Concept of Performance

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BIOLOGICAL THREAT REDUCTION PROGRAM

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Learning Outcomes

At the end of this module, participants will be able to:

- explain the concept of performance and review (C2)
- identify the BRM performance indicator (P1)
- value the importance of performance in BRM (A3)

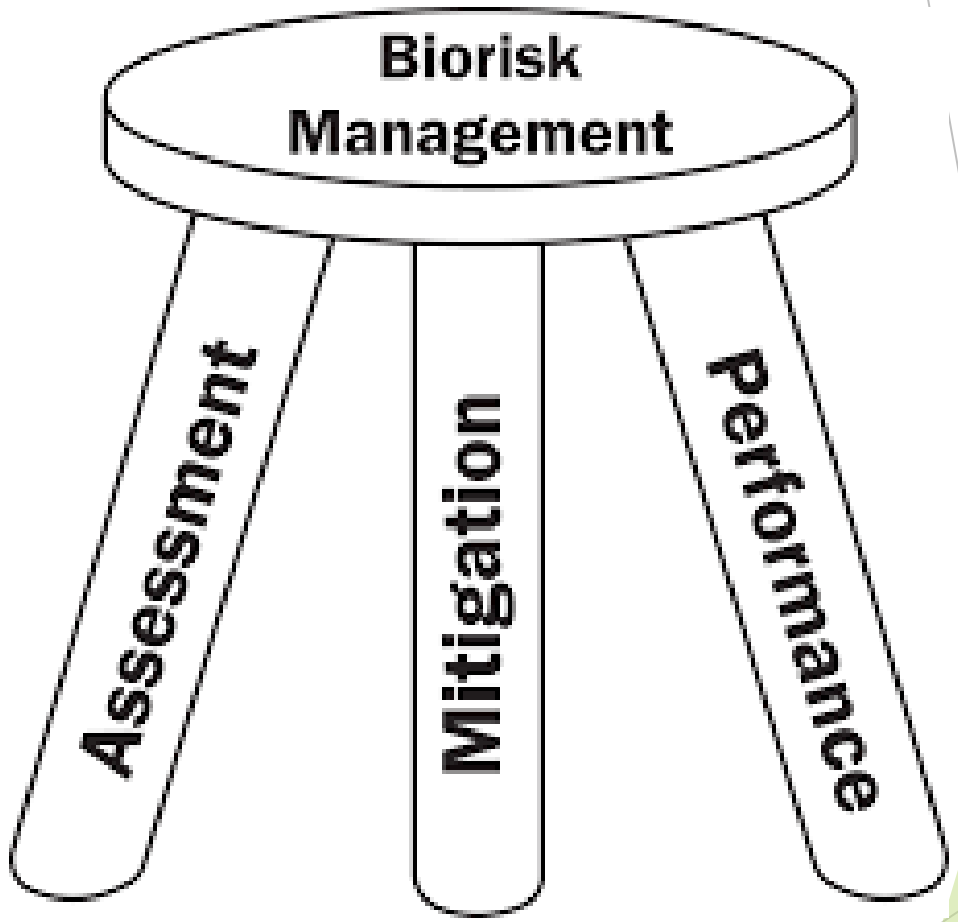
MODULE OUTLINE

- Basic concept of Performance
- Measuring BRM Performance (Group Activity)
- Importance of BRM Performance
- Evaluating Performance
- Take home assignment

Quick recap!

Visit https://kahoot.it/

(Enter the pin and your name)



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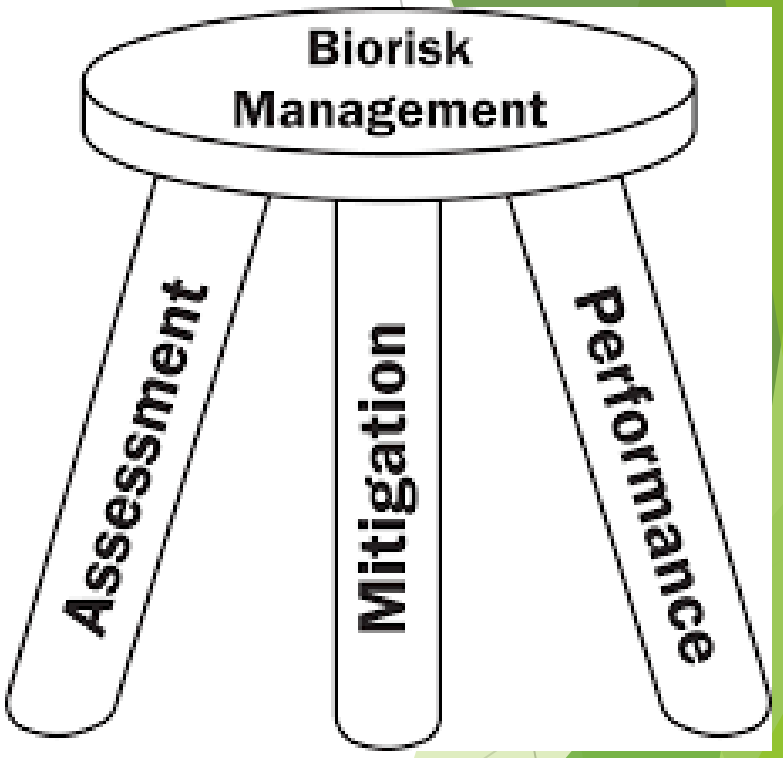
THE AMP MODEL IN BRM

Biorisk Assessment:

The process of identifying hazards and evaluating risks associated with biological agents and toxins. Taking into account the adequacy of existing controls, and the decision whether or not the risks are acceptable

Biorisk Mitigation:

Actions and control measures put into place to reduce or eliminate risks associated with biological agents and toxins



