Incident Data Acquisition

• UCLA Insurance & Risk Management

<table>
<thead>
<tr>
<th>Department</th>
<th>Injury / Illness_description</th>
<th>Incident date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GSR sustained Laceration on Right Hand Palm while collecting feces from infected gerbils from animal facility when she cut herself on wire cage.</td>
<td></td>
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</tbody>
</table>

- Human related-disease?
- PPE?
- Type of wire cage?

Lab incident or patient-related incident?
Student-related incident?
Incidents not causing injuries?

• UCLA Emergency Hotline (EH&S)
More extensive interviews, sometimes photos
Incidents at UCLA

No significant change in campus and lab accidents in the past 7 years.
Types of Lab Incidents 2008-2014 (833 total)

- Chem. Exposure: 17%
- Biohaz. exposure: 12%
- Animals: 13%
- Strains (Ergon.): 15%
- Lacerations: 15%
- Other Exposures: 17%
- Needlesticks: 6%
- Contusions: 12%
- Sprains: 12%
- Thermal Burn: 2%
- Object in Eye: 1%
- Unknown cause: 2%
- Allergies: 4%
- Thermal Burn: 2%
- Object in Eye: 1%
- Unknown cause: 2%
- Other Exposures: 1%
- Object in Eye: 1%
- Unknown cause: 2%
What can we learn from incidents?

Where do they occur?

Did safety interventions since 2008 lead to reductions in the number of incident types overall or in specific departments?
UCLA Departments and Divisions Reporting Incidents

Total campus incidents including lab incidents were reported from roughly 180 Departments and Divisions.

Lab incidents were reported from 62 Departments and Divisions.
19/62 Departments and Divisions had more than 10 incidents in the last 7 years.

2 Departments/Divisions reported 359 out of 833 lab incidents.

Lab Incidents in the Div. Lab Animal Medicine decreased significantly in the last 4 years.
Longitudinal Analysis of Incident Types

No Change in Types of Incidents

Except for Animal Incidents
Biohazard and Chemical Exposure Analysis

What is the cause?
Where did they occur?
Can they be prevented?
Biohazard Exposures 2008-2014

- 29/62 departments/divisions with biohazard exposures
- 2 departments/divisions with 10 or more biohazard exposures (46% of total)

104 Incidents

- Lacerations: 54%
- Needle sticks: 18%
- Animals: 10%
- Splash to body: 6%
- Splash to eye: 10%
- Unknown: 2%

Largely Preventable Incidents

- Lacerations: 54%
- Needle sticks: 18%
Chemical Exposures 2008-2014

- 35/62 departments/divisions with chemical exposures
- 5 departments/divisions with 10 or more chemical exposures (48% of total)

![Pie chart showing chemical exposure types and percentages]

- Inhalation: 32%
- Splash to body: 35%
- Splash to eyes: 28%
- Needle stick: 5%
- Laceration: 1%

- 144 Incidents

Largely Preventable Incidents

![Bar chart showing incidents by department]

- Pathology & Lab Medicine: 20 incidents
- Div. Lab Animal Medicine: 15 incidents
- Chemistry & Biochemistry: 10 incidents
- Orthopedic Surgery: 5 incidents
- Chemical & Biomol. Engineering: 3 incidents
Do Researchers Have a False Sense of Safety?

- 2012 Survey: 90% of academic researchers feel safe in their lab, 7% do not feel safe
- Most (72%) had not experienced major accidents, but most (59%) had experienced 1-5 minor accidents

Schroeder et al, JCHAS, 2015
Do Researchers Have a False Sense of Safety?

The number of major injuries could have been reduced if lab safety procedures were always followed.

Only about 50% agree that major injuries are preventable through safety procedures.
Do Researchers Have a False Sense of Safety?

The number of major injuries could have been reduced if lab safety procedures were always followed.

I received sufficient safety training in order to effectively minimize the risk of injury to myself and others in the lab.

Only about 50% agree that major injuries are preventable through safety procedures.

Despite experiencing major injuries, the majority believes that they are sufficiently trained.
Do researchers know about accidents that happen in other labs/departments?

- Improve incident communication

Lessons Learned from Laboratory Accidents

Use Lessons Learned to improve the safety program in your lab.

- Fires/Explosions
- Chemicals
- Needlesticks
- Slips/Falls
- Animal Incidents
- Biohazards
- Radioactivity Incidents
- Physical Hazards
- Safety Tips

CLS.UCLA.edu
Trizol Splashes on Researcher’s Face, Chest, and Neck during RNA Extraction

What Happened?

During an RNA extraction procedure a researcher splashed approximately 500 µl of Trizol (a commercially available phenol solution) on his face, chest, and neck. The researcher immediately rinsed his face and neck for roughly 15 minutes before informing his supervisor of the incident. The supervisor instructed the researcher to visit the Occupational Health Facility for further medical evaluation. At the time of the accident, the researcher was wearing gloves and a lab coat, and was performing the task in a fume hood but he was not wearing eye protection.

What Was The Cause?

The direct cause of this incident was not made public; however, Trizol is commonly used for RNA extractions. Trizol can spill out during the mixing process if tubes are not closed completely.

What Corrective Action Was Taken?

- Review handling of Trizol or Phenol during RNA extractions
- Review SOP for Trizol or for phenol and thiocyanate, both toxic substances contained in Trizol
- Refresher PPE training

How Can Incidents Like This Be Prevented?

- When extracting with Trizol or other phenol products, make sure that the microfuge tubes are completely closed
- Work in the chemical fume hood and shake the tubes behind a shield
- Wear PPE recommended for work with phenol including safety glasses and face shield, neoprene (double glove), viton or vinyl gloves

Resources

> SDS for Trizol
How does the number of lab incidents compare to the number of campus incidents?
Reported Safety Incidents in UCLA Laboratories

Average UCLA Laboratory Incidents:
Average number of reported injuries per year: 119

Total lab population: Roughly 7,500 researchers and 720 PIs
Lab-specific accident rate: 1.5 %
Reported Safety Incidents in UCLA Laboratories

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**Average UCLA Total Incidents:**
1,324 incidents reported from employees in 182 departments/divisions
51 departments/divisions with 5 or more reported accidents

Roughly 20,500 career employees, 11,500 graduate students, 2,000 postgraduate trainees, and 2,500 undergraduate student employees
Overall UCLA accident rate: 3.6%
How do UCLA lab incidents compare?

UCLA lab-specific incident rate: 1.5%

Overall UCLA incident rate: 3.6%

State of California* in 2012:
All industries including state and local governments accident rate: 4.0%
Colleges, universities and professional schools accident rate: 2.9%
All manufacturing accident rate: 3.2%
Chemical manufacturing accident rate: 2.8%

* Data from the Survey of Occupational Injuries and Illnesses compiled by the U.S. Bureau of Labor Statistics, U.S. Department of Labor
Is work in academic laboratories safe?

Continued improvements need to be made and catastrophic accidents have to be prevented!
Recommendations

- Improvement of IRM recording system
- Prevention of biohazard exposures through scalpel and syringe training
- Prevention of chemical exposures through PPE and chemical hood training
- Incident communication by publishing Lessons Learned cases
- Discussion of incidents and incident data during faculty meetings and lab meetings
- Active PI involvement in lab safety
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