RxAir®

Are You Safe In Your Home?
The Dangers of Indoor Air Pollution

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Introduction

It's no secret that outdoor air pollution is damaging to people's health and well-being, but what many people don't realize is that there's a good chance that the air they're breathing indoors is also dangerous.

According to the Environmental Protection Agency (EPA), indoor pollutant levels can be more than 100 times higher than levels of outdoor pollution.[1] Considering the fact that the average American spends about 90% of his or her time indoors, this is certainly cause for concern. In fact, the EPA has ranked indoor air pollutants one of the top five environmental risks to public health.

Fortunately, there are steps homeowners can take to improve the air inside their house and lower the risk of getting sick from indoor pollutants. But first, it's important to have a better understanding of this public health issue and all that it entails.

Contents

Common Examples of Indoor Air Pollution

There are a number of different sources of indoor air pollution. In this section, we'll take a look at some of the most common and potentially dangerous.

Radon

Radon is a highly toxic, colorless gas...

...derived from the natural decay of uranium, an element that's found in most soils.[2]

How does radon get into your home?

Radon typically seeps into homes through cracks in the foundation or sometimes even well water.

What are the health effects associated with radon?

Radon is a known human carcinogen, resulting in an estimated 20,000 lung cancer deaths per year.[3] It's the number one cause of lung cancer among non-smokers.[4] According to the U.S. Environmental Protection Agency (EPA), radon levels at or above 4 pCi/L are dangerous and corrective measures are recommended.[5]

Who is most at risk of being affected by radon?

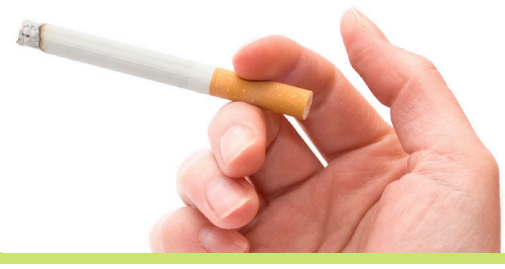
Smokers

People who work underground

RADON IS A KNOWN HUMAN CARCINOGEN RESULTING IN AN ESTIMATED 20,000 LUNG CANCER DEATHS PER YEAR

#1 CAUSE OF LUNG CANCER AMONG NON-SMOKERS

Secondhand Smoke



Secondhand smoke is a combination of gases...

...and fine particles that come from burning tobacco products and the smoke that is exhaled by the people using them.

How does secondhand smoke get into your home?

Secondhand smoke is one of the easiest sources of indoor air pollution to control, as the only way it enters the air in the home is when people smoke cigarettes, cigars, pipes or other tobacco products indoors.

What are the health effects associated with secondhand smoke?

Secondhand smoke is a known human carcinogen, resulting in an estimated 3,000 lung cancer deaths per year. It can also increase the risk of heart disease by up to 30%.[6]

SECONDHAND SMOKE CAN INCREASE THE RISK OF HEART DISEASE BY UP TO

30%

Who is most at risk of being affected by secondhand smoke?

Children

People with respiratory problems

Non-smokers who live with smokers

Volatile Organic Compounds (VOCs)

VOCs are carbon-based chemicals...

...that evaporate easily at room temperature, emitting both odorous and non-odorous gases with varying levels of toxicity. Concentrations of VOCs are up to five times higher indoors than outdoors.[7]

CONCENTRATIONS OF VOCs ARE UP TO 5 TIMES HIGHER INDOORS

How do VOCs get into your home?

VOCs are released from a number of common household products, including the following:

- Paint
- Carpets
- Cleaning supplies
- Air fresheners
- Office equipment (e.g. copiers, printers)
- Moth balls
- Craft materials (e.g. glues, adhesives)
- Aerosol sprays

Volatile Organic Compounds (VOCs) continued...

What are the health effects associated with VOCs?

The health effects associated with VOCs vary depending on a few key factors:

- The toxicity of the chemical
- The amount that's in the air
- The period of exposure

Effects from short-term exposure include nausea, dizziness, headaches, drowsiness and light-headedness – and typically subside once the exposure stops. While there is still some uncertainty regarding the effects of long-term exposure, studies have shown that some VOCs affect the liver, kidney and nervous system – and even cause cancer – in laboratory animals. [8]

EFFECTS FROM SHORT-TERM EXPOSURE TO VOCs INCLUDE NAUSEA, DIZZINESS, HEADACHES, DROWSINESS & LIGHT-HEADEDNESS

Who is most at risk of being affected by VOCs?

