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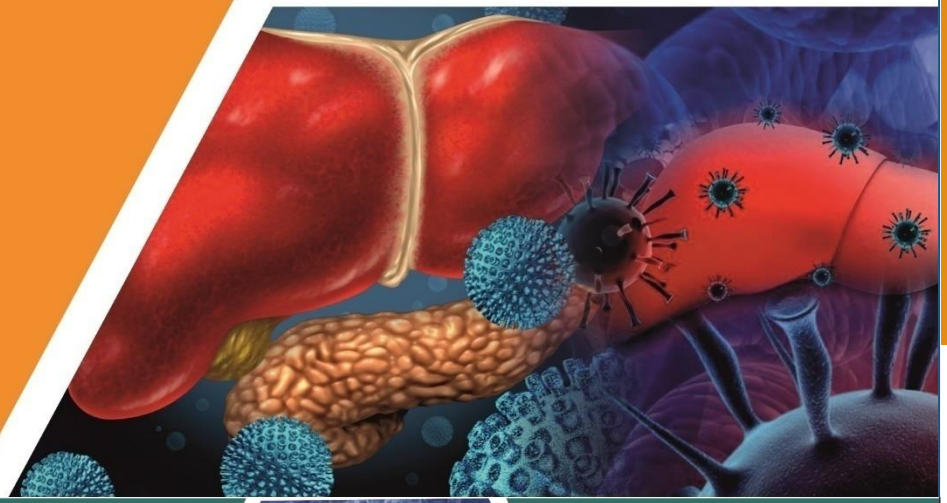
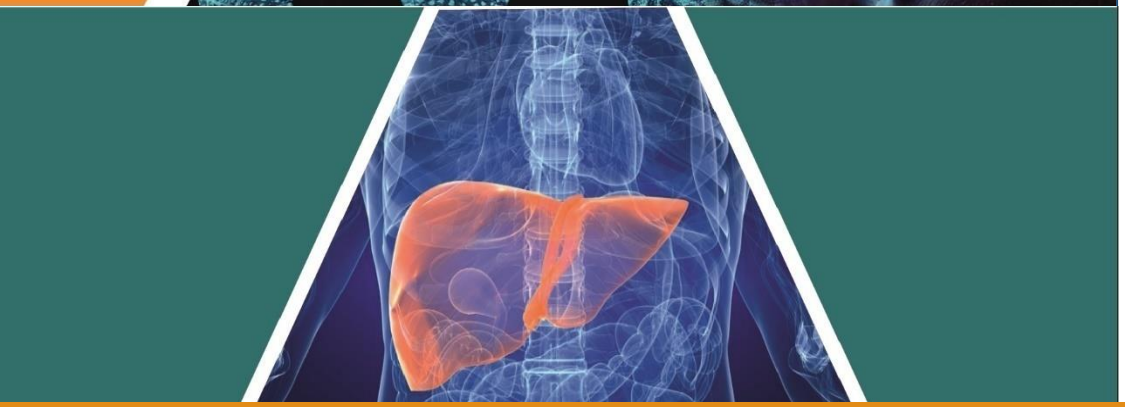
PROJECT PRAKASH

Pogrammed Approach to Knowledge and Sensitization on Hepatitis





HEPATITIS INDUCTION PROGRAM
FOR LAB TECNICIANS

GOOD LAB PRACTICES

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Overview

- INFRASTRUCTURE
- PERSONNEL, TRAINING & DEVELOPMENT
- EQUIPMENTS
- REAGENTS AND MATERIALS
- SPECIMEN COLLECTION
- REQUISITION FORM
- ACCESSION LIST
- TESTING & REPORTING of RESULTS
- DATA MANAGEMENT
- STANDARD OPERATING PROCEDURE (SOP)
- QUALITY CONTROL
- QUALITY ASSURANCE PROGRAMME
- SAFETY IN LABORATORIES
- BIOMEDICAL WASTE MANAGEMENT

