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Chronic Lymphocytic Leukemia

Also called: CLL

What is leukemia?

Leukemia [<https://medlineplus.gov/leukemia.html>] is a term for cancers of the blood cells. Leukemia starts in blood-forming tissues such as the bone marrow. Your bone marrow makes the cells which will develop into white blood cells, red blood cells, and platelets. Each type of cell has a different job:

- White blood cells help your body fight infection
- Red blood cells deliver oxygen from your lungs to your tissues and organs
- Platelets [<https://medlineplus.gov/plateletdisorders.html>] help form clots to stop bleeding

When you have leukemia, your bone marrow makes large numbers of abnormal cells. This problem most often happens with white blood cells. These abnormal cells build up in your bone marrow and blood. They crowd out the healthy blood cells and make it hard for your cells and blood to do their work.

What is chronic lymphocytic leukemia (CLL)?

Chronic lymphocytic leukemia (CLL) is a type of chronic leukemia. "Chronic" means that the leukemia usually gets worse slowly. In CLL, the bone marrow makes abnormal lymphocytes (a type of white blood cell). When the abnormal cells crowd out the healthy cells, it can lead to infection, anemia [<https://medlineplus.gov/anemia.html>] , and easy bleeding [<https://medlineplus.gov/bleedingdisorders.html>] . The abnormal cells can also spread outside the blood to other parts of the body. CLL is one of the most common types of leukemia in adults. It often occurs during or after middle age. It is rare in children [<https://medlineplus.gov/childhoodleukemia.html>] .

What causes chronic lymphocytic leukemia (CLL)?

CLL happens when there are changes in the genetic material (DNA) in bone marrow cells. The cause of these genetic changes is unknown, so it's hard to predict who might get CLL. There are a few factors that might raise your risk.

Who is at risk for chronic lymphocytic leukemia (CLL)?

It is hard to predict who will get CLL. There are a few factors that could raise your risk:

- Age - your risk goes up as you get older. Most people who are diagnosed with CLL are over 50.
- Family history of CLL and other blood [<https://medlineplus.gov/blooddisorders.html>] and bone marrow [<https://medlineplus.gov/bonemarrowdiseases.html>] diseases
- Racial/ethnic group - CLL is more common in whites than in people from other racial or ethnic groups
- Exposure to certain chemicals, including Agent Orange, a chemical that was used in the Vietnam War

What are the symptoms of chronic lymphocytic leukemia (CLL)?

In the beginning, CLL does not cause any symptoms. Later, you can have symptoms such as:

- Swollen lymph nodes - you may notice them as painless lumps in the neck, underarm, stomach, or groin
- Weakness or feeling tired [<https://medlineplus.gov/fatigue.html>]

- Pain or a feeling of fullness below the ribs
- Fever [<https://medlineplus.gov/fever.html>] and infection
- Easy bruising [<https://medlineplus.gov/bruises.html>] or bleeding [<https://medlineplus.gov/bleeding.html>]
- Petechiae, which are tiny red dots under the skin. They are caused by bleeding.
- Weight loss for no known reason
- Drenching night sweats

How is chronic lymphocytic leukemia (CLL) diagnosed?

Your health care provider may use many tools to diagnose CLL:

- A physical exam
- A medical history
- Blood tests, such as a complete blood count (CBC) with differential [<https://medlineplus.gov/lab-tests/complete-blood-count-cbc/>] and blood chemistry tests. Blood chemistry tests measure different substances in the blood, including electrolytes, fats, proteins, glucose (sugar), and enzymes. Specific blood chemistry tests include a basic metabolic panel (BMP) [<https://medlineplus.gov/lab-tests/basic-metabolic-panel-bmp/>] , a comprehensive metabolic panel (CMP) [<https://medlineplus.gov/lab-tests/comprehensive-metabolic-panel-cmp/>] , kidney function tests [<https://medlineplus.gov/kidneytests.html>] , liver function tests [<https://medlineplus.gov/lab-tests/liver-function-tests/>] , and an electrolyte panel [<https://medlineplus.gov/lab-tests/electrolyte-panel/>] .
- Flow cytometry tests, which check for leukemia cells and identify which type of leukemia it is. The tests can be done on blood, bone marrow, or other tissue.
- Genetic tests [<https://medlineplus.gov/geneticstesting.html>] to look for gene and chromosome changes

