All About Melanoma

What is a melanocyte?
A melanocyte is a normal cell found in the skin that makes melanin. Melanin is a black or dark brown pigment that is seen in the skin, hair, and parts of the eye. Melanin is transferred from the melanocytes into nearby skin and hair cells. Some people have areas of more color on the skin, known as moles or nevi.

What is melanoma?
Melanoma is a type of cancer that forms from melanocytes. Even though melanoma makes up only about 1% of all skin cancers, it is the most serious form of skin cancer. Other common types of skin cancer include basal cell carcinoma and squamous cell carcinoma.

Melanoma can happen in any part of the body where melanocytes are found. Most of your melanocytes are found in the skin. Most melanomas are found on the surface of the skin including nail beds, soles of the feet, and scalp. Melanoma can also occur in the eye (“uveal melanoma”) or on internal mucosal surfaces, such as the lining of the sinuses, the anal canal, rectum, and vagina.

The four most common subtypes of melanoma are:
- Superficial spreading melanoma.
- Nodular melanoma.
- Lentigo maligna melanoma.
- Acral lentiginous melanoma.

What causes melanoma and am I at risk?
Each year about 106,110 new cases of melanoma will be diagnosed in the United States. The number of new cases of melanoma has increased for the last 30 years. Melanoma is more common in men in general but higher in women before the age of 50. The average age of diagnosis is 65 but it is also one of the most common cancers in young adults.

The single most important risk factor for melanoma is exposure to ultraviolet (UV) radiation from the sun. Other risk factors for melanoma of the skin are:
- Fair skin or complexion.
- A history of peeling sunburns.
- Prolonged exposure to ultraviolet light (both sun and artificial UV light, such as tanning beds).
- Multiple moles.
- Older age. As we age, our years of sun exposure increase, and therefore the risk of melanoma increases.
- Personal or family history of non-melanoma skin cancer.
- Personal or family history of melanoma.
- History of xeroderma pigmentosum, which is an inherited condition that affects skin cells and their ability to repair damaged DNA.
- A weak immune system can lead to cancer because your body isn’t able to fight cancer cells as well.

If you have been diagnosed with melanoma, it is important to talk to your family members so that they can talk to their provider about their own screening for melanoma.
Most melanomas do not start from moles. However, certain types of moles, called dysplastic nevi, can increase your risk for melanoma. Dysplastic nevi are often large (>5mm in diameter), have uneven pigmentation, and irregular borders. A single dysplastic nevi can increase your chance of melanoma 2-fold, while 10 or more nevi indicate a 12-fold increased risk of developing melanoma.

If you have fair skin and light eyes, or tend to freckle or burn easily, you are at higher risk. The melanin in dark-skinned people has been found to have a natural sun protection factor (SPF) and can filter twice as much ultraviolet light as that of a light-skinned person. This protection, however, is not complete, and melanoma can develop in dark-skinned people. Melanoma is more often found on soles, palms, or nail beds in dark-skinned people.

A history of 3 or more sunburns, especially blistering sunburns, before age 20, greatly increases risk. A history of severe sunburns in childhood and adolescence may double the risk of melanoma in adulthood.

For many years, the tanning industry has promoted tanning salons as a safe alternative to natural sun, saying that these devices prevent sunburn. However, artificial UV light has clearly been linked with an increased risk of melanoma and other types of skin cancer. In fact, women under 35 who have ever used a tanning bed are 50% more likely to develop melanoma than women who never used a tanning bed. Tanned skin, whether from a tanning bed or sunlight, is not healthy and indicates that the skin has been damaged.

**How can I prevent melanoma?**

The best way to prevent melanoma is to protect the skin from ultraviolet light, including natural UV light from the sun and artificial UV light from tanning devices.

