

PATIENT GUIDE

Medical Terminology Used in Melanoma

This Patient Guide provides an explanation about the many medical terms and abbreviations you may hear following a melanoma diagnosis. Terminology used in melanoma can be very confusing initially and sound like another language. In time, some of these terms may become familiar to you. There may be many occasions when you hear something that you don't understand.

This Patient Guide provides information about a very broad range of terms used. You are not required to know them all as they will not all relate to your specific situation.

Terminology used in procedures for melanoma

Skin biopsy - Removal of a sample of skin tissue:

Punch biopsy - removing a small piece of tissue with circular blade to send to the pathologist for testing.

Shave biopsy - removing the top layer of skin using a tool similar to a razor to send to the pathologist for testing.

Excision Biopsy - removal of the whole skin blemish / lesion using a scalpel to send to the pathologist for testing.

Wide local excision (WLE) - a procedure using local anaesthetic, or local anaesthetic with sedation, that involves the removal of the melanoma as well as a rim of normal tissue (margin) around the melanoma or the previous biopsy site.

Sentinel lymph node biopsy (SLNB) - a procedure in which the sentinel lymph node (the first lymph node to which melanoma cells are most likely to spread to) is identified, removed and examined to determine whether melanoma cells are present. This will identify if melanoma has spread to the lymph nodes.

CT (computerised tomography) scan - a procedure that uses a computer linked to an x-ray machine to make a series of detailed 3D pictures of areas inside the body.

PET (positron transmission tomography) scan - a PET scan creates an image related to the metabolic or biochemical activity of tissues, organs or lumps (tumours) that are not usually present. The PET scan uses a radioactive sugar (tracer) to show both normal and abnormal metabolic activity indicating if there is melanoma present within the body or not. It usually requires a lump of greater than 5mm for detection to occur. A PET scan may be used to diagnose metastatic melanoma (melanoma that has spread) within the body as well as identify how well treatment maybe working. The PET scan is usally linked to a CT scan for better localisation of abnormalities.

MRI (magnetic resonance imaging) scan - a procedure that uses magnetic fields and radio waves to take detailed cross-sectional pictures of the body.

Ultrasound (U/S) - a procedure that uses high-frequency sound waves to create a picture of part of the inside of the body.

Xray- a procedure that uses small doses of radiation to take pictures of the inside of the body.

Dermatoscopy- examination of a skin lesion with a hand-held instrument called a dermatoscope (high quality magnifying lens and powerful lighting system).

Fine Needle Aspartate (FNA) - technique in which a needle is inserted into the tissue or tumor to aspirate (take out) fluid and cells. This tissue/fluid is smeared onto a slide and is then looked at under a microscope. FNA can be performed in the office or under radiology guidance.

Terminology used in the diagnosis of melanoma

Melanocyte - a cell in the skin, eyes and mucosa that produces and contains the pigment called melanin. It is this cell that becomes cancerous in melanoma.

Ulceration - means the top layer of skin (epidermis) that covers the melanoma is not intact. You will find this information on your initial melanoma excision pathology report. This will be described as present or absent.

Mitotic Rate – describes the frequency of division within the melanoma. Higher mitotic rates are associated with more rapidly dividing cells, with greater potential for metastasis. You will find this information on your initial melanoma excision pathology report.

Breslow Depth – the thickness depth of the melanoma measured in millimetres. The Breslow Scale is used to determine if the melanoma is thin, intermediate or thick:

- Less than 1mm (thin melanoma)
- Between 1-4mm (intermediate thickness)
- More than 4mm (thick melanoma)

The thickness will determine whether a sentinel lymph node biopsy is required. A Sentinel Lymph Node Biopsy is usually recommended in melanoma with a thickness of 1mm or greater. The thickness will also help to determine the melanoma stage. You will find this information on your initial melanoma excision pathology report.

