Working with human tissue and bodily fluids

All material from the human body (blood, bodily fluids, tissue, etc.) must be considered a contaminant that is liable to be contagious, that is, working under BSL-2 conditions.

Bloodborne pathogens are contagious microorganisms found in the blood, that can cause diseases in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV).

Anyone working with bodily fluids (or any bloodborne pathogens) are liable to be at risk from life-threatening diseases.

Workers **must be vaccinated** against hepatitis B and tetanus (for those working with animals).

Instructions for working with bodily fluids and human tissue

Do not eat, drink, apply makeup or smoke in the laboratory.

Do not keep food in the refrigerator designated for keeping bodily fluids / contaminants.

1. Protective equipment that includes a long, buttoned **lab coat** with long sleeves, face protection / **protective goggles** (to prevent contact with the skin or mucous membranes, such as eyes, nose and mouth), and **sleeve protectors**.
2. A **contaminated lab coat** must undergo decontamination / sterilization before sending it to the laundry or throwing it in the trash.
    * **For those working in rooms designated as BSL2+ or P2+, the lab coat must be sent for decontamination before it is given to be laundered.**
3. **Gloves**: When working with bodily fluids and human tissue, wear a **double layer of gloves** (it is best to combine nitrile gloves and latex gloves). When working with gloves do not touch your eyes, nose, mouth or skin. The upper layer of gloves should be changed frequently while working. After finishing work with gloves, remove them and wash hands with soap and water.
4. Before starting to work, **cover the work surface** with absorbent paper that is sealed underneath (after completing the work, it must be placed in the biological trash can for sterilization).
5. Work should be performed in a Class II biological fume hood.
6. Use disposable equipment and tools to the extent possible.

7. Do not touch any device designated for general use, such as a telephone, keyboard, computer, etc.
8. **Moving the contaminated material** from place to place in the unit must be done in a hard container (unbreakable) that is sealed and easy to use and to carry, marked with the biohazard symbol.
9. When separating serum or plasma from a blood sample: Centrifugation will be performed in test tubes sealed with a stopper and the centrifuge should be closed. When centrifugation is completed, the serum / plasma should be moved from one test tube to another using a mechanical pipette. Do not pour from one container to another. **In general, any action performed to create aerosols must be done in the biological fume hood.**
10. **Syringes**: Avoid using syringes whenever possible.

    Do not replace covers on the needles after use or to separate it from the syringe.
11. Syringes, needles and any contaminated waste from sharp objects should be collected in a **hard and closed container** (designated for sharps).
12. Before starting an experiment ensure that there is a sharps container in the area where you are working.
13. Do not fill the container more than three-quarters full.
14. Before emptying the container for sterilization in the autoclave and closing it, **add 100 m. water**.
15. Remove the closed container after marking with autoclave tape indicating sterilization.
16. **If you get stuck with a needle you suspect may be contaminated**, or any other puncture wounds, cuts or scratches, encourage bleeding from the wound while thoroughly washing with soap and water; afterwards treat the wound with disinfectant (iodine solution) and immediately seek medical attention. Report to the department manager and the biological safety supervisor at the University.

Disinfection procedures

Infectious waste must be sterilized in an autoclave and liquid waste must be disinfected with a suitable chemical agent. Do not pour blood or bodily fluid waste into trash cans.

17. **Infectious waste:** Test tubes with blood (remnants), tools and contaminated gloves, etc. must be collected in a double biohazard bag. Do not close the seals completely. If it is dry waste, add 250 ml. of water to the bag (carefully), to ensure effective sterilization. **Do not hermetically seal the bag.**
18. Mark the bag with autoclave tape and indicate the name of the lab.
19. **Liquid infectious waste:** The liquid waste must be placed into a container (preferably a used medium bottle) containing hypochlorite, to obtain a **final concentration of 1%, and soak for 30 minutes** at least, before pouring into the sewage system. Pour into a sink carefully so as not to create any spray, while running the faucet.
20. **Cleaning and disinfecting surfaces:** At the end of the work, use an appropriate disinfectant such as **sodium hypochlorite** (NaClO-bleach) diluted 1:100, or 70% ethanol or Virusolve, according to the type of work that was performed. **In the event of blood spray, use bleach diluted 1:10.**
21. **Important: Ensure that remnants of toxic chemicals are not introduced (such as bleach) into the bag designated for the autoclave.**
22. **Treating spills:** In the event a test tube or bottle containing blood or other contaminated material breaks, pour vermiculite over the area or cover it with absorbent paper. Spread disinfectant around the area of the spray and afterwards on the absorbent material, for at least 10 minutes. The recommended disinfectant to use is hypochlorite (NaClO) with a free chlorite concentration of 0.5% (1:10). Afterwards, collect the waste using a dustpan or piece of cardboard (while wearing protective clothing, such as: protective goggles, double gloves, lab coat, shoe coverings, etc.). **Collect the waste into a solid container for treatment as sharp and contaminated waste.** Disinfect the surface with bleach diluted 1:10.
23. **Keep a log:** In which you record: the source of the blood and bodily fluids that arrived at the lab, the names of the people who handled the materials, the date, how the material was used and the place of work.