Some ways to protect your skin from UV light include:

- Do not use tanning salons or expose yourself to other artificial sources of UV light.
- Avoid being out in the sun between 10am and 4pm.
- Seek the shade when outdoors.
- Wear protective clothing like long-sleeved shirts, pants, a hat, and sunglasses. You can wear clothing that has built-in sun protection factor (SPF).
- Use sunscreen with a sun protection factor (SPF) of 15 or greater every day, even in the winter! Sunscreen use is very important for children because sunburns during childhood greatly increase the risk of melanoma later in life. Everyday use of sunscreen can reduce further skin damage in people with a history of extensive sun exposure.
- You should check your own skin about once a month. Be aware of the shapes and coloring of any moles you have. Melanoma may start from a mole you already have, causing it to change how it looks. Look at your skin routinely in a mirror, including your back, bottom of your feet, nail beds, and scalp. Look for changes in existing moles, or for new ones.

Moles that should be looked at by your provider are ones that have the “ABCDE” characteristics:

- **Asymmetry**: Asymmetry refers to the shape of a mole. If an asymmetric mole were divided in half, one side would not look like the other.
- **Border irregularity**: The border refers to the edges of the mole. These should be sharp or well-defined. An irregular border may look blurry and uneven.
- **Color**: Most moles have an even color. Moles with many colors within them or moles whose color has changed can be a concern, especially those that become darker.
- **Diameter**: Most moles are small. Any mole that is larger than the diameter of a pencil eraser (about 6 mm in diameter) may be a concern.
- **Evolution**: Moles don’t change very much over time. A mole that has changed in appearance, color, shape, or elevation over time may be a concern and should be looked at by a provider.

These rules are not set in stone, which is why you should be aware of your own moles and report any changes in moles to a provider.
What screening tests are available?

There are no specific guidelines for screening for melanoma. Your healthcare provider should look at your skin during routine physicals and you should also check your skin routinely at home. Because you see your skin every day, you are most likely to find any changes early on. You should look at every part of your body including your hands, back, soles of your feet, and scalp. You can use a mirror to help with this. You should report any changes to your provider. The prognosis for melanoma is best when lesions are found early, making skin exams very important.

What are the signs of melanoma?

Melanoma often presents as an irregular mole on the surface of the skin, with the “ABCDE” characteristics described above. This can be a mole you already have that has changed or a newly developed mole. Many melanomas do not have these features, so any changes in your skin should be brought to the attention of your health care provider. More advanced lesions may be inflamed, ooze, itch, ulcerate, or bleed. Sometimes, specialized photography can be used to help monitor a person’s skin. These pictures can make it easier for both the patient and the health care provider to see any changes in moles. This can also cut down on unneeded biopsies by showing the look of moles over time. Some patients with melanoma don’t have an abnormal skin lesion and the first signs and symptoms of the disease result from metastatic spread to other organs.

How is melanoma diagnosed?

If your provider thinks you have melanoma a biopsy should be done. The type of biopsy done depends on where the lesion is and the size of the lesion. Some of the types of biopsies are:

- Shave biopsy: The top layers of the lesion are removed using a blade.
- Punch biopsy: A tool is pressed into the lesion to remove a deep sample of the skin.
- Excisional biopsy: Removal of the entire lesion and often a small area of normal tissue around it.
- Incisional biopsy: Removal of part of the lesion.

Melanoma can also start in the mucosal surfaces, known as mucosal melanoma (i.e. sinuses, gastrointestinal tract, urinary tract, and vagina) and in the eye, known as ocular or choroidal melanoma. The type of biopsy done for these types of melanomas will be decided by your provider.

A newer type of biopsy is reflectance confocal microscopy, also called an optical biopsy. This can help a provider look at the deeper parts of the skin, which prevents the need for cutting the skin. Another is adhesive patch testing. A patch is placed on the lesion and when it is removed it takes off some of the top layers of the skin for testing.

After the initial biopsy is done, a pathology report is issued by the dermatopathologist. This pathology report describes many aspects of the melanoma, which help determine the overall prognosis. Some of the report may be hard to understand. The most important parts of the pathology report are the depth of the melanoma, whether or not ulceration is present, and the mitotic count in thin melanomas. Your provider will help you understand the report.

The depth of the melanoma is often referred to as the Breslow depth or thickness. It describes the vertical depth of the melanoma in millimeters. Other measurements that may be included in the pathology report are the Clark’s level, which describes the layer of skin involved with melanoma, and the diameter of the melanoma. Neither of these measurements impact the staging of melanoma. Be careful not to confuse Clark’s level with the stage of melanoma.

