College of Dental Medicine
HAZCOMM and Environmental Health & Safety

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Why Training?

- Crucial for a safe work place
- Policy/Procedures may vary
- Required by Occupational Safety & Health Administration (OSHA)
- To understand your rights & responsibilities
- Participate in safety programs and take appropriate action
Topics Covered In Training

- Safety Culture & Basic Safety Concepts
- Roles and Responsibilities
- Hazard Identification and Controls
- Hazardous Materials
- Emergency Procedures
Roles & Responsibilities

Columbia University

- Identify Hazards
- Provide PPE
- Provide Information
- Provide Training
  - Including task specific training

You

- Ensure your own safety
- Report hazards
- Use PPE
- Follow policies/procedures
- Get Trained
- Promote a *Culture of Safety*
The Role of EH&S

Consultants

- Technical Guidance
- Intuitional Health & safety Program Development
- Laboratory Inspections & Surveys
- Advise on how to conduct research safely and in compliance with applicable regulations

Services Provided

- General Safety Training
- Hazardous Waste Disposal
- Emergency Response
- Hazard Assessments
- Laboratory Commissioning and Decommissioning
- Laboratory & Equipment Clearances
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Regulatory Information
Columbia University laboratories and dental clinics must comply with rules set by the following regulatory bodies:

- **New York City**
  - Fire Department *(FDNY)*
  - Department of Environmental Protection *(DEP)*

- **New York State**
  - Department of Environmental Conservation *(NYSDEC)*

- **Federal**
  - Department of Labor: Occupational Safety and Health Administration *(OSHA)*
  - United States Environmental Protection Agency *(USEPA)*
OSHA Hazard Communication Standard

- 29 CFR 1910.1200
- You may be exposed to hazardous chemicals in the workplace and have a right to know about the hazards they may pose, and how to protect against exposures.
- The classification of chemical hazards, and the dissemination of safety information to personnel working with chemicals.
Recognizing & Evaluating Hazards

- Signs
- Labels
- Pictograms
### GHS: Pictograms & Hazards

<table>
<thead>
<tr>
<th>Health Hazard</th>
<th>Flame</th>
<th>Exclamation Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Carcinogen</td>
<td>• Flammables</td>
<td>• Irritant (skin and eye)</td>
</tr>
<tr>
<td>• Mutagenicity</td>
<td>• Pyrophorics</td>
<td>• Skin Sensitizer</td>
</tr>
<tr>
<td>• Reproductive Toxicity</td>
<td>• Self-Heating</td>
<td>• Acute Toxicity (harmful)</td>
</tr>
<tr>
<td>• Respiratory Sensitizer</td>
<td>• Emits Flammable Gas</td>
<td>• Narcotic Effects</td>
</tr>
<tr>
<td>• Target Organ Toxicity</td>
<td>• Self-Reactives</td>
<td>• Respiratory Tract Irritant</td>
</tr>
<tr>
<td>• Aspiration Toxicity</td>
<td>• Organic Peroxides</td>
<td>• Hazardous to Ozone Layer (Non-Mandatory)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gas Cylinder</th>
<th>Corrosion</th>
<th>Exploding Bomb</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Gases Under Pressure</td>
<td>• Skin Corrosion/ Burns</td>
<td>• Explosives</td>
</tr>
<tr>
<td></td>
<td>• Eye Damage</td>
<td>• Self-Reactives</td>
</tr>
<tr>
<td></td>
<td>• Corrosive to Metals</td>
<td>• Organic Peroxides</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flame Over Circle</th>
<th>Environment (Non-Mandatory)</th>
<th>Skull and Crossbones</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Oxidizers</td>
<td>• Aquatic Toxicity</td>
<td></td>
</tr>
</tbody>
</table>
GHS: Safety Data Sheets

1. Identification
2. Hazard Identification
3. Composition
4. First Aid Measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling & Storage
8. Exposure Controls
9. Physical & Chemical Properties
10. Stability & Reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

New SDS! Check it Out
Using ChemWatch

- Columbia’s online source for safety data sheets.
- Available from any computer on the CU network.
- [http://www.ehs.columbia.edu/sds.html](http://www.ehs.columbia.edu/sds.html)
Chemical Hazards
Chemical Hazards: Routes of Exposure

How might you be exposed to a chemical hazard?

