

Lung and Bronchus Cancers Risk Factor Information

This document gives a general overview of risk factors. The document covers:

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About Cancer and Risk Factors

Cancer is not just one disease.

Cancer is a group of over 100 different diseases. Cancer occurs when abnormal cells grow out of control and crowd out the normal cells. It can start anywhere in the body and can spread (“metastasize”) to other parts of the body. Cancer types are named for the original location in the body and the type of cell or tissue. Different types of cancer have different causes and risk factors.

Cancer can take a long time to develop.

The cause of cancer is sometimes related to events that happened many years ago. Most cancer types are thought to take anywhere from 10 to over 50 years to develop. A few types, such as leukemia or lymphoma, are thought to take less than 10 years.

A risk factor is anything that increases your chance of getting cancer.

Some risk factors can be controlled while others cannot. Risk factors can include:

- Hereditary conditions (e.g., genes passed down from parents)
- Medical conditions or treatments (e.g., a previous cancer diagnosis)
- Infections (e.g., human papilloma virus)
- Lifestyle factors (e.g., smoking cigarettes)
- Environmental exposures (e.g., certain air pollutants)

Most risk factors do not directly cause cancer.

A risk factor influences the development of cancer but usually does not directly cause cancer. Instead, a combination of risk factors likely drives cancer development. For example, genetic factors can make individuals more likely to get cancer when they are exposed to a cancer-causing chemical.

Environmental risk factors depend on how, how much, and how long you are exposed.

Your risk from exposure to certain chemicals or radiation depends on the type, extent, and duration of exposure. For example, inhaling a certain chemical may increase your risk of getting cancer. However, touching the same chemical may not. In addition, some substances may increase your risk only if you are exposed to high amounts over a long time.

It is difficult to identify the exact causes of cancer.

- Many cancers can develop due to random chance.
- Multiple risk factors can act in combination.
- Risk factors can change over time.
- Cancer might not develop or get diagnosed for a long time after an initiating event (such as exposure or random cell mutation).

Knowing your risk factors can help you make more informed choices.

Discuss your risk factors with your health care provider to make more informed decisions on lifestyle and health care.

About Lung and Bronchus Cancer

Both primary and secondary tumors can develop in the lung or bronchus.

Primary lung and bronchus tumors start in the lung or a bronchus. Secondary tumors start elsewhere in the body and then spread (metastasize) to the lung or bronchus. Secondary tumors are named for the original cancer type. If breast cancer has spread to the lungs, the secondary tumors are still considered breast cancer, not lung cancer.² Lung and bronchus tumors can be either cancerous (malignant) or non-cancerous (benign).^{2,5}

Lung and bronchus cancer is common.

Lung and bronchus cancer is the second most common cancer in both men (after prostate cancer) and women (after breast cancer). The American Cancer Society estimates that 236,740 individuals will be diagnosed with lung and bronchus cancer in 2022.^{1,2} In Massachusetts, lung and bronchus cancer is expected to account for almost 1 in 7 cancer diagnoses in 2022.¹

Lung and bronchus cancer usually occurs at older ages and is rare for children.

Most people diagnosed with lung and bronchus cancer are older than 65 years of age. A very small number of people are diagnosed younger than 45.² Pleuropulmonary blastoma (PPB) is a rare type of childhood lung cancer that occurs most often in children ages 3 to 4.⁷

Lung and bronchus cancer is more common in black men.

The incidence of lung and bronchus cancer is greater among men than women. About 1 in 15 men and 1 in 17 women will develop lung and bronchus cancer in their lifetime.² Black men are more likely to develop lung and bronchus cancer than white men whereas black women are slightly less likely than white women.^{2, 5}

Incidence rates of lung and bronchus cancer have been declining in recent decades.

The incidence rate of lung and bronchus cancer was on the rise for a long period of time. However, the incidence rate among men has been dropping since the mid-1980s. The rate among women began to drop in the mid-2000s.^{2, 9}

Types of Lung and Bronchus Cancer

Non-small cell lung cancer is the most common type.

There are two main types of primary lung and bronchus cancers: non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC).^{2, 5, 6} About 80% to 85% of lung and bronchus cancers are NSCLC. There are three subtypes of NSCLC.^{2, 5}

- Adenocarcinoma is the most common type of lung and bronchus cancer in non-smokers. It is usually found in the outer region of the lung.
- Squamous cell carcinoma is usually found in the middle of the lungs, near an airway (bronchus).
- Large-cell carcinoma may appear in any part of the lung.