A second surgical procedure, called a wide local excision, may be done to remove a small area of normal skin around the lesion. At the same time, a sentinel lymph node biopsy may also be done to check for cancer cells in the lymph nodes.

How is melanoma staged?

The stage of a cancer describes how much the cancer has grown and invaded the area, explaining the extent of the disease. In order to guide treatment and offer some insight into prognosis, melanoma is staged into four different groups:

- Melanoma in-situ/Stage 0: The melanoma is present only in the epidermis. A Breslow thickness and Clark’s level are not
used for this early-stage lesion.

- Stage I and II: The cancer is only on the skin and has not moved to another part of the body.
- Stage III: The melanoma has spread to local lymph nodes or to the area around the original skin site ("satellite" deposits of melanoma around the original site or "intransit metastases" between the original site and the regional lymph nodes).
- Stage IV: Distant metastasis is present (most commonly liver, lung, and brain).

Healthcare providers also use the TNM system (also called tumor - node - metastasis system). This system describes the size and local invasiveness of the tumor (T) if any, lymph nodes are involved (N), and if it has spread to other more distant areas of the body (M). It is then given a stage somewhere from I (one) meaning more limited disease to IV (four) meaning more advanced disease. You may be given a Breslow Depth or Clark Level measurement. These measurements describe the depth of the lesion.

The staging system is very complex, and the entire staging system is outlined at the end of this article. Though complicated, the staging system helps healthcare providers determine the extent of the cancer, and in turn, make treatment decisions for a patient's cancer. The stage of cancer, or extent of disease, is based on information gathered through the various tests done as the diagnosis and work-up of the cancer is being done.

**How is melanoma treated?**

Melanoma is treated in a few ways depending on the extent of the cancer. Your provider will talk to you about which treatment is right for you.

**Surgery**

*Surgery* is often the curative treatment for melanoma. After melanoma is diagnosed by a biopsy, the next step is to have a "wide local excision." This surgical procedure removes the lesion and part of the area around it. The amount of tissue removed is based on the depth of the melanoma. "Margins" refer to the tissue around a tumor, in this case, melanoma. "Negative margins" mean a small amount of normal tissue around the entire tumor was also removed—this ensures the entire melanoma is removed. "Positive margins," on the other hand, means that the melanoma extends all the way to the edge of the tissue removed and that it is possible some melanoma may not have been removed. The planned surgical margin depends primarily on the Breslow depth, and generally ranges from 0.5 to 2cm.

Depending on the stage of your melanoma, the depth of the lesion, and your risk of recurrence, it may be suggested that you have a sentinel lymph node biopsy. In a sentinel lymph node biopsy, a blue dye with a radioactive tracer is injected into the site of the original tumor. The dye spreads to the "sentinel node(s)" (the first few nodes to which the cancer would spread). These blue / radioactive lymph nodes are removed, looked at under a microscope and tested for cancer. If any of these lymph nodes are positive, the rest of the lymph nodes in the region are removed, using a procedure known as a lymph node dissection or lymphadenectomy. If the sentinel nodes do not contain melanoma, a lymph node dissection can be avoided.

The second type of surgery that is more often being used is called the MOHS procedure. The MOHS procedure is the removal of the melanoma by a surgeon followed by the margins being checked under a microscope to check for cancerous cells. If there are cancerous cells remaining, the surgeon will remove more tissue and look at it again under a microscope. The surgeon will continue to do this until the margins are clear. This allows for the removal of all cancer cells while sparing normal tissue. This is done during one appointment.

If melanoma returns, surgery can often be used to remove the sites of recurrent disease. Surgery can also be used in advanced melanoma to manage symptoms from a particular tumor.