- Inhalation
- Absorption
- Ingestion
Chemical Hazards: Routes of Exposure

- Injection
Chemical Exposure: Health Effects

- **Acute effects** – Sudden, traumatic effects
  - Headaches, dizziness, burns from corrosive chemicals, rash

- **Chronic effects** – Slow, gradual effects not readily perceivable until long after the initial exposure
  - Cancer, mutation, reproductive effects

Not all chemical exposures will show immediate effects!
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Controlling Hazards
Hierarchy of Controls

- Elimination
- Substitution
- Engineering
- Administrative
- Personal Protective Equipment (PPE)
Controlling Hazards

- Mercury Dental Filling vs Resin Composite

Elimination

Substitution

Amalgams

Composite Restorations
Controlling Hazards

Engineering Controls

Elimination

- HVAC System
- Fume Hoods
- Machine Guards

Substitution

Engineering

Administrative

Protective Equipment
Controlling Hazards

Administrative Controls

- Policies, procedures, effective communication and best work practices designed to ensure the safety of personnel.

- Consult an experienced staff or faculty member before modifying a protocol, or procedure.
Controlling Hazards

Administrative Controls

- Proper storage and segregation of hazardous materials.
- Proper chemical container labeling.
Items that may threaten your physical safety are classified as physical hazards.

- Always in the upright position
- All compressed gases restrained
  - Chained to a wall
  - Or using a Cart
- Must be capped if not in use
- Do not hang items on them

You must label, store, and use cylinders of gases, such as oxygen, nitrous oxide, and propane according to published standards.
Controlling Hazards

Administrative Controls: Housekeeping
Controlling Hazards

- Elimination
- Substitution
- Engineering
- Administrative
- Personal Protective Equipment (PPE)

MUST BE WORN AT ALL TIMES IN THE CLINIC:

- Proper Work Attire
- Scrubs
- Lab coats/Aprons
- Safety glasses / goggles
- Protective gloves
Controlling Hazards: Proper Work Attire

When working in the lab & clinic you must wear PPE & proper attire or you will be asked to leave immediately.
Controlling Hazards: PPE
Controlling Hazards: PPE & General Areas

- Wearing gloves on elevators is **Not Permitted**.
- **Never Touch** elevator buttons or door knobs with gloves.
- Always remember to remove your gloves when you leave your work station.
- Remember to remove disposable gowns before leaving clinical areas. Never step outside of VC with gowns & gloves.
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Emergency Management
Emergency Management

Emergency Equipment

- Showers, eyewashes, spill supplies, and fire extinguishers need to be unobstructed
- Don't wait for an Emergency
  - Test eyewashes weekly

Keep Clear of Obstruction
Emergency Management

Reporting Laboratory Emergencies

- Provide:
  - Name & UNI
  - Location (Building, Room)
  - Phone Number
  - Incident Details
  - Any Personal Injury

<table>
<thead>
<tr>
<th>Campus</th>
<th>Public Safety from a Campus Phone</th>
<th>Public Safety from a Personal Phone</th>
<th>EH&amp;S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Center</td>
<td>(212) 305-7979</td>
<td>(212) 305-8100</td>
<td>(212)305-6780</td>
</tr>
</tbody>
</table>
Call Facilities to mop up spills of non-hazardous materials.

Examples:
- Water
- Bleach
- Other disinfectants

Small amounts of low hazard chemicals & biological spills can be managed by you!
Emergency Management

Chemical Emergencies - Manageable Spills

- Please visit the EH&S Website to review this and other help emergency response videos.
  - http://ehs.columbia.edu/LabEmergencyResponseVideos.html
Emergency Management

Chemical Emergencies - Unmanageable Spills

Call EH&S at (212) 305-6780 with:

- Chemical identity if known
- Volume
- Location
- Your name, UNI, and telephone number
Chemical Emergencies - Personal Decontamination

- Flush contaminated eyes, face, arms, and body area with copious amounts of water.
- Remove contaminated clothing.
- If there are no visible burns, wash gently with soap and warm water.
- Seek medical attention, if necessary.
- Inform your supervisor. If there are no visible burns, wash gently with soap and warm water.
## Spills and Emergency Response
Where to go for Injuries and Health Emergencies

<table>
<thead>
<tr>
<th>Campus</th>
<th>Hours</th>
<th>Employees</th>
<th>Public Safety Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUMC</td>
<td>Business-Hours</td>
<td>Workforce Health &amp; Safety Harkness Pavillion</td>
<td>(212) 305-7979</td>
</tr>
<tr>
<td></td>
<td>After-Hours</td>
<td>NYPH Emergency Department - First Floor of the Vanderbilt Clinic (VC)</td>
<td></td>
</tr>
</tbody>
</table>
Reminder

- Be familiar with the location of Emergency Equipment.
- Address manageable spills as soon as they occur.
- If this cannot be done immediately, mark off the area & ALERT people around you.
- Take Action!! Call Facilities or EH&S immediately.

- **SAFETY FIRST/SAFETY ALWAYS**
Thanks for your attention!