Working Safely in Bio Safety Level 3 (BSL-3) Laboratories

Presenter: Tony Della Porta

Course objectives: Participants can demonstrate an understanding of the theory of working safely in BSL-3 laboratories.

Methodology: Participants will be directly involved in all aspects of the training by examining and assessing case studies of several laboratory-acquired infections. Active participation in the training will occur in small work groups and by group discussions. Each session will be supported by relevant materials and short training sessions that cover different aspects of good microbiological practices.
All participants will be supplied with a folder containing the course training notes and a current copy of AS/NZS 2243.3 *Safety in Laboratories. Part 3: Microbiological aspects and containment facilities* (rrp $134.20).

Course Assessment: A Certificate of Attendance and a Certificate of Competency will be issued on 'Safe Work in BSL-3 Laboratories (Theoretical Aspects)' to participants who achieve an 80% pass rate for the written assessment and a Pass for their assignment. A Certificate of Attendance will be issued for those who did not meet these requirements.

Course Program

Day 1

Time	Topic
8.30-9.00	Registration and tea/coffee
9.00-9.30	Welcome and introduction Participants introduce each other
9.30-10.40	Overview of BSL-3 laboratories, design, testing and maintenance Introduction to Australian Standards, specifically AS/NZS 2243.3 *Learning Outcomes:* Biocontainment laboratory design, construction and HEPAs, testing and maintenance of BSL-3 laboratories
10.40-11.00	Morning Tea
11.00-12.30	Case Study 1: Sabia virus incident *Summary description and methodology:* Infection following centrifuge accident. Group presented with description of incident and each table (5-7 persons) to discuss issues. These will be posted on cards and then grouped under categories to be discussed by all.

12.30-1.10 Lunch

1.10-2.30 Case Study 1 continued…

Training Session 1:
- Safe use of centrifuges
- Aerosols & Spills procedure
- Respiratory protection
- Reporting of incidents
- Management Issues

Learning outcomes:
Correct centrifuge use, response to spills, selection and use of respiratory protection, reporting of incidents, management issues including induction and training

2.30-2.45 Laboratory-acquired infections:
Case Study 2: SARS Coronavirus incidents: Singapore and Taiwan
Summary description and methodology:
Infection from poor laboratory techniques. Group presented with description of incident and each table (5-7 persons) to discuss issues. These will be posted on cards and then grouped under categories to be discussed by all.

2.45-3.00 Afternoon tea/coffee

3.00-4.55 Case Study 2 continued…

Training Session 2:
- Operation and use of Biological Safety Cabinets
- Disinfectants

Learning outcomes:
Knowledge of different types, operation and use of Biological Safety Cabinets (BSCs), disinfectants, treatment of waste

4.55-5.00 Wrap Up Day 1

Day 2

Time	Topic
9.00-9.10	Day 2 Introduction
9.10-10.20	Risk Assessment of Project (laboratory work) *Summary description and methodology:* Principles of risk assessment to identify hazards, assess risk of proposed work and ensure adequate controls are in place **prior** to starting work. Covers Inherent and Residual Risk, Likelihood and Consequence, Hierarchy of Controls. (This is not meant to be full training on Risk Assessment.) Training Session 3 • Examples of risk assessments applied to large animal experimentation.
10.20-10.40	Morning Tea
10.40-11.40	Risk Assessment continued *Learning outcomes:* Principles of risk assessments.
11.40-12.40	Tuberculosis: Discussion of current issues relating to processing TB diagnostic samples
12.40-1.20	Lunch
1.20-3.15	Case Studies: Laboratory-acquired infections: • Tularaemia • Smallpox • *B. anthracis* • SARS Coronavirus (Beijing) • *E. coli* 0157:H7 • Brucellosis *Summary description and methodology:* Infection from handling diagnostic samples and working with agents (research). Cross-contamination of cultures; incomplete inactivation and inadequate innocuity testing. Each table (5-7 persons) will be presented with description of one of the incidents and asked to determine the issues. These will be posted on cards and then grouped under categories to be discussed by all. Training Session 4: • Risk Groups of microorganisms including mode of transmission, infectious dose • Signage

3.15-3.30	Afternoon Tea
3.30-3.55	Training Session 4 continued … *Learning outcomes:* Risk Groups and microorganisms, safety signs, lack/inadequacy/testing of inactivation of cultures, decontamination of room space.
3.55-5.00	Assessment
5.00-5.30	Course Wrap Up Course Evaluation Hand out Certificates of Attendance
Post- Course Workplace Assignment	**Carry out risk assessment on current work project and return to Bio2ic within 2 weeks; Pass or Fail only**