**Immunotherapy**

Some of the medications used to treat this cancer are considered immunotherapy agents, meaning that they work by stimulating the patient's own immune system, causing it to attack the cancer cells. The medications target specific proteins found on some cancer cells. These include:

- Interleukin-2.
- Pembrolizumab.
Targeted Therapy

As more is learned about the development of melanoma, molecular targets within melanoma cells are being discovered and new therapies are developed to attack these targets. BRAF is a protein kinase that plays a role in regulating the pathways responsible for cell replication and survival. In approximately 50% of melanomas, this protein is altered or mutated. There are therapies that target mutated BRAF and can be utilized in patients with melanoma containing a specific BRAF mutation. These medications only work in melanoma that has a mutated form of BRAF. Testing is performed prior to starting therapy to assure that the therapy is appropriate for the patient. To test for mutated BRAF, a sample of the tumor is sent to a special laboratory that performs the test. BRAF inhibitors that can be used to treat melanoma include vemurafenib, dabrafenib, and encorafenib.

MEK is another protein along the same pathway as BRAF. Trametinib, binimetinib, and cobimetinib are MEK inhibitors that have been shown to be effective in patients with some types of melanoma.

There are two medications available that target cells with c-KIT changes. These melanomas are commonly found on the palms of the hands, soles of the feet, under the nails, inside the mouth, mucosal areas, or in areas that get chronic sun exposure. Imatinib and nilotinib are used to treat these melanomas.

There are a number of targeted therapies currently being studied in clinical trials for the treatment of various mutations. Some of these other mutations are NRAS and GNAQ.

Another type of targeted therapy that is used to treat melanoma is called oncolytic virus therapy. Talimogene laherparepvec is a medication that works as a virus therapy used to infect and break down cancer cells. The medication is directly injected into the cancerous lesion or lymph node.

Chemotherapy

Chemotherapy is the use of medications to kill any cancerous cells. Chemotherapy agents commonly used in melanoma treatment include: dacarbazine, carboplatin, temozolomide, and paclitaxel. These medications can be used alone or in combination with other medications.

Isolated Limb Perfusion/Infusion

An option if you have many melanoma tumors in one limb is isolated limb perfusion (ILP) or isolated limb infusion (ILI). Circulation to the affected limb is stopped for a period of time and high doses of chemotherapy (such as melphalan) are given into the limb, along with heat. This is done under anesthesia in the operating room. You may have side effects, but the effects of the chemotherapy on the rest of your body is limited. It can be used in some cases where surgery is not an option.

Radiation Therapy

Stereotactic radiosurgery (SRS, Gammaknife, Cyberknife) is a highly precise form of radiation therapy that is used to treat metastases. Stereotactic radiotherapy delivers radiation from many different angles to focus the radiation at one small point, like a magnifying glass. It is generally given in 1-5 treatments, unlike traditional radiation, which is given daily, over a period of weeks.

Clinical Trials

Clinical trials play a pivotal role in the treatment of melanoma. There are many new therapies being evaluated in clinical trials for use in various stages of melanoma. Clinical trials provide patients access to these new and exciting therapies. In addition to testing new treatment options for patients, clinical trials also can provide access to the use of new combinations of existing therapies, not previously used together. Current clinical trials may include: the identification of new targets for melanoma treatment, targeted therapies that work on newly discovered targets in melanoma, vaccines (which can be made from the patient's own tumor cells or parts of melanoma cells), new combinations of chemotherapy and immunotherapy, and new surgical techniques.

New medications and techniques are continually being tested to find more effective therapies for this disease. It is crucial that
patients with a diagnosis of stage III or IV melanoma be treated by a melanoma specialist who is well-versed in current treatments, available clinical trials, and works with an interdisciplinary team (radiation, surgery, supportive care services) to manage patients with all available treatments. Patients with Stage IV disease will require regular clinical, laboratory and imaging evaluations to monitor their disease and response to treatment.

You can learn more about ongoing clinical trials and find those that may be right for you using the OncoLink Clinical Trials Matching Service.

**Follow-up Care and Survivorship**

After a diagnosis of melanoma, you remain at risk of a new melanoma or non-melanoma skin cancer and for a recurrence of your first melanoma. Having one melanoma in your lifetime places you at higher risk for developing a second melanoma. You will follow up with your dermatologist frequently, along with having complete skin exams. You may also need to see your surgeons and medical oncologists.

