



Fact Sheet

Cleaner Air Oregon: Excess Cancer Risk

The Cleaner Air Oregon program assesses both cancer and noncancer health risks to the public from exposure to Toxic Air Contaminant emissions from commercial and industrial facilities. This document provides information on how cancer risks are assessed and regulated under the CAO program. For more information on noncancer health risks please see the [Cleaner Air Oregon: Noncancer Health Risk Fact Sheet](#).

Cancer and excess cancer risk from exposure to Toxic Air Contaminants

Cancer is a family of diseases where some of the body's cells grow uncontrollably and spread to other parts of the body. There are more than 100 different types of cancer which can start almost anywhere in the human body.

The American Cancer Society estimates that on average about 400,000 people per million will get cancer at some point in their lifetime in the U.S., or a 40% chance. This is called the background cancer rate and comes from a combination of factors which include age, genetics, diet, tobacco use, random chance, and environmental exposures. Exposure to certain Toxic Air Contaminants can increase a person's risk of developing cancer. Specifically, breathing harmful chemicals may increase the [risk of certain types of cancer](#) including lung, nose and throat, and leukemia.

Excess cancer risk is expressed as a **probability**, or chance, that a person will develop cancer over a lifetime of exposure to Toxic Air Contaminants and can be thought of as additional cancer cases in a population. Excess cancer risk from exposure to harmful chemicals is the extra risk above the background cancer rate that a person may face from exposure to those chemicals over a lifetime.

An excess cancer risk of one in a million means that about one person in a population of one million people exposed to the same level of air contaminant(s), at the same location, could develop cancer over a lifetime in addition to the background cancer rate of 400,000.

Cancer risk estimates are used to better understand how exposure to harmful chemicals impact future cancer cases and inform public health protections. It is important to note a cancer risk estimate does not tell us how many people currently have cancer from air contaminant exposure.

How does Cleaner Air Oregon assess excess cancer risk?

The CAO program looks at the excess cancer risk to communities from exposure to toxic air contaminant emissions from nearby industrial facilities. The risk of developing cancer from toxic air contaminants depends on how long the contact lasted, the type and amounts of contaminants in the air, and how often a person is exposed to them. If a person is exposed to multiple cancer-causing contaminants from the air, the risk from each chemical is added up to calculate the person's total excess cancer risk.

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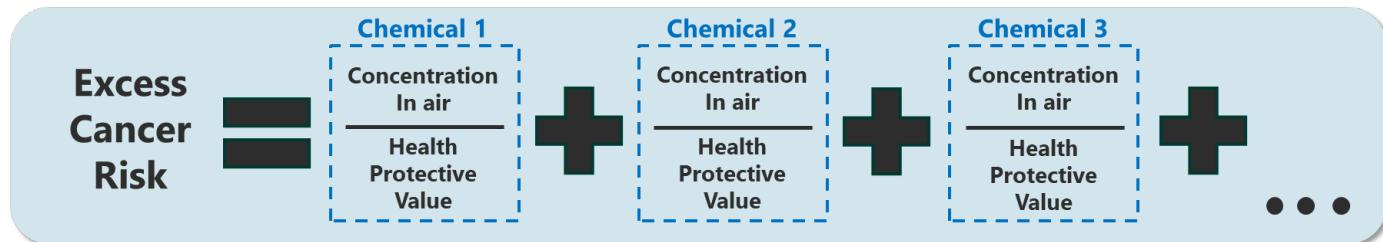
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There are two pieces of information needed for each contaminant when calculating excess cancer risk:

- (1) **Concentration of the contaminant in air:** CAO uses emissions modeling to calculate the amount of the contaminant in the air that people are exposed to at multiple locations near the facility.
- (2) **Health protective value:** CAO assigns chemicals health protective values specific to different exposure locations, called Risk-Based Concentrations. These values represent the amount of contaminant exposure that would result in an increased chance of one in one million of developing cancer. Learn more about DEQ's health protective values and how health risks are assessed [here](#).

Excess cancer risk is calculated by comparing the amount of each contaminant in the air with the health protective value. This comparison is done for each contaminant emitted from a facility that has a health protective value, and each result is then added up to provide the **total excess cancer risk**.



How does Cleaner Air Oregon regulate excess cancer risk?

The CAO program compares the excess cancer risk against health-based benchmarks called Risk Action Levels to determine what actions a facility may need to take to reduce these risks. These levels were set by the Oregon Legislature (Oregon Revised Statutes [468A.335](#)) and are set differently for new facilities and existing facilities in the program. Based on the risks, DEQ could require a facility to limit risk, notify the nearby community of these risks, or reduce risks by installing controls or limiting operations. Learn more about Risk Action Levels and facilities' requirements [here](#).

Program name and contacts

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