEPLETES THE IMMUNE SYSTEM
- FRAGILE AND DOES NOT SURVIVE WELL OUTSIDE OF THE BODY
- ESTIMATED 35,000 NEWLY INFECTED EACH YEAR IN USA
- NOT PASSED THROUGH CASUAL CONTACT
HEPATITIS C (HCV)

• CAUSED BY THE HEPATITIS C VIRUS AND AFFECTS THE LIVER

• AN ESTIMATED 150 - 200 MILLION PEOPLE WORLDWIDE ARE INFECTED

• NO VACCINE AVAILABLE, BUT PROMISING NEW TREATMENTS

• SYMPTOMS INCLUDE DECREASED APPETITE, FATIGUE, ABDOMINAL PAIN, JAUNDICE, ITCHING, AND FLU-LIKE SYMPTOMS
POTENTIALLY INFECTIOUS MATERIAL

- SKIN TISSUE
- CELL CULTURES
- BODY FLUIDS INCLUDING:
  - BLOOD
  - SALIVA
  - SEMEN
  - VAGINAL SECRETIONS
  - ANY BODY FLUID VISIBLY CONTAMINATED WITH BLOOD
NOT ALL BODY FLUIDS ARE INFECTIOUS

THESE ARE INFECTIOUS ONLY IF VISIBLY CONTAMINATED WITH BLOOD:

• URINE
• FECES
• VOMIT
• TEARS
• SWEAT
• NASAL SECRETIONS
OCCUPATIONAL TRANSMISSION

• MUCOUS MEMBRANES:
  - EYES
  - MOUTH
  - NOSE

• NON-INTACT OR ABRADED SKIN

• PUNCTURES FROM CONTAMINATED SHARPS/NEEDLES
OCCUPATIONAL TRANSMISSION

UNBROKEN SKIN FORMS AN IMPERVIOUS BARRIER AGAINST BBP

INFECTED BLOOD CAN ENTER THROUGH:

• OPEN SORES
• CUTS
• MICRO-ABRASIONS
• ACNE
• SUNBURN OR BLISTERS
CAUTION: THERE MAY BE NO SUCH THING AS "UNBROKEN" SKIN!
HIGH EXPOSURE POTENTIAL EXISTS:

• WHEN ADMINISTERING FIRST AID

• DURING POST-ACCIDENT CLEANUP

• WHILE PERFORMING JANITORIAL OR MAINTENANCE WORK

• DURING HANDLING OF ANY HUMAN WASTE PRODUCTS
USE UNIVERSAL PRECAUTIONS

• TREAT ALL BLOOD AND BODILY FLUIDS AS IF THEY ARE CONTAMINATED.

• USE PROPER PERSONAL PROTECTIVE EQUIPMENT (PPE).

• USE PROPER CLEANUP AND DECONTAMINATION PROCEDURES.

• DISPOSE OF ALL CONTAMINATED MATERIAL IN THE PROPER MANNER
PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE is used to prevent blood or body fluids from coming into contact with your skin. It is essential to have a barrier between you and the potentially infectious materials.
• LATEX, NITRILE, RUBBER, OR OTHER WATER IMPERVIOUS MATERIALS

• DOUBLE GLOVING CAN PROVIDE AN ADDITIONAL LAYER OF PROTECTION

• ALWAYS INSPECT GLOVES FOR TEARS OR PUNCTURES BEFORE PUTTING THEM ON
IF A GLOVE IS DAMAGED, DON'T USE IT!

IF IT TEARS IN USE, CAREFULLY REMOVE IT

DON'T ALLOW BARE SKIN TO TOUCH THE OUTSIDE OF CONTAMINATED GLOVES

DISPOSE OF CONTAMINATED GLOVES AND OTHER MATERIALS PROMPTLY AND PROPERLY
GOGGLES

GOGGLES PROTECT EYES FROM SPLASHES AND AEROSOLS

BBP CAN BE TRANSMITTED VIA EYE MEMBRANES

SPLASHING CAN OCCUR WHILE:

• CLEANING UP A SPILL

• PERFORMING LABORATORY PROCEDURES

• PROVIDING FIRST AID OR MEDICAL ASSISTANCE
FACE SHIELDS

MAY BE WORN IN ADDITION TO GOGGLES TO PROVIDE ADDITIONAL FACE PROTECTION

A FACE SHIELD WILL PROTECT AGAINST SPLASHES TO THE NOSE AND MOUTH
APRONS
SINGLE USE

PLASTIC APRONS OR GOWNS ARE WORN DURING:

• PROCEDURES LIKELY TO GENERATE SPLASHES OF BLOOD OR BODY FLUIDS

• ACTIVITIES THAT MAY CONTAMINATE CLOTHING WITH INFECTIOUS MATERIAL

NECK STRAP AND WAIST TIE SHOULD BE TORN AND APRON SHOULD BE PROPERLY DISPOSED OF IMMEDIATELY AFTER USE
DECONTAMINATION

LABORATORY PERSONNEL

USE BLEACH SOLUTION
OR OTHER APPROVED COMMERCIAL
PRODUCT TO DISINFECT
SURFACES

BLEACH SOLUTION MUST BE FRESHLY MIXED;
A 1:10 AQUEOUS SOLUTION IS APPROPRIATE

MIX NEW SOLUTION EVERY DAY
BUILDING SERVICES PERSONNEL

USE A DISINFECTANT SOLUTION APPROVED BY SUPERVISING DEPARTMENT
CAUTION!

DO NOT USE THE BLEACH SOLUTION IF THERE IS DANGER OF IT MIXING WITH AMMONIA OR AN AMMONIA SOLUTION.

