

# Non-Hodgkin's Lymphoma

## *What is lymphoma?*

The lymphatic system is an extensive drainage network that helps keep bodily fluid levels in balance and defends the body against infections. Lymphoma is a general term for a group of cancers that originate in and affect the lymphatic system. Lymphomas are divided into two major categories: Hodgkin lymphoma and non-Hodgkin lymphoma. Hodgkin's lymphoma is marked by the presence of an abnormal lymphocyte called the Reed-Sternberg cell (or B lymphocyte). Non-Hodgkin's lymphomas (NHL) include all other types of lymphomas. NHL develops from white blood cells in other parts of the lymphatic system, including the bone marrow, spleen, thymus and lymph nodes. There are more than 30 different types of non-Hodgkin's lymphoma, including aggressive (fast-growing) or indolent (slow-growing) types.

## *What are the signs and symptoms?*

Symptoms may include enlarged lymph nodes that might be painful after drinking alcohol, itching, night sweats, fatigue, unexplained body pains, weight loss, abdominal swelling and pain, and intermittent fever.

## *How is it diagnosed?*

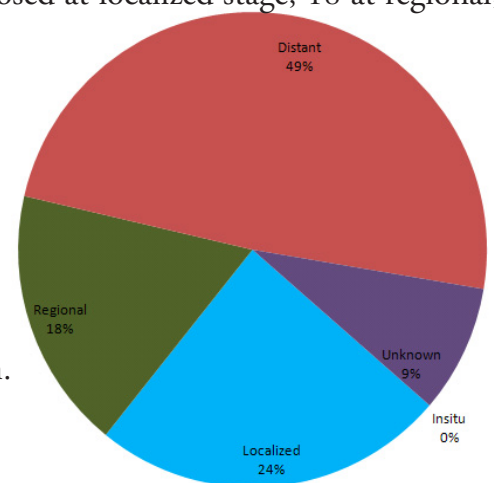
If signs or symptoms suggest lymphoma, a complete medical history, physical examination, bone marrow aspiration, biopsy and/or spinal tap will be performed.

## *What are the risk factors?*

The cause of the majority of lymphomas is unknown; however, many risk factors have been identified mostly associated with severely reduced immune function. Non-Hodgkin lymphoma risk is elevated in persons with organ transplants who receive immune suppressants to prevent transplant rejection, HIV cases, human T-cell leukemia-lymphoma and probably hepatitis C. The Epstein-Barr virus causes Burkett lymphoma and may be related to other lymphomas. Occupational exposures to herbicides, organic solvents and certain other chemicals appear to increase the risk, although the mechanism is unknown. Lymphomas are not hereditary.

## *Diagnosis*

In the 2003 - 2007 time period, 24 percent were diagnosed at localized stage, 18 at regional, stage, 49 percent at distant stage and 9 percent were of unknown stage of progression.



### *What are the common treatments?*

Treatment options include radiation, chemotherapy, immunotherapy or bone marrow transplant depending upon the type and stage of the disease.

### *What are the survival outcomes?*

Using 1999-2007 SEER data the national 5-year relative survival rate estimate is 66 percent. When diagnosed at localized stage, the 5-year relative survival rate is 80 percent. For regional and distant stages, the 5-year relative survival rates are 70 percent and 57 percent respectively. The survival rate when the stage of diagnosis could not be determined was estimated at 64 percent.

