



## OCCUPATIONAL HEALTH RISKS

# OPERATING ENGINEERS/ HEAVY EQUIPMENT OPERATORS

**A diagnostic toolkit for physicians  
and primary health providers.  
Prevention information for workers.**

**Give pages 3 and 4 of this booklet to your doctor.  
They give your doctor information about the health risks of your job.**

This booklet was prepared by the Ontario construction industry's Occupational Disease and Research Labour-Management Health and Safety Committee with assistance from the Infrastructure Health & Safety Association (IHSA), the Ontario Ministry of Labour (MOL), the Workplace Safety and Insurance Board (WSIB), and labour and employers in Ontario construction.

The information presented here is for general information only. It should not be regarded or relied upon as a definitive guide to health risks in the trade. This information is, to the best of our knowledge, current at the time of publication. For more information, contact the Infrastructure Health & Safety Association.

## Tasks and possible hazards

### All tasks

- ▶ **Hazardous materials from industrial worksites** (pulp and paper, refineries, chemical plants, glass plants, factories, cement plants, foundries/smelters, power plants, nuclear plants)
- ▶ **Awkward postures and vibration** when mounting or dismantling equipment, **vibration and hazardous noise** while using heavy equipment
- ▶ **Asbestos** (could be part of the equipment—in old brake pads—or in building materials)
- ▶ **Dust and insulation fibres** on construction sites
- ▶ **Bearing greases, lubricants, cleaning solutions, machine and cutting fluids**
- ▶ **Solvents, adhesives, and epoxies**
- ▶ **Biological hazards** in soil, industrial plants or on equipment
- ▶ **West Nile Virus** from mosquito bites
- ▶ **Ultraviolet light** from the sun
- ▶ **Exhaust fumes** from gas- or diesel-powered equipment
- ▶ **Injection hazards** from compressed air or hydraulic hose failure
- ▶ **Radio frequency (RF) energy** from base station antennas such as cell towers
- ▶ **Hazardous noise** from surrounding construction activities.

### Other hoisting devices

- ▶ **Extreme temperatures** in cold or hot environments
- ▶ **Dust** on construction sites.

## How to protect your health

- ▶ Ask your supervisor or employer for safe work **instructions** and training.
- ▶ Consult industrial clients on site-specific health and safety **procedures**.
- ▶ Ask about any hazardous materials or unknown chemicals when **entering** an industrial site for work.
- ▶ Ensure proper **ventilation**.
- ▶ Wear a proper **respirator** when
  - you suspect asbestos may be a hazard
  - working in dusty atmospheres
  - welding
  - using solvents, adhesives, or other hazardous substances
  - using metalworking fluids (cutting oils).
- ▶ Wear gloves, coveralls or welding jackets, or use barrier creams to protect the **skin**.
- ▶ Consult material safety data sheets (**MSDSs**) for information about hazardous chemicals used at work, and obey workplace health and safety rules.
- ▶ **Never eat, drink, smoke, or chew gum** in areas contaminated with asbestos, lead, or toxic chemicals.
- ▶ Wash or wipe **hands** clean before eating, drinking, and smoking, and always clean up and change out of contaminated **clothing** before going home at the end of the shift.
- ▶ Wash work clothes **separately** from casual and other family members' clothes.
- ▶ **Report** hazards to your employer.

Workers who are without symptoms and who have been exposed to asbestos may participate in a research study at Princess Margaret Hospital by volunteering to be screened for mesothelioma/asbestos.  
Phone: 416-340-5686 Fax: 416-340-4964

**For more information about health and safety in your job, contact your union or**

Infrastructure Health & Safety Association: 1-800-263-5024, [www.ihsa.ca](http://www.ihsa.ca)  
Ontario Ministry of Labour: 1-877-202-0008, [www.labour.gov.on.ca](http://www.labour.gov.on.ca)  
Workplace Safety and Insurance Board: 1-800-387-5540, [www.wsib.on.ca](http://www.wsib.on.ca)

## Occupational diseases and hazardous agents encountered by heavy equipment operators and similar trades

### Job function

Heavy equipment operators use mobile and tower cranes, boom trucks, carry decks, derricks, tuggers, winches, and excavators to move and place rocks, soil, and other objects that are too heavy for humans to handle.

### Asbestos-related Diseases

- ▶ Asbestosis
- ▶ Cancer (lung, mesothelioma, gastrointestinal) - *asbestos*.

### Cancer

- ▶ Lung - *asbestos, diesel exhaust, environmental tobacco smoke, silica*
- ▶ Leukemia - *benzene*
- ▶ Skin melanoma and other skin cancers - *sun exposure*.

