



Biosafety Levels & Risk Assessment for IBC Members

Institutional Biosafety Committee Training
April 2026

Biosafety Levels in PIERS

Found in the Biosafety
Containment Section of every
registration!

Genes		
Genome Editing		✓
Target Recipients		
Biosafety Containment		✓
Additional documents		
✓ Connected Projects		
IBC Correspondence		

This project will be conducted at Biosafety Level (BSL)* 

×1

×

This project will be conducted at Animal Biosafety Level (ABSL)* 

×1

×

Does your procedure for biohazard agent manipulation have potential to create aerosols?* 

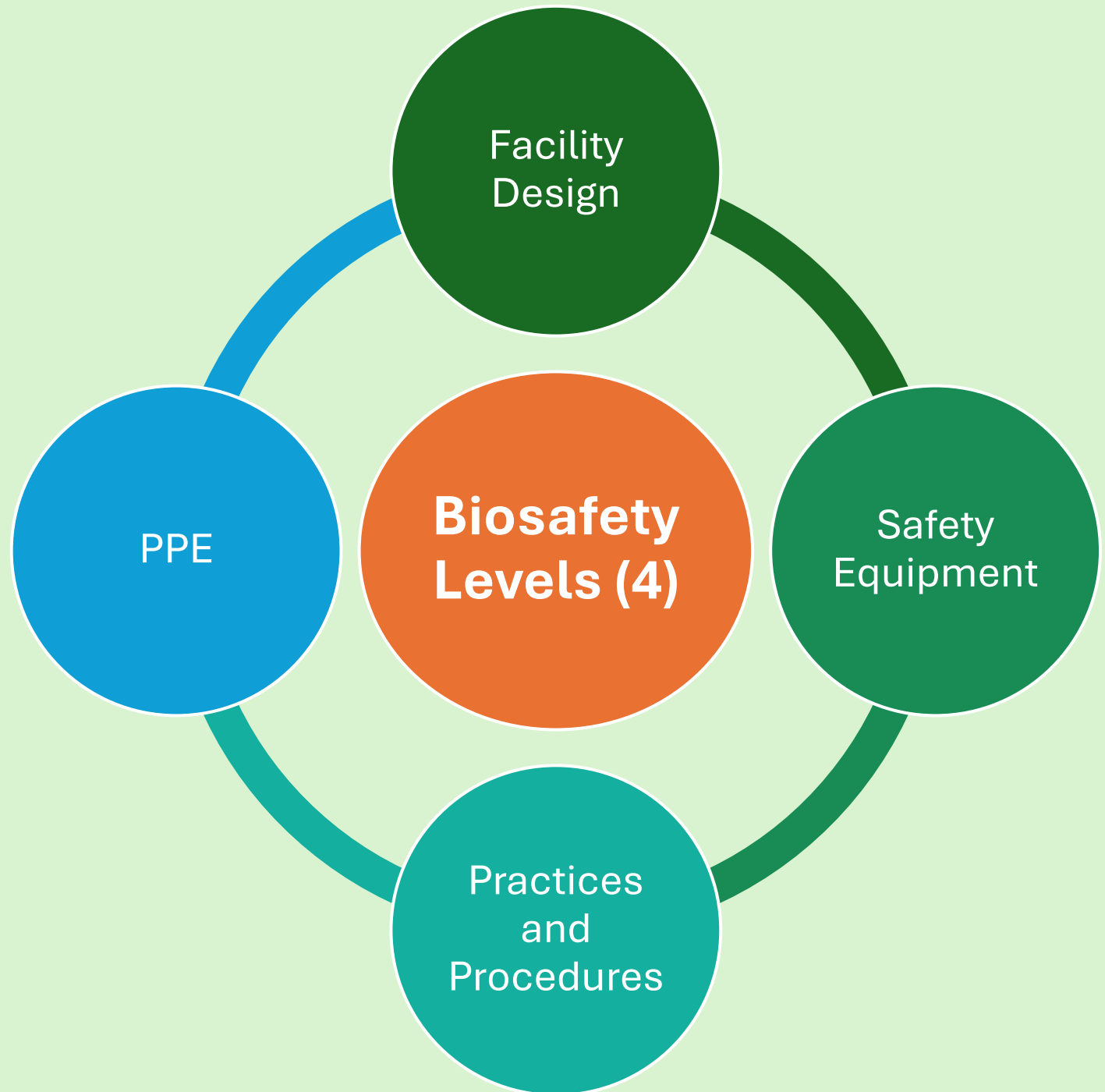
☒ Yes ☐ No



Biosafety Levels (BSLs) are a combination of:

- Facility design
- Safety equipment
- Facility practices and procedures
- Personal protective equipment

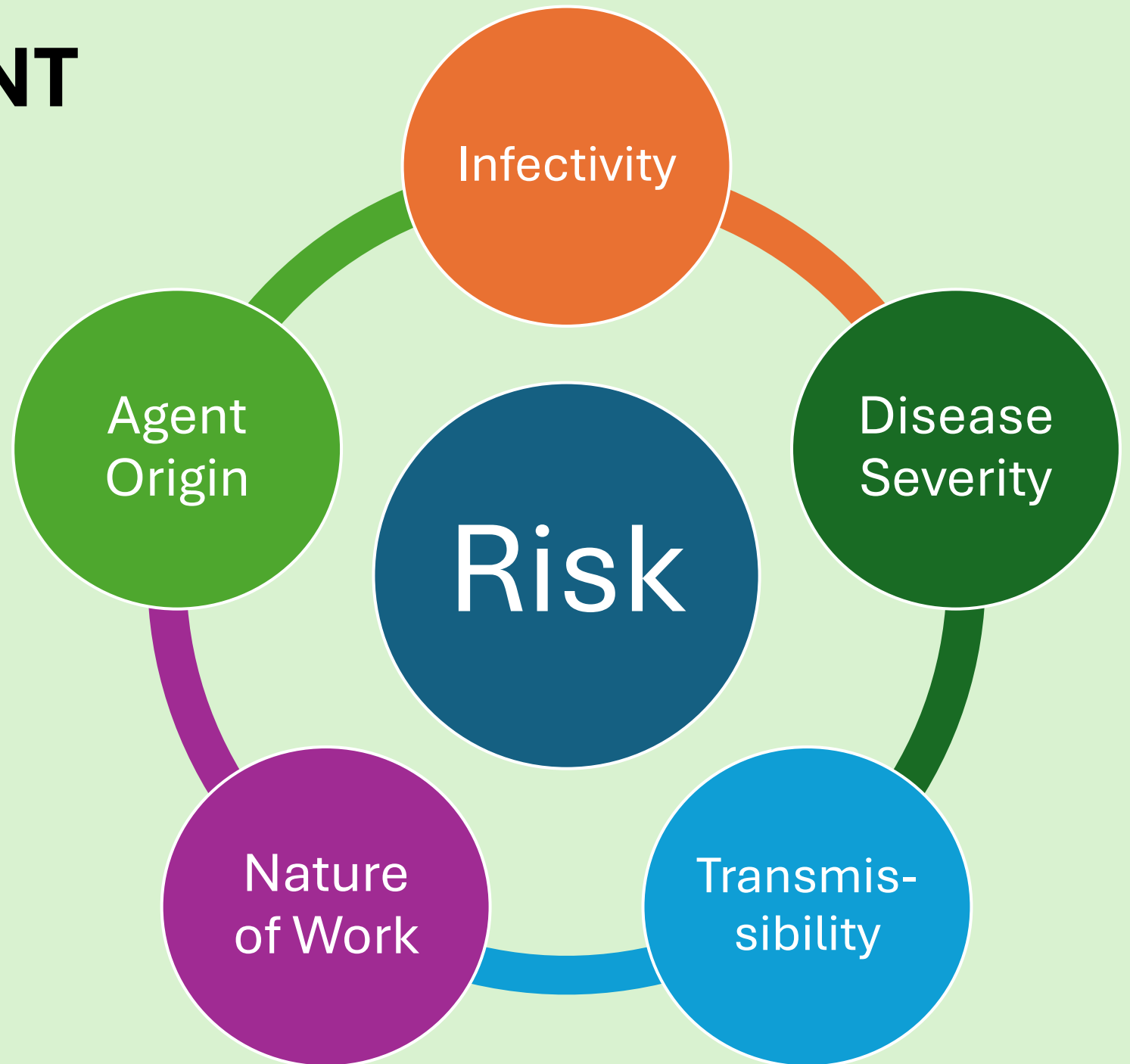
GOAL: Managing risks associated with handling and storing hazardous biological agents and toxins in a laboratory environment