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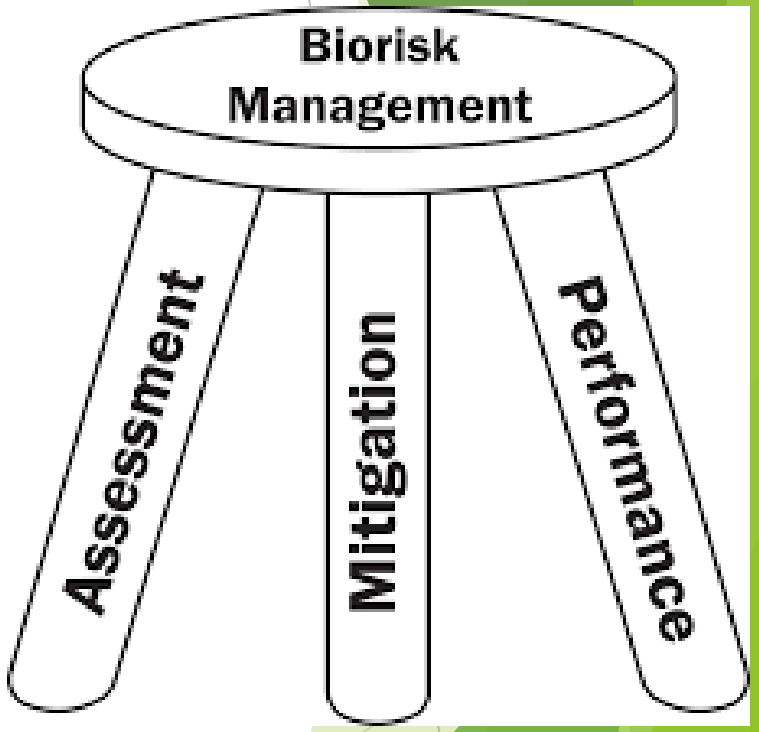
THE AMP MODEL IN BRM (Cont.)

Biorisk Performance

Improving biorisk management by recording, measuring, and evaluating organizational actions and outcomes to reduce biorisk



Let’s watch video ….

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VIDEO: What went wrong?

- Scenario 1: Slippery (no signage), slow clean/rectify
- Scenario 2: No preventive measures
- Scenario 3: No corrective action or strict policy
- Scenario 4: Improper incidence. Nearly missed reporting
- Scenario 5: Lack of training. Improper PPE

Question:

How safe is your work?

- **Are we always the lucky ones?**

It's better to endure the hardship of complying to the stringent regulations rather than suffer the undesirable consequences!

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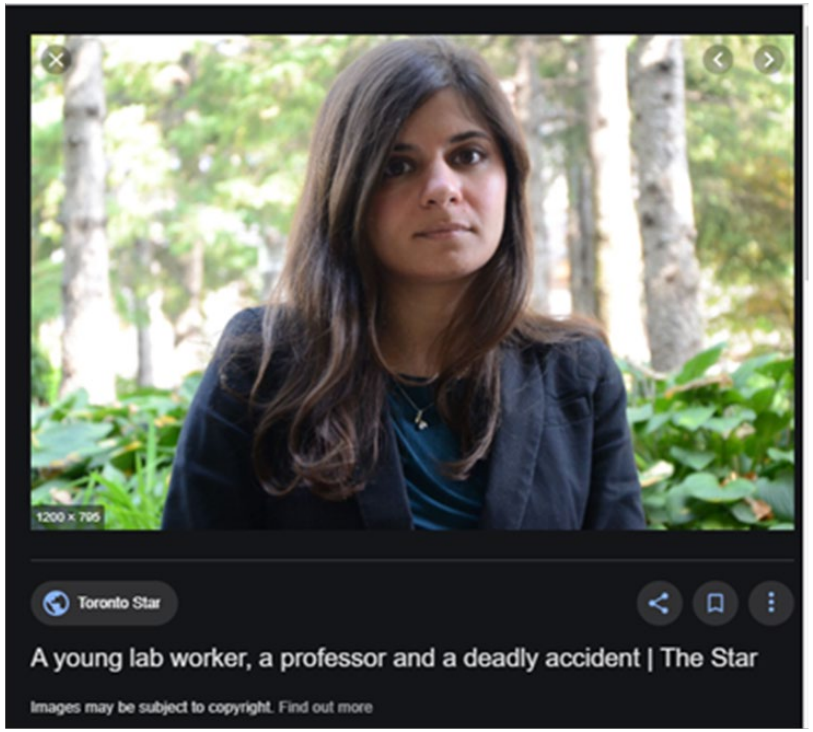
Lab accidents that could have been averted



Tert-Butyllithium, or t-BuLi for short, is what's known as pyrophoric: it ignites spontaneously in air.California workplace safety investigators concluded in a 2009 report. **She was never properly trained or even issued a lab coat**

A Yale University student was killed at a chemistry laboratory when her hair got caught in a lathe while working on a project, school officials said on Wednesday

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Looking for a cure…

In 2012, 25-year-old researcher Richard Din died after being infected during vaccine research involving Neisseria meningitides bacteria at a lab inside San Francisco's VA medical center. His death involved research in biosafety level 2 labs, where pathogens are considered to be less dangerous than those worked with in high-containment labs.

Richard Din, a 25-year-old researcher, died in 2012 after unknowingly becoming infected by Neisseria meningitides at a lab inside San Francisco's VA medical center.

