

Vermont Facts, 2000-2004

- ❖ **Incidence:** Non-Hodgkin lymphoma is the sixth most common cancer diagnosed in men and women. Each year, approximately 66 new cases are diagnosed in men, and 58 new cases are diagnosed in women.
- ❖ **Mortality:** Each year, approximately 30 men and 24 women die from non-Hodgkin lymphoma.
- ❖ **Yearly Trends (1995-2004):** Incidence and mortality from non-Hodgkin lymphoma among Vermont males and females have not changed over time.
- ❖ **Age:** Non-Hodgkin lymphoma affects people of all age groups and is highest among those older than 60; however, it is also one of the most common cancers in children and young adults 19 and under.
- ❖ **Vermont vs. U.S.:** Incidence and mortality of non-Hodgkin lymphoma among males and females in Vermont are not different from the U.S.
- ❖ **Stage:** In Vermont, 35 percent of non-Hodgkin lymphomas are diagnosed at the localized stage (the cancer is limited to the organ of origin), 55 percent of are diagnosed at the regional or distant stage (the cancer has extended beyond the local organ or has metastasized), and 10 percent are of unknown stage.

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Background

In Vermont, cancer is the second leading cause of death, with approximately 1,200 people dying from cancer each year. For the past 40 years, the three leading causes of death in Vermont have been heart disease, cancer, and stroke. In contrast to the dramatic declines in the death rates for heart disease and stroke, the death rate for cancer rose steadily over the past few decades before decreasing in recent years. Roughly one out of every two men and one out of every three women will develop cancer in their lifetime.

Any disease in which abnormal cells develop, divide, grow, and have the potential to spread throughout the body can be called cancer. If the spread of these cancer cells is not controlled, death may result. Cancer cells from a malignant tumor can invade nearby tissues either by direct growth into adjacent tissue or by migration through the bloodstream and lymphatic system to other parts of the body. This process is called metastasis. Cancer that started as non-Hodgkin lymphoma (NHL) and spread to organs outside the lymphatic system, such as the liver, is still NHL.

Non-Hodgkin Lymphoma

Hematological neoplasms are a broad group of diseases that include leukemia and lymphoma. Leukemia is the general name for four different types of blood cancers and generally involves mostly the blood and the bone marrow whereas lymphomas are much more likely to involve lymph nodes, other organs, and sometimes the bone marrow as well. Lymphomas are a group of cancers that originate in lymphocytes (white blood cells) and are essentially cancers of the cells and tissues of the body's defense system that are usually involved with identifying and eliminating foreign particles from the body, such as bacteria, viruses, and damaged cells. Any of the lymphocytes can become cancerous causing one or more subtypes of lymphoma. Lymphomas are generally categorized as either Hodgkin or non-Hodgkin lymphoma; the primary difference between the two is in the specific lymphocyte involved. Hodgkin and non-Hodgkin lymphomas are differentiated by examining the cancer cells under a microscope. If a specific type of abnormal cell is detected (called a Reed-Sternberg cell), the lymphoma is classified as Hodgkin lymphoma. If that particular cell is not present, the lymphoma is classified as non-Hodgkin lymphoma. The distinction is important because the treatment for each type can be very different.

Since non-Hodgkin lymphoma accounts for 87 percent of lymphomas diagnosed nationally, non-Hodgkin lymphoma is primarily presented in this report. Non-Hodgkin lymphoma can occur at any age and may develop in any organ associated with the lymphatic system, such as lymph nodes, spleen, tonsils, and thymus. Since white blood cells are filtered and processed in these tissues, these are the sites where lymphomas develop. As the abnormal white blood cells multiply, the lymph tissue swells and can be seen or felt in the neck, above the collarbones, under the arms, or in the groin. If the affected lymph tissue is in the abdomen, the swelling may cause symptoms from pressure on other organs or back pain from pressure on nerves. Other sites where the disease may arise are considered to be "extranodal" and can include bone marrow, the gastrointestinal tract, skin, bone, and central nervous system.

Incidence

Defined as the number of *new* cases occurring in a population during a defined time interval, incidence rates are a useful measure of the risk of disease.

Table 1. The most commonly diagnosed cancers in males and females – Vermont, average number of cases per year, 2000-2004.

Male Cancer Site	Cases (per year)	Percent (per year)	Female Cancer Site	Cases (per year)	Percent (per year)
Prostate	493	29%	Breast	475	31%
Lung	242	14%	Lung	179	12%
Colon and Rectum	172	10%	Colon and Rectum	164	11%
Bladder	120	7%	Uterus	110	7%
Melanoma of Skin	96	6%	Melanoma of Skin	84	5%
Non-Hodgkin Lymphoma	66	4%	Non-Hodgkin Lymphoma	58	4%
All Sites	1,679	100%	All Sites	1,535	100%

New cases per year exclude basal cell and squamous cell skin cancers and in situ (malignant but non-invasive) carcinomas except urinary bladder.