RISK ASSESMENT

**Primary risk
criteria used to
define Biosafety
Levels:**

- Agent infectivity
- Severity of disease
- Transmissibility
- Nature of the work
- Agent origin



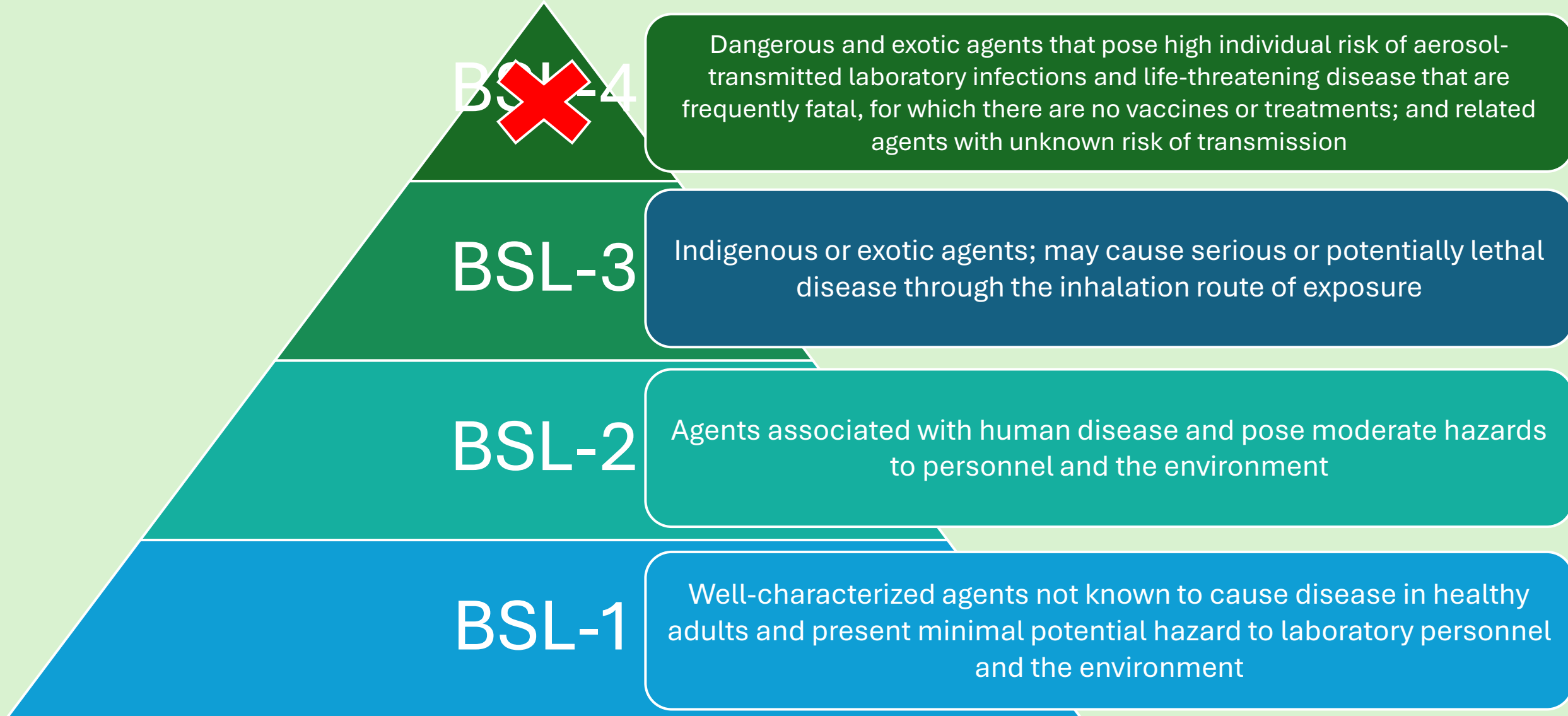


Animal Biosafety Levels (ABSLs)

