Laboratory Safety and Management

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Survey on laboratory accidents in secondary schools

- **Background**
  - since 1995/1996 school year
  - from 2002/2003 onwards, survey is conducted on a triennial basis

- **Objectives**
  - to monitor standard of safety in school science laboratories
  - to take active measures to minimize the occurrence of laboratory accidents

- **Data collection** for the survey of 2011/12 school year will start in November 2012
Survey on laboratory accidents in secondary schools (08/09)

- 459 schools responded
- Statistics
  - 303 schools without accident (66%)
  - 502 cases in 156 schools (34%)
- 419 students and 8 staff injured; most injuries were minor cuts or scalds
# Type of Accidents

<table>
<thead>
<tr>
<th>Type of accident</th>
<th>Number of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cuts</td>
<td>201</td>
<td>40.0</td>
</tr>
<tr>
<td>Heat burns or scalds</td>
<td>172</td>
<td>34.3</td>
</tr>
<tr>
<td>Chemicals on skin</td>
<td>39</td>
<td>7.77</td>
</tr>
<tr>
<td>Eye accidents</td>
<td>35</td>
<td>6.97</td>
</tr>
<tr>
<td>Chemicals spillage</td>
<td>22</td>
<td>4.38</td>
</tr>
<tr>
<td>Substances catching fire</td>
<td>17</td>
<td>3.39</td>
</tr>
<tr>
<td>Discomfort arising from inhalation of gases</td>
<td>5</td>
<td>1.00</td>
</tr>
<tr>
<td>Bites by animals</td>
<td>1</td>
<td>0.20</td>
</tr>
<tr>
<td>Others with personal injury</td>
<td>10</td>
<td>1.99</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>502</strong></td>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>
Accidents in Science Subjects

- Physics
- Chemistry
- Biology
- Science
- S & T

- Others with personal injury
- Bites by animals
- Substances catching fire
- Cuts
- Inhalation of gases
- Heat burns / scalds
- Chemical Spillage
- Eye accidents
- Chemicals on skin
Causes of Accidents

- Carelessness of laboratory technicians
- Mischievous behaviour of students
- Carelessness of teachers
- Carelessness of students
Responsibilities in maintaining a safe learning and working environment

Who should be responsible?
- Students
- Teachers
- Laboratory Technicians
- Panel Chairpersons
- School Authority

Safety is Everyone’s Responsibility

Have you performed your duties? (有否盡一己之本分)
Group discussion

- What are your responsibilities as a panel chairman in maintaining a safe learning and working environment in laboratory?
Responsibilities of panel chairman

- Set and model high standards of safety
- Raise everyone’s concern on safety
- Ensure all panel members provide adequate safety instructions and equipment to students
- Be well informed of laws, rules and regulations concerning safety, assist school principal in formulating and implementation of safety policy
- Co-ordinate the provision of safety resources / facilities
- Organise/co-ordinate professional development on safety
- Access and disseminate up-to-date safety information to teaching and technical staff
- Keep a record of all accidents and details of treatment given
- Develop and implement a regular schedule for safety inspection
Reasons to establish a safety management system

- Comply with the following legal requirements
  - Occupational Safety and Health Ordinance & Regulation
  - Education Ordinance
  - Fire Services Ordinance
  - Waste Disposal (Chemical Waste) (General) Regulation of the Waste Disposal Ordinance
Safety Management

- Setting up a **Standing Committee on Laboratory Safety** to:
  - convene regularly to discuss issues related to lab safety
  - plan and conduct lab safety programmes
  - ensure implementation of risk assessments for science experiments
  - carry out safety inspections regularly
  - formulate, implement and revise the emergency plan
  - conduct evacuation drills regularly
Resources for Laboratory Safety
Learning and Teaching Resources on Safety in Science Laboratories

http://cd1.edb.hkedcity.net/cd/science/laboratory/SAFETY/safety_exemplars_e.pdf
http://resources.edb.gov.hk/~ses/
Collection form:
Posters #2
Hazard warning labels

- Corrosive
- Harmful
- Oxidizing
- Biohazard
- Flammable
- Irritant
- Toxic
- Caution Radiation
- Danger Laser Beam
Maintenance and repairs for laboratories and equipments
Minor repairs / consumables

- Government schools
  - Expanded Subject and Curriculum Block Grant

- IMC aided schools
  - Expanded Operating Expenses Block Grant

- Non-IMC aided schools
  - Composite Furniture and Equipment Grant
  - Operating Expenses Block Grant (General domain)
    - Consolidated Subject Grant (CM No. 111/2012)
Information about E/OEBG:

- http://www.edb.gov.hk => school administration => financial management
Major repairs

- Cost > $8000 (e.g. installation of fume cupboard, fire service installation, exhaust fan maintenance)

- Apply for non-recurrent grants in April every year
  - EDBCM No.61/2012 (Estimates for 2013-14 Financial Year - Aided Schools Applications for Non-Recurrent Grants: Major Repairs/Alterations)

- Estate schools => Housing Department
- Non-estate schools => Architectural Services Department
# Procedures for Major Repairs

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Application for funding by school</td>
</tr>
<tr>
<td>2.</td>
<td>HD or Arch SD conducts site inspection</td>
</tr>
<tr>
<td>3.</td>
<td>Classify items into “essential”, “desirable but not essential” and “not necessary”</td>
</tr>
<tr>
<td>4.</td>
<td>EDB estimates budget</td>
</tr>
<tr>
<td>5.</td>
<td>HD or Arch SD initiates meetings with school</td>
</tr>
<tr>
<td>6.</td>
<td>Repair works by contractor</td>
</tr>
</tbody>
</table>
Emergency Repairs

- Cost < $200,000
- Submit Standard Request Form for emergency repairs to HD or Arch SD with a copy to REO.
- Examples of emergency repairs:
  - Blackboard repair, serious water seepage, re-charging of fire extinguishers, broken windows, etc.
Conversion with structural alteration and extension

- Require approval from EDB
- Seek advice from
  - Regional Education Office
  - Housing Department / Architectural Services Department
  - Department of Health
  - Fire Services Department
For details on Maintenance of Premises:


(http://www.edb.gov.hk => School administration => Regulations => School administration guide => 8.School premises & safety)
Designing and Planning Laboratories

Induction for New Laboratory Technicians (Re-run) (CDI020130158)

Date: 10/11/2012 (Saturday)
Time: 9:30 – 12:30
Venue: SKH Tsang Shiu Tim Secondary School
Target participants: LTs with no more than 5 years of experience
Thank you!

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