Clark Level – layer of skin the melanoma has penetrated- level I -epidermis (first layer of skin), level II- papillary dermis, level III- dermis, level IV- reticular dermis, level V- subcutaneous fat. Level is often confused with stage. You will find this information on your initial melanoma excision pathology report.

Tumor-Infiltrating Lymphocytes (TILs) – describes the immune response to the melanoma and looks at the number of lymphocytes (white blood cells) within the lesion. This is usually described as brisk, non-brisk, or absent, although occasionally it can be described as mild or moderate. The presence of these cells may be a sign of an immune response. You will find this information on your initial melanoma excision pathology report.

Tumour – an abnormal mass of tissue that forms when cells grow and divide more than they should or do not die when they should. Can be benign (non-cancerous) or malignant (cancerous).

Lymph Nodes (LN) – are part of the immune system. Lymph nodes filter substances that travel through the lymphatic fluid and they contain lymphocytes (white blood cells) that help the body fight infection and disease. There are hundreds of lymph nodes throughout the body. There are three regions where there is a collection of lymph nodes: neck, armpit (axilla), groin .

Metastasis – the development of a secondary malignant (cancerous) growth in a different area or organ of the body from the original site of melanoma. This maybe in a lymph node or another skin location (Stage III) or an organ (Stage IV).

Satellite Lesion – satellite lesions are nodules of tumor/melanoma located within 2cm of the primary lesion. Satellites are described as being present or absent.

In-transit metastasis (ITM) – deposits of melanoma cells on or beneath the skin that are more than 2cm from the primary melanoma lesion but are not beyond the closest lymph nodes to the original melanoma.

Staging - refers to the extent of the melanoma both at the local site or distant sites (whether it has spread to local lymph nodes or to other areas of the body). Staging is used to identify treatment options, prognosis and follow up. There are 5 stages of melanoma (0-4). Some stages are split further using capital letters (A, B, C, D). The lower the number, the less the melanoma has spread. See [Patient Guide: Understanding Melanoma Levels and Stages for Cutaneous Melanoma](#).

Terminology used to describe the different types of melanomas

Cutaneous Melanoma

Superficial Spreading Melanoma - (70%) most common cutaneous melanoma. Undergoes a superficial (radial) growth prior to invading deeper into the skin.

Nodular Melanoma - most aggressive form of cutaneous melanoma as it grows vertically from the outset. Usually raised.

Lentigo Melanoma - least aggressive cutaneous melanoma due to long growth phase. Most common in older people where repeated sun exposure has occurred- mostly face, ears, neck and head.

Rare Melanomas - cutaneous

Amelanotic Melanoma - a rare type of cutaneous melanoma, that is defined by its lack of colour, or lack of pigment. They can be colourless or red or pink.

Acral Lentiginous Melanoma - a rare type of cutaneous melanoma found on soles of feet and palms of hand, or under fingernails.

Desmoplastic Melanoma - a rare type of cutaneous melanoma that can occur on its own or in conjunction with another subtype of melanoma. Its development is related to chronic UV exposure and is often found on the head and neck, trunk, or extremities of older individuals.

Melanoma with Unknown Primary (UKP) - in rare cases, melanoma is found to have spread to lymph nodes or organs, but the site where the original (primary) tumour started is not known

Rare Melanomas - non cutaneous

Mucosal Melanoma - is a rare melanoma affecting the mucous membranes such as sinuses, nasal passages, oral cavity, vulva, and anus.

Ocular Melanoma - is a rare melanoma that affects the eye. There are 2 types of ocular melanoma:

Uveal Melanoma - most often affects the middle layer of the eye (the uvea), which includes the coloured portion (the iris), the muscle fibres around the lens (ciliary body), and the layer of blood vessels that lines the back of the eye (choroid).

Conjunctival Melanoma - affects the clear tissue that covers the white part of the eye and the inside of the eyelids is affected.

Terminology used to describe gene's and cell proteins important in melanoma

BRAF mutation (40%) - the BRAF gene regulates cell growth. When this gene is mutated uncontrolled cancer cell growth occurs.