If you are diagnosed with CLL, you may have additional tests to see whether the cancer has spread. These include imaging tests [<https://medlineplus.gov/diagnosticimaging.html>] and bone marrow tests [<https://medlineplus.gov/lab-tests/bone-marrow-tests/>] .

What are the treatments for chronic lymphocytic leukemia (CLL)?


Treatments for CLL include:

- Watchful waiting, which means that you don't get treatment right away. Your health care provider regularly checks to see if your signs or symptoms appear or change.
- Targeted therapy, which uses drugs or other substances that attack specific cancer cells with less harm to normal cells.
- Chemotherapy [<https://medlineplus.gov/cancerchemotherapy.html>]
- Radiation therapy [<https://medlineplus.gov/radiationtherapy.html>]
- Immunotherapy [<https://medlineplus.gov/cancerimmunotherapy.html>]
- Chemotherapy with bone marrow [<https://medlineplus.gov/bonemarrowtransplantation.html>] or stem cell [<https://medlineplus.gov/stemcells.html>] transplant





The goals of treatment are to slow the growth of the leukemia cells and to give you long periods of remission. Remission means that the signs and symptoms of cancer are reduced or have disappeared. The CLL may come back after remission, and you may need more treatment.

NIH: National Cancer Institute

Start Here

- General Information about Chronic Lymphocytic Leukemia [<https://www.cancer.gov/types/leukemia/patient/cll-treatment-pdq>]  (National Cancer Institute)
Also in Spanish [<https://www.cancer.gov/espanol/tipos/leucemia/paciente/tratamiento-llc-pdq>]
- What Is Chronic Lymphocytic Leukemia? [<https://www.cancer.org/cancer/types/chronic-lymphocytic-leukemia/about/what-is-cll.html>] (American Cancer Society)
Also in Spanish [<https://www.cancer.org/es/cancer/tipos/leucemia-linfocitica-cronica/acerca/que-es-leucemia-linfocitica-cronica.html>]

Diagnosis and Tests

- **Blood Count Tests: MedlinePlus Health Topic** [<https://medlineplus.gov/bloodcounttests.html>]  (National Library of Medicine)
Also in Spanish [<https://medlineplus.gov/spanish/bloodcounttests.html>]
- **Blood Tests** [<https://www.nhlbi.nih.gov/health/blood-tests>]  (National Heart, Lung, and Blood Institute)
Also in Spanish [<https://www.nhlbi.nih.gov/es/salud/analisis-de-sangre>]
- **Bone Marrow Test** [<https://medlineplus.gov/lab-tests/bone-marrow-tests/>]  (National Library of Medicine)
Also in Spanish [<https://medlineplus.gov/spanish/pruebas-de-laboratorio/prueba-de-la-medula-osea/>]
- **How Is Chronic Lymphocytic Leukemia Diagnosed?** [<https://www.cancer.org/cancer/types/chronic-lymphocytic-leukemia/detection-diagnosis-staging/how-diagnosed.html>] (American Cancer Society)
Also in Spanish [<https://www.cancer.org/es/cancer/tipos/leucemia-linfocitica-cronica/deteccion-diagnostico-clasificacion-por-etapas/como-se-diagnostica.html>]
- **Lab and Imaging Tests** [<https://www.lls.org/treatment/lab-and-imaging-tests>] (Leukemia & Lymphoma Society)
Also in Spanish [https://www.lls.org/sites/default/files/2021-05/PS41S_SP_Understanding_Labs_FINAL_2020.pdf]
- **Stage Information for Chronic Lymphocytic Leukemia** [https://www.cancer.gov/types/leukemia/patient/cll-treatment-pdq#_24]  (National Cancer Institute)
Also in Spanish [https://www.cancer.gov/espanol/tipos/leucemia/paciente/tratamiento-llc-pdq#_24]