(Photo: Family photo)

LABORATORY-ASSISTED INFECTION CASES

5 cases of vaccinia virus in research labs, 2005-2007, US
- needle sticks while injecting mice

2 cases of brucella in clinical labs, 2006, US
- sub culturing on open bench

21 cases of salmonellosis in vaccine production lab, 2006, US
- spill of highly concentrated suspension

1 case of meningococcal meningitis in research lab, 2006, Sweden
- working on open bench, unvaccinated

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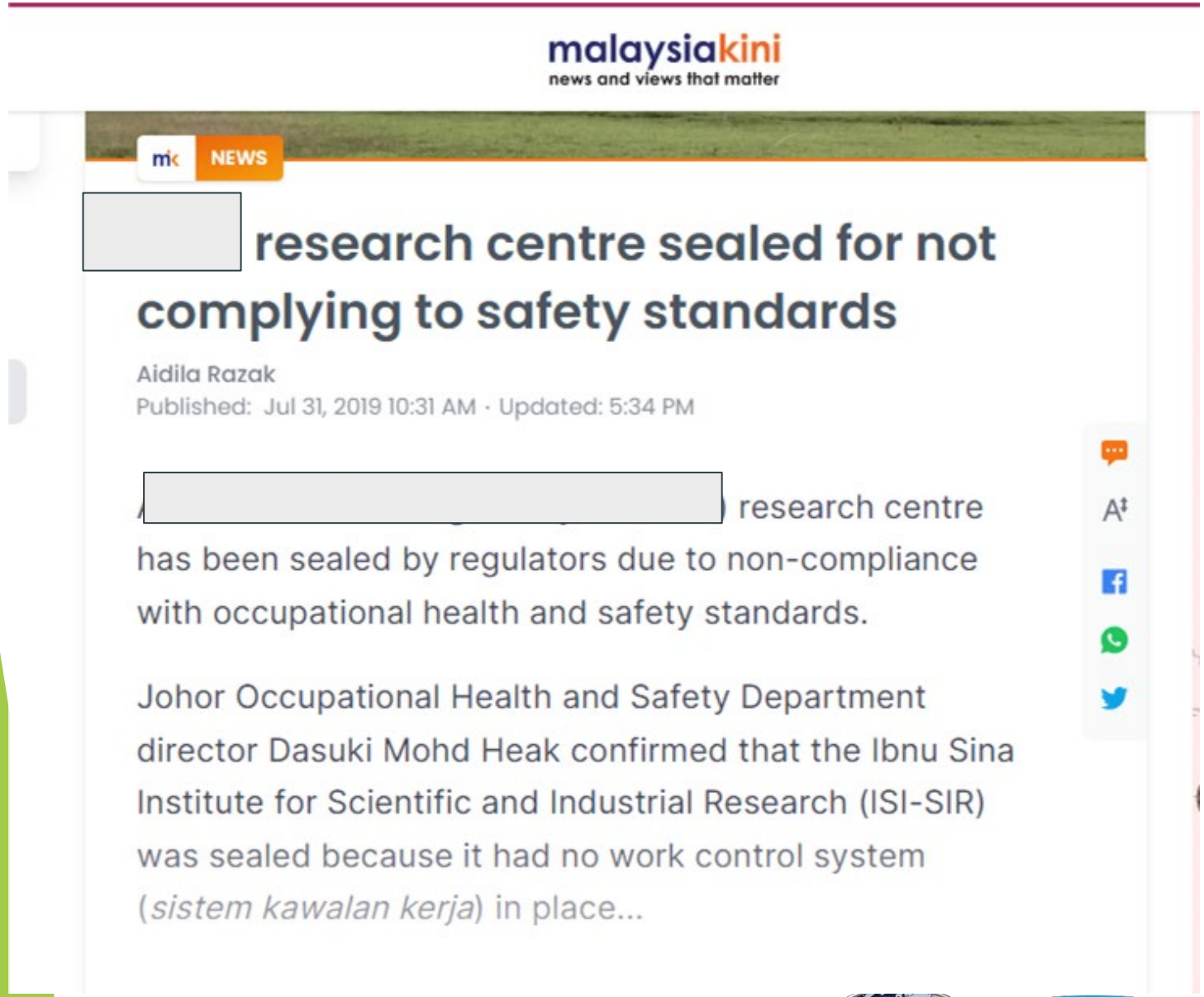

malaysiakini
news and views that matter

mk NEWS

[redacted] research centre sealed for not complying to safety standards

Aidila Razak
Published: Jul 31, 2019 10:31 AM · Updated: 5:34 PM

[redacted] research centre has been sealed by regulators due to non-compliance with occupational health and safety standards.

Johor Occupational Health and Safety Department director Dasuki Mohd Heak confirmed that the Ibnu Sina Institute for Scientific and Industrial Research (ISI-SIR) was sealed because it had no work control system (*sistem kawalan kerja*) in place...

The university confirmed that the Johor Department of Occupational Safety and Health (JKKP) has ordered the closure of ISI-SIR pending improvements.

"XXX will adhere to the JKKP order in ensuring compliance with the Occupational Safety and Health Act 1994.

"The research center has been temporarily closed to allow for the required improvements to be made," said the statement without mentioning when the order to close was issued.

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apply AMP model

BIORISK MANAGEMENT SYSTEM PERFORMANCE

- Actually functions to minimize biorisk
- Evaluates and ensures the system is working the way it was designed
- System is continually improving
- Has planned preventive maintenance(ppm), audit, and management review meeting (MRM)

WHO Biosafety Manual 4th ed.

