Safety Orientation 2019
A Mindset for Safety
Phil Chapman

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- Specifics on Laboratory Safety
- Laboratory Safety Survey
- Department Safety & Contacts
- Conclusions

- Incident Response
- Think the Unthinkable
- Safety - a Portfolio of Threats
Worksafe Victoria Australia 'If You're Not Sure Ask: Beth's Story' - AdNews
https://www.youtube.com/watch?v=uSQCw9b97A
Canada Workplace Safety and Insurance Board – There Really Are No Accidents – sous chef accident video

https://www.youtube.com/watch?v=ONpq1zrRTZg
Incident Response

You do not have to handle a crisis by yourself.

Enter these numbers from the back of your J-card into your phone’s contact list.

JHU Emergency: 410-516-7777
JHU Security: 410-516-4600
1. Ensure Personal Safety

...and that of others around you.
2. Call JHU Security

...and then notify your PI and department staff.
3. Be Available

...on location or by phone to talk to first responders.
Safety - a Portfolio of Threats

Safety all around.

- Common Workplace Injuries
- Information Security
- Personal Safety
Common Workplace Injuries

Travelers Injury Impact Report 2016
The overall top causes of accidents were:

- Material handling: 32%
- Slips, trips and falls: 16%
- Being struck by or colliding with an object: 10%
- Accidents involving tools: 7%
- Cumulative trauma:
  When a part of the body is injured by overuse or strain over time: 31%
- All other: 4%

Material handling injuries

Lifting, lowering, filling, emptying or carrying an item caused several injuries, the most frequent being:

- Strains and sprains
- Contusions
- Fractures
- Cuts or punctures
- Inflammation
Information security

Top 3 cyber tips from your friendly WSE IT group!

1. Update Software Frequently
2. Use High Quality Passwords
3. Protect your information
Crime Prevention Tips

- Be aware your surroundings
- Walk with others
- Stay in well lighted areas
- Avoid displaying valuables
- Know the location of Blue Emergency Phones
- Use Blue Jay Shuttle Services
- Learn more at [http://security.jhu.edu/crime-prevention-tips/index.html](http://security.jhu.edu/crime-prevention-tips/index.html)
LiveSafe

Download the app for your mobile phone
Check Your Home

- Fire Alarms
- Door Locks
- Carbon Monoxide Detector
- Fire Extinguisher
- Escape Ladder
- Flash Light
Know Your Exits
Specifics on Laboratory Safety

Job Safety Assessment

[Image of a form with sections for identifying potential hazards and performing a safety inspection]

- Lab Waste Boxes
- Laboratory Gloves
- Chemicals
- Gas Cylinders
- Sharps
- Unattended Experiments
- Unattended Labs
- Lab Maintenance
JOB SAFETY ASSESSMENT FORM

Today’s date: ____________________________
Experiment: ______________________________
Name: _________________________________
Partners: _______________________________
Lab staff signature: ________________________

Identify All Potential Physical Hazards

___ Pressurized gas cylinder
___ Steam/air lines
___ Heat
___ Moving parts
___ Falling/Breakable equipment
___ Electrical shock
___ Portable equipment
___ Chemical burn
___ Fire
___ Heavy lifting
___ Slips, trips, falls
___ Inhalation hazards
___ Thermal burn

Electrical Hazards

___ What are the chances to be in contact with water and electricity?

___ Can the plugs and cords to the electrical equipment be used for water?  Y  N
___ Can the emergency on/off switch be reached easily?  Y  N
___ What is the location of circuit breaker panel?

___ What is the circuit breaker number assigned for this experiment? ___________________
Inspection of Immediate Surrounding

- Where is the Spill Containment Kit?
- Where is the Waste Container?
- Are there any objects (or situations that could develop) on the floor around my work area that could cause me to lose my balance or fall? Y N
- Did I place my school bag out of the way? Y N

Chemical Hazards

- What chemicals will I use in this experiment?

- What is the most hazardous chemical used in this experiment?
  - What is its NFPA rating? __________
  - Is it an inhalation hazard? Y N
  - Is it corrosive? Y N
  - Is it toxic? Y N
  - Is it flammable? Y N
  - Can it be absorbed through intact skin? Y N
  - Do I know the expected symptoms if I get exposed to it beyond my tolerance limit? Y N
  - Describe one symptom: __________

- Am I wearing the proper PPE at all times during the experiment? Y N
- Did I remind myself to wash my hands before leaving the laboratory? Y N
Lab Waste Boxes

- Order online from Recycling - free! [www.jhfre.jhu.edu/services](http://www.jhfre.jhu.edu/services)
- Change boxes when they are 3/4 full.
- Place sharps in a sharps container before putting them in the waste box.
- Unbroken clean chemical bottles can be placed in the waste box only after 3X rinse.

Label with PI Name, Building, Room # & Ext.
Laboratory Gloves

Nitrile gloves are not good for everything!
- Know your chemicals before use.
- Examine glove compatibility charts.

KIMBERLY-CLARK Nitrile Glove Chemical Resistance Guide
The Science of Protection

Use the color code to match below with the chart to determine the effectiveness of gloves for handling chemicals.
Chemicals

- Empties
- Labeling
- Disposal
Empties

- Empty containers should be triple washed and then disposed of in the waste box.
- Discard the wash liquid into a chemical waste bottle.
Labeling

- Label before putting in contents.
- All containers must be labeled in clear English.
- Chemical Name + Date.
Disposal

- Chemical disposal is free for labeled chemical waste. **There is a $400 charge for unknown materials, “keep labels on all chemicals, chemical waste and experiments”**.
- Drop-off is open in Macaulay Hall from 9 to 12 on Thursdays.
- Labs can request chemical pick-up using the online portal [https://labsafety.jhu.edu/2015/04/27/jhu-chemical-waste-disposal/](https://labsafety.jhu.edu/2015/04/27/jhu-chemical-waste-disposal/)
Gas Cylinders

Got Gas?