Prevention and Risk Factors

- **What Are the Risk Factors for Chronic Lymphocytic Leukemia?** [<https://www.cancer.org/cancer/types/chronic-lymphocytic-leukemia/causes-risks-prevention/risk-factors.html>] (American Cancer Society)
Also in Spanish [<https://www.cancer.org/es/cancer/tipos/leucemia-linfocitica-cronica/causas-riesgos-prevencion/factores-de-riesgo.html>]

Treatments and Therapies

- **Blood Transfusion** [<https://www.lls.org/treatment/types-treatment/blood-transfusion>] (Leukemia & Lymphoma Society)
- **Bone Marrow Transplantation: MedlinePlus Health Topic** [<https://medlineplus.gov/bonemarrowtransplantation.html>]  (National Library of Medicine)
Also in Spanish [<https://medlineplus.gov/spanish/bonemarrowtransplantation.html>]
- **Choosing a Blood Cancer Specialist** [<https://www.lls.org/treatment/choosing-blood-cancer-specialist-or-treatment-center/choosing-blood-cancer-specialist>] (Leukemia & Lymphoma Society)
Also in Spanish [https://www.lls.org/sites/default/files/2021-05/FS6S_ChoosingABCSOTC%20Facts_Span.pdf]
- **Immunotherapy** [<https://www.lls.org/treatment/types-treatment/immunotherapy>] (Leukemia & Lymphoma Society)
Also in Spanish [https://www.lls.org/sites/default/files/file_assets/FS9S_SP_Immunotherapy2020.pdf]
- **Integrative Medicine and Complementary and Alternative Therapies** [<https://www.lls.org/treatment/integrative-medicine-and-complementary-therapies>] (Leukemia & Lymphoma Society)
Also in Spanish [https://www.lls.org/sites/default/files/2022-05/FS8S_Integrative_Medicine_Complementary_Therapies_04.22_Spanish.pdf]
- **Treatment Option Overview (Chronic Lymphocytic Leukemia)** [https://www.cancer.gov/types/leukemia/patient/cll-treatment-pdq#_48]  (National Cancer Institute)
Also in Spanish [https://www.cancer.gov/espanol/tipos/leucemia/paciente/tratamiento-llc-pdq#_48]
- **Typical Treatment of Chronic Lymphocytic Leukemia** [<https://www.cancer.org/cancer/types/chronic-lymphocytic-leukemia/treating/treatment-by-risk-group.html>] (American Cancer Society)
Also in Spanish [<https://www.cancer.org/es/cancer/tipos/leucemia-linfocitica-cronica/tratamiento/tratamieto-por-grupo-de-riesgo.html>]


Living With

- **Supportive or Palliative Care for Chronic Lymphocytic Leukemia** [<https://www.cancer.org/cancer/types/chronic-lymphocytic-leukemia/treating/supportive-care.html>] (American Cancer Society)
Also in Spanish [<https://www.cancer.org/es/cancer/tipos/leucemia-linfocitica-cronica/tratamiento/cuidado-de-apoyo.html>]

Related Issues

- Chronic B-Cell Leukemias and Agent Orange [<https://www.publichealth.va.gov/exposures/agentorange/conditions/bcell-leukemia.asp>] (Department of Veterans Affairs)
- Questions to Ask About Chronic Lymphocytic Leukemia [<https://www.cancer.org/cancer/types/chronic-lymphocytic-leukemia/detection-diagnosis-staging/talking-with-doctor.html>] (American Cancer Society)
Also in Spanish [<https://www.cancer.org/es/cancer/tipos/leucemia-linfocitica-cronica/deteccion-diagnostico-clasificacion-por-etapas/la-comunicacion-con-su-medico.html>]