- ❖ An average of 1,679 cancers in males and 1,535 cancers in females are diagnosed each year in Vermont. Of those, an average of 66 men and 58 women are diagnosed with non-Hodgkin lymphoma each year.
- ❖ Non-Hodgkin lymphoma is the sixth most common cancer diagnosed in males and females and accounts for roughly four percent of all cancers diagnosed in Vermont.
- ❖ Among Vermonters age 19 and under, following leukemia and brain cancer, non-Hodgkin lymphoma is the third most common childhood cancer and accounts for eight percent of all childhood cancers diagnosed in Vermont.

Mortality

The mortality rate is a measure of the number of deaths (due to cancer) in a population during a specific period of time.

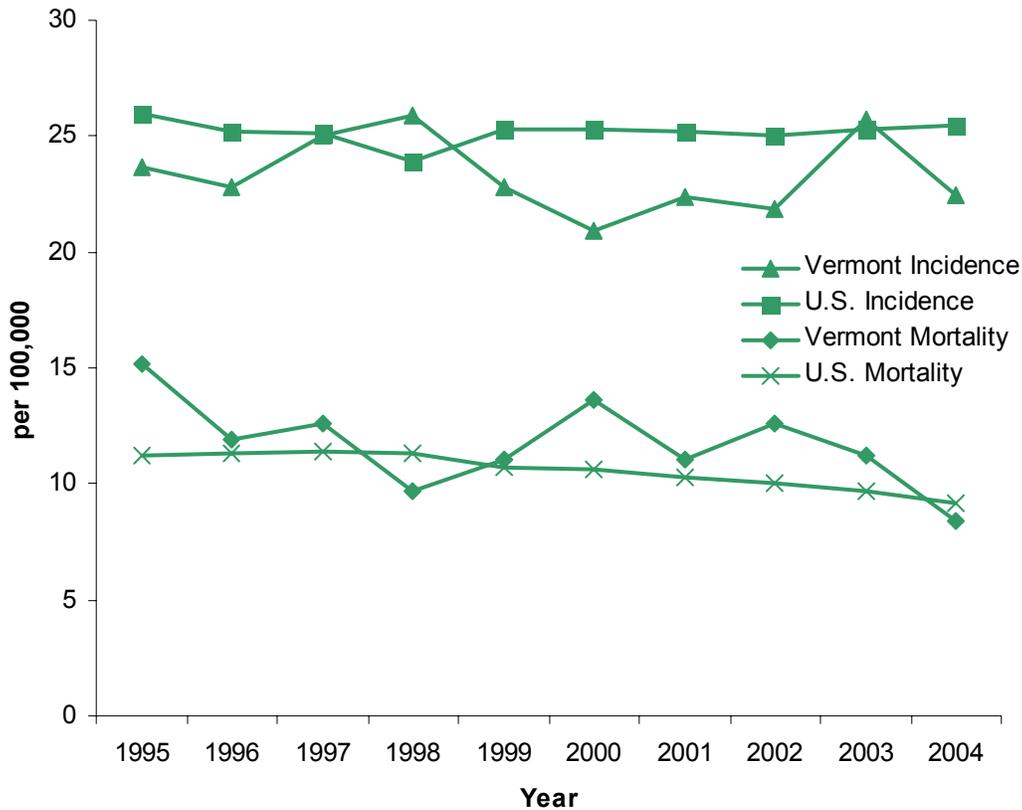
Table 2. The most common causes of cancer deaths in males and females – Vermont, average number of deaths per year, 2000-2004.

Male Cancer Site	Cases (per year)	Percent (per year)	Female Cancer Site	Cases (per year)	Percent (per year)
Lung	189	30%	Lung	140	24%
Prostate	69	11%	Breast	97	16%
Colon and Rectum	62	10%	Colon and Rectum	68	11%
Pancreas	31	5%	Ovary	31	5%
Non-Hodgkin Lymphoma	30	5%	Pancreas	30	5%
			Non-Hodgkin Lymphoma	24	4%
All Sites	632	100%	All Sites	595	100%

- ❖ An average of 632 males and 595 females die each year from cancer in Vermont. Of these, an average of 30 men and 24 women die from non-Hodgkin lymphoma.
- ❖ Non-Hodgkin lymphoma is the fifth leading cause of cancer death for males and the sixth leading cause of cancer death among females in Vermont.
- ❖ In Vermont, non-Hodgkin lymphoma accounts for roughly five percent of all cancer deaths among males and four percent of all cancer deaths among females.