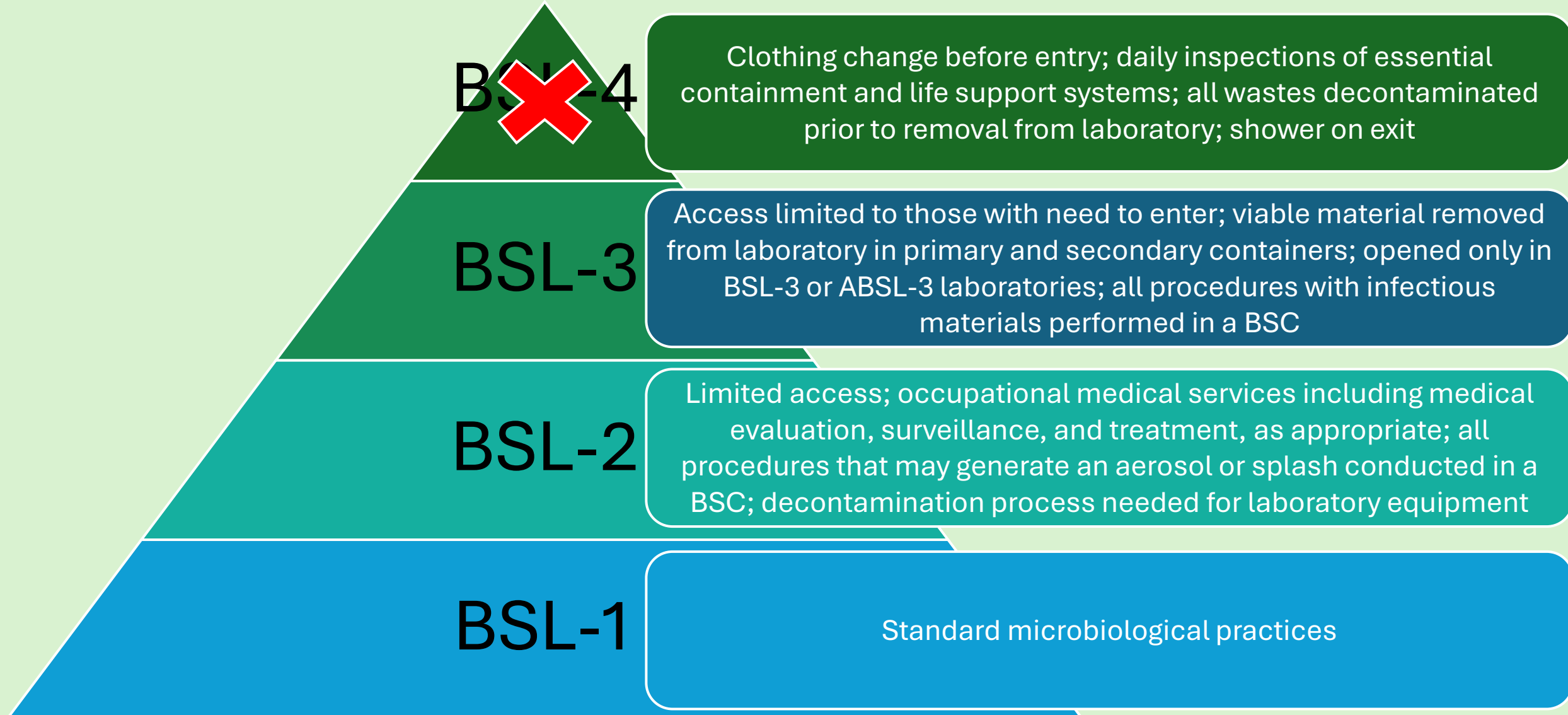
Describes Biosafety Safety Levels (BSLs) where animals are present

