Prevention of Occupational Diseases
World Day for Safety and Health at Work 2013

ABOUT OCCUPATIONAL HYGIENE

Webinar 1: OCCUPATIONAL HYGIENE: a necessary science for prevention of occupational diseases

This webinar makes part of the commemoration events for the World Day For Safety and Health at Work 2013 focusing on prevention of Occupational Diseases (ODs). Because of its important role for the prevention and diagnosis of ODs, the first seminar focuses on discussing the needs and strengths of Occupational Hygiene (OHyg) for prevention and diagnosis of ODs.

Diagnosis and treatment of ODs will not prevent further occurrences, if exposures to the etiological agent do not cease. Hazard control is the only way to break the vicious circle as illustrated in the figures below.

OHyg is the main science for preventing ODs by means of controlling hazards and improving working conditions. It also contributes to the diagnosis of ODs by providing the evidence of exposure needed to establish cause-effect relationships.

OCCUPATIONAL/INDUSTRIAL HYGIENE is...
the science of the anticipation, recognition, evaluation and control of hazards arising in or from the workplace, which could impair the health and well-being of workers, also taking into account the possible impact on the surrounding communities and the general environment.¹


NEEDS FOR PREVENTION OF ODs

HUMAN IMPACT
Immeasurable human suffering to victims, their families and communities.

ECONOMIC IMPACT
Economic losses due to occupational accidents and ODs were about 4% of the global GDP (ILO, 2003) in industrialized countries, but losses might be higher in developing countries. High costs affect national social security and health systems (benefits and medical care); enterprises (productivity, quality, absenteeism, compensation and environmental costs); and society as a whole.

ENVIRONMENTAL IMPACT
The damages made on the environment and community by hazardous agents capable of trespassing the boundaries of the work environment.

Consequently, OHyg contributes significantly to economic, social and sustainable development.

ACTIVITIES CARRIED OUT BY OHyg
Through training and experience, occupational hygienists should be able to perform many tasks, mainly:

* anticipation of occupational and environmental health hazards;
* to recognize hazardous agents and factors;
* to assess – qualitatively and quantitatively - workers’ exposure to hazardous agents, and to interpret the results;
* to design and/or recommend, effective and economical prevention and control measures.

In the past OHyg was also referred as “Industrial hygiene”, term that is still used in many countries.
Brief historical notes of Occupational Hygiene...

A long historical journey

...from Hippocrates...
Probably starting way back in BC 400 when Hippocrates first recognized lead toxicity in the mining industry.

...to Ramazzini...
In 1700, he wrote the seminal book on occupational diseases and industrial hygiene entitled De Morbis Artificum Diatriba, (Diseases of Workers). Each chapter describes the disease associated with particular work activity, a workplace description, a literature analysis, questions for workers, disease description, remedies, and advice².

...from Ramazzini...
Despite the existence of many studies that laid foundations of OHyg, it was not before the beginning of the 20th century that rising concerns for workers’ health caused progressive attempts in the field of Occupational Hygiene³.

...to Nanotechnology...
Emerging technologies today challenge the practice of OHyg, demanding innovative and new methodologies, processes and tools for hazard assessment and engineering controls.

1 Concerning political will
Needs to promote:
* Creating awareness among policy and decision makers, and all other stakeholders
* Risk communication
* Improvement of statistics on ODs

2 Concerning legislation
Strengthening legislation in order to respond to:
* Rapid changes in work processes and patterns
* Shifts of working populations
* Adequate enforcement that requires resources, staffing, programs and services

3 Concerning Education and Training
* A definite need for high quality and available training on OHyg.
* Competencies must be achieved, verified and maintained.
* Course accreditation and professional certification promote professional excellence.

4 Best use of financial resources
* Proper use of precious and limited resources is needed.
* Universities, donor agencies, governmental agencies and other institutions should give higher importance to applied research and practical preventive solutions.

5 Ethical practice of OHyg⁴
* Primary responsibility is to protect workers’ health and wellbeing, so joint work with occupational physician is an asset.
* Application of appropriate and sound scientific knowledge
* Emphasis on control and preventive solutions.
* Improving statistics on ODs
* Creating awareness among policy and decision makers, and all other stakeholders
* Work efficiently in interdisciplinary and inter-sectorial groups

Visit the Web page of the Latin American Occupational Hygiene Associations at: http://www.aldho.org/
A joint effort to strengthen Occupational Hygiene in the Americas

About Occupational Hygiene

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Hazardous conditions that can cause ODs

Hazardous Conditions that Can Cause ODs

Chemical Agents
- gases, vapors, fumes, dusts, mists
- Corrosives: concentrated acids and alkalis
- Allergens or Sensitizers: colophony, formaldehyde
- Irritants: acids, alkalis, solvents
- Asphyxiates: simple (methane, ethane) and chemical (carbon monoxide, nitrobenzene, NOx, SOx)
- Carcinogens: benzene, asbestos
- Reproductive toxicants: DBCP, carbon disulfide
- Developmental toxicants: organic mercury compounds, carbon monoxide
- Systemic poisons: lead, mercury, manganese, solvents

Physical Agents
- Wavy forms: noise, vibration, microwaves
- Extreme temperatures
- Radiation: ionizing and non ionizing
- Barometric extremes
- Electromagnetic fields & electric hazards

Biological Agents
- Viruses, Bacteria, Fungi, Parasites, Insects, Mammals

Ergonomic Stressors
- Work stations design, lifting, pushing/pulling.

Psychosocial Factors
- Work overload, lack of communication, shifting
- Labor conditions, violence, other social

Source: Centers for Disease Control and Prevention, 2013.
http://www.cdc.gov/niosh/topics/tribandital/

2 National Academy of Medicine: Available on line at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1446786/
4 Based on the IOHA Code of Ethics: http://www.ioha.net/assets/files/Modelrulesnewassociation.pdf