

Prostate cancer risk factor information

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

- About cancer and risk factors
- About prostate cancer
- Types of prostate cancer
- Known risk factors
- Possible risk factors
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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 (such as genes passed down from parents)
- Medical conditions or treatments (such as a previous cancer diagnosis)
- Infections (such as human papilloma virus [HPV])
- Lifestyle factors (such as smoking cigarettes)
- Environmental exposures (such as 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, breathing 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 prostate cancer

Most prostate cancers grow slowly, but some can grow and spread quickly.

The prostate is a gland in the male reproductive system that makes some of the fluid that is part of semen. The prostate tends to grow as a man ages. Prostate cancer begins when cells in the prostate gland start to grow out of control.^{2,4}

Prostate cancer is the most common cancer in men in the United States.

Prostate cancer accounts for nearly 1 in 3 cancer diagnoses in men in the United States.^{1,4} A man has about a 1 in 8 chance of developing prostate cancer in his lifetime.^{2,4} The American Cancer Society estimates that 313,780 men in the United States and 6,690 men in Massachusetts will be diagnosed with prostate cancer in 2025.^{1,2} During 2016-2020, prostate cancer accounted for about 26% of all new cancer diagnoses among Massachusetts men.⁶

Most prostate cancers occur in men aged 65 or older.

The risk of developing prostate cancer increases rapidly after age 50.^{2,4} About 60% of men diagnosed with prostate cancer are age 65 or older.² It is most frequently diagnosed among men aged 65-74 with a median age at diagnosis of 68.⁵ It is rare in men younger than 40.²

Prostate cancer is more common in non-Hispanic Black men.

Prostate cancer occurs more often in non-Hispanic Black men than in men of other races.^{1,2} Black men in the United States and the Caribbean have the highest documented incidence rates (new diagnoses) in the world. In the United States, the rate is almost 70% higher among non-Hispanic Black men than White men.¹ In Massachusetts, the incidence of prostate cancer is consistent with this national trend with an incidence rate during 2016-2020 that was 66% higher among non-Hispanic Black men than non-Hispanic White men.⁶ Prostate cancer occurs less often in Asian American, Hispanic, and Latino men.²

The incidence rate (new diagnoses) of prostate cancer decreased from 2007 to 2014 but has increased each year since then.

The number of new diagnoses of prostate cancer in the United States decreased sharply from 2007 to 2014, which coincided with changes to screening recommendations that led to fewer prostate-specific antigen (PSA) blood tests. Since then, the overall incidence rate has increased by 3% each year -- and by about 5% each year for advanced-stage diagnoses (likely contributing to a slowing decrease in the death rate).^{1,2}

Types of prostate cancer

Almost all prostate cancers are adenocarcinomas.

While almost all prostate cancers are adenocarcinomas, other rare types that can start in the prostate include small cell carcinomas, neuroendocrine tumors, transitional cell carcinomas, and sarcomas.^{2,7}

Known risk factors

The only well-established risk factors for prostate cancer are ones that cannot be modified: age, race, family history, and certain inherited genetic conditions.¹

Hereditary conditions

Family history:

Prostate cancer seems to run in some families, but most occur in men without a family history.² The risk of developing prostate cancer more than doubles if a man has a father or brother who has been diagnosed (with the risk being higher for those with a brother than for those with a father).^{2,4,7} The risk is higher for men with several relatives diagnosed with prostate cancer, particularly if they were young when diagnosed.^{2,7}

Inherited genetic mutations and conditions:

Some genetic mutations passed down from a parent raise the risk of prostate cancer. This may play a role in as many as 10% of prostate cancers.

- Inherited mutations of the BRCA1 or BRCA2 genes, which are linked to an increased risk of breast and ovarian cancers in women, can also increase prostate cancer risk in men (especially BRCA2 mutations).²
- Lynch syndrome (also called hereditary non-polyposis colorectal cancer, or HNPCC), increases the risk of prostate cancer, colorectal cancer, and some other cancers.²
- Inherited mutations of the HOXB13 gene are rare but linked to early-onset prostate cancer (diagnoses at a young age).⁷

Possible risk factors

Medical conditions

Prostatitis (inflammation of the prostate gland):

Some studies found that inflammation of the prostate gland (called prostatitis) may be linked to a higher risk of prostate cancer, but others have not. This is an area of active research.²

Hereditary conditions

Other inherited genetic mutations:

Research to identify genes associated with an increased risk of prostate cancer is ongoing.

- Some hereditary prostate cancers may be due to mutations in DNA repair genes, such as CHEK2, ATM, PALB2, and RAD51.
- An increased risk of prostate cancer may occur from mutations of the tumor suppressor gene RNASEL (formerly HPC1).²

Lifestyle factors

Diet:

Men who eat a lot of dairy products may have a slightly higher risk of prostate cancer. While some studies suggest that men who consume a lot of calcium (through food or supplements) may have a higher risk, most studies have not found such a link with calcium levels in the average diet. It is important to note that calcium has other major health benefits.^{2,4,7}

Arsenic in drinking water:

Arsenic occurs naturally in soil and bedrock. Some studies have suggested a link between exposure to arsenic and a higher risk of prostate cancer.² The chance of arsenic exposure from drinking water depends on where you live and the source of your drinking water. Groundwater is more likely to have high levels of arsenic than surface water (such as lakes or reservoirs). Drinking water is not a major source of arsenic exposure for most people living in the United States.³ In Massachusetts, it naturally occurs in some groundwater, usually in bedrock aquifers in the central part of the state and in the Merrimack River Valley. For more information on arsenic in private well water and how to test your well water, visit this [FAQ](#).

Exposure to certain chemicals:

There is some evidence of a link between exposure to polychlorinated biphenyls (PCBs) and prostate cancer, but findings are inconsistent.⁹ Some studies suggest that firefighters can be exposed to chemicals that may increase their risk for prostate cancer. A few (but not all) studies suggest a possible link between the risk of prostate cancer and exposure to Agent Orange (a chemical used widely during the Vietnam War).²

Other risk factors that have been investigated

Medical conditions

Vasectomy?

Studies have shown mixed results on whether men who have had a vasectomy (a minor surgery to make men infertile) have an increased risk for prostate cancer. Research is still underway.²

Hormones?

Male hormones (called androgens), such as testosterone, can promote the growth of prostate cells. Anything that speeds up the process of cells growing and dividing may make cancer more likely because there are more chances for cell mutations to occur. Having higher levels of male hormones may contribute to prostate cancer risk, but findings are not consistent.^{2,4}

Infections

Sexually transmitted infections?

Conflicting results have occurred in studies looking at whether sexually transmitted infections (STIs) that can lead to inflammation of the prostate (such as gonorrhea or chlamydia) may increase the risk of prostate cancer.^{1,2}

Lifestyle factors

Smoking?

Most studies have not found a link between smoking and developing prostate cancer. Some have linked smoking to a small increased risk of dying from prostate cancer but more research is needed.² For information about quitting tobacco use, contact the [DPH Tobacco Cessation and Prevention Program](#) at 1-800-Quit-Now or 1-800-784-8669.⁸

Excess body weight?

While excess body weight does not seem to increase the risk of developing prostate cancer, some studies have found a higher risk of developing more aggressive (faster-growing) prostate cancer.^{1,2} The reasons for this possible link are not clear.²

Diet?

Findings have been inconsistent in studies looking at whether the risk of prostate cancer is linked to dietary factors, such as vegetables, soy products, coffee, vitamin E, and multivitamins.^{2,7}

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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