

A rapid overview of occupational diseases from welding:

Tips for family physicians

As a physician, you may have patients who work as welders. Welding is fundamental to many industrial processes and occurs across a variety of industries. Here we review key chronic health outcomes related to welding and provide information on reporting related workplace exposures and diseases.

Welding and allied processes have shared health hazards, such as ergonomic stressors, noise, welding fumes, irritating gases, fires, ultraviolet and infrared radiation, eye hazards, and electrical shocks. These hazards place welders at risk of certain chronic occupational diseases. These diseases often have gradual onset over several years, which can make diagnosis and assessment of risk factors difficult.

Occupational diseases associated with welding

Respiratory diseases

Long-term exposure to welding fumes is associated with chronic obstructive pulmonary disease (COPD), chronic bronchitis, and occupational asthma, although the degree of risk depends on several factors (e.g., type of metal fumes, workplace controls).¹ Routine spirometry for welders is not required in Canada; however, it is important that the patient is aware of the signs of asthma and bronchitis and sees a physician early for persistent respiratory symptoms. For concerns about asthma or COPD, consider referring your patient for pulmonary function testing. You can

search either Pathways or the College of Physicians and Surgeons of BC's Diagnostic Accreditation Program to find accredited testing facilities where pulmonary function testing is performed.

Illnesses from chemical exposures

Exposures to chemicals like metals and solvents, including agents like chromates, nickel, epoxies, and degreasers, can vary and are highly job dependent. The patient should work with their employer to understand and effectively prevent these exposures. Medical monitoring among asymptomatic individuals is limited under BC's Occupational Health and Safety Regulation and is typically arranged by the employer.

If the patient develops signs of toxicity from a chemical exposure, laboratory testing may be indicated. The indications and interpretation of these tests can be specific, so ordering family physicians may consider consulting other specialist physicians (e.g., internal medicine or medical subspecialties), calling the BC Drug and Poison Information Centre, or contacting a WorkSafeBC physician via the RACEapp+ to discuss.

Occupational cancers

The International Agency for Research on Cancer has assessed that welding fumes are a confirmed cause of lung cancer, with positive associations with kidney cancer.² Ultraviolet radiation from welding has also been determined to cause ocular melanoma.² Patients diagnosed with these cancers should have occupational histories that inquire into welding.

Contact dermatitis

Welders have regular contact with dermal sensitizers that can lead to allergic contact

When to report to WorkSafeBC

If a patient who works or has worked as a welder develops a disease that is suspected to be work-related, initiate a claim by submitting a Form 8 to WorkSafeBC. If you have questions before or after submitting a Form 8, contact a WorkSafeBC physician on the RACEapp+.

dermatitis—notably metal dusts and fumes (e.g., nickel, chromium), epoxies, and resins.³ Workplace irritants include solvents, petrochemicals, and ultraviolet radiation. Patch testing may be indicated for welders with dermatitis to ensure that allergens are identified and managed.

Noise-induced hearing loss

Welders are often exposed to hazardous noise levels, which can cause noise-induced hearing loss.⁴ Employers have legislated responsibilities for noise, including exposure limits, hearing conservation programs, workplace controls, and audiometric surveillance. You may receive referrals to initiate medical investigations, specialist referrals, and clinical management of abnormal audiograms from workplace surveillance programs.

If you suspect occupational risks or exposures

If there are any significant concerns about preventable health risks in a workplace, you or your patient can contact WorkSafeBC's Prevention Information Line (1 888 621-7233).

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past serves me well, and I am so grateful for all that I have survived. I like to think of investing and profiting from my suffering when I encounter challenges. This is how we can learn and improve.”

At the University of British Columbia, he met his wife and best friend, Bonnie. After graduating from medical school, John served in the Canadian military as a medical officer and began his family practice in the Courtenay Medical Clinic.

Like all great physicians, John continued to refine his skills and expand his knowledge beyond medical school, motivated by his deep desire to help his patients. I know of no other physician with the breadth and depth of John’s clinical and counseling skills.

John studied and practised mindfulness, acupuncture, clinical hypnosis, trigger-point therapy, neuroproltherapy, and a variety of myofascial skills, including the Franklin Method and osteopathic techniques. He shared his learning generously with colleagues and trained international medical graduates.

John did more for his patients than any other physician I know. In addition to his full clinic practice, he taught weekly 90-minute group sessions in psychological skill building, teaching his patients practical skills such as mindfulness, couples’ therapy, motivational interviewing, trauma therapy, dialectical-behavioral therapy, addictions therapy, and cognitive-behavioral therapy (CBT). He would accept some of the most challenging patients, because he knew no other physician would care for them.

John told me, “I have realized I am so drawn to medical hypnosis, motivational interviewing, positive psychology, mindfulness, and CBT because of the empowering nature of the communication and the intent. Put together with our technological advances, wonderful outcomes can result.”

John enjoyed a rich life outside of medicine. With his lifelong curious and humble spirit, he challenged himself by studying public speaking with Toastmasters; swimming; playing guitar, ukelele, violin, piano, saxophone, and banjo; singing;

and dancing, including doing the West Coast Swing with Bonnie.

John cherished his beautiful family. He was a devoted, loving, and wise husband and father, and he inspired both of his children, Christine and Meesh, to become physicians.

John inspired his family, friends, colleagues, and patients to rise to life’s challenges. He saw and brought out the best in us. He was always cheering us on.

John did not get lost in the title, role, and work of a physician. This was his advice to me on life after an accomplished career in medicine: “Going into retirement to explore and learn skills that might enhance my quality of life meant at times being the one with the least skill in a group. It is liberating to judge myself not by my skills or accomplishments but [by] how I treat others and myself.”

After John’s retirement, he and Bonnie moved to Nanaimo, where their daughter, Christine, had established her family practice. He continued to enjoy his passions in music, exercise, gardening, and, above all else, his family.

He is survived by his loving wife, Bonnie; his children, Christine Layton (Elliot) and Meesh QX; his grandchildren, Quinn and Afton Layton; and many family members and friends. Our lives have been enriched and transformed by John. He inspires us still.

—Davidicus Wong, MD
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Patients who believe they have had exposure to a harmful substance at work but haven’t experienced ill effects can file the exposure through WorkSafeBC’s Exposure Registry Program ([worksafebc.com/form-41m1](https://www.worksafebc.com/form-41m1)). ■

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Additional reading

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WorkSafeBC. Controlling exposure risks from welding and cutting processes. March 2024. www.worksafebc.com/en/resources/health-safety/books-guides/controlling-exposure-risks-welding-cutting-processes.