

Auckland Regional Public Health Service

Rātonga Hauora ā Iwi o Tamaki Makaurau



Working with the people of Auckland, Counties Manukau and Waitemata

Public Health Fact Sheet: Indoor air quality and pollutants

What causes poor Indoor Air Quality?

The primary cause of poor indoor air quality is pollution sources that release gases or particles into the air. Inadequate ventilation can increase indoor pollutant levels by not bringing in enough outdoor air to dilute emissions from indoor sources, and by not carrying indoor air pollutants out of the home. High temperature and humidity levels can also increase concentrations of some pollutants.

What causes poor air quality in the home?

There are many sources of indoor air pollution in the home. These include:

- Combustion sources such as oil, gas, kerosene, coal, wood, and tobacco products
- Unflued (including portable) gas heaters.
- Building materials and furnishings such as asbestos-containing insulation, wet or damp carpet, and cabinetry or furniture made of certain pressed wood products.
- Products for household cleaning, pest control and maintenance, personal care, or hobbies.
- Outdoor sources such as pesticides, traffic fumes and industrial emissions.

The relative importance of any single source depends on how much of a given pollutant is emitted, and how hazardous those emissions are. In some cases, factors such as how old the source is and whether it is properly maintained are significant. For example, an improperly adjusted gas stove can emit significantly more carbon monoxide than one that is properly adjusted.

Some sources - such as building materials, furnishings, and household products like air fresheners - release pollutants more or less continuously. Other sources, related to activities carried out in the home, release pollutants intermittently. These include smoking, the use of unvented or malfunctioning gas stoves and heaters, the use of solvents in cleaning and hobby activities, paint strippers in redecorating activities, and cleaning products and pesticides. High pollutant concentrations can remain in the air for long periods after some of these activities.

What are the health effects from indoor air pollutants?

Health effects from indoor air pollutants may be experienced soon after exposure, or many years later.

Immediate effects

Immediate effects may appear after a single exposure, or repeated exposures. These include irritation of the eyes, nose, and throat; headaches; dizziness; and fatigue. Sometimes the treatment is as simple as eliminating the person's exposure to the source of the pollution, if it can be identified. Symptoms of some illnesses, such as asthma and chronic bronchitis, may be triggered by exposure to indoor air pollutants.

The likelihood of immediate reactions to indoor air pollutants depends on several factors. These include age, any pre-existing medical conditions and individual sensitivity - which varies tremendously from person to person. Certain immediate effects are similar to those from colds or other viral diseases, so it is often difficult to determine if the symptoms are a result of exposure to indoor air pollution, or from some other cause. Some effects may be made worse by an inadequate supply of outdoor air, or from the heating, cooling, or humidity conditions in the home.

Long-term effects

Other health effects may appear either years after exposure has occurred, or only after long or repeated periods of exposure. These effects, which include some respiratory diseases, heart disease, and cancer, can be debilitating or fatal.

While pollutants commonly found in indoor air are responsible for many harmful effects, there is considerable uncertainty about what concentrations or periods of exposure are necessary to produce specific health problems. Further research is needed in this area.

What are some basic strategies to improve indoor air quality?

Source control

Usually, the most effective way to improve indoor air quality is to eliminate individual sources of pollution, or to reduce their emissions. For example:

- Some sources, like those that contain asbestos, can be sealed or enclosed.
- Others, like unflued gas heaters, can be replaced with a safer option.

In many cases, controlling the source of the problem is also a more cost-efficient approach to protecting indoor air quality than increasing ventilation - which can increase energy costs.

Improved ventilation

Another approach to lowering the concentrations of indoor air pollutants in your home is to increase the amount of outdoor air coming indoors. Most home heating and cooling systems do not bring fresh air into the house. Examples of how to increase the ventilation rate include:

- Opening windows and doors.
- Operating window or ceiling fans.
- Fitting vents above windows.
- Installing extractor fans in bathrooms and kitchens.

Further information

Please phone Auckland Regional Public Health Services on (09) 623 4600 and ask for the duty Health Protection Officer in the Healthy Environments team if you require further advice on this matter.

If you are concerned about asbestos at home, you can get more information from the Ministry of Health booklet *All About Asbestos* (code 7021) and *Removing Asbestos From the Home* (code 7022). The resources are available from www.healthed.govt.nz or the Authorised Provider at your local DHB.