Cancer Council Western Australia

Melanoma and other skin cancers: a guide for medical practitioners

Australia has among the highest rates of skin cancer in the world. Two in three Australians will develop some form of skin cancer before the age of 70 years.

Skin cancer is divided into two main types

Melanoma

Melanoma develops in the melanocyte (pigment-producing) cells located in the epidermis. Untreated, melanoma has a high risk for metastasis.

The most common clinical subtype is superficial spreading melanoma (SSM), making up 55–60% of all melanoma. SSM is most commonly found on the head and neck (per unit area). Other common sites are the trunk in males and lower extremities in females. However, SSM can develop on any part of the body, including parts not heavily exposed to ultraviolet (UV) radiation.

In WA in 2014:

- There were more than 1,300 new cases of melanoma (10.5% of all cancer diagnoses) and over 150 deaths.
- Men over the age of 40 were more than one and a half times more likely to be diagnosed with melanoma and more than twice as likely to die from it, compared to women of similar age.
- The lifetime risk of developing melanoma by age 85 years was one in 23 for men and one in 33 for women.

Non-melanocytic skin cancer (NMSC)

- **Squamous cell carcinoma (SCC)** develops from keratinocytes in the epidermis and is associated with risk of metastasis. Overall, SCC is most commonly found on the face, particularly the lip region, ears, nose, cheek and eyelid, and then on the neck, dorsa of hands and forearms. In males, SCC is commonly found on the head and neck, and in females, it is commonly found on the upper limbs, followed by the head and neck. SCCs may arise from premalignant actinic keratoses.
- **Basal cell carcinoma (BCC)** also develops from keratinocytes in the epidermis and is the most frequently diagnosed cancer in Australians. It can be found most commonly on the head and neck but also on the trunk and limbs. It can also be found in areas not exposed to sunlight.

In WA in 2014, there were 83,151 paid Medicare services for NMSC, and 82 deaths.

Causes of melanoma and other skin cancers

- Unprotected exposure to UV radiation remains the single most important lifestyle risk factor for melanoma and other skin cancers.
- UVA and UVB radiation contribute to skin damage, premature ageing of the skin and skin cancer.
- Melanoma and BCC are associated with the amount and pattern of sun exposure, with an intermittent pattern carrying the highest risk. UV exposure in adulthood as well as in childhood contributes to BCC and melanoma risk.
- Premalignant actinic keratoses and SCC are associated with the total amount of sun exposure accumulated over a lifetime.
- Other risk factors for NMSC can include exposure to some chemicals (e.g. arsenic); radiation therapy and psoralen (PUVA) treatment for psoriasis; immunosuppressive therapy; and some rare genetic conditions predisposing people to skin cancer.

Risk factors for melanoma

- Multiple naevi (moles)
- Multiple dysplastic naevi
- Personal or family history of melanoma
- Increasing age
- High levels of intermittent sun exposure (e.g. during outdoor recreation or sunny holidays)
- Personal history of NMSC
- Fair skin that burns easily, freckles and does not tan
- Having fair or red hair and blue or green eyes
- Immune suppression and/or transplant recipients

Gender

Men are more likely to develop and die from melanoma than women. Mortality from melanoma rises for males from 40 years and increases with age. Men over the age of 40, compared to women of similar age, are more than one and a half times more likely to be diagnosed with melanoma and more than twice as likely to die from it.

The mortality rate for males aged:

- 50–64 years is over two times that of females
- 65–79 years is almost three times that of females
- 80+ years is more than one and a half times that of females.

Melanoma in Indigenous Australians and non-Caucasian patients

The incidence of melanoma in Indigenous Australians is low. For the period 2008–2012, twenty-two Indigenous Australians died from melanoma, representing 0.4% of all melanoma deaths. For the same period, there were 7,300 deaths from melanoma overall. The incidence of melanoma in non-Caucasians is also low. However, non-Caucasians are more likely to experience delayed diagnosis and have poorer clinical prognosis compared to Caucasians.