Trends

Figure 1. Incidence and mortality rates of male non-Hodgkin lymphoma – Vermont and United States¹, 1995-2004.

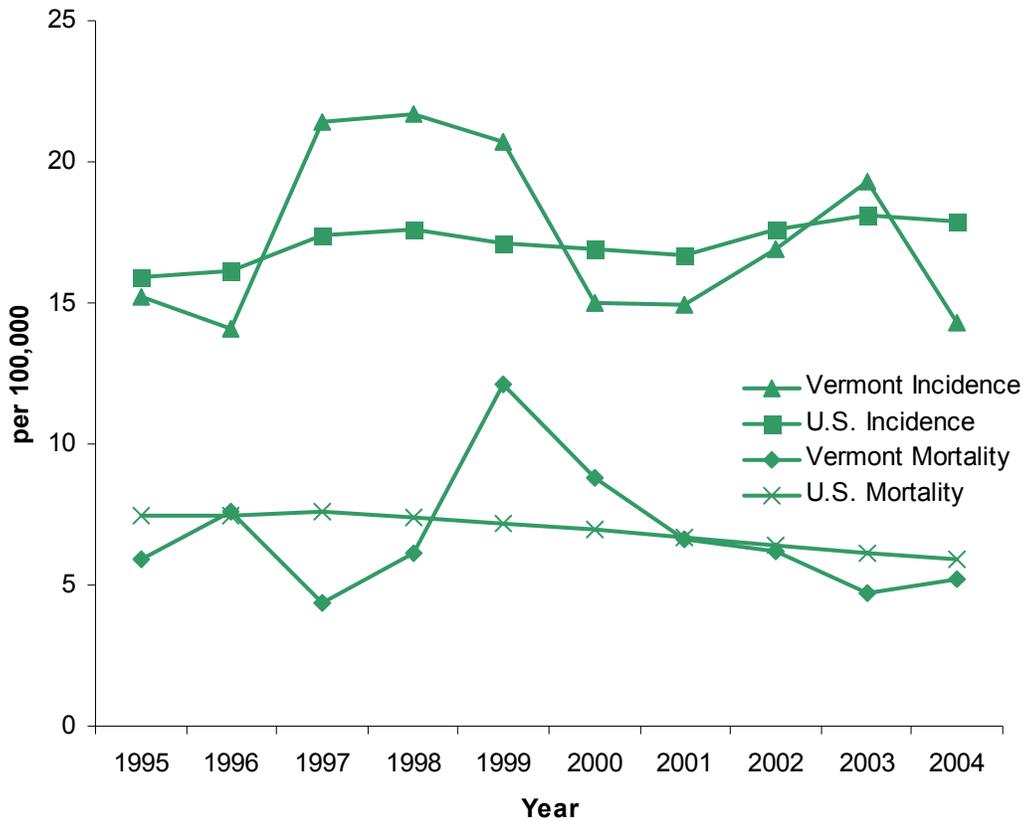


	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Vermont Incidence	23.7	22.8	25.0	25.9	22.8	20.9	22.4	21.9	25.7	22.5
U.S. Incidence	26.0	25.2	25.1	23.9	25.3	25.3	25.2	25.0	25.3	25.5
Vermont Mortality	15.2	11.9	12.6	9.7	11.1	13.6	11.1	12.6	11.2	8.4
U.S. Mortality	11.2	11.3	11.4	11.3	10.7	10.6	10.3	10.0	9.7	9.2

- ❖ From 1995 to 2004, trend analysis shows that there was no change in male NHL incidence in Vermont or in the U.S.
- ❖ From 1995 to 2004, trend analysis shows that there was no change in male NHL mortality in Vermont, but mortality rates decreased in the U.S.

¹ The U.S. rates represented in this publication are for whites. See Technical Notes section for more information.

Figure 2. Incidence and mortality rates of female non-Hodgkin lymphoma – Vermont and United States, 1995-2004.



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Vermont Incidence	15.2	14.1	21.4	21.7	20.7	15.0	14.9	16.9	19.3	14.3
U.S. Incidence	15.9	16.1	17.4	17.6	17.1	16.9	16.7	17.6	18.1	17.9
Vermont Mortality	5.9	7.6	4.4	6.1	12.1	8.8	6.6	6.2	4.7	5.2
U.S. Mortality	7.5	7.5	7.6	7.4	7.2	7.0	6.7	6.4	6.1	5.9

- ❖ From 1995 to 2004, trend analysis shows that there was no change in female NHL incidence in Vermont, but incidence rates have increased in the U.S.
- ❖ From 1995 to 2004, trend analysis shows that there was no change in female NHL mortality in Vermont, but mortality rates decreased in the U.S.