Infrastructure of a good lab

- Lab should be clean and tidy
- Area should be free of smoke, smell, dust and pests
- Ensure good ventilation, proper illumination and prefer natural light.
- Air condition the laboratory with humidity control
- Enough space for the instruments & laboratory personnel
- Proper arrangement of testing
- Take care of all safety points including proper earthing as well as fire safety.
- Avoid uncleanable spots in floors, walls, ceiling.
- Establish proper areas for storage of incoming samples as well as test completed samples.
- Establish proper sample collection place as well as packing and disposal of tested samples
- Separate facilities/area for staff for hand washing, eating and storing food
- Quality water supply for analytical purpose
- Uninterrupted power supply

Personnel, Training & Development

- Head & Quality Manager
- Appropriate Staff strength with necessary qualification & experience
- Roles & responsibilities clearly defined
- Programme for regular update of skills
- Periodic competence evaluation
- A personal data file has to be maintained

Equipments

- Analytical equipments – in which the analytical tests are done
- Nonanalytical equipments – micropipette, centrifuges, refrigerators, incubators
- Suitably located
- Good capacity & working condition
- Periodic inspection, cleaning and maintenance in a log book
- Standard SOPs for operation
- Calibration & annual maintenance
- Performance checks by Quality control materials

Reagents & Materials

- Appropriate storage conditions
- New reagents – check controls first
- Opening date should be written
- Reagents should be brought to room temperature before performing any test

Accession list

- Record of all specimens received
- Patient's ID with requested tests, date & time of receipt of specimen , generate a unique lab ID
- Specimens if rejected, a separate record should be maintained and repeated sample should be requested

Testing & Reporting of test results

- Testing plan should be framed
- Controls should be checked before running samples
- Reports are to be clinically interpreted
- Signed by an Authorized signatory
- Report with procedure and unit of measurement
- Confidential reports to be handed over in-person in a sealed envelope after proper counselling

Data management

ABSENCE OF RECORD IMPLIES THAT THE WORK WAS NEVER DONE

- Archival for future reference - patient details, findings of analysis, reported results, IQC, IA & EQC
- Adequate data protection & security
- Standard SOPs have to be maintained

Standard Operating Procedure

- Document, which contains detailed, written instructions describing the stepwise process and technique of performing a test or procedure in the laboratory.
- Helps to ensure uniformity, consistency and control over the processes carried out. It ensures that the procedures are done in exactly the same way each time irrespective of the operator.
- **'laboratory bench work manual' -** Should contain information on who can perform the test, their qualification and training, how to carry out the test including pre-analytical, analytical and post-analytical stages of test/procedure, laboratory conditions required for the test/ procedure, routine care and maintenance of equipment, precautions and safety instructions, trouble shooting measures, waste disposal and linkage with reference laboratories.
- Should be simple and written in an easy to understand language.
- **Controlled documents** and can be changed only with approval of the laboratory quality manager and/or Head of the laboratory.

Quality Assurance Programme

- Managerial process of maintaining high standards of performance and of improving standards where necessary

Internal Quality Control (IQC) - for detection and minimization of immediate errors

External Quality Assessment (EQA) - for monitoring long term precision and accuracy of results.

Performance of a laboratory is assessed PERIODICALLY AND RETROSPECTIVELY by an independent external agency to indicate to the laboratory staff of any shortcomings in performance

Benefits of IQC

- Recognition of errors which arise within the laboratory during analytical stage (testing).
- Taking steps to minimize errors.
- Equipment & method calibration, method validation

Laboratories should perform IQC

- Every day on tests run daily
- Every time the tests are run in case of infrequently used tests.

Quality control checks should be employed for both quantitative and qualitative tests.

Benefits of EQA

- Assesses the overall performance of laboratory
- Establishes inter-laboratory comparison
- Serves as an early warning system for problems
- Identifies systematic kit problems
- Provides objective evidence of laboratory quality
- Indicates areas towards which efforts need to be directed for improvementof quality of results
- Identifies training needs

Safety in a laboratory

1. Care of the skin
2. Hand washing
3. Personal Protective Barrier
4. Safe handling and disposal of sharps
5. Management of blood and body fluid spillages
6. Biosafety
7. Waste disposal

Care of the skin

- Bacteria and viruses cannot penetrate intact skin.
- It is therefore vital to keep the skin in good condition and prevent cracking, chapping and drying of the skin.
- Regularly check skin for cuts and cover with a waterproof dressing to allow adequate hand washing.
- Following removal of gloves wash hands
- Ensure thorough drying of skin following hand wash

Handwashing

- Hand washing is considered the simplest and most important action to prevent infection transmission

- Microbes on human skin can be classified into two groups:
- 1. Resident flora
- 2. Transient/contaminated flora

- Resident flora: Not easy to eliminate by scrubbing since they are adapted to living on human hands.