1. This room is only for gas cylinders and gas equipment. Remove your gas cylinders no later than 5 days of delivery.
2. Always secure your gas cylinders securely to the wall.
3. Always keep a cap tightly on the cylinder valve. It is compulsory to wind from the back shoulders.
4. Label your gas cylinders as EMPTY and write your account number on the label.
5. Separated condiments from other flammable gases.

General guidance: gases containing less than one-ninth of the concentration of oxygen, hydrogen, carbon monoxide, and hydrogen gases such as chlorine and fluorine.

Latest Supplier:

EMTPA - P. Name, Robert's
Oxygen / AirGas Active: 800/00/00

For questions contact P.J. Champion at
604-878-5301 or p.j.champion@hduu.ca.
Got Gas?

No one likes it when you leave your gas in this room!

1. This room is only for gas cylinder exchange - not for storage. Remove your gas cylinders within 3 days of delivery.

2. Always tether your gas cylinders securely to the wall.

3. Always keep a cap securely on the cylinder while it is transported to and from the laboratory.

4. Label your gas cylinders as EMPTY and write your account number on the label.

5. Separate oxidizing gasses from other flammable gasses.

Oxidizing gasses: gasses containing higher than atmospheric concentrations of oxygen, nitrogen oxides, and halogen gasses such as chlorine and fluorine.

Label Example:

EMPTY – *Pl Name*, Robert's Oxygen / AirGas Acct#: XXXXX

For questions contact Phil Chapman at 802-878-4130 or pchapma2@jhu.edu
Sharps

Storage

Disposal
Storage

Store sharps in a holder when not in use.
- Retractable holders or
- Petri dishes work well for loose blades.
Disposal

All sharps must be placed into a sharps container.

When the container is full, close it and throw the container away in the bio-hazard waste box.

JHU Policy - never recap a needle; dispose of it and get a new one.
## CAUTION: UNATTENDED EXPERIMENT!

<table>
<thead>
<tr>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>None needed—leave alone and contact experimenter</td>
</tr>
<tr>
<td>Shut off power/gas/vacuum/steam</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

| Emergency shutdown instructions |

<table>
<thead>
<tr>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name, phone, JHED</td>
</tr>
</tbody>
</table>

| Time/date started |

| Expected end time |
Keep Unattended Labs (and offices) Locked!

- Safety
- Theft
Lab Maintenance

Lights, Heating/Cooling, Plumbing, Electrical, Exhaust, Compressed Air, Floor Tile, Doors, etc.

If something is broken, send a request for repair

http://www.jhfre.jhu.edu/services/index.html

(same web link as recycling)
DMSE Specific Safety Training

- **Is Required** - to use MSE labs
- Instructions at [https://labs.jhu.edu/](https://labs.jhu.edu/)

DMSE Lab Safety Training

To help achieve a high standard of safe laboratory practice, appropriate safety training is required for everyone working in DMSE laboratories. Completion of this safety training regimen, including the annual review, is required for all researchers who use the DMSE laboratories. The instructions to complete this mandatory safety training are available for download on this website. Please complete the Blackboard quizzes and schedule a lab walk-through with the facility staff before using the lab. If the required forms are completed and turned in, please bring them to Village Center room 200B to receive access to the laboratories or to schedule additional equipment training.

Failure to complete required training in a timely manner or a failure to adhere to established safety policies and procedures will result in revocation of laboratory privileges.

- Blackboard Checklist
- DMSE
- Lab Walk Through Checklist

Safety Contacts
Contacts for Questions or Concerns

- MSE
  - Phil Chapman - 802.878.4130
  - Your PI
  - Safety Chair - Howard Katz

- WSE
  - Dan Kuespert
  - Niel Leon (LASERS)

- HSE
  - HSE office - 410.516.8798
  - Stephen Dahl, Perry Cooper, Ethan Martin, PJ Gillam, Abigail Rainsley, Jack Barret, etc.
MSE Lab Safety Survey

Health Safety Environment will survey labs on October 24, 2019
2018 Top Survey Findings for MSE

1. Improperly labeled or unlabeled chemicals
2. Improper storage of chemicals
3. Eyewash log not up-to-date
4. Unsecured sharps
5. Open containers not in use
6. Cloth chairs in lab
7. Chemical fume hood cert not current
8. Hand washing supplies missing
9. General Housekeeping
10. Glass bottles stored on the floor
Final Score - 98.4%

- Initial survey found no issues in 51.4% of labs
- Our final score reflects the improvements that teams made within a couple of days of the survey.
  - Thank You!!! Teams did an excellent job of resolving issues found! (Final Score in 2017 was 91.7%).

- Most violations can be avoided by changing habits to align with EHS rules.
  - EHS rules are not significantly different than those you’ll encounter elsewhere.
  - Upon leaving the university most of you will have responsibility for the safety of yourself or others elsewhere..........Please Start Now
2019 Lab Survey Focus

- The normal Lab Safety Survey sheet
  - https://www.hopkinsmedicine.org/hse/forms/forms.html
- Plus:
  - Chemical Waste Disposal Satellite Accumulation Areas
  - Eye Wash Logs
  - PI Bio Safety Registrations
  - Lab Exit/Decommission
Conclusions

- Know the 3-steps for incident response:
  - Ensure personal safety
  - Call security
  - Be available
- Don’t hesitate to ask questions, the university has many safety experts.
- Make safety part of your life, it doesn’t only matter in the lab.