Specifics

- Chronic Lymphocytic Leukemia/Small Lymphocytic Lymphoma (CLL/SLL) [<https://lymphoma.org/understanding-lymphoma/aboutlymphoma/ctl/>]  (Lymphoma Research Foundation)


Genetics

- Do We Know What Causes Chronic Lymphocytic Leukemia? [<https://www.cancer.org/cancer/types/chronic-lymphocytic-leukemia/causes-risks-prevention/what-causes.html>] (American Cancer Society)
Also in Spanish [<https://www.cancer.org/es/cancer/tipos/leucemia-linfocitica-cronica/causas-riesgos-prevencion/que-lo-causa.html>]

Statistics and Research

- Cancer Statistics: Chronic Lymphocytic Leukemia [<https://seer.cancer.gov/statfacts/html/clyl.html>]  (National Cancer Institute)
- Key Statistics for Chronic Lymphocytic Leukemia [<https://www.cancer.org/cancer/types/chronic-lymphocytic-leukemia/about/key-statistics.html>] (American Cancer Society)
Also in Spanish [<https://www.cancer.org/es/cancer/tipos/leucemia-linfocitica-cronica/acerca/estadisticas-clave.html>]
- What's New in Chronic Lymphocytic Leukemia Research and Treatment? [<https://www.cancer.org/cancer/types/chronic-lymphocytic-leukemia/about/new-research.html>] (American Cancer Society)
Also in Spanish [<https://www.cancer.org/es/cancer/tipos/leucemia-linfocitica-cronica/acerca/nuevas-investigaciones.html>]

Clinical Trials

- ClinicalTrials.gov: Leukemia, Lymphoid [<https://clinicaltrials.gov/search?cond=%22Leukemia,+Lymphoid%22&aggFilters=status:not%20rec>]  (National Institutes of Health)
- Types of Treatment: Clinical Trials [<https://www.lls.org/treatment/types-treatment/clinical-trials>] (Leukemia & Lymphoma Society)

Journal Articles

References and abstracts from MEDLINE/PubMed (National Library of Medicine)

- Article: Influence of SLAM Family Receptors in the NK-Cell-Mediated Surveillance of Lymphoblastic... [<https://www.ncbi.nlm.nih.gov/pubmed/40755061>]
- Article: CXCR4-targeted theranostics in acute leukemia: disrupting leukemic cell-microenvironment interactions with pentixafor... [<https://www.ncbi.nlm.nih.gov/pubmed/40754635>]
- Article: Acute lymphoblastic leukemia diagnosis using machine learning techniques based on selected... [<https://www.ncbi.nlm.nih.gov/pubmed/40751064>]
- Chronic Lymphocytic Leukemia -- see more articles [<https://pubmed.ncbi.nlm.nih.gov/?term=%22Leukemia%2C+Lymphoid%22%5Bmajr%5D+AND+humans%5Bmh%5D+AND+english%5Bla%5D+AND+%22last+2+Years%22+%5Bedat%5D+NOT+%28letter%5Bpt%5D+OR+case+reports%5Bpt%5D+OR+editorial%5Bpt%5D+OR+comment%5Bpt%5D%29>]

Find an Expert


- American Cancer Society [<https://www.cancer.org/>]

Choosing a Cancer Doctor [<https://www.cancer.org/cancer/managing-cancer/finding-care/where-to-find-cancer-care/choosing-a-cancer-doctor.html>] (American Cancer Society)

Also in Spanish [<https://www.cancer.org/es/cancer/como-sobrellevar-el-cancer/encontrar-tratamiento/como-elegir-un-medico-y-un-hospital/como-seleccionar-a-un-medico.html>]

- Leukemia & Lymphoma Society [<https://www.lls.org/>]

Also in Spanish [<https://www.lls.org/node/1690491>]

- National Cancer Institute [<https://www.cancer.gov/>] 

Also in Spanish [<https://www.cancer.gov/espanol>]

- NCI - Designated Cancer Centers [<https://www.cancer.gov/research/infrastructure/cancer-centers>]

 (National Cancer Institute)

