

Occupational Medicine Clinical Update

Dedicated to the prevention of occupational illness and injuries, and promoting the well-being of all workers

This Issue:

- Recognizing occupational disease
- Case report - welding fumes, dust and COPD
- Taking an occupational history
- Common exposures in Sarnia
- Occ Med Journal Watch



Occupational Health Clinics for Ontario Workers Inc, Sarnia-Lambton

Occupational Disease in Ontario – the Physician's role

On an average workday in Ontario there is: 1 fatality, 3 amputations, 54 permanent impairments, 500 lost time injuries and 1,200 no lost time injuries.

These are the impacts to the worker. The cost to the workplace amounts to \$2.47 billion in direct costs (half the projected Province of Ontario budget deficit) annually in health care, loss of earnings, etc., and an estimated \$10 billion in indirect costs—in Ontario alone.

This is to say nothing of the personal impact on individuals, families and social agencies.

These statistics only deal with injuries, which are relatively easy to diagnose as work-related. *The real challenge for physicians is in recognizing occupational diseases.*

Workers today are working longer hours and more shift work, with less job security. New technologies, processes, chemicals, materials, and equipment are introduced at an increasing pace to keep up with societal demands. Often there is limited testing for adverse effects on the health of those that work with them, particularly for diseases with long latencies.

Compounding the problem is the recognition that a great deal, if not most, occupational disease goes undiagnosed. There are several reasons for this:

- Many workers fear reporting even obvious work-related problems because of fear of job loss.

- Many occupational diseases have long latency.
- Training in occupational medicine is scant in most medical schools, averaging less than 4 hours.
- Some physicians fear involvement with the often adversarial compensation or legal systems that may become involved.

Despite these obstacles primary care and other physicians can play a pivotal role in helping individual patients and protect the public's health. *The key lies in taking a brief occupational history and when indicated, making the necessary referrals.*

To assist you with identifying workers at risk this issue features a sample screening questionnaire and a table of some common occupations in the region that carry risk of toxic exposure.

References

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- Burstein J, Levy B. 1994. The Teaching of Occupational Health in U.S. Medical Schools: Little Improvement in 9 Years. Am J Public Health. 84:846-849.
- Ontario Ministry of Labour, 1998. Preventing Illness and Injury: A Better Health and Safety System for Ontario Workplaces.

Case in Point – A Welder with Shortness of Breath

A 55 year-old welder was referred to the clinic with respiratory concerns.

In the last three years he had noticed increasing shortness of breath on exertion, a chronic productive cough and had begun experiencing frequent chest infections. He was a lifelong non-smoker, and none of his childhood or current living arrangements included environmental tobacco smoke. He did work with smokers however. He had no previous history of significant respiratory problems. His only other problem was hypertension.

He had been a welder since the age of 21, and had worked with a wide variety of welding types including: stainless steel, mild steel, aluminum (ozone exposure), shipyard steel and construction welding. He had spent the majority of his day welding for more than 30 years. Much of his work had been in enclosed spaces, with consequently little ventilation.

Chest exam revealed expiratory wheezes with prolonged expiration. CXR showed hyperinflation of the lungs. PFT demonstrated a moderately decreased FEV₁, and FEV₁/FVC ratio. Diffusing capacity was normal.

There have been over 40 studies of various designs looking at the association between lung function loss, relative rates of obstruction, respiratory symptoms and welding. The preponderance of the evidence shows that there is a positive association, and this is particularly the case for those with higher intensity and/or exposures of longer duration. Similar findings have been observed for those who work in dusty environments such as: foundries, mines, cement manufacturing, and with exposure to asbestos, silica, cadmium, and others.

The responsibility for safety in the workplace is shared between workers and employers. Employers may be to blame for unsafe work practices. However workers are often unaware of these types of risks and despite employers encouragement to observe certain safety practices, these are frequently not followed. It is worth reviewing these risks with your working patients so they appreciate the need for appropriate respiratory and other personal protective equipment (PPE).

References available on request.

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Occ Med Journal Watch

Cancer and Benign Tumor Incidence Among Employees in a Polymers Research Complex

Beall C, Delzell E, Rodu B, Sathiakumar N, Myers S. 2001. J Occup Environ Med. Oct 2001;43(10):914-24.