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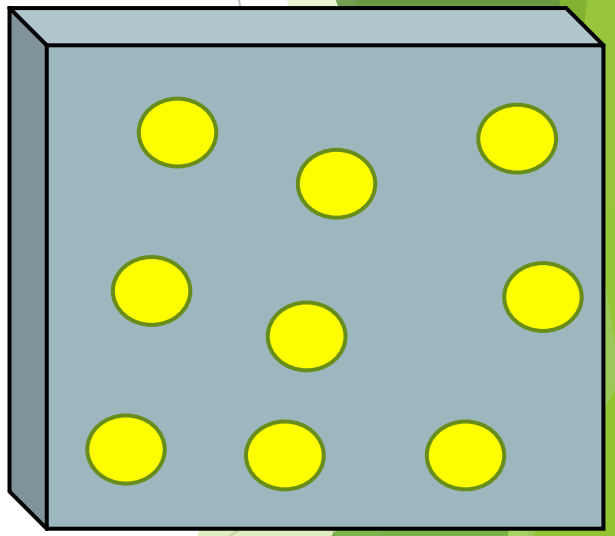
UNDERSTANDING PERFORMANCE

- Where are the holes in the system “layers”?
- How “big” are these holes? Have they grown larger over time?
- Are there new holes forming over time?
- Is the risk management system working as intended to block paths that potentially lead to adverse consequences?



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PLANNING BRM PERFORMANCE

Inventory records	Staff Testing and Training Results; Personnel records	Voluntary Reports by Staff
Risk Assessment Results	Accident, Injury, Near-Miss Investigation Data	Direct Behavioral Observations
Instrument & Equipment Data; Performance Test Results	Results of Exercises, Drills, Tabletops	Data from Surveys & Questionnaires of Staff

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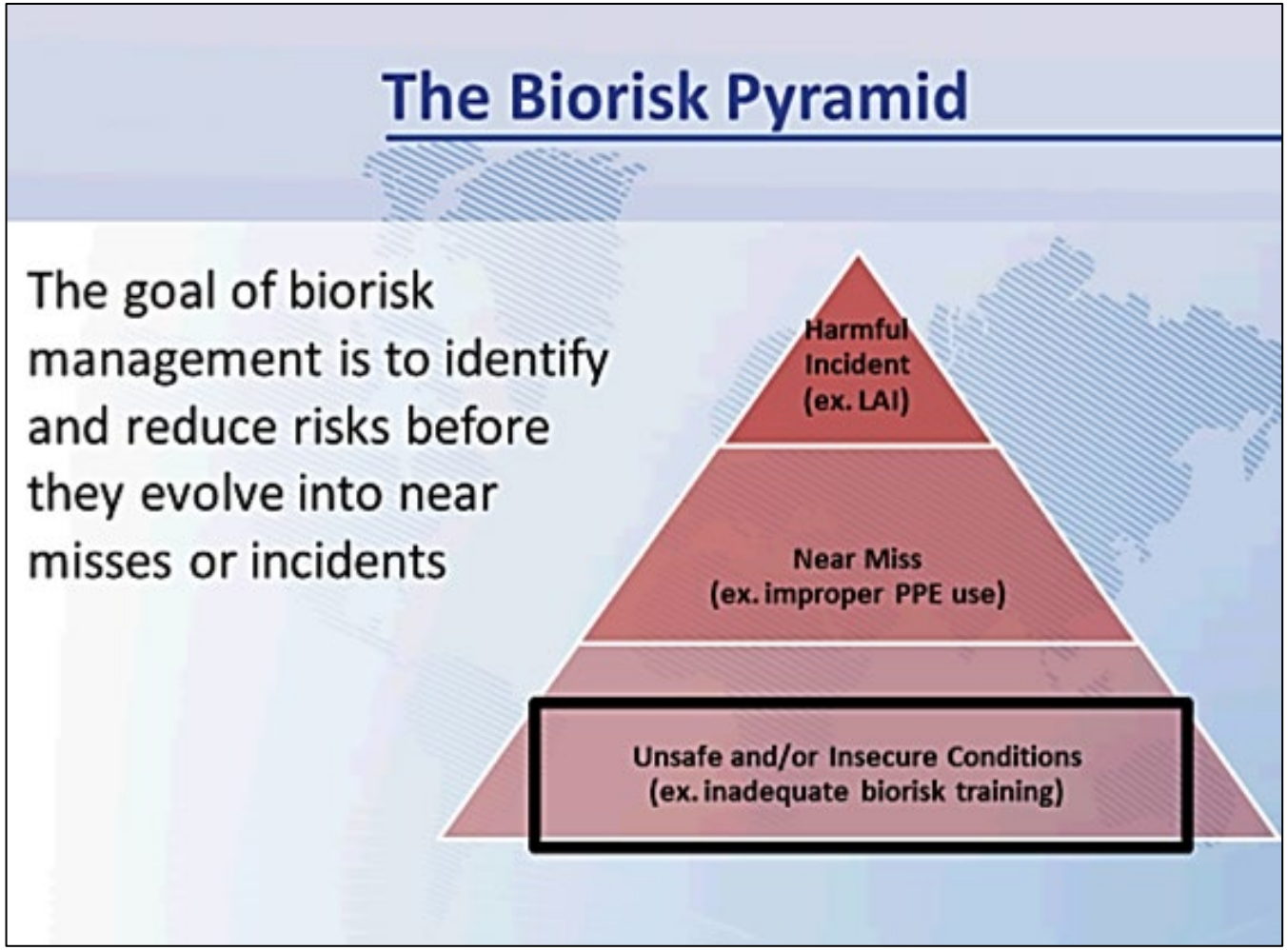
MEASURING PERFORMANCE: BENEFITS

- Determine which part of BRM system are meeting stated goals or benchmarks
- Provide a demonstrable record of system performance
  - May support the facility certification and accreditation program
- Help identify areas of improvement using a consistent framework
- **Provide assurance that the risk is acceptable**
- **Facilitates maintenance and sustainability of the system**
- **Save money and time (enabling resource prioritization)**

MEASURING PERFORMANCE: BENEFITS (CONT.)