Non-Caucasians tend to develop clinical melanoma subtypes that are rare in Caucasian populations:

- Acral lentiginous melanoma on the palms of the hands and soles of the feet
- Subungual melanoma within the nail matrix.

Melanoma diagnosis

Superficial spreading melanoma (SSM)

Melanoma can develop in pre-existing moles in the skin or, more commonly, de novo.

- SSM is the most common form of melanoma.
- SSM can appear as a new spot, or an existing spot, freckle or mole that changes size, colour or shape.
- A patient diagnosed with SSM is at increased risk of new primary melanomas (relative risks ranging above 10).

(See examples on back page)

Nodular melanoma (NM)

This is a highly dangerous form of melanoma that grows and can metastasise quickly, and differs from SSM in appearance.

- NM has little radial growth within the epidermis but penetrates vertically into the dermis early.
- NM can develop de novo in normal-appearing skin, or within another type of melanoma.
- NM is more likely to be symmetrical and uniform in colour (red, pink, brown or black), is more frequently lighter coloured than SSM, and feels firm to the touch.
- Over time, NM may develop a crusty surface that bleeds easily.
- NM develops most commonly on sun-damaged skin and in older people, particularly men.
- Approximately 10–15% of total melanomas diagnosed are NM.

(See examples on back page)

The ABCD(E) acronym can help distinguish an SSM from a normal mole:

A **Asymmetry:** the lesion is irregular in shape or pattern.

B **Border:** the border or outline of a melanoma is usually irregular.

C **Colour:** there is variation in colour within the lesion.

D **Diameter:** the lesion is usually greater than 6 mm across. However, suspect lesions of smaller diameter should also be investigated.

E **Evolving:** the lesion changes over time (size, shape, surface, colour, symptoms e.g. itch).

The ABCD(E) acronym cannot be used to aid diagnosis of NM but the following features – EFG – can be of help:

E **Elevated:** the lesion can appear as a small, round and raised lump on the skin. Colour may be uniform throughout the lesion and may be black, brown, pink or red.

F **Firm:** the lesion feels firm to the touch.

G **Grows:** a nodule that has been growing progressively for more than a month should be assessed as a matter of urgency.

Any lesion that displays the EFG features over a period of more than one month should be investigated. If nodular or thick melanoma is suspected, diagnosis should not be delayed, and urgent referral to a dermatologist or immediate excision is recommended.

Lentigo Maligna (LM)

A slow growing form of melanoma in situ that can be difficult to recognise. LM can resemble a freckle and develops in heavily sun-damaged older skin, especially on the head and neck. Margin determination can be challenging and there is more frequent local recurrence than other types of melanoma. Incidence of LM is increasing.

Biopsy and excision for melanoma or suspicious naevi

- Complete excision biopsy with a 2 mm margin is recommended.
- Partial biopsies (i.e. punch biopsies and shave excisions) can be less accurate than excisional biopsy and should be performed by trained practitioners only.
- If a thick SSM or NM is suspected, refer patient to a dermatologist, a multidisciplinary melanoma unit or a surgeon (FRACS or equivalent) with adequate training and experience in melanoma as a matter of urgency.

Diagnosis tools

- Dermoscopy uses a hand-held magnifying device combined with either the application of a liquid between the transparent plate of the device and the skin, or the use of cross-polarised light. It allows the visualisation of diagnostic features of skin lesions that are not seen with the naked eye.
- Dermoscopy increases diagnostic accuracy and confidence in diagnosis, and reduces unnecessary excision of benign lesions. Training and utilisation of dermoscopy is recommended for clinicians routinely examining pigmented skin lesions.
- Sequential digital dermoscopy imaging (SDDI) involves the assessment of successive dermoscopic images to allow the detection of suspicious dermoscopic change in melanomas that lack dermoscopic evidence of melanoma at a particular time.
- Total body photography allows the detection of suspicious change and is useful in high-risk patients or patients with dysplastic naevus syndrome.
- In vivo confocal microscopy allows non-invasive “optical biopsy” with the visualisation of the morphology and organisation of the cells in deeper layers of the skin. It is useful for difficult diagnoses and margins (i.e. amelanotic melanoma, LM) in specialised centres.

