

Biosafety levels & BioRisk

Lact5



A hazard is the potential source of harm

threat is the event or factor that could trigger that hazard

risk is the calculation of how likely that harm is to happen and how bad it will be



- Risk is a function of
 - Probability that an incident will occur (**likelihood**)
 - Severity if the event occurs (**consequence**)

$\text{Risk} = f(\text{Likelihood}, \text{Consequence})$



Risk group

risk 4

Risk 3

Risk 2

Risk 1

Agents are likely to cause serious or lethal human disease for which preventative or therapeutic interventions are usually not available
Ebola virus

Agents are associated with serious or lethal human disease for which preventative or therapeutic interventions may be available
Mycobacterium tuberculosis,
hantaviruses,
West Nile virus)

Agents are associated with human disease which is rarely serious and for which preventative or therapeutic interventions are often available
Streptococcus pyogenes,
Salmonella ,
hepatitis B virus

Agents are not associated with disease in healthy adult humans
Saccharomyces cerevisiae



Biosafety Levels (BSL)

- prescribe procedures and levels of containment for the particular microorganism or material (including research involving recombinant or synthetic nucleic acid molecules) and associated procedures. In addition to the risk reduction strategies highlighted above, BSLs also consider primary barriers (e.g. biosafety cabinets), secondary barriers, facility design, air handling, laboratory security, etc.
- **BSLs** are graded from 1 – 4; as the BSL increases so does the relative risk of the agent/procedures as well the stringency of procedures and facility design. Generally, these correlate with RGs (e.g. a RG2 agent is worked with at BSL-2), but there are exceptions (e.g. production volumes, high-risk procedures, etc.).





Remember....
Safety First!

