

## Occupational Hygiene Guidance

### Introduction:

Occupational Hygiene is the applied science concerned with the identification, measurement, appraisal or risk, and control to acceptable standards, of physical, chemical, and biological factors arising in or from the workplace which may affect the health or well being of those at work or in the community.

**Recognition** - people at work encounter 4 basic classes of health hazard i.e. chemical, physical, biological and ergonomics/psychosocial.

**Evaluation** – when a hazard has been identified it is necessary to assess the consequent risk, interpret this against a risk tolerability standard and where appropriate apply further prevention and control measures.

**Control** – following the assessment of risk to health is assessed an appropriate prevention or control strategy is required.

### Anticipation

- **Incorporation of Occupational Hygiene**
  - In the design stage of new plant
  - Plant modification
  
- **Control banding**

Control Banding is a process in which a single control technology e.g. general ventilation or containment is applied to one range or band of exposures to a chemical (such as 1-10 mg/m<sup>3</sup>) that falls within a given hazard group e.g. skin and eye irritants or severely irritating and corrosive

Four main bands have been developed for exposure to chemicals by inhalation:-

1. General Ventilation
2. Engineering Control e.g. LEV
3. Containment i.e. enclosure
4. Special – seek specialist advice

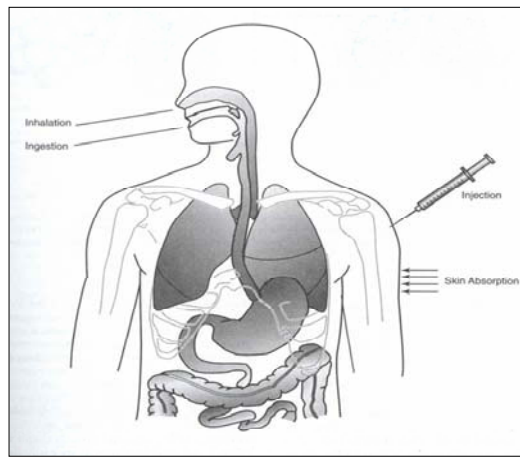
### Recognition

- **Chemicals**
  - gases ,vapours, liquids, dust, mists, fumes, etc.
- **Physical agents**
  - noise, vibration, heat, cold, lighting, radiation, etc.
- **Biological agents**
  - bacteria, viruses, fungi, mites
- **Ergonomic/Psychosocial**

- personal task interaction e.g. body position in relation to use of machine, harmful repetitive work, exposure to harmful psychological stress at work
- **Other Health Factors**
  - shift work, violence, fatigue

## Routes of entry of chemicals

- Inhalation
- Dermal
- Ingestion
- Injection



These can occur individually or a combination e.g. a solvent can be absorbed through the skin and its vapours can be inhaled.

## Toxic Effects

### Acute Exposures

Short term exposure, high concentrations, immediate results i.e. illness, irritation or death. e.g. cyanide

### Chronic Exposures

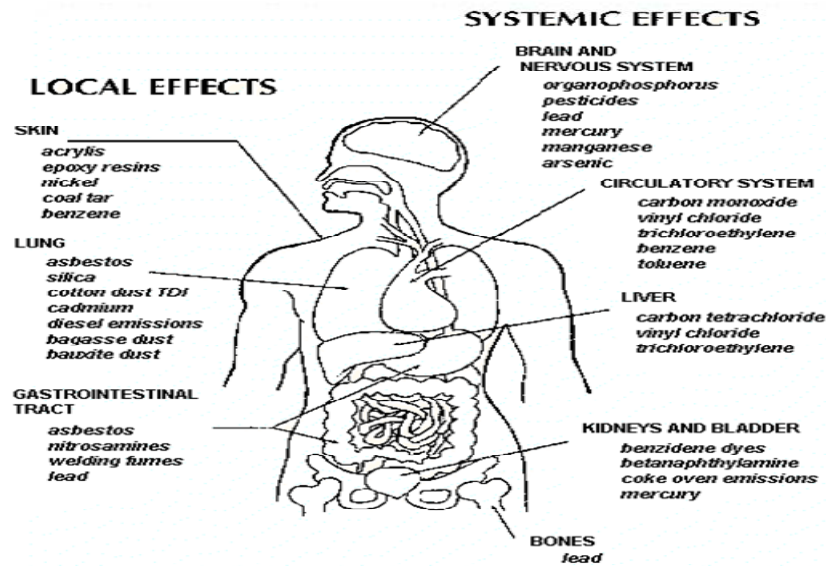
Develop slowly, long duration or frequent occurrence exposures e.g. Benzene

### Local Effects

Occur at site of first contact between biologic system and toxicant e.g. acid on skin

### Systemic Effects

Toxic substance once absorbed affects bodies systems and organs e.g. Drug



ILO, 2006

Personal monitoring involves monitoring the exposure of individual's at work e.g. noise, fumes, dusts, vibration.

This fulfils requirements of specific Regulations e.g. COSHH, Noise at Work.

Background monitoring is when equipment is set up to monitor general exposure in a room.

## Occupational exposure standards

- **OELV's** Occupational Exposure Limit Values
- **WEL's** Workplace exposure Limit Values is the maximum concentration of an airborne substance to which a worker can be exposed to as related to a reference period e.g. 8 hours without any adverse health effect occurring
- **TLV's** Threshold Limit Values is a system developed in the USA by the American Conference of Governmental and Industrial Hygienists – they refer to both airborne concentrations and physical agents

## Control

- Hierarchy of control
  - Elimination
  - Substitution
  - Enclosure
  - Engineering controls
  - Administrative training and education
  - Personal protective equipment

# Health & Safety Management Manual

---

## **Possible Control Measures**

Working in a safety cabinet i.e. fully enclosed, partial enclosure, using an LEV (local exhaust ventilation) system

## **Benefits to the workplace and the community**

- Control of direct and indirect exposures
- Improved worker health and well being
- Increased morale and productivity
- Reduced product losses, contamination, and waste disposal and insurance charges

## **Occupational Hygiene in NHSGGC**

In NHSGGC requests for occupational hygiene investigations should be made to the Health & Safety Service Manager – Acute.

The request will be evaluated by the Occupational Hygienist and feedback provided on the suggested course of action.

## **Further guidance and information can be accessed from:**

NHS GGC Control of Substances Hazardous to Health COSHH

<https://www.nhsggc.scot/staff-recruitment/hrconnect/safety-health-and-wellbeing/policies-guidance-documents-and-forms/>

NHS GGC Provision and use of Work Equipment Regulation Policy

<https://www.nhsggc.scot/staff-recruitment/hrconnect/safety-health-and-wellbeing/policies-guidance-documents-and-forms/>