HELP TO REDUCE INCIDENTS OR ACCIDENTS



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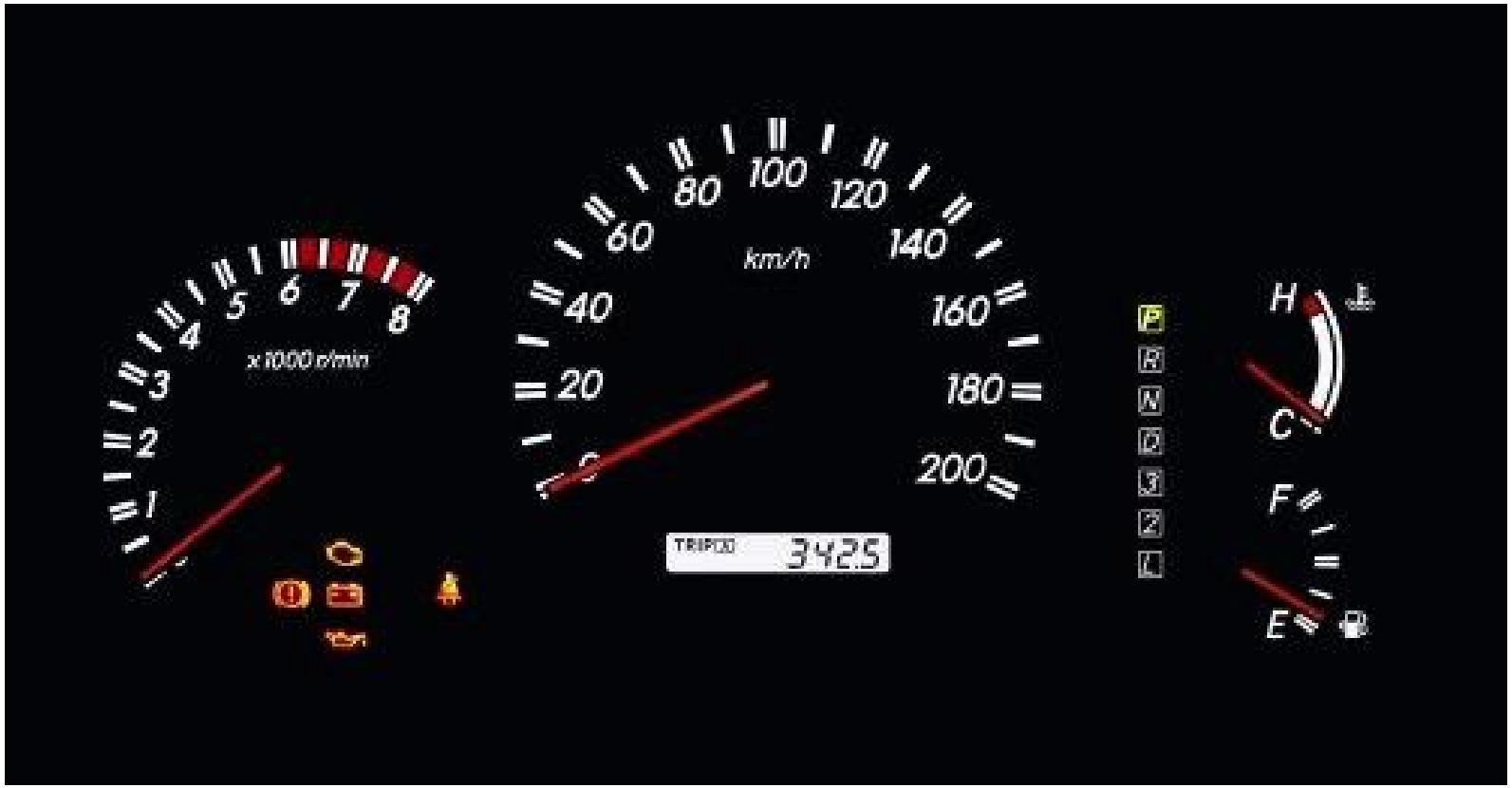
Consider a dashboard. . .



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Question :

What are the performance indicators used to evaluate a car?

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PERFORMANCE INDICATORS

- Types of Performance Indicators
- Selecting a Metric
- Examples of Performance Indicators

Management Performance Indicators

- Acceptable level of biorisk management training is delivered
- Biorisk management program audits are performed
- Risk assessments are regularly checked and updated
- Biorisk management policy reflects current risk assessment

Operational Performance Indicators

- Equipment maintenance and/or certification is performed on time
- Rate of equipment performance failures or malfunctions
- Number of incidences of unauthorized laboratory access
- History of laboratory-acquired infections
- SOPs are understood and followed

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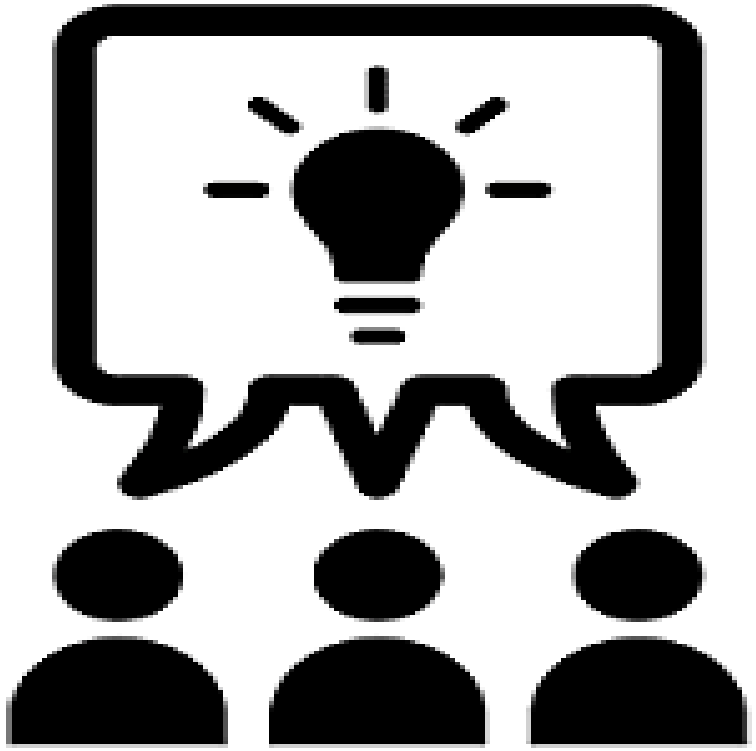
POTENTIAL COLLECTION AND REPORTING METHODS