NRAS mutation (15-20%) - a gene mutation that changes the normal regulation and communication that makes a cell divide and grow.

MEK mutation (6%) - a protein made by both the MEK gene and the BRAF gene. Cancer cells send signals through MEK and BRAF allowing them to grow and spread.

KIT mutation (5% cutaneous, 20% acral/mucosal) - mutations in KIT protein are seen in mucosal melanoma, acral melanoma or chronically sun damaged skin. Controls cell growth, division, survival and movement.

GNAQ mutation (80% uveal) - a mutation of a gene that regulates the development and function of blood vessels.

Wild type - genes that have no determined mutation.

CDKN2A - a gene that typically suppresses tumour growth. When it mutates, cancer cells can grow uncontrollably.

CTLA-4 - a protein that helps melanoma cells to grow by suppressing the immune systems response to them.

PD-1 - is used to signal the cells to shut down so that the immune system doesn't get overstimulated. Cancer cells can activate PD-1 signal and prematurely shut down T cells. This interferes with the immune system's ability to detect and destroy cancer cells.

PD-L1 - a protein found on the surface of the cancer cells that helps them evade detection and destruction by the immune system.

LAG-3 - impedes the bodies immune response to cancerous cells.

Terminology used in the treatment of melanoma

Adjuvant therapy - adjuvant therapy means giving treatment after initial treatment, such as surgery. Adjuvant therapy in melanoma may include immunotherapy, targeted therapy, or radiotherapy.

Neoadjuvant therapy – when neoadjuvant therapy is given, the therapy (such as immunotherapy), is given before the surgery. This aims to reduce the size of the cancer before the surgery takes place. Typically, patients having neoadjuvant therapy will move through a sequence of treatment with immunotherapy before and after surgery. (e.g., phase 1 – immunotherapy, phase 2 – surgery, phase 3 – more immunotherapy).

Systemic treatment– treatment that travels through the bloodstream to all parts of the body to fight cancers that have spread from their original location. Most targeted therapies, immunotherapies and chemotherapies are classed as systemic therapy.

Combination therapy – combining two or more treatments. In immunotherapy this can also be referred to as “doublet immunotherapy” i.e., ipilimumab/nivolumab.

Immunotherapy – medications that activate the immune system. Immunotherapy can boost the immune system to work better against melanoma or remove barriers to the immune system attacking the melanoma. Immunotherapies used in melanoma- PD-1 inhibitor (pembrolizumab, nivolumab), PD-L1 inhibitor (atezolizumab), CTLA-4 inhibitor (ipilimumab), LAG-3 inhibitor (relatlimab). Immunotherapy is usually given as an infusion through an intravenous infusion (drip).

Targeted Therapy – medications that attack specific genetic mutations within the cancer cells, while trying to limit harm to healthy cells. Genetic mutations in melanoma cells are BRAF and MEK. The targeted therapy block the activity of the MEK protein and the mutated BRAF protein, therefore stopping or slowing the growth and spread of the melanoma. Targeted therapies in melanoma are mostly delivered as a tablet by mouth.

Surgery– surgery is the main treatment option for most melanomas, and usually cures early-stage melanomas.

Chemotherapy – treatment that uses drugs to stop the growth of cancer cells, either by killing the cells or by stopping them from dividing. Chemotherapy attacks any rapidly dividing cells, not just cancer cells. Chemotherapy is not used often in melanoma.

Radiation Therapy (RT) – a localised therapy using ionising radiation to control or kill malignant cells. It does this by damaging the DNA of cells that are dividing. Radiation therapy is commonly used in melanoma for metastatic disease such melanoma that has spread to the brain, bones or lungs. Radiation therapy may be used as an alternative to surgery in those who are medically unfit for surgery or when the melanoma is too difficult to remove due to its location or if it is too big and affecting other parts of the body.

Gamma Knife Radiotherapy – a form of stereotactic radiotherapy used where melanoma has spread to the brain. Beams of gamma radiation are used in a concentrated dose and delivered to a precise area of the brain.

