

# Hodgkin Lymphoma Risk Factor Information

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

- About Cancer and Risk Factors
- About Hodgkin Lymphoma
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- 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 (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 Hodgkin Lymphoma

**Lymphoma is a cancer that starts in white blood cells (lymphocytes).**

Lymphocytes are a type of white blood cell in the lymph system. The lymph system is part of the immune system that helps fight infection and some diseases. Hodgkin lymphoma (previously called Hodgkin disease) usually starts in an abnormal type of B lymphocyte called the *Reed-Sternberg* cell. Because lymph tissue is found in many parts of the body, Hodgkin lymphoma can occur almost anywhere. The most common sites include lymph nodes in the chest, neck, or under the arms.<sup>2,4</sup>

**Hodgkin lymphoma is uncommon in the United States.**

The American Cancer Society estimates 8,540 people will be diagnosed with Hodgkin lymphoma in the United State in 2022.<sup>1,2,10</sup> In Massachusetts, Hodgkin lymphoma accounted for less than 1% of all cancers diagnosed between 2013 and 2017.<sup>6</sup>

**Hodgkin lymphoma is most common in adolescents and young adults.**

Hodgkin lymphoma occurs most often in young adults (age 15 to 40), but especially among those in their 20s. Hodgkin lymphoma is the most common cancer type diagnosed among adolescents ages 15 to 19 years. The risk of Hodgkin lymphoma rises again in late adulthood, after age 55. Men are slightly more likely to develop Hodgkin lymphoma than women.<sup>2,3,4,7,8</sup>

## Types of Hodgkin Lymphoma

**There are two main types of Hodgkin lymphoma.**

- Classic Hodgkin lymphoma (cHL) makes up more than 90% of diagnoses of Hodgkin lymphoma in developed countries. There are four subtypes of cHL:
  - Nodular sclerosis Hodgkin lymphoma (NSCHL) is the most common subtype (about 70%). It occurs most often in teens and young adults.
  - Mixed cellularity Hodgkin lymphoma (MCCHL) is the 2<sup>nd</sup> most common subtype (about 40%) and occurs mainly in older adults.
  - Lymphocyte-rich Hodgkin lymphoma is more common in men.
  - Lymphocyte-depleted Hodgkin lymphoma is the least common subtype (about 1%). It occurs mainly in older adults.<sup>2,4</sup>
- Nodular lymphocyte predominant Hodgkin lymphoma (NLPHD) makes up 5% of diagnoses of Hodgkin lymphoma. It is more common in men and younger patients.<sup>2,4</sup>

## Known Risk Factors

### *Medical Conditions*

#### **Weakened immune system:**

Individuals with weakened immune systems have a higher risk of Hodgkin lymphoma. This includes individuals taking immunosuppressant drugs after an organ transplant, people with auto-immune diseases, and those with the hereditary condition ataxia-telangiectasia.<sup>2,5</sup>

### *Infections*

#### **Epstein-Barr virus:**

The Epstein-Barr virus causes infectious mononucleosis (referred to as "mono"). Although the overall risk is very small, people who have had mono have an increased risk of Hodgkin lymphoma.<sup>2,4</sup> Whereas mono is a very common disease, Hodgkin lymphoma is very uncommon. About 20 to 25% of diagnoses of classic Hodgkin lymphoma in the United States are associated with the Epstein-Barr virus.<sup>4</sup>

### **Human immunodeficiency virus (HIV):**

Individuals infected with HIV (the virus that causes AIDS) have a higher risk of Hodgkin lymphoma.<sup>2,4</sup>

## *Hereditary Conditions*

### **Family history of Hodgkin lymphoma:**

The risk of Hodgkin lymphoma is very high for individuals with an identical twin with the disease.<sup>2</sup> The risk is also higher for siblings of young people with Hodgkin lymphoma.<sup>2,4</sup>

## **Possible Risk Factors**

### *Lifestyle Factors*

#### **Higher socioeconomic status:**

Individuals with a higher socioeconomic background appear to have a greater risk of developing Hodgkin lymphoma from early childhood through middle age. This may be due to delayed exposure to an infection (such as the Epstein-Barr virus) later in life than children from less affluent families.<sup>9</sup>

## **Other Risk Factors That Have Been Investigated**

### *Environmental Exposures*

#### **Occupational (workplace) exposures**

Workplace exposures have been studied extensively as risk factors for developing Hodgkin lymphoma, but none have shown strong evidence. There is also very little evidence linking the risk of Hodgkin lymphoma to any environmental exposure.<sup>9</sup>

## **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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