U.S. Comparisons

Table 3. Incidence and mortality rates of non-Hodgkin lymphoma – Vermont and United States, per 100,000, 2000-2004.

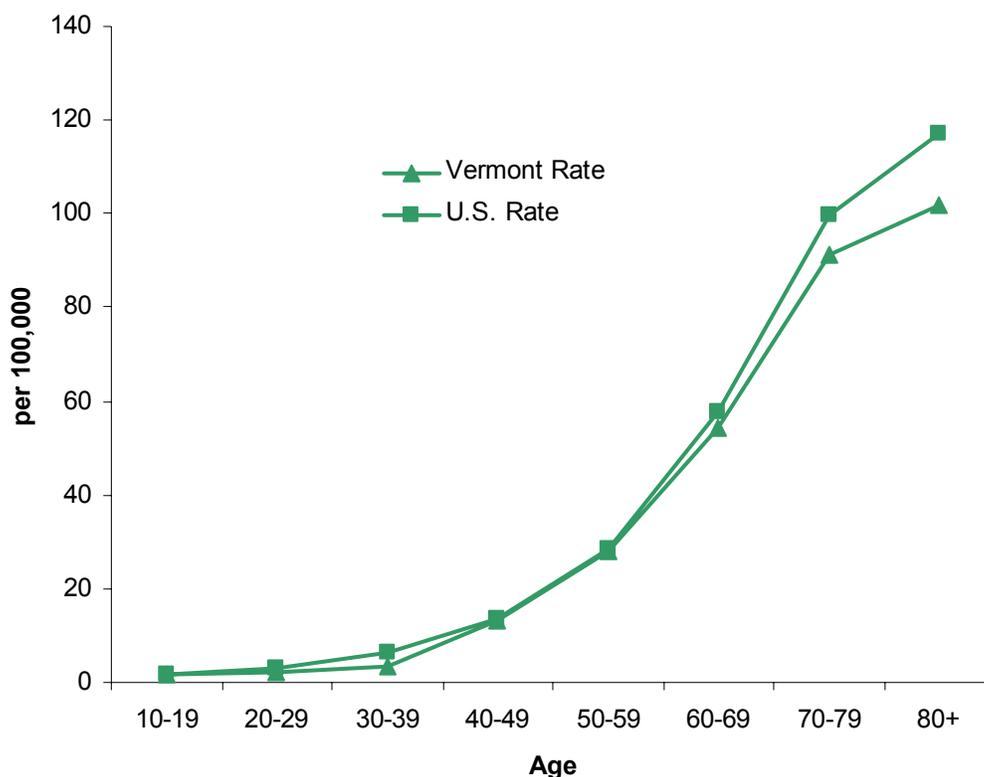
	Incidence	Mortality
Vermont Males	22.9	11.3
U.S. Males	25.3	9.9
Vermont Females	16.0	6.3
U.S. Females	17.4	6.4

- ❖ The NHL incidence rates among Vermont males and females are not different from the U.S.
- ❖ The NHL mortality rates among Vermont males and females are not different from the U.S.

Age

The incidence rates of non-Hodgkin lymphoma, as with many cancers, increase with age and are highest among those older than 60. However, the condition affects individuals of all age groups and is one of the most common cancers in children and young adults under the age of 20.

Figure 3. Incidence rates of male and female non-Hodgkin lymphoma, by age – Vermont and United States, 2000-2004.



Age Group	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Vermont Rate	1.8	2.0	3.3	13.1	28.0	54.1	91.3	101.8
U.S. Rate	1.7	2.8	6.4	13.5	28.5	57.9	99.6	117.2

- ❖ Vermont males and females age 80 and over have the highest age-specific incidence of NHL, at a rate of 101.8 per 100,000.
- ❖ Vermont males and females age 30 to 39 have a lower incidence of NHL, at a rate of 3.3 per 100,000 compared to 6.4 per 100,000 in the U.S.

Childhood non-Hodgkin Lymphoma

Although there is no sharp age peak, NHL occurs most commonly in the second decade of life, and occurs less frequently in children younger than 3 years. Between 2000 and 2004, NHL was the third most commonly occurring childhood cancer in Vermont and the U.S. During this time period, NHL accounted for about 8 percent of all cancers occurring among Vermont children and young adults less than 20 years old. There are primarily four major types of childhood NHL, which include: B-cell non-Hodgkin lymphoma (Burkitt and Burkitt-like lymphoma), diffuse large B-cell lymphoma, lymphoblastic lymphoma, and anaplastic large cell lymphoma.

