LABORATORY INCIDENTS IN THE UNIVERSITY OF SONORA: STUDENTS PERSPECTIVE

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Introduction

In Mexico there is a lack of statistical information on incidents and accidents in academic laboratories. Shared experiences among students and faculty reveal that these events happen and that by not registering them, crucial information for the development of policies and actions that contribute to the management and reduction of risks in these areas of academic work is lost.

UNISON is interested and committed to prevent, reduce and eliminate, where possible, the impact of its activities on its Policy and Sustainable Development Plan by consolidating a management system for sustainability of university spaces, that includes promoting safety in campus laboratories and workshops[1].

Objective

To acquire information directly from students about incidents in laboratories at the University of Sonora.

Methods

Participants

- Students enrolled in the Nutritional Sciences (NUS), Clinical Chemical Biologist (CCB) and Food Chemistry (FC) bachelor programs of UNISON of Chemical and Biological Sciences Department of UNISON (CBSD).

Procedure

- An electronic survey was elaborated as a research tool. It included a briefing note of the study, the instructions to fill a questionnaire, a set of demographic questions (sex, age, gender, semester the student is enrolled in), eight closed-ended questions about laboratory incidents, and one open-ended question for students' suggestions or relevant comments on laboratory safety.
- The survey was sent by email (SurveMonkey®) to 1334 students and was closed when a representative and stratified sample (5% error) of 298 students of CCB, FC and NUS bachelor programs was obtained.

Ethical aspects: research approved by the Bioethics Committee of UNISON (CBI-UNISON 1/2014).

Results

52% of students responded that they did have encountered at least one laboratory incident. The most frequently mentioned incidents by the students are shown in figure 1.

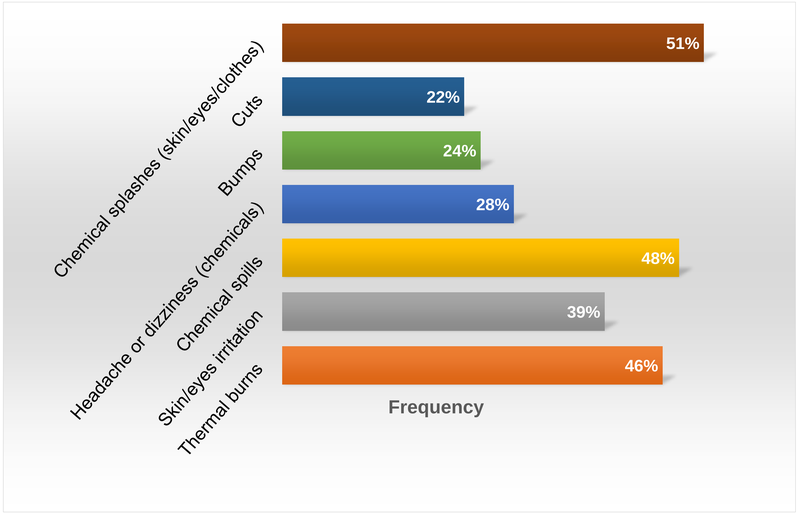

Fig 1. Most frequently mentioned laboratory incidents.

The most severe incidents were:

- Chemical spills (12%),
- Chemical splashes on skin, eyes and clothes (6%)
- Bio-infectious associated events (5%).

38% of students failed to report these incidents to a teacher or laboratory technician because:

- These events were not important (32%)
- These incidents were normal events (15%).

The main causes of laboratory incidents mentioned by students are shown in table 1.

Students expressed their concern, as some suggested to punish the person who does not carry the corresponding equipment for personal protection during lab practice. In addition, students ask that the equipment, materials and laboratory ventilation systems are periodically reviewed to prevent accidents and exposure to toxic substances.

Results (continuation)

Table 1. Main causes of laboratory incidents mentioned by students.

	Frequency response
Not using personal protective equipment	29%
Failure to check the state of the material or equipment	26%
Material in inadequate conditions	25%
Inappropriate selection of material or equipment	23%
Improper handling of hazardous materials	22%
Lack of information or instructions	15%

Conclusion

The causes mentioned and the lack incident reporting indicated that it is necessary to improve students' safety performance during their laboratory practices.

Measurements are being taken, such as, the redesign of the environmental health and safety class syllabus (3 credits) based on the RAMP model[2] for lab safety, and the creation of a safety committee in the CBSD to enhance safety culture in laboratories[3].

In addition, this kind of research was expanded to students enrolled in engineering programs and started new research using tools from the psychology area, aimed at assessing the student's perception of risks and safety in the laboratory.

References

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