Also in Spanish [<https://www.cancer.gov/espanol/investigacion/infraestructura/centros-oncologicos>]

Children

- Childhood Leukemia: MedlinePlus Health Topic [<https://medlineplus.gov/childhoodleukemia.html>]

 (National Library of Medicine)

Also in Spanish [<https://medlineplus.gov/spanish/childhoodleukemia.html>]

Patient Handouts

- After chemotherapy - discharge [<https://medlineplus.gov/ency/patientinstructions/000012.htm>] (Medical Encyclopedia)

Also in Spanish [<https://medlineplus.gov/spanish/ency/patientinstructions/000012.htm>]

- B-cell leukemia/lymphoma panel [<https://medlineplus.gov/ency/article/003518.htm>] (Medical Encyclopedia)

Also in Spanish [<https://medlineplus.gov/spanish/ency/article/003518.htm>]

- Bone marrow transplant [<https://medlineplus.gov/ency/article/003009.htm>] (Medical Encyclopedia)

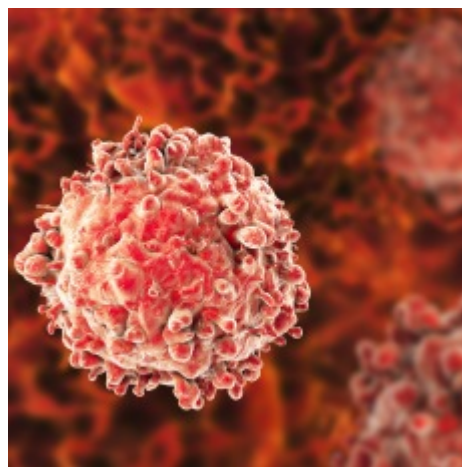
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/003009.htm>]

- Bone marrow transplant - discharge [<https://medlineplus.gov/ency/patientinstructions/000010.htm>] (Medical Encyclopedia)

Also in Spanish [<https://medlineplus.gov/spanish/ency/patientinstructions/000010.htm>]

- Chronic lymphocytic leukemia (CLL) [<https://medlineplus.gov/ency/article/000532.htm>] (Medical Encyclopedia)

Also in Spanish [<https://medlineplus.gov/spanish/ency/article/000532.htm>]



MEDICAL ENCYCLOPEDIA

After chemotherapy - discharge [<https://medlineplus.gov/ency/patientinstructions/000012.htm>]

B and T cell screen [<https://medlineplus.gov/ency/article/003329.htm>]

B-cell leukemia/lymphoma panel [<https://medlineplus.gov/ency/article/003518.htm>]

Bone marrow biopsy [<https://medlineplus.gov/ency/article/003934.htm>]

Bone marrow transplant [<https://medlineplus.gov/ency/article/003009.htm>]

Bone marrow transplant - discharge [<https://medlineplus.gov/ency/patientinstructions/000010.htm>]

Bone-marrow transplant - series [https://medlineplus.gov/ency/presentations/100112_1.htm]

Chronic lymphocytic leukemia (CLL) [<https://medlineplus.gov/ency/article/000532.htm>]

Cryoglobulins [<https://medlineplus.gov/ency/article/003555.htm>]

Fibrinopeptide A blood test [<https://medlineplus.gov/ency/article/003373.htm>]

Immunoelectrophoresis - blood [<https://medlineplus.gov/ency/article/003541.htm>]

Related Health Topics

Acute Lymphocytic Leukemia [<https://medlineplus.gov/acuteleukemia.html>]

Acute Myeloid Leukemia [<https://medlineplus.gov/acuteleukemia.html>]

Childhood Leukemia [<https://medlineplus.gov/childhoodleukemia.html>]

Chronic Myeloid Leukemia [<https://medlineplus.gov/chronicleukemia.html>]

Leukemia [<https://medlineplus.gov/leukemia.html>]

National Institutes of Health

The primary NIH organization for research on *Chronic Lymphocytic Leukemia* is the National Cancer Institute [<http://www.cancer.gov/>]

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