Smartphone applications for pigmented lesions

Melanoma apps are smartphone applications that assess risk of pigmented lesions using a smartphone camera and underlying algorithm. None of the melanoma apps tested have shown high enough agreement with a specialist dermatologist's clinical opinion to be considered to provide additional benefit to patients in assessing their skin for high-risk pigmented lesions.

Treatment for melanoma

Selecting appropriate primary treatment will depend on the Breslow thickness (vertical depth) of the tumour as measured and reported by tissue pathologists. Breslow thickness is used in the Tumour, Node, Metastases (TNM) staging system for melanoma tumours and is measured using the following system:

(pTis) Melanoma in situ.	The melanoma cells are found only in the non-vascular epidermis and have not penetrated into deeper tissue that contains blood vessels.
(pT1) Melanoma cells reach the upper part of the dermis.	The melanoma is less than 1 mm thick.
(pT2) Melanoma cells reach the upper part of the dermis.	The melanoma is between 1 mm and 2 mm thick.
(pT3) Melanoma cells reach deeper into the dermis.	The melanoma is between 2 mm and 4 mm thick.
(pT4)	The melanoma is more than 4 mm thick.

Treatment is based on the 5 stages (0 to 4) of tumour thickness (TNM classification) and involves the surgical removal of the melanoma. The recommended margins of excision are based on the Tis-T4 classification as follows:

(pTis) Melanoma in situ	5 mm to 10 mm clearance
(pT1) Melanoma <1.0 mm	1 cm clearance
(pT2) Melanoma 1.01–2.00 mm	1–2 cm clearance
(pT3) Melanoma 2.01–4.00 mm	1–2 cm clearance
(pT4) Melanoma >4.0 mm	2 cm clearance

Note: Evidence for optimal excision clearance for melanoma 2–4 mm thick is unclear. The *Clinical Practice Guidelines* recommend it may be desirable to take a wider margin (2 cm) for these tumours, depending on tumour site and surgeon/patient preference.

- **The T1-T4 (Primary Tumour Thickness)** classification is further divided into groups depending on presence of ulceration (a or b).
- **N classification (Regional Lymph Nodes)** is divided into a, b, and c for presence of cancer cells in the lymph nodes.
- **M classification (Distant Metastasis)**: ranges from no evidence of distant metastasis (MX) to all visceral/any distant metastasis (M1c).

Other treatment options

Surgery

- Sentinel lymph node biopsy (SLNB) should be discussed with patients with pT2 (and higher risk pT1 – i.e. pT1b) and thicker lesions, and performed by trained practitioners. Surgical resection of isolated metastases can be performed in both definitive and palliative treatment settings.

Radiation

- Radiation treatment can be used to treat LM when surgical approaches are considered less suitable. Post-operative radiotherapy can be performed for melanomas likely to recur locally or regionally. Radiotherapy can be used for palliative management of cerebral and bone metastases, and for other metastases where temporary local control is needed.

Oncology treatments

- **Adjuvant treatment** in high-risk loco-regional melanoma. Interferon is still a standard of care for adjuvant treatment, however it is not widely used given its high risk-benefit ratio. It is expected to be superseded as adjuvant trials using newer agents are completed.
- **Systemic treatments** in metastatic or inoperable melanoma. One year survival in patients with visceral metastatic disease has risen from 30% to over 70% when treated on phase III clinical trials and has resulted in the approval of >5 new drug therapies on the PBS. This is due to two key developments:
  - ***Targeted therapy*** with the inhibition of the mitogen activated protein kinase pathway (BRAF and MEK inhibitor) in V600 BRAF mutant melanoma. These therapies are now used mostly in combination in order to achieve greater efficacy and reduced side effects (in particular the development of squamous cell carcinomas and other minor skin disruptions such as acne, warty lesions, hair follicle changes and sensitivity to UVA).
  - ***Immunological therapy*** modulates host anti-tumour immune responses via inhibitors of immune checkpoints on T cells, namely the cytotoxic T lymphocyte associated protein 4 (CTLA-4) receptor and the programmed death 1 (PD-1) receptor. The combination of immunological therapies seems more efficient but more toxic (fatigue, arthralgia, joint pain and major autoimmune disease of any organ).

