



Massachusetts Department of Public Health  
Bureau of Infectious Disease and Laboratory Sciences

## A 7-step Guide/Roadmap to Creating a Culture of Safety and Security in the Laboratory

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## Why is Biosafety Important?

- The year is 2012.
- April 27, California microbiologist, 25 y/o had onset of headache, fever, neck pain, and stiffness.
- April 28, he was driven to the ER. While on the way he lost consciousness. ER noted a petechial rash.
- He later went into respiratory arrest. Attempted resuscitation was unsuccessful, and he was declared dead approximately 3 hours after his arrival.

## Why is Biosafety Important?

Cause???...

## Why is Biosafety Important?

- Worked on open bench - outside the biosafety cabinet.
- Flaming of Gram stain slide (slide not completely dry).
- Flaming of metal loops using open flame.
- Plate manipulations.
- Discarding of contaminated materials into foot-pedal operated biohazard bin.

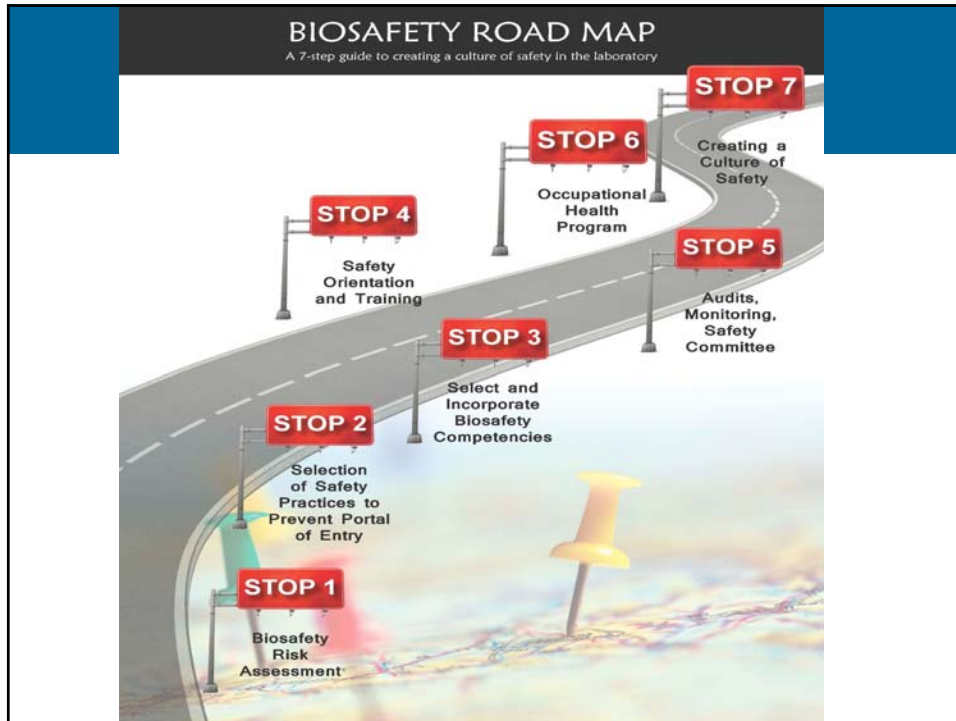
## Why is Biosafety Important?

### PPE Practices:

- Laboratory coats – wore cloth ones which were not routinely decontaminated.
- Gloves – single pair of latex gloves.
- Eye protection - wore their regular prescription eye glasses.
- Respiratory protection – N95 respirators only worn when cleaning up spills.

## Overall Workshop Objectives

- List the elements of biosecurity and biosafety plans.
- Explain the risk assessment processes for biosafety and biosecurity.
- Discuss ways to incorporate biosafety competencies into technical skills competency of the staff performing procedures.





## Stop 1: Risk Assessment

**Massachusetts State Public Health Laboratory**  
Laboratory Response Network  
**Clinical Laboratory**  
**Risk Assessment Guidance**

  
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**Lab-specific and activity-specific risk assessments are conducted and documented**

[https://www.aphl.org/programs/preparedness/Biosafety-and-Biosecurity/Documents/Clinical\\_Lab\\_Assessment\\_Checklist.pdf#search=risk%20assessment](https://www.aphl.org/programs/preparedness/Biosafety-and-Biosecurity/Documents/Clinical_Lab_Assessment_Checklist.pdf#search=risk%20assessment)

Risk assessment is the process of gathering all available information on a hazardous substance and evaluating it to determine the possible risks associated with exposure. This is followed by determining the mitigation strategies necessary to provide protection.



## Stop 2: Tasks to Select Safety Practices

- Review the risk assessment and identify reasonable risks
- Determine the mitigation strategy for the identified risk
- Write the control into the SOP safety Section



## Stop 3: Select and Incorporate Safety Competencies

- Connect competencies to required skills
- Competencies are common practice in clinical labs
- Safety competencies should be incorporated into existing programs



**Don't  
Reinvent  
the Wheel!**



## **Stop 4: Safety Orientation and Training**

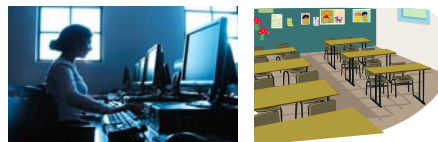
Based on risk assessment, mitigation, and competencies:

- Determine education and training needs
- Train staff on hazards and risks identified in the risk assessment
- Train staff on use of safety practices: Engineering controls, PPE, lab practices
- Train staff on changes to the procedures



## **Stop 4: Tasks to Accomplish Safety Orientation and Training**

- Determine what outside training is available and what site specific training will be developed.
- Consider the best format for the training.
- Write materials and exams for in house training.





## Stop 5: Audits, Monitoring, Safety Committee

- **Audit** the program by self audits, internal audits, external audits
- **Monitor** staff and equipment performance regularly
- **Encourage Reporting and Follow up** on accidents, incidents, and near misses
- **Revise** the program accordingly
- **Prepare** for routine and emerging agents
- **Establish** a safety committee that meets regularly and reports to the lab director



## Stop 5: Tasks to Accomplish Audits, Monitoring and Safety Committee

- Organize a lab safety team/committee:
  - Provide them a charge
  - Establishes an audit program and provides reports to Director
  - Reviews and follows-up on incident reports
- Encourage supervisor(s) to monitor compliance with safety practices



## **Stop 6: Occupational Health Program**

- What vaccinations are offered or required
- Medical Surveillance
- Post Exposure Management Plan
- Respirator Program
- Formaldehyde Program
- Partner with Occupational Health Clinician



## **Stop 6: Tasks to link with Occupational Health Program**

- Review the procedure for staff access to occupational health services
- Review reports from occupational health
- Train staff on when and how to connect with occupational health services





## **Stop 7: *Creation of Culture of Safety***

- Maintain the Safety Committee
- Make safety an agenda item for every meeting
- Take every safety issue seriously
- Review the safety program at least annually