If you had stage I or II melanoma, follow-up will consist of clinical full-body skin examinations with a dermatologist every 6-12 months for 5 years and then annually. Routine blood and radiology tests are not recommended for stages I-II, but should be done to work up any concerning symptoms.

If you had Stage III-IV melanoma, a clinical full-body skin examination should be done every 3-6 months for 2 years, every 3-12 months for 3 years, and then annually. Your lymph nodes should also be examined. Radiology testing may be done to routinely monitor for recurrence or if you have any new symptoms of recurrence. This testing may include ultrasound, CT scans, or MRI.

You should do self-skin exams about once a month, checking for any new or changing skin lesions, looking for the ABCDEs of melanoma risk, and looking for any new lumps or bumps in the area of the prior melanoma. You should practice safe sun habits to lower your risk of a second melanoma or non-melanoma skin cancer.

You should talk to your provider if you notice any of these changes:

- Changes in existing moles.
- New moles.
- Changes in the scar from the previous surgery, including any changes in color, nodularity (lumps), or swelling around the site.
- Swelling in the limb where the original melanoma was.
- Yellowing of the skin or eyes.
- New or worsening shortness of breath or cough.
- Neurologic symptoms including headache, vision changes, nausea.
- Unexplained weight loss.

Fear of recurrence, financial impact of cancer treatment, employment issues and coping strategies are common emotional and practical issues experienced by melanoma survivors. Your healthcare team can identify resources for support and management of these practical and emotional challenges faced during and after cancer.

Cancer survivorship is a relatively new focus of oncology care. With almost 17 million cancer survivors in the US alone, there is a need to help patients transition from active treatment to survivorship. What happens next, how do you get back to normal, what should you know and do to live healthy going forward? A survivorship care plan can be a first step in educating yourself about navigating life after cancer and helping you communicate knowledgeably with your healthcare providers. Create a survivorship care plan today on OncoLink.

This article is meant to give you a better understanding of melanoma. Use this knowledge when meeting with your healthcare providers, making treatment decisions, and continuing your search for information.

**Resources for more information:**

Skin Cancer Foundation
Strive to educate the public and medical professionals about the dangers of skin cancer, prevention methods, and sun protection. Provides information on skin cancer and treatment.

http://www.skincancer.org/skin-cancer-information/melanoma

**Melanoma Research Foundation**

Committed to the support of medical research in finding effective treatments, the MRF also educates patients about the prevention, diagnosis and treatment of melanoma. Provides a web based support community as well.

http://www.melanoma.org/

**Melanoma International Foundation**

Help patients and caregivers understand pathology reports, prognosis, and therapy options, including clinical trials, as well as where to get the best possible care.

http://melanomainternational.org/

**Appendix: Complete Melanoma Cancer Staging**

**American Joint Committee on Cancer Version 2.2021**

<table>
<thead>
<tr>
<th>Primary Tumor (T)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX</td>
<td>Primary tumor cannot be assessed</td>
</tr>
<tr>
<td>T0</td>
<td>No evidence of primary tumor</td>
</tr>
<tr>
<td>Tis</td>
<td>Melanoma in situ</td>
</tr>
<tr>
<td>T1</td>
<td>Melanomas 1.0 mm or less in thickness</td>
</tr>
<tr>
<td>T2</td>
<td>Melanomas 1.01 – 2.0 mm</td>
</tr>
<tr>
<td>T3</td>
<td>Melanomas 2.01 – 4.0 mm</td>
</tr>
<tr>
<td>T4</td>
<td>Melanomas more than 4.0 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T Subcategories</th>
<th>Thickness (mm)</th>
<th>Ulceration status/mitoses</th>
</tr>
</thead>
</table>
| T1              | less than or equal to 1.0 | a: less than 0.8 and without ulceration  
b: less than 0.8 with ulceration or 0.8-1.0 with or without ulceration |
| T2              | 1.00 – 2.0 | a: w/o ulceration  
b: with ulceration |
| T3              | 2.00 - 4 | a: w/o ulceration  
b: with ulceration |
| T4              | Greater than 4 | a: w/o ulceration  
b: with ulceration |

