

A Midwestern Higher Education Compact Program

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Laboratory Safety Presentation


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Laboratory Safety Issues

- **Employees**—safety governed by OSHA's Chemical Hygiene Plan requirements
- **Students and Guests**—Doctrine of Reasonable Care applies



1

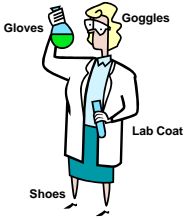
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Chemical Hygiene Plan (CHP)

Purpose
Provide guidance and protocols for the protection of employees from safety and health effects of laboratory hazardous materials

There may be parts of your CHP that can be helpful with students too



2

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Tips on Supervising Students Within College and University Laboratories

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Injuries to Students in a College Laboratory


- May be a Tort for which the College or University is liable
- Negligence vs. liability
- Guest statute applies



4

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Doctrine of Reasonable Care

- **Duty**—what would a reasonable person of ordinary prudence do
- **Breach of Duty**—failure to conform to the legal duty (an act or failure to act)
- **Causation**—breach causes the injury
 - Direct act
 - Proximate Cause
- **Injury**—there must be an injury

5

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Examples of "Negligence" in Laboratory Injury Claims

- Unclear or misunderstood instructions
- Instructions do not clearly warn of impending hazards
- Instructor not present in the laboratory at the time of the injury
- Instructor preoccupied at the time of injury
- Lack of safety equipment
- Assigned experiment was unnecessarily dangerous
- Instructor not adequately trained to supervise


6

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Unclear or Misunderstood Instructions

- "I must have misunderstood....."
- "He speaks a foreign language....."
- "I didn't want to appear stupid....."
- "I don't think the instructor is good at giving directions....."
- "I was in a hurry to finish....."



7

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Instructions Do Not Clearly Warn of Impending Hazards

- "If it was so dangerous, why wasn't I told....."
- "I don't remember things until I hear them repeated....."
- "The book is unclear....."
- "I was just trying to see what happens....."
- "No one told me that ether fumes can spread so far....."

8

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Safety Training Steps

- Identify the safety concerns
- Restate your concerns
- Inform student of the correct methods and safeguards
- Repeat information on correct methods and safeguards
- Check to make sure there is understanding
- Emphasize the importance of safety to the student and to all others in the class

9

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Instructor Not Present at the Time of the Injury

BYU vs. Lilliewhite Case

- Intro to Chemistry class
- Explosion occurred while instructor was across the hall meeting with another student
- Jury found plaintiff's injury was "proximately caused" by failure of the instructor to supervise the experiment


10

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Instructor Preoccupied at Time of the Injury


- General rules of supervision
 - Younger people need more supervision than older people
 - More supervision is needed when materials or equipment are more dangerous
- Chemistry labs are inherently dangerous!!!



11

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Lack of Safety Equipment

- "We don't require safety glasses all the time....."
- "We do not have the resources to purchase gloves for everyone....."
- "We can't make them wear lab coats....."
- "We have safety rules posted on the wall....."

12

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Assigned Experiment/Procedure was Unnecessarily Dangerous

- "We've had this experiment as part of our curriculum for years....."
- "We warned them....."
- "I should have practiced the demo beforehand..."
- "The student was at fault....."
- "I didn't realize this could happen to my students....."

13

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Instructor was Not Adequately Trained to Supervise

- "He/she is hard to follow and understand....."
- "I think he/she is new....."
- "Maybe it's easy for him/her, but I still needed help....."
- "I don't think his/her warning was strong enough....."

14

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Safety Supervision

Involves being a good:

- Communicator
- Role model
- Coach
- Trainer
- Enforcer
- Investigator



15

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Laboratory Safety Suggestions

- Each classroom has unique exposures that should be identified
- Safety rules needed for each unique exposure area
- Safety rules should be posted in each lab to serve as a constant reminder—use pictures whenever possible
- Documented safety training should be held regularly throughout each class duration—the training should be documented even more frequently with younger students

16

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Laboratory Safety Suggestions


- Review instructions related to hazardous work to make sure they are thorough and easily understandable—repeat!!!
- Make sure adequate supervision is present during all times when hazardous activities are underway
- Establish and maintain instructor to student ratios that are mandatory
- Create SOP's for all chemistry procedures that students will be asked to perform similar to what is included in your Chemical Hygiene Plan

17

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Laboratory Safety Suggestions



Create a daily laboratory safety self inspection program for those labs where students will be present

Document your findings


18

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Laboratory Safety Suggestions

- Complete a PPE hazardous assessment for those tasks which students will be asked to perform
- Conduct documented training on the use of the required PPE




19

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Laboratory Safety Suggestions

- Teach students where MSDS are kept and how to read an MSDS. Keep an inventory readily available of the MSDS that are located in the room
- The inventory should identify the health hazard ratings for all substances
- No substances with a rating of 4 should be in the labs when there are inexperienced visitors present



20

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Laboratory Safety Suggestions


- Consider using "simulations" rather than have students handle hazardous materials/equipment
- Syllabus should disclose potential risks
- Encourage students to express concerns regarding safety
- Use tests to verify understanding of laboratory safety issues

21

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Student Informed Consent Contract



- Creates an agreement between staff and students on expected behaviors, safety rules and awareness that they will be working in a hazardous environment
- Suggested as a means to document lab safety training
- Should be part of course syllabus
- Legal review needed

22

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Student Laboratory Handbook

- Create a laboratory handbook for students
 - State University
- Student laboratory handbook contents:
 - Safety Rules
 - Laboratory Safety
 - PPE Requirements
 - Safe Behavior
 - SOP's
 - MSDS information

Handbook Information Sign-off

I have received and read the information provided in the Student Laboratory Handbook.

Student name (print): _____

Student signature: _____

Date: _____

23

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Accident Investigations

- Laboratory accidents may result in torts
- May take several years to finalize
- Look to establish the "Root Cause"
- Obtain witness statements
- Take photographs
- Include a floor drawing


24

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Laboratory Safety

Questions



25

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26

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