BLEACH + AMMONIA CAN PRODUCE CHLORINE GAS (POTENTIALLY FATAL IF INHALED), NITROGEN TETRACHLORIDE OR HYDRAZINE (HIGHLY EXPLOSIVE COMPOUNDS).
SPILL PROCEDURES ARE ON THE EH&S WEBSITE
1. PLACE PAPER TOWEL OR OTHER ABSORBENT PAPER PRODUCT OVER SPILL

2. SATURATE PAPER TOWEL OR OTHER ABSORBENT WITH A FRESH 10% BLEACH / WATER SOLUTION OR APPROVED DISINFECTANT

3. ALLOW THE ABSORBENT MATERIAL AND DECONTAMINATION SOLUTION TO REMAIN ON SPILL FOR TEN TO FIFTEEN MINUTES

4. PREPARE A BIOHAZARD BAG BY OPENING THE BAG AND FOLDING IT DOWN FROM THE TOP TO CREATE A WIDE OPENING

5. AFTER TEN TO FIFTEEN MINUTES, PLACE SOAKED TOWELS OR ABSORBENT MATERIAL IN BIOHAZARD BAG; DO NOT CONTAMINATE EXTERIOR OF BAG

6. WIPE UP ANY REMAINING SPILL RESIDUE WITH CLEAN PAPER TOWELS AND PLACE THEM IN BIOHAZARD BAG

7. CLEAN SPILL AREA AGAIN WITH FRESH 10% BLEACH AND WATER SOLUTION OR EQUIVALENT; PLACE PAPER TOWELS IN BIOHAZARD BAG

8. REMOVE PPE AND PLACE IN BIOHAZARD BAG, TAKING CARE NOT TO TOUCH CONTAMINATED SURFACES

9. WASH HANDS THOROUGHLY
HAND WASHING

• WASH HANDS IMMEDIATELY AFTER REMOVING PPE

• USE A SOFT ANTIBACTERIAL SOAP

• A HAND SANITIZER CAN BE USED BUT WASH WITH SOAP AND WATER AS SOON AS POSSIBLE.

• A HAND SANITIZER IS NOT A SUBSTITUTE FOR SOAP AND WATER!
OTHER HYGIENE PRACTICES

NEVER EAT, DRINK, SMOKE, APPLY COSMETICS, OR HANDLE CONTACT LENSES IN AREA WHERE EXPOSURE IS POSSIBLE

NO FOOD OR DRINK PERMITTED IN LABORATORIES OR REFRIGERATORS DESIGNATED FOR LABORATORY USE
DISPOSAL
(REGULATED MEDICAL WASTE)

LIQUID OR SEMI-LIQUID BLOOD OR OPIM

CONTAMINATED ITEMS THAT WOULD RELEASE BLOOD OR OPIM WHEN COMPRESSED

CONTAMINATED SHARPS

PATHOLOGICAL AND MICROBIOLOGICAL WASTE CONTAINING BLOOD OR OPIM
DISPOSAL (SHARPS)

NEEDLES

• SHOULD NEVER BE RECAPPED

• DO NOT PICK UP WITH HANDS; ONLY MOVE USING A MECHANICAL DEVICE OR TOOL

• SHOULD NOT BE BROKEN OR SHORN
DO NOT SHEAR OR RECAP NEEDLE

PLACE ENTIRE SYRINGE, NEEDLE AND ALL INTO APPROVED, LABELED SHARPS CONTAINER
BROKEN GLASSWARE

• IF VISIBLY CONTAMINATED WITH BLOOD, IT MUST BE DECONTAMINATED BEFORE IT IS TOUCHED OR CLEANED UP

• DO NOT PICK UP WITH HANDS

• UNCONTAMINATED BROKEN GLASS MAY BE DISPOSED OF IN A CLOSABLE, PUNCTURE RESISTANT CONTAINER
SIGNS AND LABELS

LABELS MUST INCLUDE THE UNIVERSAL BIOHAZARD SYMBOL, AND THE TERM “BIOHAZARD” MUST BE ATTACHED TO:

- CONTAINERS OF REGULATED BIOHAZARD WASTE
- REFRIGERATORS OR FREEZERS CONTAINING BLOOD OR OPIM
- CONTAINERS USED TO STORE, TRANSPORT, OR SHIP BLOOD OR OPIM
EXPOSURE INCIDENT

AN INCIDENT INVOLVING ACCIDENTAL INJECTION OF OR CONTACT WITH A POTENTIALLY INFECTIOUS BODILY FLUID
POST-EXPOSURE MANAGEMENT IS URGENT!
EXPOSURE RESPONSE

IN THE EVENT OF AN EXPOSURE INCIDENT:

• DECONTAMINATE IMMEDIATELY!
  - CLEAN WOUND OR EXPOSED AREA
  - IRRIGATE COPIOUSLY FOR AT LEAST 15 MINUTES

• NOTIFY SUPERVISOR AND FOLLOW POST-EXPOSURE PLAN!

• SEEK IMMEDIATE MEDICAL ATTENTION

• DOCUMENT EVERYTHING!
POST-EXPOSURE EVALUATION

- CONFIDENTIAL MEDICAL EVALUATION OF EXPOSED INDIVIDUAL
- DOCUMENT ROUTE OF EXPOSURE
- IDENTIFY SOURCE INDIVIDUAL
- TEST SOURCE INDIVIDUAL’S BLOOD (WITH INDIVIDUAL’S CONSENT)
- PROVIDE RESULTS TO EXPOSED EMPLOYEE
REMEMBER...

THE LAB CAN BE A TOUGH NEIGHBORHOOD.

BE CAREFUL!

Illustration: Don Smith
THE END