- Audits and Inspections
- Observations
- Interviews
- Surveys and Questionnaires
- Logs
- Forms
- Reports
- Others?

Group work:



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Group exercise (Duration: 5 minutes)

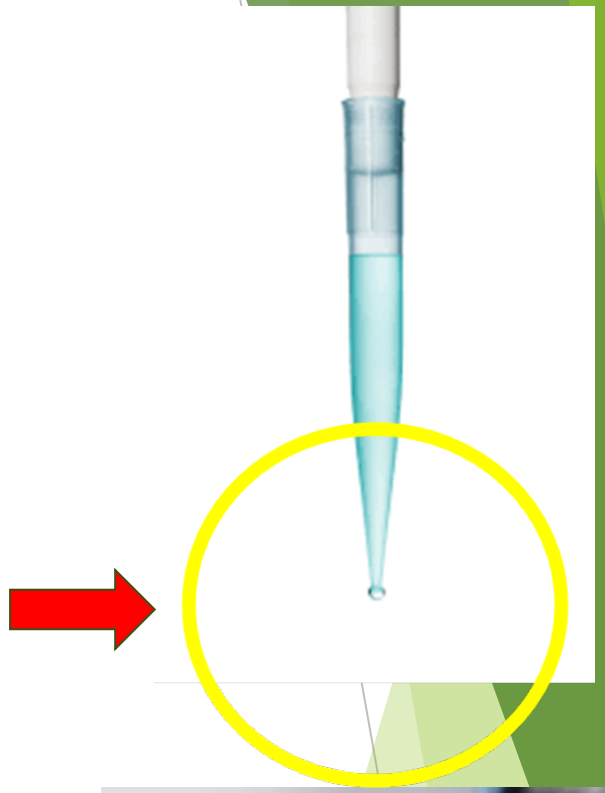
Based on the scenario,

- Identify p**erformance issues or problems**
- **What indicator** was used and describe whether the performance is acceptable or not
- How do you **measure** performance
  - Inspection, audit, observation, survey?
- what **action** will you take based on the finding?

SCENARIO 1

Ahmed, a postgraduate student from Lab X was working with Prof Y's research team

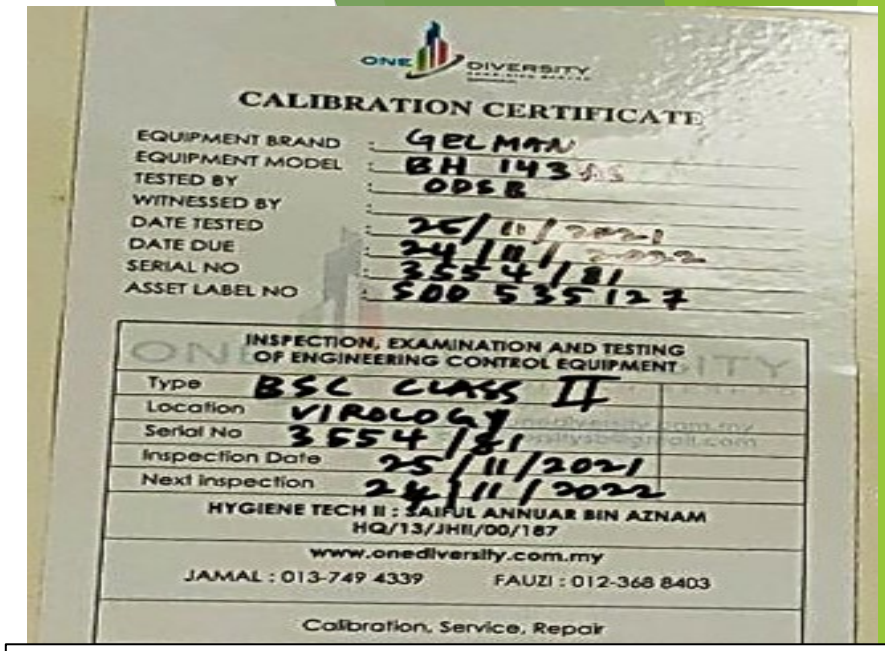
While working on the *Mycobacterium tuberculosis* culture in a biosafety cabinet and while using a pipette without punching the plunger button, he noticed the condition as shown in the figure (*Circled*)



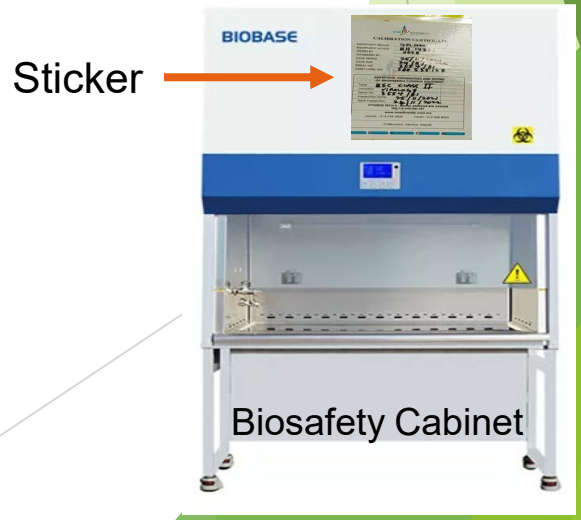
SCENARIO 2

While Ahmed began to move all his research items out of the biosafety cabinet, he saw a white sticker on top of the cabinet

