Deaths: An estimated 23,720 deaths are expected to occur in 2013. Death rates for leukemia have been declining for the past several decades; from 2005 to 2009, rates decreased by 0.8% per year among males and by 1.4% per year among females.

Signs and symptoms: Symptoms may include fatigue, paleness, weight loss, repeated infections, fever, bruising easily, and nosebleeds or other hemorrhages. In acute leukemia, these signs can appear suddenly. Chronic leukemia typically progresses slowly with few symptoms and is often diagnosed during routine blood tests. Patients with CLL may experience swollen lymph nodes or pain in the upper left abdomen due to an enlarged spleen.

Risk factors: Exposure to ionizing radiation increases risk of several types of leukemia (excluding CLL). Medical radiation, such as that used in cancer treatment, is a substantial source of radiation exposure. Leukemia may also occur as a side effect of chemotherapy. Children with Down syndrome and certain other genetic abnormalities are at increased risk of leukemia. Workers in the rubber-manufacturing industry also have an increased risk. Recent studies suggest that obesity increases risk of leukemia.

Some factors are most closely associated with specific types of leukemia. Family history is one of the strongest risk factors for CLL. Cigarette smoking is a risk factor for AML, and there is limited evidence that parental smoking and maternal exposure to paint increases the risk of childhood leukemia. Exposure to certain chemicals, such as formaldehyde and benzene (a component in cigarette smoke and gasoline that has become more regulated due to its carcinogenicity), also increases risk of AML. Infection with human T-cell leukemia virus type I (HTLV-I) can cause a rare type of leukemia called adult T-cell leukemia/lymphoma. The prevalence of HTLV-I infection is geographically localized and is most common in southern Japan and the Caribbean; infected individuals in the US tend to be descendants or immigrants from endemic regions.

Early detection: Leukemia can be difficult to diagnose early because symptoms often resemble those of other, less serious conditions. When a physician does suspect leukemia, diagnosis can be made using blood tests and a bone marrow biopsy.

Treatment: Chemotherapy is the most effective method of treating leukemia. Various anticancer drugs are used, either in combination or as single agents. Imatinib (Gleevec), nilotinib (Tasigna), and dasatinib (Sprycel) are very effective drugs that are treating leukemia. Various anticancer drugs are used, either in combination or as single agents. Imatinib (Gleevec), nilotinib (Tasigna), and dasatinib (Sprycel) are very effective drugs that are targeted at the genetic abnormality that is the hallmark of CML. Imatinib and dasatinib are also FDA-approved to treat a type of ALL with the same genetic defect. People diagnosed with CLL that is not progressing or causing symptoms may not require treatment. Recent clinical trials have shown that adults with AML who are treated with twice the conventional dose of daunorubicin experience higher and more rapid rates of remission. Antibiotics and transfusions of blood components are used as supportive treatments. Under appropriate conditions, stem cell transplantation may be useful in treating certain types of leukemia.