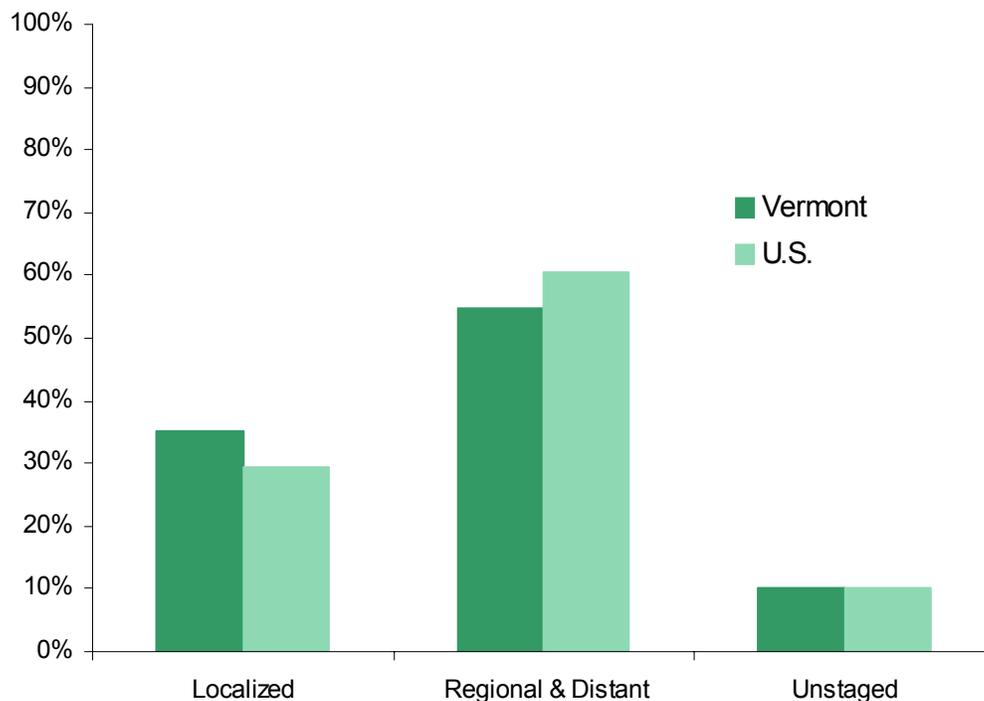
Other types of lymphoma can occur in children but are less common. These include lymphoproliferative disease, which is associated with a weakened immune system, and rarely, adult NHL.

- ❖ Non-Hodgkin lymphoma accounts for approximately eight percent of cancers in Vermonters younger than 20 years of age, which is similar to seven percent in the U.S.
- ❖ The incidence rate among Vermonters younger than 20 years is approximately 15.5 per million, which is not different from the U.S. rate of 12.3 per million.

Stage at Diagnosis

Stage describes the extent to which the cancerous cells have spread from the original site to another part of the body. It is determined by where lymphoma cells are found (in the lymph nodes or in other organs or tissues) and is also dependent on how many lymph node chains or other organs are involved. For non-Hodgkin lymphoma, stage can be grouped into the following categories: localized, regional, distant, and unknown (unstaged). The earlier a cancer is diagnosed, the better a person's prognosis is likely to be. Some cancer types are easier to detect at an early stage (localized) than others. Cancers occurring in parts of the body that can be easily seen or felt (skin, breast) are first detected with more direct methods than internal cancers (lung), which require imaging procedures and/or laboratory tests.

Figure 4. Distribution of non-Hodgkin Lymphoma by stage at diagnosis – male and female, Vermont and the United States, 2000-2004.



- ❖ Among Vermonters, approximately 35 percent of NHL's are diagnosed at the early stage (localized), and 55 percent are diagnosed at a regional or distant stage. In the U.S., 29 percent of NHL are diagnosed at the early stage, and 61 percent are diagnosed at a regional or distant stage.
- ❖ More Vermonters are diagnosed at a localized stage compared to the U.S., and fewer Vermonters are diagnosed at a regional or distant stage compared to the U.S.