He became curious and closely and carefully examined the sticker. The sticker has a date on it



Inspection date:25/11/2020
Next inspection date: 25/11/2021



Scenario 3

During an inspection by a Biological Safety Officer (BSO) (IBBC representative) from University XYZ, Ahmed and his supervisor were asked to show where their waste was stored

During the visit to the waste holding area, the BSO noticed a particular waste item (refer to figure)

Ahmed said that was the waste from the *Mycobacterium tuberculosis* experiment, which had been autoclaved and waiting to be sent for disposal

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ACT ON THE FINDINGS

Corrective action

- Immediate action to prevent further loss (function, damage, etc.)
- Stop work, emergency procedures, retaining, etc

Preventive action

- Changes in the planned system
- New equipment, personnel testing, training, etc
- Set different goals, etc

No action – progress is adequate

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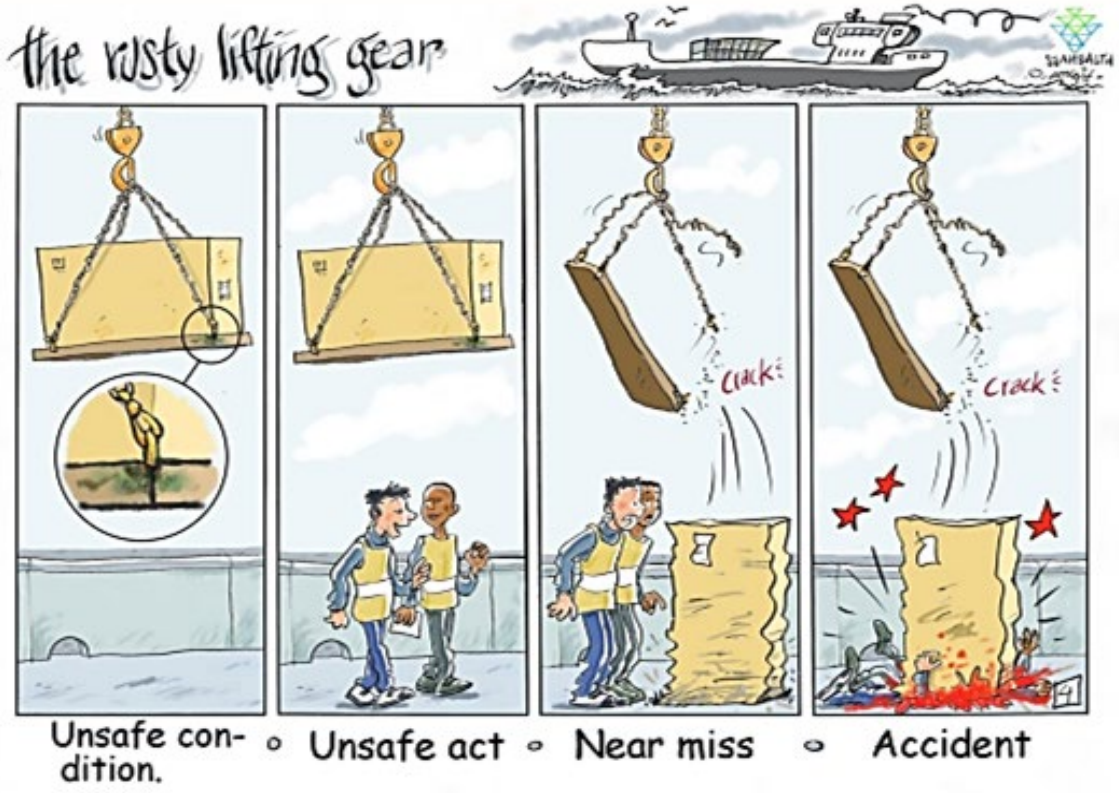
- A **NEAR MISS** is an unplanned event that did not result in injury, illness, or damage – but had the potential to do so. Only a fortunate break in the chain of events prevented an injury, fatality or damage; in other words, a miss that was nonetheless very near.



IF YOU HAVE A NEAR MISS
REPORT IT!

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IBBC/OSHA needs you to:

- Report immediately to Faculty / PIC / Supervisor, if any accident, dangerous occurrence, occupational poisoning, unsafe act or unsafe condition
- Take reasonable care to ensure the safety and health of yourself and the people.
- Nothing is learned from unreported incident
- Potential hazards can be corrected and employee can be offered training

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LETS CHORAL SPEAKING!

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General Office Safety Rules

If you borrow it, return it…Ask for permission to borrow first

If you lose it, replace it

If you make a mess, clean it up

If you move it, put it back

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General Office Safety Rules

If you don't know how to operate it, ask someone who knows how…If you can't find that person, leave the equipment alone