Protect HUMANS – NOT animals

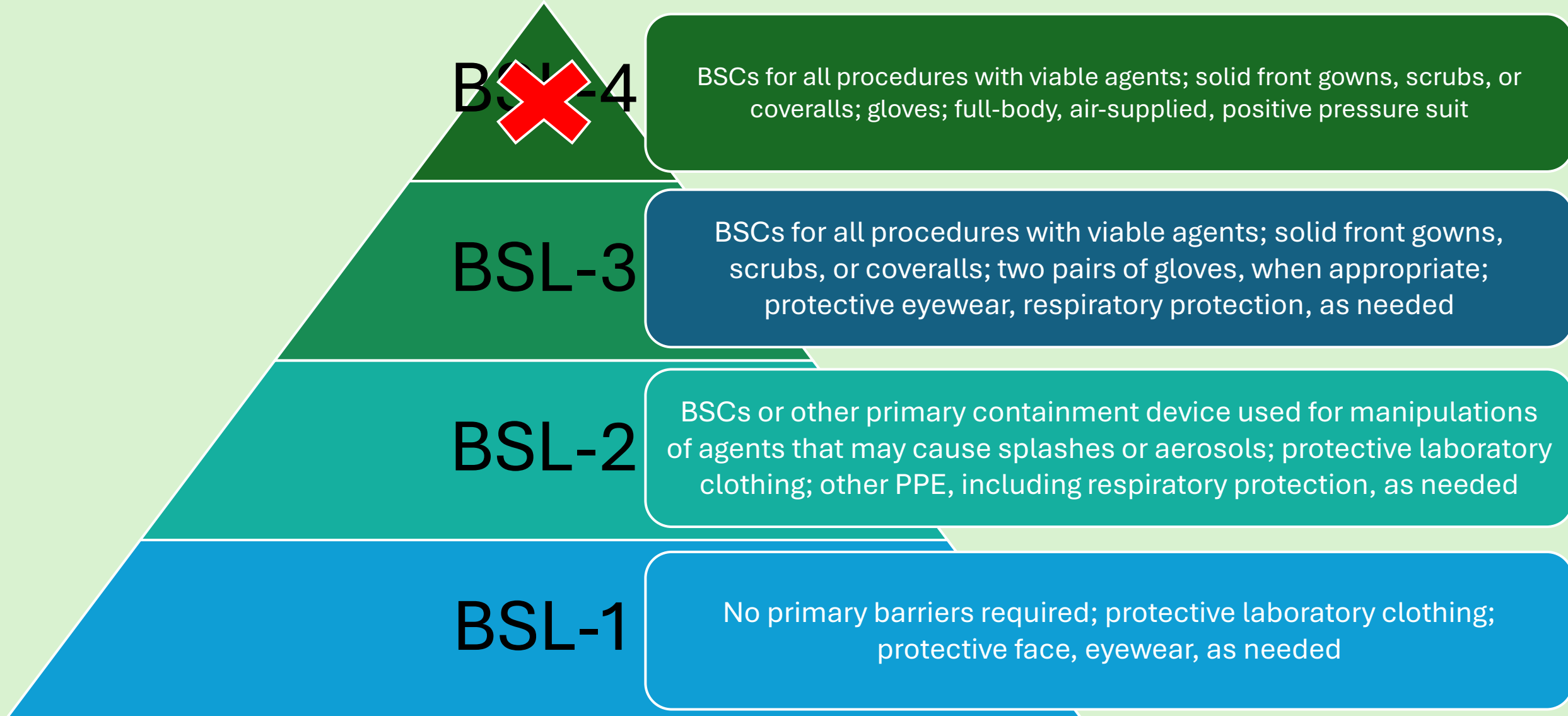
Summary of Biosafety Levels (BSLs): Agents



