

Let's Talk About...

Second-Hand and Third-Hand Tobacco Smoke

Tobacco smoke causes disease and death in both smokers and non-smokers. This is because tobacco smoke damages every organ in the body. There are 7,000 chemicals in tobacco smoke (69 that we know cause cancer). When inhaled, the body quickly absorbs these 7,000 chemicals, causing changes in body cells that can lead to cancer, heart disease, and other serious health issues. There is no safe level of exposure.

Tobacco smoke is put into three categories:

1. *First-hand smoke*, which is inhaled by the smoker.
2. *Second-hand smoke*, which is the smoke either exhaled by a smoker or released from the end of a burning cigarette.
3. *Third-hand smoke*, which is the tobacco smoke residue and gases that are left after a cigarette has been smoked.

Second-Hand Smoke

Second-hand smoke is both sidestream smoke (the smoke that comes from the burning end of a cigarette) and mainstream smoke (the smoke exhaled by the smoker).

Sidestream smoke makes up about 85% of second-hand smoke. It's made up of different chemicals than exhaled mainstream smoke

because it burns at lower temperature, and the burn is not as clean or complete.

Being exposed to second-hand smoke affects an adult's heart and blood vessels right away. Adult non-smokers who live with smokers are at about 25% more risk of developing heart disease.

Second-hand smoke causes lung cancer even in non-smokers. More than 300 non-smokers die each year in Canada from lung cancer that is related to second-hand smoke.

Babies, Children, and Second-Hand Smoke


Because their bodies are developing, infants and young children are especially at risk to the toxins in second-hand smoke.

In babies and young children being exposed to second-hand smoke may cause:

- a low birth weight, which increases the chance of developing heart disease and type 2 diabetes when they grow up
- a higher risk for SIDS (sudden infant death syndrome)
- serious lower respiratory infections, like bronchitis and pneumonia
- respiratory symptoms, including coughing, mucous, wheezing, and being short of breath

Children who already have asthma have more attacks and the attacks are more serious.

Second-hand tobacco smoke also increases children's risk of ear infections. Along with having more ear infections, children are more likely to need to have tubes put in their ears to drain the fluid caused by having a lot of ear infections.



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Traces of cancer-causing and other toxins are found in the blood, urine, saliva, and breastmilk of non-smokers, even after little exposure to second-hand smoke.

Opening windows in buildings or vehicles doesn't protect you from the effects of second-hand smoke. Opening windows may get rid of the smell; however, it doesn't get rid of the cancer-causing toxins in the air. Only 100% smoke-free environments protect you from second-hand smoke.

Third-Hand Smoke

Third-hand smoke is made up of the residue and gases of tobacco smoke. Third-hand smoke:

- stays on the surfaces and in dust after the tobacco has been smoked
- includes the gases that go back into the air
- reacts with other elements in the environment to make more pollution
- includes arsenic, lead, and cyanide
- builds up on surfaces, furniture, clothing, drapes, and carpets

When tobacco is burning, it releases nicotine in the form of a vapour. This vapour attaches to surfaces like walls, floors, carpeting, drapes, and furniture. Nicotine reacts with nitrous acid (one source of which is burning tobacco) and forms cancer

causing tobacco-specific nitrosamines (TSNAs). The nicotine can last for months on indoor surfaces. This means that these TSNAs keep being created. TSNAs are then inhaled, absorbed, or ingested. Anyone who smokes in any enclosed space (like a car or home) is exposing non-smokers to TSNAs.

Children are very sensitive to third-hand smoke exposure because they breathe near, crawl on, play on, touch, and even taste contaminated surfaces. Children can also eat tobacco residue because they often put their hands in their mouth not knowing that they've touched surfaces that are contaminated with third-hand smoke.

Experts on third-hand smoke recommend 100% smoke-free homes and vehicles. They also suggest that replacing furniture, carpets, drapes, etc., can greatly reduce exposure to third-hand smoke residue.

Policies to Protect People from Exposure to Second-hand and Third-hand Smoke

Through Alberta's Tobacco Reduction Act (TRA), all public and work places in the province are smoke free. The act also prohibits smoking on patios with food service and within 5 metres of a doorway, window, or air intake of a public place or workplace (including enclosed parking garages and work vehicles).

In November 2014 the TRA was updated and now bans smoking in vehicles when children are present. It also bans selling, giving, lending or supplying of tobacco products to children under 18 years of age.