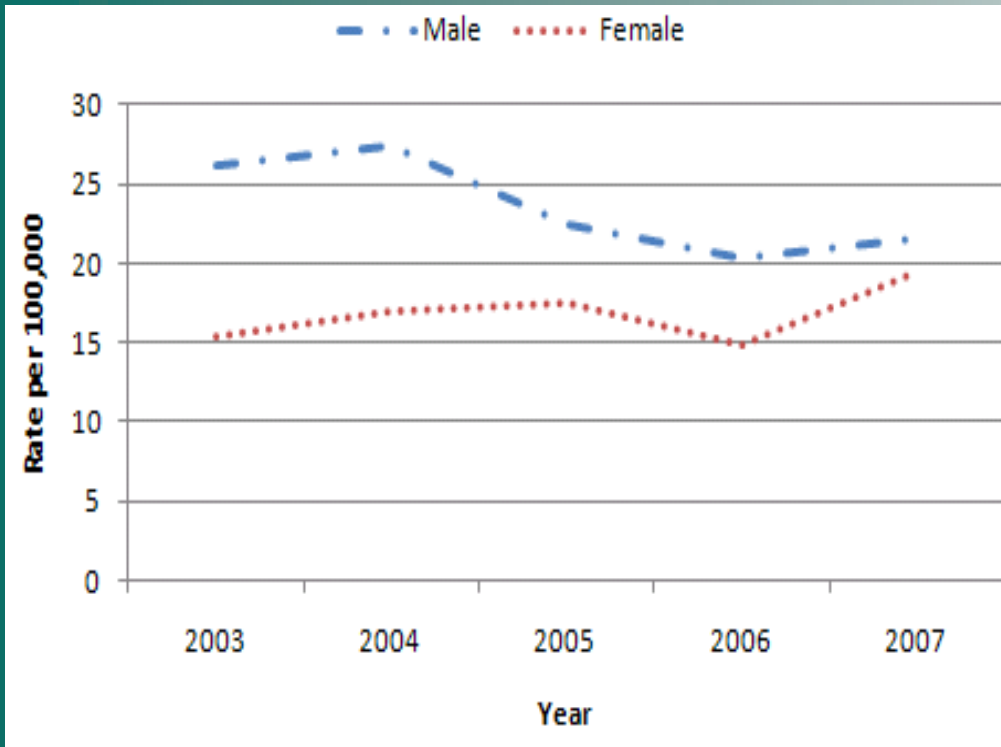
### *What can you tell me about this cancer in North Dakota?*

Summary Statistics 2003-2007	ND	WNC	US
INCIDENCE			
Annual age-adjusted incidence rates*	19.6	20.2	19.3
Average number of new cases	140	4,249	59,279
Percent of all new cancers	4.18	4.25	4.11
MORTALITY			
Annual age-adjusted mortality rates*	6.7	7.2	6.9
Average number of deaths each year	51	1,561	20,881
Percent of all cancer deaths	3.91	3.95	3.74
* Rates per 100,000 and standardized to U.S. year 2000 population.	<b>WNC and US data source:</b> <a href="http://apps.nccd.cdc.gov/uscs">http://apps.nccd.cdc.gov/uscs</a>		

☞ The West North Central (WNC) regions include the following states: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota.

## INCIDENCE:

### *Incidence Rates by Gender, North Dakota 2003-2007*

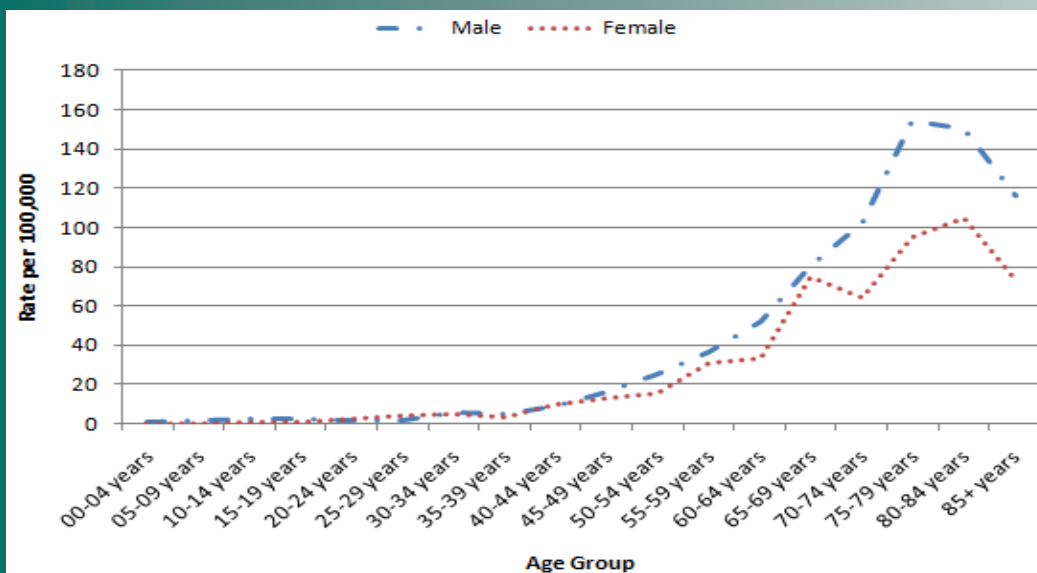


☞ An average of 140 new cases of non-hodgkin's lymphoma are diagnosed each year in North Dakota, which is about 4 percent of all cancers diagnosed in the state.