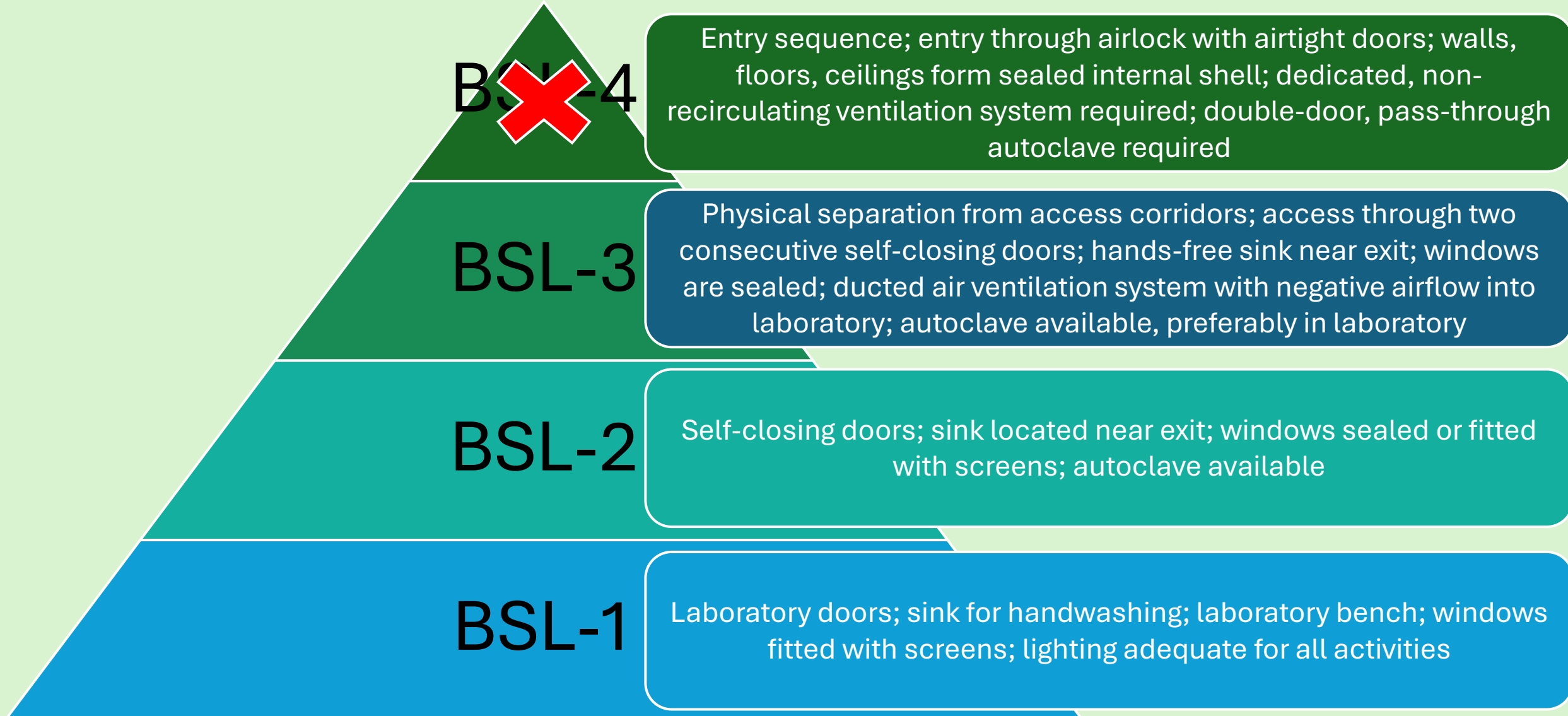
Summary of Biosafety Levels (BSLs): Special Practices



Summary of Biosafety Levels (BSLs): PPE & Equipment



Summary of Biosafety Levels (BSLs): Facilities



Biosafety Levels (BSLs)

- Biosafety Levels 1 – 4 provide increasing levels of personnel and environmental protection
- Each successive BSL contains the recommendations of the preceding BSL on:
 - Facility design
 - Safety equipment
 - Practices and procedures
 - Personal protective equipment



Common Agents Used at **A/BSL-1**

Adeno-
Associated Virus
(AAV)

Retroviral Vector
(Ecotropic
Envelope)

Pseudotyped
Rabies Virus

mRNA-LNP

CRISPR/Cas9

Plasmids

Murine Cells

Common Agents Used at **A/BSL-2**

Lentiviral Vector

Human Cells

Adenoviral
Vector

Retroviral Vector
(Amphotropic
Envelope)

Mouse Adapted
Influenza Virus

HGT Protocols
(Standard
Precautions)

Common Agents Used at **A/BSL-3**

SARS-CoV-2

H5N1 (Bird Flu)

Mycobacterium
tuberculosis
(TB)

Chikungunya
virus (CHIKV)