

# Non-Hodgkin's Lymphoma



Lymphomas are cancers that develop when malignant cells infiltrate the lymphatic system. Childhood Non-Hodgkin's Lymphoma (NHL) develops in the lymph system, which is an integral part of the body's immune system.

## The lymph system consists of:

- 🧵 **Lymph:** A watery substance that contains white blood cells (lymphocytes) that the body needs to fight infections and the growth of tumours
- 🧵 **Lymph Vessels:** This is a network of tubes that collect lymph from different parts of the body and returns it to the blood stream
- 🧵 **Lymph Nodes:** These are small structures that look like beans which store the white blood cells that help the body to fight disease and infection. They are located all along the network of the lymph vessels and are mainly found in the abdomen, neck, pelvis, groin and the underarm.
- 🧵 **Bone Marrow:** This is the soft spongy tissue located in the centre of the large bones of the body; it makes red blood cells, white blood cells, and platelets
- 🧵 **The Spleen:** The spleen is an organ located on the left side of the abdomen near the stomach; it filters the blood, makes lymphocytes, stores blood cells and destroys old blood cells
- 🧵 **The Thymus:** The thymus is an organ in the chest, behind the breastbone, in which lymphocytes grow and multiply
- 🧵 **The Tonsils:** These are two small masses of lymph tissue found at the back of the throat that manufacture lymphocytes

A malignancy in the lymph system can spread very quickly throughout the rest of the system.

## *Lymphomas are divided into two basic types:*

- 🧵 Hodgkin's Lymphoma
- 🧵 Non-Hodgkin's Lymphoma

NHL is the more common lymphoma in children; it is uncommon in children under the age of 10, but when it does, it is more common in boys than in girls. NHL generally occurs more often in children between the ages of 10 and 20.

There are four major types of childhood Non-Hodgkin's Lymphoma; B-Cell Non-Hodgkin's Lymphoma, Diffuse Large B-Cell Lymphoma, Lymphoblastic Lymphoma, and Anaplastic Large Cell Lymphoma. The specific type of lymphoma is determined by how the cells look under a microscope.

NHL is the most frequent malignancy that occurs in children with AIDS.

## Causes of Non-Hodgkin's Lymphoma

The exact cause of NHL, as with most childhood cancers, is not known. Research in to the causes is ongoing.

## Signs and Symptoms

*Some of the typical signs and symptoms of Non-Hodgkin's Lymphoma are:*

-  Abdominal pain or swelling
-  Coughing
-  Night sweats
-  Painless lump or swelling in a testicle.
-  Painless swelling of the lymph nodes in the neck, underarm, stomach, or groin
-  Trouble breathing or wheezing
-  Trouble swallowing
-  Unexplained high temperature/fever
-  Unexplained weight loss
-  Weakness, tiredness

Some of the above could also be a sign of a medical condition other than cancer, so please consult your doctor if your child exhibits any of these symptoms.

## Tests and Diagnosis

***Non-Hodgkin's Lymphoma can be diagnosed or staged using the following tests and procedures:***

- 🎗️ **Physical Exam and History:** The doctor will perform a physical examination, checking your child's general health as well as checking for anything unusual or signs of cancer, and a complete medical history will be taken
- 🎗️ **A Biopsy:** Doctors perform a small operation done under general anaesthetic whereby cells and tissues are removed and studied under a microscope by a pathologist; various laboratory tests are also done
- 🎗️ **Cytogenetic Analysis:** This is a laboratory test in which a sample of tissue is put under a microscope and the cells checked for changes in the chromosomes
- 🎗️ **Endoscopy:** An endoscope (tube with a light and a lens for viewing) is inserted in a cut made in the skin or via a body opening such as the mouth, and the doctor looks at the tissues and organs inside the body to check for abnormalities. It may also contain a tool to remove lymph node or tissue samples for examination under a microscope

Other tests that may be done include x-rays, a complete blood count, blood chemistry studies, ultrasound scans, MRI scan, CT scan, a PET scan, an immunohistochemistry study, a bone marrow aspiration, or a mediastinoscopy.

## **Treatment options**

The exact treatment option for childhood NHL depends on the type and staging of the cancer and has a very good success rate.

- 🎗️ **Chemotherapy:** Most times NHL is treated with a combination of Chemotherapy drugs. These anti-cancer drugs destroy or shrink cancer cells. B-cell NHL is generally treated with about 4–8 courses of intensive chemotherapy and T-cell NHL is treatment lasts about two years.
- 🎗️ **Radiotherapy:** In very rare cases radiotherapy is also used. In radiotherapy, high-energy rays are used to destroy cancer cells without doing damage to the normal cells

Some of the treatment options may result in after-effects such as nausea, vomiting, irritation or soreness of the skin from radiation, hair loss, risk of infection, fatigue, bruising and bleeding or diarrhoea. The doctor should explain all of this to you, but if they do not, please ask them about side effects.

## **Awareness Ribbon Colour**

The awareness ribbon colour for Non-Hodgkin's Lymphoma is Lime Green

*This article was written on behalf of [Little Fighters Cancer Trust](#) by Billi du Preez of [Red Feather Scribes](#). Please feel free to share the article, but please respect copyright by sharing the article in its entirety, as is, including this paragraph with links at the bottom of the article. Thank You!*