<table>
<thead>
<tr>
<th>Regional Lymph Nodes (N)</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>NX</td>
<td>Patients in whom the regional lymph nodes cannot be assessed</td>
</tr>
<tr>
<td>N0</td>
<td>No regional metastases detected</td>
</tr>
</tbody>
</table>
### Regional metastases based upon the number of metastatic nodes and presence or absence of intralymphatic metastases

<table>
<thead>
<tr>
<th>N Subcategories</th>
<th>Number of metastatic nodes</th>
<th>Description</th>
</tr>
</thead>
</table>
| N1              | 1 node                      | a. One clinically occult  
b. One clinically detected  
c. No regional lymph node disease |
| N2              | 2-3 nodes                   | a. Two or three clinically occult  
b. Two or three, at least one of which was clinically detected  
c. One clinically occult or clinically detected |
| N3              | 4 or more metastatic nodes, or matted nodes, or in transit met(s)/satellite(s) with metastatic nodes | a. Four or more clinically occult  
b. Four or more, at least one of which was clinically detected, or presence of any number of matted nodes.  
c. Two or more clinically detected and/or presence of any number of matted nodes. |

### Distant Metastasis (M)

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M0</td>
</tr>
<tr>
<td>M1a</td>
</tr>
<tr>
<td>M1b</td>
</tr>
<tr>
<td>M1c</td>
</tr>
<tr>
<td>M1d</td>
</tr>
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### Anatomic Stage

<table>
<thead>
<tr>
<th>Anatomic Stage</th>
<th>T</th>
<th>N</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 0</td>
<td>Tis</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage 1A</td>
<td>T1a</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage 1B</td>
<td>T1b</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T2a</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IIA</td>
<td>T2b</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T3a</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IIB</td>
<td>T3b</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T4a</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IIC</td>
<td>T4b</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage III</td>
<td>Any T, Tis</td>
<td>Greater than or equal to N1</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IV</td>
<td>Any T</td>
<td>Any N</td>
<td>M1</td>
</tr>
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### Pathologic Staging

<table>
<thead>
<tr>
<th>Pathologic Staging</th>
<th>T</th>
<th>N</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 0</td>
<td>Tis</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IA</td>
<td>T1a</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T1b</td>
<td>N0</td>
<td>M0</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Stage</th>
<th>T</th>
<th>N</th>
<th>M</th>
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<tbody>
<tr>
<td>Stage IB</td>
<td>T2a</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IIA</td>
<td>T2b, T3a</td>
<td>N0, N0</td>
<td>M0, M0</td>
</tr>
<tr>
<td>Stage IIB</td>
<td>T3b, T4a</td>
<td>N0, N0</td>
<td>M0, M0</td>
</tr>
<tr>
<td>Stage IIC</td>
<td>T4b</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IIIA</td>
<td>T1a/b, T2a</td>
<td>N1a, N2a</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IIIB</td>
<td>T0, T1a/b, T2a, T2b, T3a</td>
<td>N1b, N1c, N1b/c, N2b, N1a/b/c, N2a/b/c</td>
<td>M0, M0, M0</td>
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<tr>
<td>Stage IIIC</td>
<td>T0, T1a/b, T2a/b, T3a, T3b, T4a, T4b</td>
<td>N2b/c, N3b/c, N2c, N3a/b/c, Any N, N1a/b/c, N2a/b/c</td>
<td>M0, M0, M0</td>
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<tr>
<td>Stage IIID</td>
<td>T4b</td>
<td>N3a/b/c</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IV</td>
<td>Any T, Tis</td>
<td>Any N</td>
<td>M1</td>
</tr>
</tbody>
</table>

OncoLink is designed for educational purposes only and is not engaged in rendering medical advice or professional services. The information provided through OncoLink should not be used for diagnosing or treating a health problem or a disease. It is not a substitute for professional care. If you have or suspect you may have a health problem or have questions or concerns about the medication that you have been prescribed, you should consult your health care provider.