### Respiratory Diseases

- ▶ Bronchitis, chronic - *silica dust, environmental tobacco smoke*
- ▶ Hypersensitivity pneumonitis (HP) acute/chronic - *fungi/mould*
- ▶ Pontiac fever, Legionnaires' disease - *Legionella*.

### Neurological

- ▶ Central Nervous system (CNS) effects - *solvents, paints, degreasers, thinners, mercury*
- ▶ Whole-body vibration.

### Miscellaneous Disorders

- ▶ Noise-induced hearing loss - *power tools, heavy equipment, industrial noise*
- ▶ Infertility, male - *lead, chlorinated solvents*
- ▶ Gastroenteritis - *bacteria, animal waste*
- ▶ Blastomycosis - *contaminated soil*
- ▶ Renal disease - *lead, degreasers, solvents*
- ▶ Hantavirus, histoplasmosis, leptospirosis - *rodent/bird/bat droppings*
- ▶ Low back injury and gastrointestinal disorders - *whole body vibration (WBV) in equipment with frequent movement*.

### Skin Disorders

- ▶ Dermatitis, allergic/contact - *epoxies, paints, degreasers, glues*
- ▶ Contact urticaria - *animal dusts*
- ▶ Chloracne - *polychlorinated biphenyls (PCBs)*.

The next page provides important diagnostic criteria for screening, early detection, and diagnosis.

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## **Asbestos disease**

Asbestos-caused fibrosis of the lungs and pleura may lead to shortness of breath. It usually takes 15 or more years from the onset of exposure for radiographic abnormalities and symptoms to arise. Radiologists should be alerted to the suspected diagnosis. Heavy equipment operators occupationally exposed to asbestos are at increased risk of cancers of the lungs and pleura. Screening for cancer has not been proven to reduce mortality; however, it can result in early detection.

If there is any suspicion of asbestos-related illness (i.e., not screening scenario), patients may be referred directly to Princess Margaret Hospital's program where immediate assistance, rapid assessment and specialized treatments are available. Phone 1-877-LUNG 911 (5864 911) Fax 416-340-3353. Asbestos-exposed workers should be counseled about smoking cessation.

[http://www.wsib.on.ca/files/Content/OccDiseaseAsbestos/Asbestos\\_Related%20Diseases.pdf](http://www.wsib.on.ca/files/Content/OccDiseaseAsbestos/Asbestos_Related%20Diseases.pdf)

## **Contact dermatitis**

Contact dermatitis is an inflammatory skin reaction to direct contact with noxious agents in the environment. Substances that produce this condition after single or multiple exposures may be either irritant or allergic in nature. Irritant contact dermatitis (ICD) results from contact with external agents that directly damage the epidermis, in contrast to allergic contact dermatitis (ACD) in which the damage occurs through the host's immune response as a result of a delayed type hypersensitivity reaction.

The diagnosis of contact dermatitis should be considered when there is a suspected workplace agent (allergen or irritant). Screening should include determination of the following: (A) Did the skin condition start after the worker started the job? OR Did the skin condition become worse after the worker started the job? AND (B) Are symptoms better on weekends or holidays off work? Referral to a specialist with experience diagnosing and treating occupational contact dermatitis should be considered when any of the following are suspected: all cases of possible ACD; ICD with allergic features; chronic ICD; complicated ICD (e.g., not improving, deteriorating, confounded by another skin disease such as psoriasis).

<http://www.wsib.on.ca/en/community/WSIB/ArticleDetail?vnextoid=ff4de35c819d7210VgnVCM100000449c710aRCRD>

## **Neurologic Effects**

Acute toxic effect of solvents: Organic solvents are volatile substances commonly used in the workplace as cleaners and degreasers. The systemic symptoms of acute solvent poisoning resemble those of intoxication from alcoholic beverages.

Toxic Neuropathy: Chemicals that can cause toxic polyneuropathy include lead and N-hexane. Most symmetrical, sensorimotor neuropathies caused by exposure to chemicals are indistinguishable from similar effects caused by systemic diseases such as diabetes or B12 deficiency. The diagnosis of toxic polyneuropathy is usually made on the basis of symptoms following exposure to the chemical and the resolution of symptoms months to years after cessation of exposure.

## **Noise-induced hearing loss**

Noise-induced hearing loss (NIHL), is diagnosed by audiometric testing. With NIHL, there is a characteristic dip (notch) at 4 kHz on the audiogram. This contrasts with presbycusis where there is a continuous dropoff as frequency increases.

<http://www.wsib.on.ca/en/community/WSIB/OPMDetail?vnextoid=9956fcea9bfc7210VgnVCM100000449c710aRCRD>

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**For more info about occupational disease and workplace health and safety, contact the  
Workplace Safety and Insurance Board: 1-877-202-0008**