Note: This field of treatment is changing rapidly with multiple new drugs and multiple new combinations.

Follow-up for melanoma

Due to the risk of tumour recurrence and new primary melanomas, all patients require routine follow-up, the frequency of which will depend on the stage (0-4) of the primary tumour at time of diagnosis*:

- 6-monthly intervals for 5 years then yearly for patients with stage I (localised) disease
- 3-monthly or 4-monthly intervals for 5 years and then yearly (with ultrasound examination of regional lymph nodes) for patients with stage II or III disease
- 3 monthly intervals or according to trial protocol for patients with stage IV disease.

In Australia, up to 75% of patients detect their own recurring melanomas. Patients should be educated on recognising changes in their skin, have a professional full skin examination as deemed appropriate, and have further testing as required.

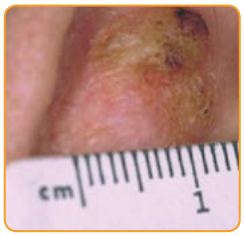
* *The Clinical Practice Guidelines for the Management of Melanoma in Australia and New Zealand 2008,* are currently under review. Recommendations relating to frequency of routine follow-up for melanoma patients may change.

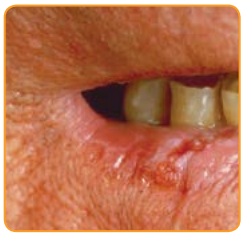
Non-melanoma skin cancer (NMSC) diagnosis

Squamous cell carcinoma (SCC)

- SCC can spread to other parts of the body if not treated. Lesions on the face and scalp, histologically aggressive and/or larger tumours, and tumours arising in immune-suppressed individuals have a higher risk of metastasis.
- SCC appears as a thickened, red, scaly nodule that may bleed and ulcerate over time.
- SCC grows over a period of weeks to months and may be painful.

(See more examples on back page)

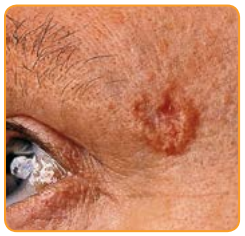


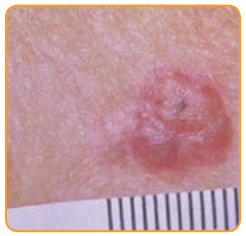


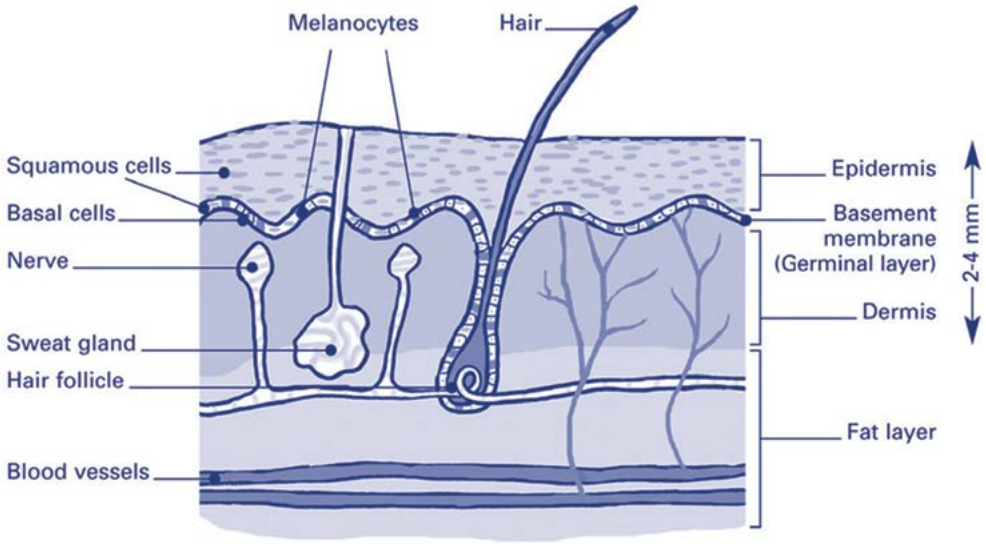
Basal cell carcinoma (BCC)