- Transient/contaminated flora: Easy to eliminate by scrubbing with soap or detergent. This kind of microbe can be frequently found on the skin of health care workers.

Handwashing indications

❖BEFORE:

- Starting Work
- Examining a Patient
- Administering an Injection
- Handling Disinfected Instruments
- Putting on Gloves
- Going Home

❖AFTER:

- Examining a Patient
- Handling Instruments or
- Handling Potentially Contaminated Items or
- Handling Body Secretions/Excretions
- Removing gloves
- Using the toilet
- Sneezing or Coughing

Personal Protection

- The wearing of protective barrier provides the healthcare worker with a barrier between themselves and potential blood and bodyfluid.
- Common barriers are

1. Gloves
2. Aprons
3. Masks
4. Eye protectors
5. Caps
6. Sturdy footwear.

Management of spills

Wear Gloves, Avoid direct contact of gloved hand with spill
Using forceps remove the broken glass pieces

Cover with an Absorbant material

Pour hypochlorite 1% (freshly prepared)

Leave for 30 mins

Clean with absorbant material

Wipe surface with disinfectant

All contaminated material to be discarded as infectious waste

BIOSAFETY - GENERAL PRECAUTIONS

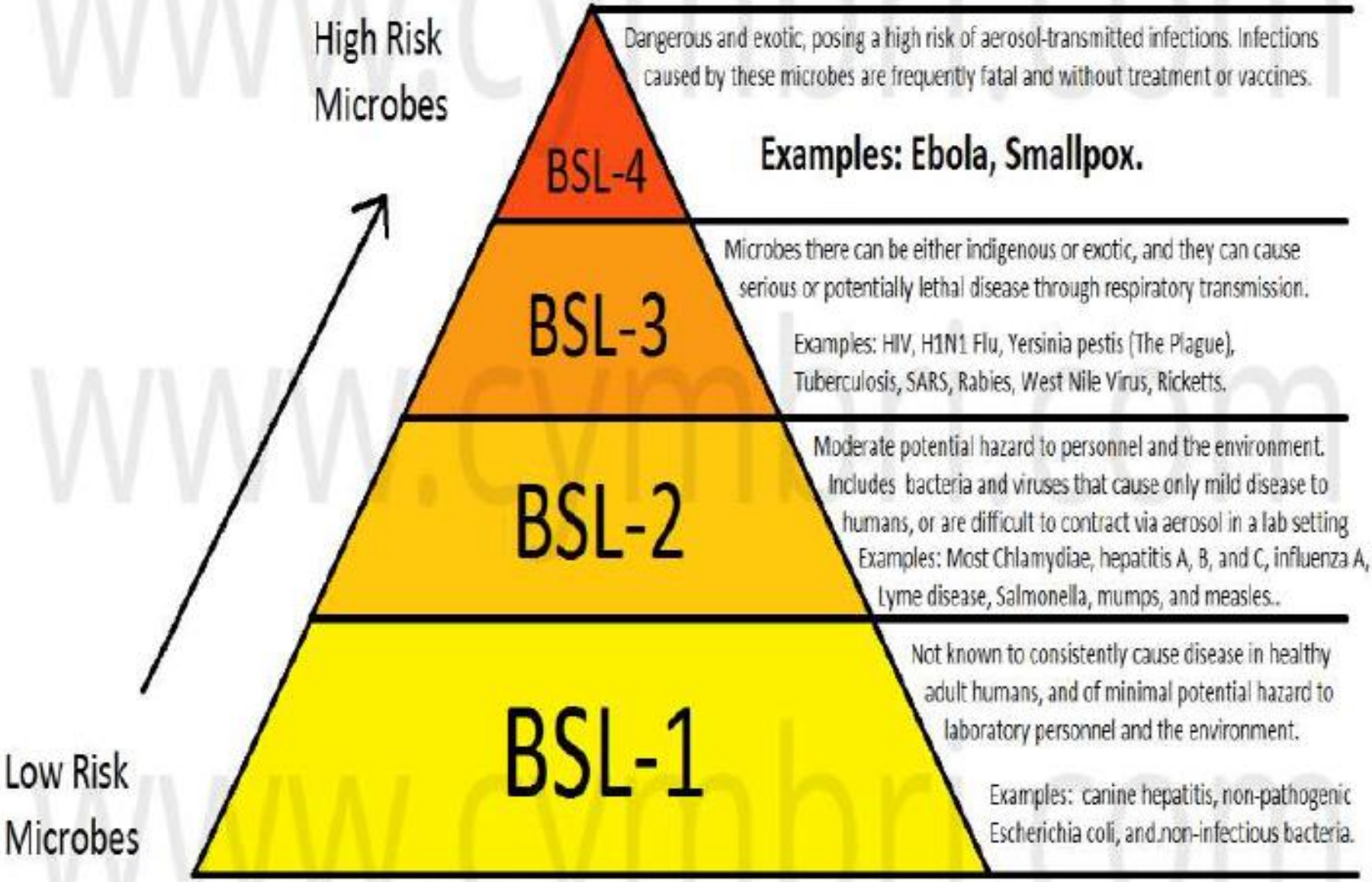
1. Biohazard warning sign must be displayed on the doors of the rooms where microorganisms of Risk Group 2 or higher risk groups are handled.