Elderly

People with respiratory problems

Young children

Formaldehyde

Formaldehyde is a colorless, odorous, toxic gas...

...commonly used to make building materials and household products.[9] Additionally, it is a by-product of natural processes such as combustion, and is often found both indoors and outdoors at high concentrations.

How does formaldehyde get into your home?

Similar to VOCs, formaldehyde can be present in a number of common household products, including the following:

- Products that contain pressed wood (e.g. plywood, particleboard, fiberboard)
- Walls
- Furniture
- Craft supplies (e.g. glues, adhesives)
- Flooring
- Insulation materials

Formaldehyde continued...

What are the health effects associated with formaldehyde?

Exposure to elevated levels of formaldehyde (above 0.1 parts per million) can cause watery eyes, nausea, wheezing, coughing, fatigue, difficulty breathing and burning in the eyes and throat. Additionally, formaldehyde has been linked with cancer in both humans and laboratory animals.

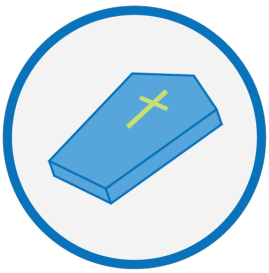
FORMALDEHYDE HAS BEEN LINKED WITH CANCER

Who is most at risk of being affected by formaldehyde?

Healthcare professionals

Laboratory technicians

Industrial workers



Mortuary employees

Mold

Mold is a type of fungus...

...that can grow both indoors and outdoors. While there are many different types of molds, some of the most common indoor molds are Cladosporium, Penicillium, Alternaria and Aspergillus. [11]

MOLD THRIVES IN WARM, HUMID, DAMP ENVIRONMENTS

How does mold get into your home?

Mold can enter from the outside by way of open doorways and windows as well as heaters and air conditioners. It can also grow indoors on its own. Mold thrives in warm, humid, damp environments, which is why it's commonly found in bathrooms and basements. Mold reproduces by making spores, and these spores can travel easily through the air, attaching to shoes, clothing and skin.

MOLD CAN TRAVEL EASILY THROUGH THE AIR, ATTACHING TO SHOES, CLOTHING & SKIN

Mold continued...

What are the health effects associated with mold?

Some people are more sensitive to mold than others. Exposure to this fungus can irritate the throat, eyes and skin. It can also cause nasal stuffiness, coughing and wheezing.[12]

EXPOSURE TO MOLD CAN IRRITATE THE THROAT, EYES & SKIN

Who is most at risk of being affected by mold?

People who have had an organ transplant

People who are prone to sickness or have a weakened immune system

People with chronic lung infections

Cancer patients taking chemotherapy

People with respiratory problems

Biological Contaminants

What are biological contaminants?

As the EPA states, "biological contaminants are, or are produced by, living things,"[13] and are typically invisible to the human eye. They tend to grow in warm, damp places.

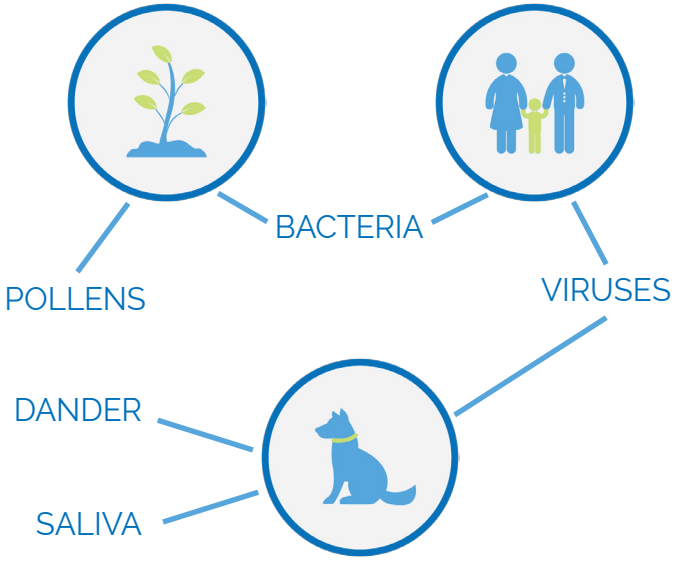
Biological contaminants include the following:

- Household allergens
  (e.g. pet dander, dust mites, pest droppings, pollen)
- Bacteria
- Viruses

How do biological contaminants get into your home?

