

# Chronic Lymphocytic Leukemia Risk Factor Information

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

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- About Chronic Lymphocytic Leukemia
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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 Chronic Lymphocytic Leukemia (CLL)

**The average person's chance of getting CLL in their life is about 1 in 175.**

The American Cancer Society estimates that 60,650 individuals will be diagnosed with leukemia in the United States in 2022. About 20,160 will be diagnosed with CLL specifically.<sup>1</sup> In Massachusetts, leukemia accounted for about 2.6% of all cancer diagnoses in Massachusetts between 2013 and 2017.<sup>7</sup>

**CLL is one of the most common types of leukemia in adults.**

CLL mainly occurs in older adults and is extremely rare in children. The average age at diagnosis is about 70 years. About 90% of people diagnosed with CLL are over age 50. The risk is slightly higher among men than women.<sup>2,3,5,6,8</sup>

## Types of Leukemia

**Leukemia is a cancer of the bone marrow and blood.**

Leukemia types are grouped according to the type of blood cell affected and how fast the disease progresses.

- “Lymphocytic” leukemias start in early forms of white blood cells called lymphocytes.
- “Myeloid” (or myelogenous) leukemias start from myeloid cells that normally form red blood cells, platelets, or white blood cells other than lymphocytes.
- “Acute” leukemias progress faster than “chronic” leukemias. Acute and chronic forms of leukemia have different approaches to diagnosis and treatment.<sup>3,9</sup>

**CLL is one of the most common types of leukemia.**

There are 4 main groups of leukemia:

- Acute myeloid leukemia (AML) - about 33%
- Chronic lymphocytic leukemia (CLL) - about 33%
- Chronic myeloid leukemia (CML) - about 15%
- Acute lymphocytic leukemia (ALL) – about 11%<sup>1</sup>

There are also a few rare types, such as hairy cell leukemia, that make up the remaining 8% of leukemia diagnoses.<sup>3</sup>

**CLL is closely related to small lymphocytic lymphoma (SLL), a type of non-Hodgkin lymphoma.**

CLL and SLL are closely related diseases. Many doctors consider them different versions of the same disease. The only difference is where the cancer cells are found. In CLL, most of the cancer cells are in the blood and bone marrow. In SLL, the cancer cells are mainly in the lymph nodes and spleen.<sup>4</sup>

## Known Risk Factors

Despite ongoing research, there are no established risk factors for CLL.

## Possible Risk Factors

### *Hereditary Conditions*

**Family history of CLL:**

Individuals who have a close family member (parent, sibling, child) with CLL are at least twice as likely to develop the disease.<sup>3,6</sup>

#### **Genetic factors:**

CLL is more common in people of Russian and European descent, and rarely occurs in people from China, Japan, or Southeast Asian countries.<sup>3,6</sup> The reason for this geographic difference is not known, but most experts think it may be due to genetic factors because people maintain the same risk when they move from one area to another.<sup>3</sup>

### *Environmental Exposures*

#### **Agent Orange or other pesticides and herbicides:**

Some studies have shown an increased risk for CLL in individuals exposed to Agent Orange, an herbicide used during the Vietnam War. Some studies have also identified an increased risk among farmers due to long-term exposure to herbicides and/or pesticides.<sup>3</sup>

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

The risk of developing CLL does not seem to be affected by smoking, diet, exposure to radiation, chemicals, chemotherapy, hair dyes, or infections.<sup>3,6,9</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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