Lymph Nodes and Cancer
What is the lymph system?

Our bodies have a network of lymph (limf) vessels and lymph nodes. This network collects fluid, debris, and other things that are in the body’s tissue, outside the bloodstream. Lymph vessels are a lot like the veins that collect and carry blood through the body. But instead of carrying blood, these vessels carry the clear watery fluid called lymph.

Lymph is the fluid that flows out from capillary walls to bathe the cells in the tissues of the body. It carries oxygen and other nutrients to those cells. It also contains white blood cells, which help fight infections.
Waste products like carbon dioxide (CO2) can flow out of the cells and into lymph. Lymph fluid would build up and cause swelling if it wasn’t drained in some way. That is the role of the lymph vessels. Lymph vessels draw up the lymph fluid from around the cells to send it towards the chest. Eventually, lymph collects into a large vessel that drains into a blood vessel near the heart.

**Lymph nodes and what they do**

Lymph vessels route the fluid through nodes that are located throughout the body. Lymph nodes are small structures that work as filters for harmful substances. They contain immune cells that can attack and destroy germs in the lymph fluid to help fight infection. Each lymph node filters fluid and substances picked up by the vessels that lead to it. Lymph fluid from the fingers, for instance, works its way toward the chest, joining fluid from the arm. This fluid may filter through lymph nodes at the elbow, or those under the arm. Fluid from the head, scalp, and face flows down through lymph nodes in the neck. Some lymph nodes are deep inside the body, such as between the lungs or around the bowel, to filter fluid from those areas. The lymph slowly flows in from all around the body, making its way back to the chest. At the end of its journey, the filtered fluid, salts, and proteins are dumped back into the bloodstream.

**Cancer in the lymph nodes**

Cancer can appear in the lymph nodes in two ways: it either starts there or spreads there from somewhere else.

Cancer that starts in the lymph nodes is called lymphoma. You can read more about lymphoma in our documents [Hodgkin Disease](#) and [Non-Hodgkin Lymphoma](#).

More often, cancer starts somewhere else and then spreads to lymph nodes. That is the focus of this document.

**How does cancer spread to lymph nodes?**

Cancer can spread from where it started (the primary site) to other parts of the body. When cancer cells break away from a tumor, they can travel to other areas of the body through either the bloodstream or the lymph system. If the cells travel through the lymph system, they may end up in the lymph nodes. Cancer cells can also travel in the bloodstream to reach distant organs. Either way, most of the escaped cancer cells die or are killed before they can start growing somewhere else. But one or two might settle in a new area, begin to grow, and form new tumors. This spread of cancer to a new part of the body is called **metastasis**.

In order for cancer cells to spread to new parts of the body, they have to go through several changes. They have to be able to break away from the original tumor and attach to the wall of a lymph vessel or blood vessel. Then they must move through the vessel wall to flow with the blood or lymph to a new organ or lymph node. When cancer grows inside lymph nodes, it usually affects the lymph nodes near the tumor itself. These nodes are the ones that have been trying to filter out or kill the cancer cells.

**How is cancer in lymph nodes found?**
Normal lymph nodes are tiny and so can be hard to find, but when there is infection, inflammation, or cancer, the nodes can get larger. Those near the body's surface often get big enough to feel with your fingers. But if there are only a few cancer cells in a lymph node, it may look and feel normal. In that case, the doctor must check for cancer by removing all or part of the lymph node.

When a surgeon operates to remove a primary cancer, one or more of the nearby (regional) lymph nodes may be removed as well. Removal of one lymph node is called a biopsy. When many lymph nodes are removed, it is called lymph node sampling or dissection. When cancer has spread to lymph nodes, it often affects the risk that the cancer might come back after surgery. This information helps the doctor decide whether more treatment might be needed after surgery.

Doctors may also take samples of one or more nodes using needles. Usually, this is done on lymph nodes that are enlarged. This is known as a needle biopsy. The tissue that is removed is looked at under the microscope by a pathologist (a doctor who diagnoses illness using tissue samples) to find out if there are cancer cells there.

Under the microscope, any cancer cells in the nodes look like cells from the primary tumor. For instance, when breast cancer spreads to the lymph nodes, the cells in the nodes look like breast cancer cells. The pathologist prepares a report, which details what was found. If a node has cancer in it, the report describes what it looks like and how much was seen.

Doctors may also use scans or imaging studies to look for enlarged nodes around a cancer if the nodes are deep in the body. Often, enlarged lymph nodes near a cancer are assumed to contain cancer.

**What does it mean if there is cancer in my lymph node?**

It depends. Sometimes there are so few cancer cells in the node that the pathologist must use special tests to find them. In the case of a very few cancer cells in a lymph node, it may not change the recommended treatment at all.

If there is a lot of cancer in a node, the large mass can be seen easily. If the cancer is growing out of the lymph node through the layer of connective tissue on the outside (call the capsule), it is called extracapsular extension.

More cancer in the nodes may mean that the cancer is more aggressive or that it is more likely to spread to other places in the body. But if nearby lymph nodes are the only other place cancer is found beyond the main (primary) site, surgery to remove the main tumor and the nearby lymph nodes may be able to get rid of it all (and cure it).

Cancer that has spread to nodes further away from the cancer is more likely to require extra treatment with chemotherapy or radiation. For instance, if nodes are affected on the other side of the body, the cancer may need more aggressive treatment.

**Cancer in nodes affects cancer stage**

Treatment of cancer is based on the type of cancer a person has, and the stage of that cancer. Doctors use a system to assign a stage to the cancer. The most common staging system is the TNM system. The T in TNM stands for tumor, and the M stands for metastasis, and the N stands for lymph nodes. If there is
no cancer found in the lymph nodes near the cancer, the N is assigned a value of 0. If nearby or distant nodes show cancer, the N is assigned a number such as 1, 2 or sometimes 3, depending on how many nodes are affected, their size, and where they are.

A cancer with lower TNM numbers is usually easier to treat and has a better outlook for survival (prognosis). For example, a cancer with T1, N0, M0, would be a cancer that was found very early, before it spread. The T1 would mean a small tumor, the N0 means that no nodes are involved, and the M0 means that no metastases were found. For more information on staging, see information about your cancer, or read our document, Staging.

**Effects of removing lymph nodes**

Nodes that have been removed during cancer surgery can leave the part of the body without a way to drain off excess fluid in the affected area. Many of the lymph vessels now run into a dead end where the node used to be, and fluid can back up. This is called *lymphedema*, and it can become a lifelong problem. The more lymph nodes that are removed, the more likely it is to occur. For more on lymphedema, see the section, “To learn more.”

**To learn more**

**More information from your American Cancer Society**

The following information may also be helpful to you. These materials may be ordered from our toll-free number, 1-800-227-2345, or read on our Web site, www.cancer.org. Surgery (also available in Spanish)  
Staging  
Advanced Cancer (also available in Spanish)  
Lymphedema: What Every Woman With Breast Cancer Should Know (also available in Spanish)  
Understanding Lymphedema -- for Cancers Other Than Breast Cancer

No matter who you are, we can help. Contact us anytime, day or night, for information and support. Call us at 1-800-227-2345 or visit www.cancer.org.

**References**


Last Medical Review: 09/15/2011  
Last Revised: 09/15/2011