Risk Factors

A risk factor is a condition, an activity or an exposure that increases a person's chance of developing cancer. Cancer develops gradually as a result of a complex mix of factors related to lifestyle choices, environment and genetics. Each type of cancer is caused by a different set of factors, some well established, some uncertain, and some unknown. Most people with known risk factors never develop non-Hodgkin lymphoma, and many who do get this condition have none of the known risk factors. The exact causes of NHL are unknown, but some of the factors associated with an increased risk of developing NHL are:

- ❖ **Weak Immune System:** Certain inherited conditions, infections, or medications can increase the risk of developing NHL. Lymphomas themselves are not contagious. The following medical conditions can increase risk for NHL:
 - Human immunodeficiency virus (HIV), the virus that causes AIDS.
 - Hepatitis C infection.
 - Human T-lymphotrophic virus type I or Epstein-Barr virus infections.
 - A history of *Helicobacter pylori* infection, the bacteria that can cause stomach ulcers.
 - Immunosuppressant drugs taken after an organ transplant.
 - Some inherited immune disorders such as hypogammaglobulinemia or Wiskott-Aldrich syndrome.
 - Some autoimmune diseases such as rheumatoid arthritis, psoriasis, or Sjögren syndrome.

- ❖ **Occupational Exposures:** People who work extensively with or are otherwise exposed to certain chemicals may be at increased risk of this disease. Living near or working on farms has been associated with an increased risk of NHL. Exposure to certain chemicals contained in herbicides and pesticides in such settings are suspected of playing a role, but these specific relationships are still under study.

- ❖ **Obesity and Diet:** Several studies have suggested that being overweight may increase risk of NHL and other studies have also suggested that a diet high in vegetables may lower risk.

- ❖ **Previous Cancer Treatment:** Radiation therapy for some other cancers, such as Hodgkin disease, may increase risk of developing NHL later.

- ❖ **Age, Gender and Race:** While NHL can occur at any age and does occur among children, the chance of developing this cancer increases with age. Most people with non-Hodgkin lymphoma are older than 60. The incidence of NHL is higher in Caucasians than in African Americans, and NHL is more common in males than in females.

Prevention and Screening

The cause of most lymphomas is not well understood, and very little is known about how to prevent them other than reducing exposure to known risk factors.

Screening tests for certain cancer types (breast, colon, cervix) can find pre-cancerous tumors, or very small cancers, when the chance for survival is best. However, there are no screening tests that can detect non-Hodgkin lymphoma at an early stage. The best strategy for early diagnosis is prompt attention to the signs and symptoms of this disease. The most common symptom of non-Hodgkin lymphoma is a painless swelling of the lymph nodes in the neck, underarm, or groin; however, NHL can cause many other symptoms including:

- Unexplained weight loss.
- Fever.
- Soaking night sweats.
- Coughing, trouble breathing, or chest pain.
- Weakness and tiredness that does not go away.
- Pain, swelling, or a feeling of fullness in the abdomen.

Most often, these non-specific indications may be caused by other, less serious conditions rather than cancer. However, anyone with symptoms that do not go away within two weeks should see a health care profes-

Survival and Treatment

Survival refers to the percentage of people who are alive for a given period of time after diagnosis and is an indication of the prognosis of the disease. The prognosis and treatment for non-Hodgkin lymphoma depends on the stage of the disease, the type of cells involved, whether they are indolent (low-grade) or aggressive (intermediate- and high-grade), the age and general health of the patient, and whether the lymphoma has just been diagnosed for the first time or has recurred. Nationally, 70 percent of men and women for all stages combined, who are diagnosed with NHL before the age of 65, survive their disease for at least five years compared to 54 percent when diagnosed after the age of 65.

The most significant factor in prognosis is the aggressiveness, or grade, of the lymphoma. Indolent non-Hodgkin lymphoma is generally not curable, but typically progresses slowly and responds temporarily to therapy. Aggressive and highly aggressive NHL's are potentially curable with chemotherapy.

Non-Hodgkin lymphoma is usually treated with **chemotherapy** (drugs toxic to cells), **radiation therapy** (ionizing radiation to control malignant cells), or a combination of these treatments. In some cases, **bone marrow transplantation** (healthy stem cells from very immature cells, found in the marrow, that produce blood cells, to replace white blood cells that are damaged or destroyed by treatment), **immunotherapy** (use of the immune system to reject cancer by stimulating the patient's immune system to attack the malignant tumor cells), or **surgery** (to treat lymphomas that start in certain organs, such as the thyroid or stomach, and have not spread beyond these organs) may be options. For indolent lymphomas, the doctor may decide to wait until the disease causes symptoms before starting treatment.