- BCC is the most common and least dangerous form of skin cancer.
- BCC appears as a well-defined lump or scaly area that is red or pearly in colour.
- BCC may bleed or become ulcerated early on, then heal and break down again.
- BCC usually grows relatively slowly.
- High-risk BCC subtypes (eg micronodular, infiltrating or morphoeic) and BCCs in immune suppressed individuals tend to have higher rates of recurrence after treatment.

(See more examples on back page)







Treatment for NMSC

Treatment options for NMSC include:

- surgical excision of the tumour and surrounding tissue
- radiotherapy
- curettage and electrodesiccation
- diathermy.

For biopsy-proven superficial lesions:

- cryotherapy
- application of topical agents (imiquimod cream, 5-fluorouracil cream, photodynamic therapy).

In general, the choice of treatment will depend on:

- tumour size
- thickness and grade
- aetiology
- histological features
- anatomic site
- patient preference and medical comorbidities.

Follow-up for NMSC

Frequency of follow-up of patients treated for NMSC for evidence of recurrence, metastasis and/or any new primary skin cancers will depend on histological clearance and risk level of the tumour, and the number of previous skin cancers. Patients should be educated on recognising changes in their skin (including examination of draining lymph nodes for patients with SCC) and have a professional full skin examination as deemed appropriate.

Screening for melanoma and NMSC

There is no evidence demonstrating that population-based screening for melanoma and NMSC is effective in reducing morbidity or mortality, and it is not recommended.

Skin surveillance is recommended for patients identified to be at high risk of melanoma and NMSC, including patients with a previous diagnosis of melanoma.

Skin self-examination (SSE) for melanoma and NMSC

Approximately 50% of melanomas are detected by the patient. There is no specific SSE technique or recommended frequency of self-examination that has been shown to reduce morbidity, however, regular skin examination may increase the probability of detecting skin cancer at an early and treatable stage.

Patients at high risk for melanoma should:

- be taught to self-screen (including examination of draining lymph nodes) and recognise suspicious lesions
- have a full body examination with a clinician every 6 to 12 months.

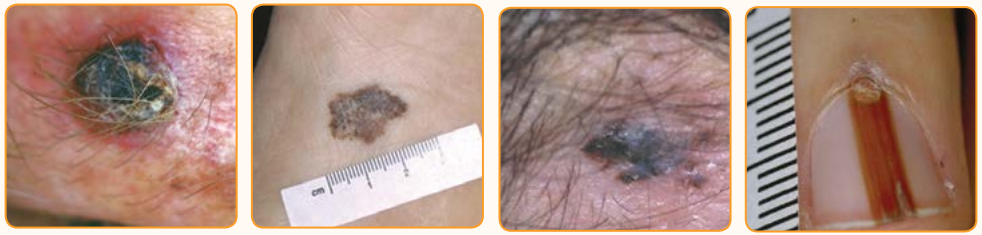
Patients treated for NMSC should:

- be taught to self-screen and recognise changes to their skin
- have a full body examination with a clinician every 12 months or more frequently for patients at highest risk.

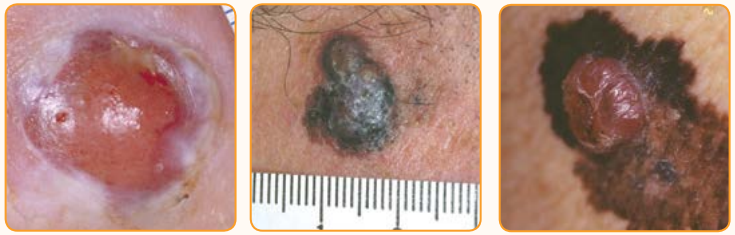
For the general population, the Australasian College of Dermatologists recommends that people examine their skin 4 times a year or as often as recommended by their medical practitioner.