SCLC makes up about 10% to 15% of all lung and bronchus cancers but often starts in the bronchi.^{2, 6} Additional rare types of lung and bronchus cancers include lung carcinoid tumors, adenoid cystic carcinomas, hamartomas, and pleuropulmonary blastoma, among others.²

Known Risk Factors

Medical Conditions

Previous diagnosis of lung or bronchus cancer:

Individuals who have had lung or bronchus cancer have a higher risk of developing a second lung or bronchus tumor.²

Previous radiation therapy to chest:

Individuals who have had radiation therapy to the chest have a higher risk for lung and bronchus cancer, particularly if they smoke. Typical patients are those treated for Hodgkin disease or women treated with radiation after a mastectomy for breast cancer. Women who had radiation therapy to the breast after a lumpectomy do not seem to have an elevated risk of lung and bronchus cancer.²

Hereditary Conditions

Family history of lung or bronchus cancer:

Siblings and children of those who have had lung or bronchus cancer may have a slightly higher risk themselves. However, it is not clear whether this risk is attributed to hereditary conditions or to shared exposures (such as tobacco smoke or radon). Genetics do seem to play a role in some families with a strong history of lung and bronchus cancer. Although these genetic changes cannot be routinely tested for currently, research is ongoing.²

Lifestyle Factors

Smoking:

Smoking is by far the most important risk factor for lung and bronchus cancer.¹⁰ At least 80% of deaths from lung and bronchus cancer are thought to result from smoking.² SCLC is almost always caused by smoking and rarely develops in an individual who has never smoked.² The risk of lung and bronchus cancer increases with the quantity and duration of cigarette use. Smoking of cigars and pipes is almost as likely to cause lung and bronchus cancer as cigarette smoking. Furthermore, smoking low tar or “light” cigarettes increases the risk just as much as regular cigarettes. Mentholated cigarettes may increase the risk of lung and bronchus cancer even more since the menthol allows smokers to inhale more deeply.²

If an individual stops smoking before a cancer develops, the damaged lung tissue gradually repairs itself. No matter the age of an individual or how long someone has smoked, quitting may help an individual to live longer.² Information about quitting smoking and related services is available from the Massachusetts DPH Tobacco Cessation and Prevention Program at 1-800-Quit-Now or 1-800-784-8669.

Secondhand smoke:

Breathing in the smoke of others (called secondhand smoke) at home and in the workplace increases an individual's risk of developing lung and bronchus cancer.^{2,8,11} A non-smoker who lives with a smoker has about a 20% to 30% greater risk.⁸

Environmental Exposures

Radon:

Exposure to radon (a naturally occurring radioactive gas) is the second leading cause of lung and bronchus cancer. It is the leading cause among non-smokers.^{2, 13,14} According to the World Health Organization, radon accounts for up to 14% of lung cancers worldwide.¹³ The level of radon that occurs outdoors is not dangerous. However, indoor levels of radon in houses can be concentrated, particularly in basements.⁴ If you are concerned about radon exposure, contact the MDPH Indoor Air Quality Program, Radon Unit at 1-800-723-6695.

Asbestos:

Workplace exposure to asbestos is an important risk factor for lung and bronchus cancer. Smokers have an even greater risk from asbestos exposure than non-smokers. Asbestos may occur in mines, mills, textile plants, shipyards, and where insulation is used. In recent years, government regulations have reduced the use of asbestos in commercial and industrial products. It is still present in many homes and commercial buildings (such as in certain building construction materials). However, asbestos is not usually harmful so long as it is not released into the air by deterioration, demolition, or renovation.^{2, 3}

Other chemicals in the workplace:

Other chemicals that are workplace risk factors for lung and bronchus cancer include diesel exhaust, radioactive ores (e.g. uranium), and inhaled chemicals such as arsenic, beryllium, cadmium, silica, vinyl chloride, nickel compounds, chromium compounds, coal products, mustard gas, and chloromethyl ethers.² The risk of lung and bronchus cancer from each of these substances is even higher for smokers.^{2, 10}

Possible Risk Factors

Medical Conditions

Certain lung diseases:

Having certain lung diseases, such as tuberculosis or bronchitis, for many years may increase the risk of developing lung and bronchus cancer.¹²

Lifestyle Factors

Diet:

Some evidence suggests that a diet high in fruits and vegetables may help protect against lung and bronchus cancer. But any positive effects of fruits and vegetables would be greatly outweighed by the negative effects of smoking. In addition, two large studies found that smokers who took beta carotene supplements had an *increased* risk of lung and bronchus cancer.^{2,12} This suggests that smokers should avoid beta carotene supplements.

Environmental Exposures

Arsenic in drinking water:

High levels of arsenic in drinking water may increase the risk of lung and bronchus cancer. However, levels in U.S. public water systems are much lower than those researched.^{2,12}

Air pollution:

Air pollution in cities, especially near heavy traffic, appears to slightly increase the risk of lung and bronchus cancer.^{2, 10, 12}

Other Risk Factors That Have Been Investigated

Lifestyle Factors

Smoking marijuana:

Marijuana use is believed to increase the risk of lung and bronchus cancer due to its high tar content and other cancer-causing substances (which are also in tobacco smoke). However, this possible association is difficult to study because it has been illegal in many places for a long time and many marijuana users also smoke cigarettes. In addition, the amount of marijuana smoked is usually less than the amount of tobacco.²

Environmental Exposures

Talc:

Talc is a mineral that may contain asbestos in its natural form. Some studies suggest that talc miners and millers have a higher risk of lung and bronchus cancer due to their exposure to industrial grade talc. However, other studies did not find this association.

Talcum powder is made from talc. Since 1976, all home-use talcum products (such as baby, body, and facial powders) have been asbestos-free by law.²

References / More Information

This information sheet should not be considered exhaustive. For more information on other possible risk factors and health effects being researched, please see the resources below. Much of the information contained in this summary has been taken directly from these sources. This material is provided for informational purposes only and should not be considered as medical advice. Consult your physician if you have questions regarding a specific medical problem or condition.

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