☞ The incidence of non-hodgkin's lymphoma is slightly higher among men than women.

☞ The average annual incidence rate for men is 23.6 per 100,000 men, and the average annual incidence rate for women is 16.9 per 100,000 women.

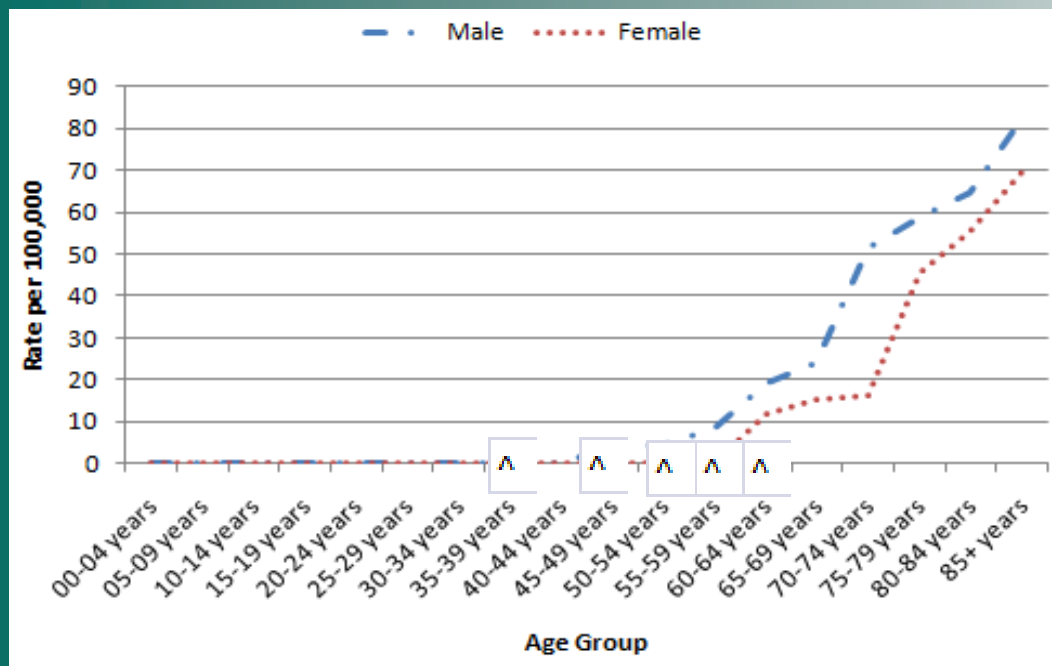
### *Age Specific Incidence Rates, North Dakota 2003 - 2007*



☞ Since the incidence is higher among men than women, the age-specific rates for men are higher.

☞ The annual incidence rate increases with age.

## Age-Specific Mortality Rates, North Dakota 2003-2007



^ Statistic not displayed due to fewer than five cases.

An average of 51 deaths due to non-hodgkin's lymphoma occur each year in North Dakota, which is about 4 percent of all cancer deaths in the state.

The average annual death rate for men is 8.4 per 100,000 men, and for women is 5.2 per 100,000 women.

Death rate from non-hodgkin's lymphoma increases with age.

### Glossary of Cancer Terminology

- Age-adjusted rate:** Since cancer rates tend to vary with age, and since populations vary with respect to their age-distribution, incidence and mortality rates are age-adjusted to allow comparison of rates between different populations (i.e. county or regional boundaries).
- Age-specific rate:** The number of new cases diagnosed per 100,000 individuals over a specified time period for a specified age-group.
- Incidence:** The number of new cases of a given type of cancer diagnosed during the year.
- Mortality:** The number of deaths attributed to the particular type of cancer that occurred during the year. Includes deaths of patients diagnosed in earlier years, individuals newly diagnosed during the year, and patients for whom a diagnosis of cancer is made only after death.
- Risk factor:** Anything that increases a person's chance of getting a disease.
- Stage at diagnosis:** How far a cancer has spread from its site of origin when it is diagnosed. There are several different systems for the staging of cancers. This report uses the general summary stage system. The stages, in order of increasing spread, are in situ, localized, regional and distant. Cancers diagnosed at the localized, regional or distant stage are referred to as invasive.



For more information, visit  
[www.ndhealth.gov/cancerregistry/](http://www.ndhealth.gov/cancerregistry/)  
 or call 701.328.2306

