

BASICS OF BIOSAFETY AND CONTAINMENT LEVELS



WHAT IS BIOSAFETY?

Principles and practices employed to protect laboratory personnel and the environment from exposure or injection while working living organism, biological materials or agents. these include:

■ Any materials that may be potentially infectious.

■ Recombinant DNA research

Risk Groups

Vs

Biosafety Levels

Relative risk to individual and/or the environment by the organism.

A description of containment (prescribed practices procedures, safety equipment and facilities) to safety work with the organism.

RISK GROUP CLASSIFICATION

Risk Group	Individual Risk	Community Risk
1	non, low	non, low
2	moderate	low
3	high	low
4	high	high

RG 1

- Unlikely to cause animal or human disease
- Non pathogenic agent

RG 2

- Pathogenic for human
- Unlikely a serious hazard
- Treatment and preventive measures available
- Limited risk or spread or infection

RG 3

- Pathogenic, cause serious disease
- Effective treatment and preventive measures usually available
- Little person-to-person spread

RG 4

- Lethal, pathogenic agent
- Effective treatment and preventive measures not usually available
- Readily transmittable - Direct or Indirect

BIOSAFETY LEVELS

BSL 1

- Well characterized, non-pathogenic organisms or agents
- Open bench-no containment
- Use good lab practices, waste disposal and aseptic techniques
- Example: Escherichia coli (E.coli) K-12 strains

BSL 2

- Agents or moderate hazard to personnel or environment during certain processes (i.e aerosols, coating, etc.)
- Autoclave and Biological Safety Cabinet level 2 are desired
- Use good laboratory practices, waste disposal and aseptic techniques
- Examples: Salmonella, most non-respiratory, non-lethal agents

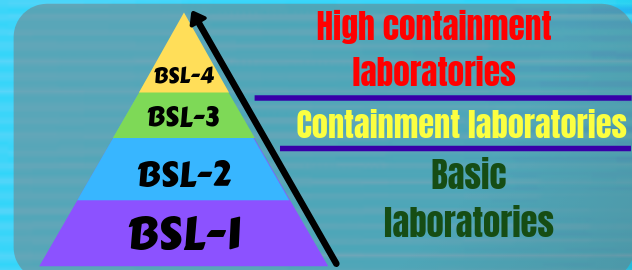
BSL 3

- Agents of high hazard to personnel or environment
- Respiratory exotic or indigenous agents which are easily transmissible causing serious or lethal disease
- Example: Mycobacterium tuberculosis, SARS, etc.

BSL 4

- Hemorrhagic fever, deadly viruses, etc.
- Total containment. (Example: airtight labs, "submarine" doors, air pumps, water treatment, HEPA filtration, etc.)
- Positive pressure "moonsuits"

BIOSAFETY CONTAINMENT LEVELS



- Each level associated with appropriate equipment, practices and work procedures.
- Diagnostic and health-care laboratories are categories as biosafety level 2 (BSL-2) or above.

CONTACT INFO : 07-4537228

CONTACT PERSON :

Pn. 'Aisyah Najwa
Bt Abd Rahman

Science Officer Occupational
Safety, Health and
Environment (OSHE), UTHM

Dr.Siti Fatimah
Zaharah bt
Mohamad Fuzi

Biosafety Officer Occupational
Safety, Health and
Environment (OSHE), UTHM