If it doesn't concern you, don't mess with it

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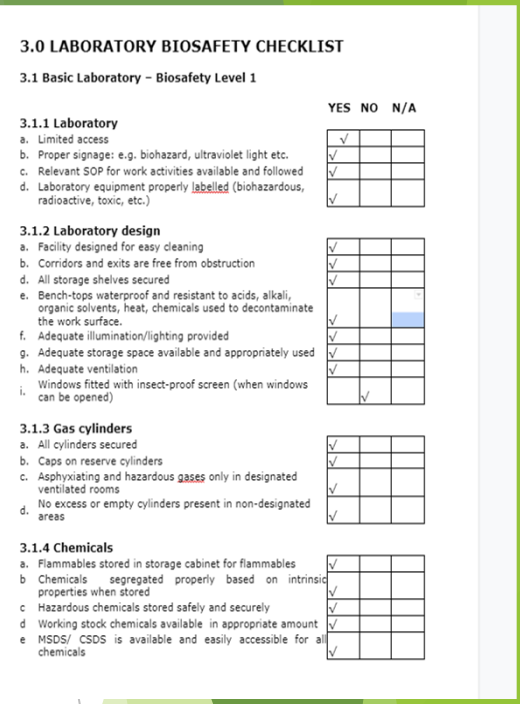
It's time for you to perform…..
Self-audit

*customize



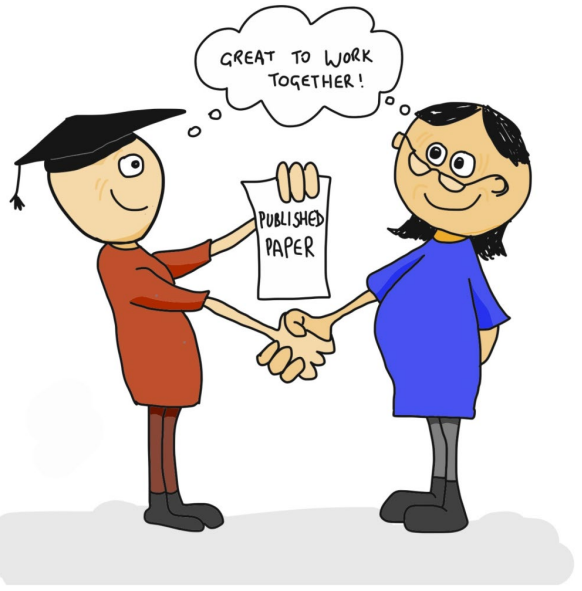
3.0 LABORATORY BIOSAFETY CHECKLIST

3.1 Basic Laboratory – Biosafety Level 1

	YES	NO	N/A
3.1.1 Laboratory			
a. Limited access	√		
b. Proper signage: e.g. biohazard, ultraviolet light etc.	√		
c. Relevant SOP for work activities available and followed	√		
d. Laboratory equipment properly labelled (biohazardous, radioactive, toxic, etc.)	√		
3.1.2 Laboratory design			
a. Facility designed for easy cleaning	√		
b. Corridors and exits are free from obstruction	√		
d. All storage shelves secured	√		
e. Bench-tops waterproof and resistant to acids, alkali, organic solvents, heat, chemicals used to decontaminate the work surface.	√		
f. Adequate illumination/lighting provided	√		
g. Adequate storage space available and appropriately used	√		
h. Adequate ventilation	√		
i. Windows fitted with insect-proof screen (when windows can be opened)		√	
3.1.3 Gas cylinders			
a. All cylinders secured	√		
b. Caps on reserve cylinders	√		
c. Asphyxiating and hazardous gases only in designated ventilated rooms	√		
d. No excess or empty cylinders present in non-designated areas	√		
3.1.4 Chemicals			
a. Flammables stored in storage cabinet for flammables	√		
b Chemicals segregated properly based on intrinsic properties when stored	√		
c Hazardous chemicals stored safely and securely	√		
d Working stock chemicals available in appropriate amount	√		
e MSDS/ CSDS is available and easily accessible for all chemicals	√		

- Take home assignment
  - https://tncpi.upm.edu.my/documentfile
  - Document no: 105 and 106 Malaysia Biosafety checklist

- Discuss with your Project Supervisor
  - Assist project supervisor and postgraduate students in the registration of non-GMO and GMO work toIBBC, UPM, and JBK
  - Assist in developing a corrective action plan (CAP)



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PROCEDURE FOR UPM BIOLOGICAL RESEARCH REGISTRATION

Fill in the Preliminary Assessment form (PAF)
-submit to the IBBC committee

Ketsa-Kementerian tenaga dan sumber asli

Wild Type (unmodified)

I. **NOI** Form (**UPM/IBBC/NOI**),
II. **Biological Risk Assessment Form** (**UPM/IBBC/BRAF**),
III. **Laboratory Self-Inspection Form Biosafety Level 1/2/3 Checklist** (**UPM/IBBC/BSL 2/3/4**), whichever is applicable
IV. **Personnel Biosecurity Registration Form** (**UPM/IBBC/PBR**)
V. **Records of personnel training related to biosafety** (refer to section 6.1.4)

GMO/LMO/rDNA (modified)

I. Form E (**UPM/IBBC/NOI**),
II. **Biological Risk Assessment Form** (**UPM/IBBC/BRAF**),
III. **Laboratory Self-Inspection Form Biosafety Level 1/2/3 Checklist** (**UPM/IBBC/BSL 2/3/4**), whichever applicable
IV. **Personnel Biosecurity Registration Form** (**UPM/IBBC/PBR**)
V. **Records of personnel training related to biosafety** (refer to section 6.1.4)

https://tncpi.upm.edu.my/penyelidikan/jawatankuasa_institusi_biokeselamatan_dan_biosekuriti_universiti_putra_malaysia_ibbc_upm/ibbc_upm_biokeselamatan_dan_biosekuriti-57686

KEY MESSAGES

- Performance is a critical part of the AMP model
- Performance measures how well mitigation is applied and function
- Benefits of measuring performance:
  - provide assurance that the risk is acceptable
  - facilitates maintenance and sustainability of the system
  - saves money and time (enabling resource prioritization)
  - help reduce incidents or accidents

“Safety has no holidays, every day is a safety day”

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Thank You for Listening

Any questions?

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