Image references

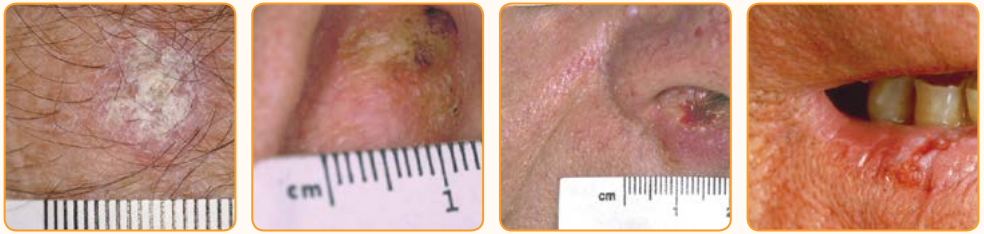
Superficial spreading melanoma (SSM)



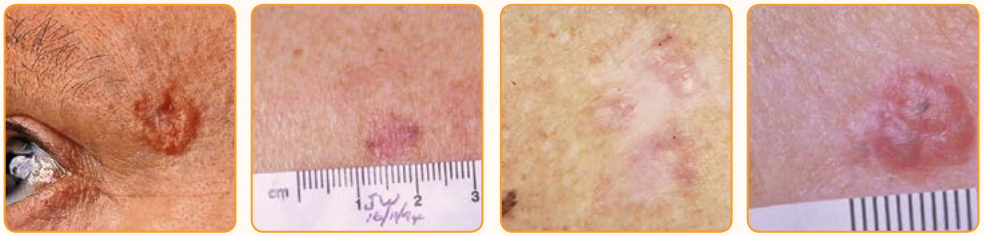
Nodular melanoma (NM)



Squamous cell carcinoma (SCC)



Basal cell carcinoma (BCC)



Key references

- **Cancer Council Australia Melanoma Guidelines Working Party.** *Clinical practice guidelines for the Diagnosis and Management of Melanoma (Features of melanoma, Biopsy, Sentinel Node Biopsy, Excision Margins)*. Sydney: Cancer Council Australia. October 2016.
- **Australian Cancer Network Melanoma Guidelines Revision Working Party.** *Clinical Practice Guidelines for the Management of Melanoma in Australia and New Zealand*. Cancer Council Australia and Australian Cancer Network, Sydney and New Zealand Guidelines Group, Wellington; 2008.
- **Cancer Council Australia and Australian Cancer Network.** *Basal cell carcinoma, squamous cell carcinoma (and related lesions)* – a guide to clinical management in Australia. 2008.
- **Cancer Institute NSW. Melanoma. September 2016.**
- **Western Australian Cancer Registry. Cancer incidence and mortality in Western Australia, 2014.** Statistical Series Number 103. Perth: DoHWA; 2015.
- **Australian Institute of Health and Welfare. Skin Cancer in Australia 2016.** Cat.no. CAN96. Canberra: AIHW; 2016.

Specialised melanoma and non-melanoma advisory services

- **The Australasian College of Dermatologists** *website provides a "Find a Dermatologist" search function to assist in finding Dermatologists by location.* **dermcoll.edu.au**
- **Western Australian Melanoma Advisory Service** *Comprehensive advice from a multidisciplinary panel of specialists regarding the management of complex, advanced and metastatic malignant melanoma.*

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- **The Australian Society of Plastic Surgeons** *website provides a "Find a Surgeon" search function to assist in finding Plastic Surgeons by location.*

  p: 02 9437 9200 | f: 02 9437 9210
  info@plasticsurgery.org.au
  plasticsurgery.org.au

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Images are supplied courtesy of the Sydney Melanoma Diagnostic Centre.

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