Brachytherapy – used in ocular melanoma. Radioactive material sealed in a seed is placed inside or close to the tumor.

Clinical Trial (CT) – medical research studies that aim to find a better way to manage a particular disease. The purpose is to evaluate new treatments to learn their efficacy and the side effects that may occur. Clinical trials are considered to be part of best practice medicine.

Phases of clinical trials

Phase I – first time testing of a new drug or treatment. Here they determine safe dose, check for safety of the treatment, identify side effects and evaluate early evidence of efficacy (benefit).

Phase II – expands the testing to a larger group of people at the dose that was deemed most promising in phase I. Here they continue to monitor safety, side effects and evidence of efficacy.

Phase III – expands the testing to hundreds or thousands of patients. Some receive the new treatment alone or in combination with standard therapy, while others receive the standard therapy alone or a placebo. Here they continue to monitor safety, side effects and evidence of efficacy. The aim is to prove the treatment is better than what was previously considered to be the best treatment (standard of care). The information from phase III studies is often required to gain regulatory approval from statutory authorities for treatment to become available for routine use.

Isolated Limb Perfusion – therapy in which a whole limb is infused with cancer-killing drugs. The drugs are introduced into the artery supplying the limb and are taken out through the vein. The technique may be used for melanoma when there are multiple skin metastases that are apparently confined to the arm or leg that was the site of the primary tumor.

Lymphoedema – an abnormal build-up of fluid in soft tissue due to a blockage in the lymphatic system. In melanoma, lymphoedema can result from lymph node biopsies, lymph node removal or radiation to lymph nodes. Most often affects the arms and legs due to surgery in the armpit (axilla) or groin.

Overall survival rate (OS) – the statistic refers to the percentage of people who survive a certain type of cancer for a specified amount of time (typically 5 or 10 years) following their initial diagnosis.

Response rate (RR) – the percentage of patients whose melanomas decrease in size or become undetectable in response to treatment. You might see this written as CR (complete response) or PR (partial response).

NED (No Evidence of Disease) – a term that is used when examinations and tests can find no cancer in a person who has had treatment.

Disease Free Survival – this is the time from starting the treatment to the melanoma recurring. Often patients continue to survive due to different treatments, which is why this is different to “overall survival”. Often it is reported as a 5-year disease free survival or progression free survival, when a person's cancer has not returned for at least five years after treatment.

Adverse Event (AE) - side effect caused by treatment. Specifically for immunotherapy you may see irAE (immune-related adverse event).

Palliative Care - specialised medical care that focuses on quality of life and symptom relief.

Survivorship Care - focuses on health and wellbeing of a person living with and beyond cancer.

Support with understanding medical terminology

- Don't expect to understand all medical terms.
- Ask for the doctor or team member to explain any terms you don't understand.
- Call the Melanoma National Support Line if you would like to talk to someone.
- If you need further explanation or have more questions call the Melanoma Patients Australia Telehealth Nurse .
- Share any concerns with a trusted family member or friend, or connect with Melanoma Patients Australia Support Programs, such as the Peer Support Program, a Support Group or the Melanoma Patients Australia Facebook Group.

Connecting with Melanoma Patients Australia Support Programs

National Melanoma Support Line 1300 88 44 50

Connect with other patients through [Melanoma Patients Peer Support Programs](#) via the website

Connect with Melanoma Patients Australia [Melanoma Telehealth Nurse](#)

The information contained in this resource is intended to be a guide. Every patient is different and will have different experiences, the information contained in this resource will not apply to all patients. This information is not aimed specifically to an individual and it is therefore important that patients always consult their specialist doctor or other medical professional (e.g., General Practitioner) about any specific matters affecting their individual treatment and care. The information in this guide is not intended to replace medical information or substitute the formal professional advice or your supportive care team. Melanoma Patients Australia exclude all liability for any injury, loss or damage incurred by using or relying on the information provided in this resource.