Clinical trials are generally designed to compare potentially better therapy with therapy that is currently accepted as standard and can be an important option for many individuals when considering treatment of this disease. Most of the progress made in identifying curative therapies for cancers has been achieved through clinical trials.

Information about ongoing clinical trials is available from the National Cancer Institute is available at: <http://www.cancer.gov/clinicaltrials/search>.

For more information about treatment guidelines, visit the National Comprehensive Cancer Network (NCCN) at: http://www.nccn.org/patients/patient_gls/english/non_hodgkins/contents.asp.

Intervention, Policy, and Recommendations

The **Vermont State Cancer Plan**², published by the Vermont Department of Health and **Vermonters Taking Action Against Cancer (VTAAC)**³, provides a strategic roadmap to reduce the burden of all cancers by 2010. The Plan identifies strategic priorities in the following areas: preventing future cancers, detecting new cancers early, increasing access to optimal treatment and follow up, improving the quality of life for cancer survivors, and improving pain management and end-of-life care.

The burden of non-Hodgkin lymphoma in Vermont can be reduced by achieving the following objectives, as identified in the State Cancer Plan:

Increase access to high quality cancer treatment and follow-up care:

- Increase the number of primary care providers educated about the need for people with cancer to be assessed in a multi-modality setting.
- Increase the number of Vermonters who used the American Cancer Society's Road to Recovery transportation program to obtain their cancer treatment.
- Increase the number of Vermonters enrolled in clinical trials.
- Increase the percentage of Vermonters covered by insurance for all or part of the year.

Improve the quality of life of Vermonters who are living with, through and beyond any diagnosis of cancer.

- Increase the percentage of cancer survivors who report always or usually receiving emotional/psychological support when needed.
- Increase the percentage of cancer survivors who report that their general health is good or excellent.

Improve end-of-life care for cancer patients through effective pain management and palliative care.

- Improve Vermont's grade on the Pain Policy Progress Report Card.
- Increase availability and use of pain management, hospice, and palliative care.
- Promote reimbursement for hospice and palliative care among insurers.
- Increase number of Vermonters enrolled in the Vermont Advance Directive Registry.

Vermonters Taking Action Against Cancer (VTAAC) is a statewide collaborative partnership of nearly 200 organizations, healthcare providers and individuals working together to reduce the burden of cancer among **all** Vermonters. VTAAC workgroups and affiliate organizations develop and implement specific strategies and activities to achieve the objectives of the Vermont State Cancer Plan. Activities and progress towards these objectives are routinely assessed and reported annually⁴.

For more information about VTAAC, the State Cancer Plan or current activities and progress, visit: <http://healthvermont.gov/cancer>.

In Vermont, the **Leukemia & Lymphoma Society (LLS)**⁵ is an active participant in Vermonters Taking Action Against Cancer. NHL patients are served by the Upstate New York/Vermont chapter of the LLS. Services offered in Vermont include: Family Support Groups, First Connection (patient-to-patient support), patient financial aid program, "Meet the Expert on NHL" educational programs, back-to-school programs as well as other educational presentations throughout the year.

² Vermont State Cancer Plan, 2006-2010: http://healthvermont.gov/pubs/cancerpubs/state_cancer_plan.aspx.

³ A network of groups and individuals that speaks with one voice about reducing cancer risk, detecting cancers earlier, creating better access to quality cancer treatment, and improving the quality of life for cancer survivors. Visit <http://vtaac.org/> or call (802) 872-6303.

⁴ Vermont Cancer Plan Status Report, 2007: <http://healthvermont.gov/prevent/cancer/documents/CancerProgressSheet100207.pdf>.

⁵ Leukemia & Lymphoma Society: http://www.lls.org/hm_lls. Vermonters looking for more information on LLS programs can call the Upstate New York/Vermont chapter toll free at 1-866-255-3583.

The **Vermont Cancer Survivor Network (VCSN)**⁶ has been created to implement the survivorship portion of the Vermont State Cancer Plan. The Network is hosting celebratory events, providing educational activities for cancer survivors, their families and caregivers, and creating a peer-to-peer support network called Kindred Connections.

National Efforts

The **Centers for Disease Control and Prevention (CDC)** engages in numerous partnership activities aimed towards prevention and control efforts, all with the primary aim of reducing the number of people who are diagnosed with and die from cancer. The CDC prevention and education efforts include a collaboration with the LLS, which funds research toward cures for leukemia, lymphoma, myeloma, and blood cancers and offers a wide variety of educational and patient services. LLS works with the CDC to provide funding for research as well as Patient Services and Advocacy for people living with NHL. Recent developments in research have led to effective chemotherapy treatments with fewer side effects than those used in the past. Patient Services include an Information Resource Center with toll-free number, co-pay assistance program, teleconferences and webcasts, and educational materials. Advocacy includes increased federal funding for cancer research as well as improved access to quality health care. For more information about what CDC is doing about NHL and other blood cancers, visit: http://www.cdc.gov/cancer/hematologic/what_cdc_is_doing.