Detection of unusual numbers of intracranial tumours prompted this retrospective follow-up study of 1847 subjects who had worked in a particular petrochemical research facility. Cancers and benign tumours were confirmed with Illinois State Cancer Registry data, medical records and death certificates.

There were marked excesses of brain cancers as well as benign intracranial tumours. Incidence of brain cancer was elevated 3 - 7 times, depending on work location and length of employment. Benign tumours were elevated almost 4 times. All these findings were statistically significant.

The authors concluded that occupational exposure may have caused the increased brain cancers but less likely the excess benign tumours.

A Sampling of Occupations in Sarnia That Carry Risk of Toxic Exposure Hazards*

Occupation	Exposure Hazards	Health Effects (strongly suspected or proven)
Asbestos abatement workers	Asbestos	Asbestosis, lung ca, COPD mesothelioma, GI and other ca's
Auto repair workers Service station attendants	Benzene and other evaporative hydrocarbons, MMT, manganese oxides, asbestos (in brakes)	Neurologic disorders, hematologic malignancies, dermatologic D/O's
Bar and Café workers	Environmental tobacco smoke	Cardiovascular, lung ca
Construction workers (metal welding/cutting) Auto repair workers (radiator repair) Metal workers/electroplaters	Lead Welding fumes	Renal, hypertension, nervous system, reproductive disorders, hematologic disorders Metal fume fever, COPD RSI's
Bridge workers (toll booth and maintenance)	Carbon monoxide, diesel particulates, other motor vehicle pollutants	Cardiovascular, COPD, lung cancer
Construction workers (painting, roofing)	Solvents (paints, paint thinners/ strippers) Coal tar volatiles UV radiation	CNS and PNS disorders, Hematologic disorders/malign Eye/nose/skin irritation Skin cancers
Firefighters	Wide variety hazardous materials	Hematologic, brain, GU ca's
Foundry workers	PAHs, CO, silica, various solvents Asbestos (see above)	Lung cancer, autoimmune, hematologic malignancies, prostate ca
Garment and textile workers, cleaners	Formaldehyde (from perm press fabric), benzene (waterproofing solvents), cleaning solvents	Skin rashes, eye irritation, asthma and other respiratory, GI and renal disorders, various cancers, CNS
Landfill, incinerator and sewage workers	Hydrogen sulfide, CO, methane, other gases from decomposition	ENT irritation, CNS, respiratory
Office/clerical workers	Air quality issues - ventilation, molds, off-gassing from copiers Ergonomic issues	Respiratory, dermatologic, constitutional symptoms RSI's
Painters	Paint pigments, various solvents and resins Silica (sandblasting)	Lung and bladder cancers Respiratory, lung ca, autoimmune
Petrochemical workers	Hydrocarbons and solvents of many types	CNS, hematologic malignancies, liver ca, autoimmune disorders
Rubber, textile, dye manufacturing workers	Benzidine, 4-aminobiphenyl, B-naphthalene	Bladder cancer

*This table should be considered by no means exhaustive. It is merely a sampling and if you have specific questions we would be happy to look into them for you.

Taking an Occupational History A Sample Screening Questionnaire

By asking a few simple questions, primary care physicians can identify patients whose work may be affecting their health. Vigilance with your own patients can be instrumental in triggering public health measures that make the workplace safer for everyone.

1. What is your current job?
2. What are your usual tasks?
3. How long have you done this work?
4. Do you have contact with dusts, fumes, vapours, gases, chemicals, radiation, noise, vibration, or temperature extremes?

5. Do you perform repetitive physical motions in your work?
6. Do you develop any symptoms or health problems in relation to the workday or the work week?
7. Did you have jobs in the past that involved contact with dusts, vapors, gases, chemicals, radiation, noise, vibration, temperature extremes, or repetitive motions?
8. Did you experience effects on your health in any of these settings?
9. Are there health concerns with any of your co-workers?

If patients answer yes to any of questions 4 - 9, a more intensive assessment of the nature and duration of exposures is most likely in order.