Biohazard warning sign for laboratory doors

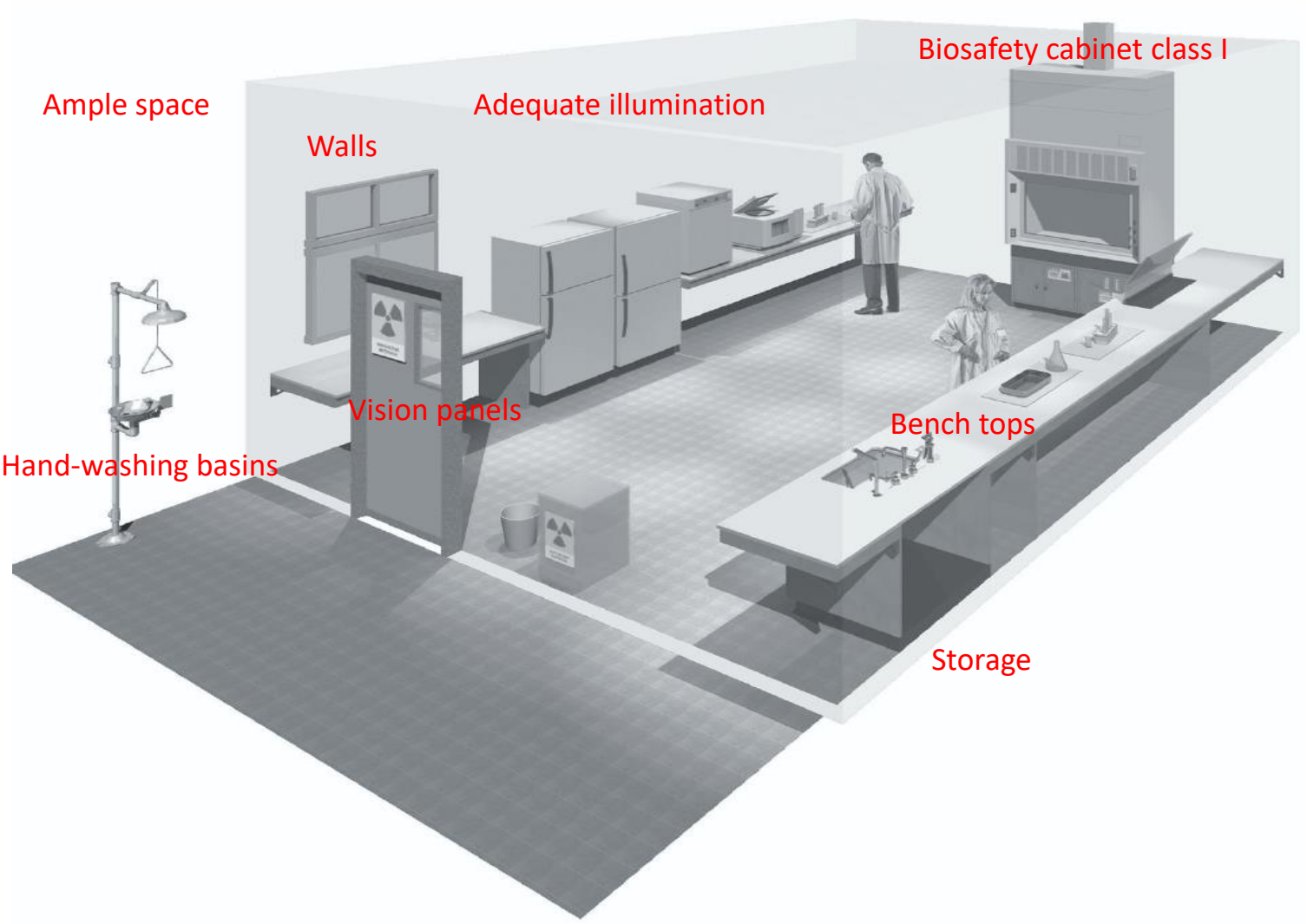
BIOSAFETY - GENERAL PRECAUTIONS

2. Only authorized persons should be allowed to enter the laboratory working areas.
3. Laboratory doors should be kept closed.
4. Children should not be allowed to enter laboratory working areas.
5. No animals should be admitted other than those involved in the work of the laboratory.
6. Do not pipette by mouth
7. Do not eat, drink or smoke at the test site
8. Do not store edibles in the laboratory refrigerators