There are a few main sources of biological contaminants. According to the EPA:

> *"Pollens originate from plants; viruses are transmitted by people and animals; bacteria are carried by people, animals, and soil and plant debris; and household pets are sources of saliva and animal dander."*



Biological Contaminants continued...

What are the health effects associated with biological contaminants?

The health effects vary depending on the type of contaminant. For example, household allergens can trigger allergic reactions, which include symptoms such as watery eyes, sneezing, an itchy throat and a runny nose. Bacteria and viruses, on the other hand, can cause infectious diseases like influenza, tuberculosis and chicken pox.

BACTERIA AND VIRUSES CAN CAUSE INFECTIOUS DISEASES LIKE INFLUENZA, TUBERCULOSIS & CHICKEN POX

Who's most at risk of being affected by biological contaminants?

People with respiratory problems

People who are prone to sickness or have a weakened immune system

How to Improve Your Indoor Air Quality

Now that we've gone over common sources of indoor air pollution, let's examine some of the most effective ways to ensure that the air in your home is clean and safe.

Eliminate the source of pollution

One of the most effective ways to reduce indoor air pollution is to eliminate the source entirely. Of course, sometimes this is easier said than done, though there are certain cases in which this can be a simple solution to implement.

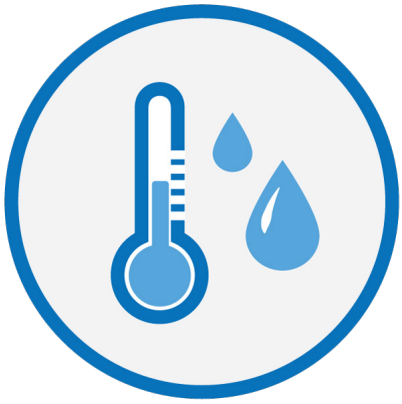
For example, if secondhand smoke is an issue in your home, initiate a new policy that requires inhabitants and guests to smoke outside. You may also want to consider switching to low-VOC products, paying closer attention to the potential levels of toxicity in common household items and using an air purifier.

Improve your ventilation

Proper ventilation reduces the sources of indoor pollutants and keeps the air healthy. That being said, many modern homes are built to be airtight and energy-efficient, which can hinder ventilation and make it easier for pollutants to become trapped indoors.

While keeping the windows open or using a window fan can help improve ventilation, it may be necessary to take more drastic measures to keep the air circulating in and out of your home.[14]

Control humidity levels



Many indoor air pollutants thrive in warm, damp environments, so it's important to control the level of humidity inside your home. There is no ideal humidity level, but experts say that it should range from 20% to 60% year round.[15]

Maintaining an acceptable humidity level can significantly reduce the presence of allergens, mold and other pollutants.

Keep an eye on your home

In some cases, you may need to make improvements to your home in order to reduce indoor air pollution.

If, for example, your home has high levels of radon, you'll want to have the cracks and openings in your foundation sealed to prevent this gas from entering your home.[16] The EPA recommends hiring a certified or qualified radon mitigation contractor to facilitate this and other solutions to this potentially dangerous problem.

To reduce the chances of mold growing inside your home, make sure there aren't any leaks that are allowing moisture to come indoors.

Use an air purifier

Residential air purifiers clean the air inside your home and can help eliminate certain types of indoor air pollution. The RXAir® uses innovative, patented, FDA-approved ViraTech® air purification technology to remove greater than 99% of bacteria from the air on a first-pass basis and to reduce concentrations of VOCs and odors.

The RXAir is a great solution to indoor air pollution, as it significantly improves overall indoor air quality, while greatly reducing the presence of biological contaminants, VOCs, and odors associated with secondhand smoke and formaldehyde.

About RxAir®

At RxAir, our goal is to promote a healthy lifestyle through use of our innovative, patented, FDA-approved ViraTech® air purification technology, thereby improving the quality of life of each and every one of our customers.

Based in Yarmouthport, Massachusetts, we are dedicated to providing our customers with the highest quality air purification products at competitive prices so that they can safeguard their health and enjoy a greater sense of well-being.

Our flagship product, the RxAir, has been FDA-approved as a Class II Medical Device. Independently tested by an EPA and FDA certified laboratory, the RxAir has shown proven success in killing greater than 99% of bacteria and reducing concentrations of odors and VOCs. The RxAir uses high-intensity germicidal ultraviolet lamps that kill bacteria instead of just trapping it, setting it apart from ordinary filtration units.

The RxAir®

For more information about RxAir and our patented ViraTech air purification technology, visit our website at RxAir.com.

Learn More

FDA CLEARED

LAB TESTED

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