The **American Cancer Society (ACS)** has developed the Cancer Resource Network which provides free services to cancer patients and their caregivers. Services include, rides to treatment, lodging, referral to local community resources, emotional support, cancer education classes, 24-hour telephone information service. 1-800-227-2345, <http://www.cancer.org>.

⁶ For more information about the Vermont Cancer Survivor Network, visit <http://www.vcsn.net>.

Data Sources

Vermont Cancer Registry: The Vermont Cancer Registry is a central bank of information on all cancer cases diagnosed or treated in Vermont since January 1, 1994. The registry enables the state to collect information on new cases (incidence) of cancer. Previously, the state only kept records on deaths from cancer. The information maintained by the registry allows the Health Department to study cancer trends and improve cancer education and prevention efforts. Vermont Department of Health Cancer Registry, 1995-2004. The Vermont Cancer Registry can be contacted at 802-865-7749 (http://healthvermont.gov/research/cancer_registry/registry.aspx).

Vermont Vital Statistics: In Vermont, towns are required to file certified copies of death certificates with the Department of Health for all deaths occurring in their jurisdictions. The Health Department is responsible for maintaining the vital statistics system. Vermont Department of Health Vital Statistics System, 1995-2004 (http://healthvermont.gov/research/stats/vital_stats.aspx).

Surveillance, Epidemiology, and End Results: The National Cancer Institute funds a network of Surveillance, Epidemiology and End Results (SEER) registries. The SEER Program currently collects and publishes cancer incidence and survival data from 14 population-based cancer registries and three supplemental registries covering approximately 26 percent of the U.S. population. These rates are used to estimate the U.S. cancer incidence rates. U.S. incidence is based on the SEER 9 Registries white rates. Suggested Citation: Ries LAG, Eisner MP, Kosary CL, Hankey BF, Miller BA, Clegg L, Mariotto A, Feuer EJ, Edwards BK (eds). SEER Cancer Statistics Review, 1975-2004, National Cancer Institute. Bethesda, MD, 2007 (http://www.seer.cancer.gov/csr/1975_2004).

U.S. Vital Statistics: The U.S. Public Use Database Vital Statistical System maintains the U.S. mortality rates. Rates represented in this report are for the U.S. white population. Suggested Citation: Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Mortality - All COD, Public-Use With State, Total U.S. (1969-2004), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2007. Underlying mortality data provided by NCHS (www.cdc.gov/nchs).

Technical Notes and Definitions

Age Adjustment: All rates in this document are age-adjusted to the 2000 U.S. standard population. This allows the comparison of rates among populations having different age distributions by standardizing the age-specific rates in each population to one standard population.

Incidence: Incidence refers to the number or rate of newly diagnosed cases of cancer. The incidence rate is calculated as the number of new NHL cases diagnosed in the state during one year divided by the number of residents in the state during the same year. The incidence data presented in this report were coded using the International Classification of Disease for Oncology (ICD-O) coding system. Non-Hodgkin Lymphoma cases were defined as invasive neoplasms with ICD-O-3 histology codes 9590-9596, 9670-9729, 9823, and 9827.

Mortality: Mortality refers to the number or rate of deaths from cancer. The mortality data presented here were coded using the International Classification of Diseases (ICD). Cause of death was coded according to ICD-10. Cause of death before 1999 was coded according to ICD-9. Comparability ratios were applied to pre-1999 mortality rates to allow for continuity in trends across the ICD revisions.

Race: U.S. incidence and mortality rates for whites, rather than those for all races, are used for comparison because racial minority groups were estimated to make up 3.1 percent of the total Vermont population, compared with the total U.S. non-white population of 19.6 percent in 2004. Nationwide, whites have a higher risk compared to people of other races for female breast, melanoma, and bladder cancer incidence. Whites have a lower risk compared to other races for prostate, colorectal, and cervical cancer. The much smaller populations of Vermont residents of other races may have very different risks of these

cancers. Combining data over many years will be required to determine cancer rates.

Statistical Significance: The use of the terms “higher” and “lower” in this document refer to a “statistically significant” difference. A statistically significant difference indicates that there is statistical evidence that there is a difference that is unlikely to have occurred by chance alone.

Small Numbers: Rates are not presented in this report if they are based on fewer than 6 cases.

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