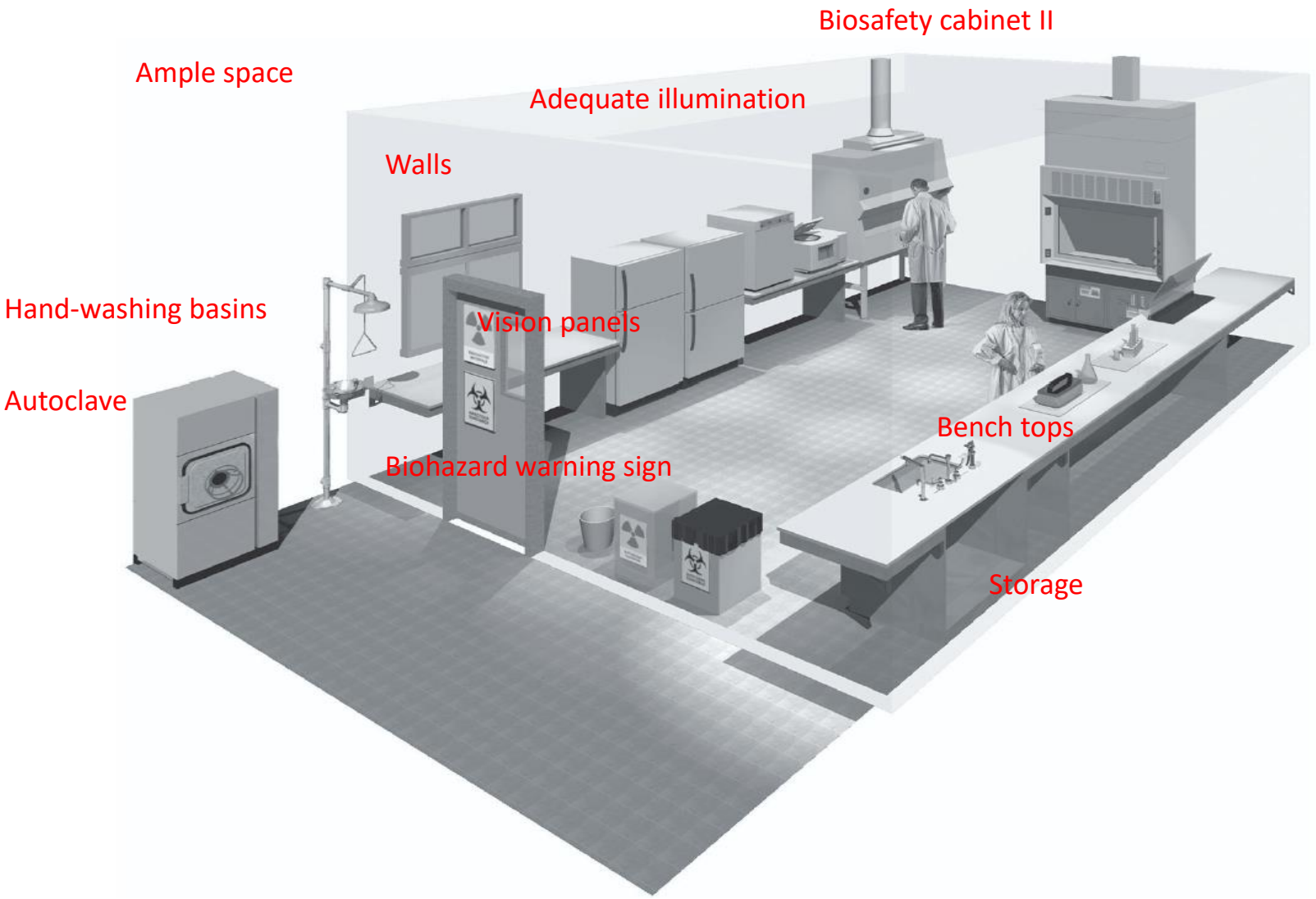
CDC Biosafety Levels



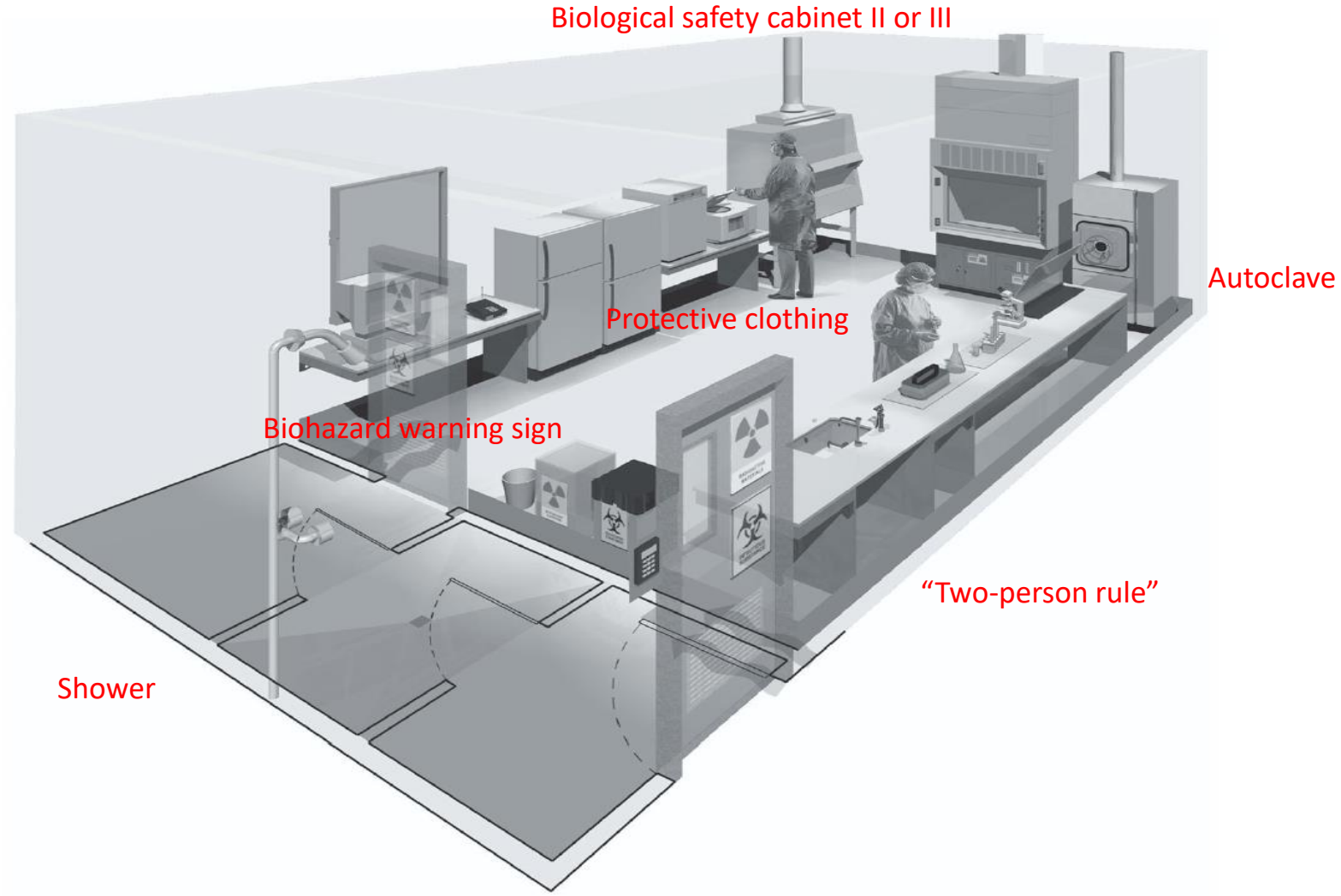
BIOSAFETY LEVEL 1 LABORATORY



BIOSAFETY LEVEL 2 LABORATORY



BIOSAFETY LEVEL 3 LABORATORY



BIOSAFETY LEVELS 4

The features of Biosafety Level 3 also apply to Biosafety Level 4 with the addition of the following:

- Decontamination of effluents.
- Sterilization of waste and materials.
- HEPA filtered air exhaust

BMWM definition

ALL INFECTED PLASTIC AND RUBBER WASTE

BIOHAZARD

Red Bin: All infected plastic recyclable waste

- Waste generated from tubings
- Plastic IV bottles (Normal Saline, DNS, RL, etc)
- IV Tubes / BT sets, central line, PICC line
- Gloves
- Urine Bags
- Catheters
- Drains
- Syringes without needles

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HUMAN / ANIMAL ANATOMICAL & SOILED WASTE

BIOHAZARD

Yellow Bin:

- Human anatomical waste:
  A. Tissues B. Organ C. Body Parts
- Animal anatomical waste
- Soiled waste: Items contaminated with blood and body fluid
  A. Dressings B. Plaster casts C. Cotton swabs
  D. Discarded linen E. Mattresses F. Beddings
  G. Blood bags H. Discarded and expired medicine

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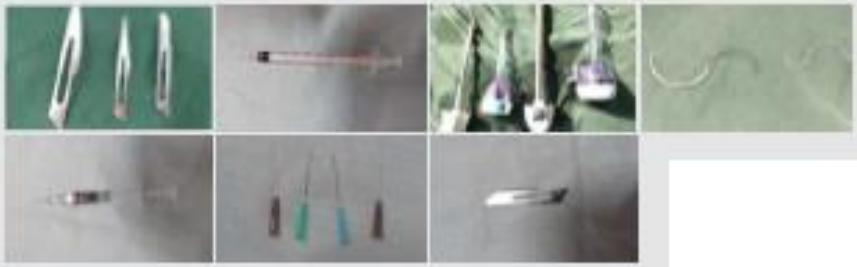
ALL INFECTED SHARPS WASTE



BIOHAZARD

White Container: All infected sharps waste

- Waste Sharps including Metals
- Needles
- Syringes with fixed Needles
- Needles from Needle Tip Cutter or Burner
- Scalpels
- Blades
- Contaminated Sharp objects

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ALL BROKEN & CONTAMINATED GLASSWARE

BIOHAZARD

Blue Bin: All glass waste

- Infected broken Glass Bottles
- Broken or unbroken Glassware and vials
- Ampoules (except cytotoxic waste)

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ALL GENERAL WASTE

Black Bin: Non-Infectious General Waste

- Food waste
- Mineral water bottles
- Paper waste

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THANK YOU!