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Aotearoa New Zealand Melanoma Clinical Guidelines

FOURTH EDITION
2026

Endorsed by

Te Aho o Te Kahu – Cancer Control Agency supports the use of the New Zealand Melanoma Clinical Guidelines as a tool to guide clinical decision-making and promote best practice melanoma management in New Zealand. Te Aho o Te Kahu – Cancer Control Agency played a key role in completing the first edition and has remained involved in subsequent editions.

Citation: Skin Cancer New Zealand. 2026. *Aotearoa New Zealand Melanoma Clinical Guidelines.* Christchurch: Skin Cancer New Zealand.

First published in October 2021 by Melanoma Network of New Zealand (now Skin Cancer New Zealand). This version published in June 2026.

This document is available at **NZ Melanoma Clinical Guidelines | Skin Cancer NZ**

Contents

Purpose

High-quality cancer care in New Zealand requires a nationally consistent, coordinated approach that advances equitable outcomes and person-and whānau-centred care.

The clinical guidelines contained in this resource have been developed by the National Melanoma Working Group (NMWG) (see **Appendix 7**) and **Skin Cancer New Zealand** (formerly Melanoma Network of New Zealand) in partnership with a wide range of sector experts and key stakeholders, including Te Aho o Te Kahu – Cancer Control Agency. They focus specifically on cutaneous melanoma.

The guidelines aim to reduce New Zealand's world-leading melanoma incidence rates and improve outcomes for all melanoma patients by informing work aimed at ensuring national consistency in the access and delivery of quality melanoma care. They are targeted at clinicians but are also a valuable resource for government health organisations, melanoma patients, and their families/whānau.

The guidelines comprise evidence-based statements that describe good-quality care and are reflective of global best practice. Where there was a lack of evidence, development was informed by expert opinion, which was arrived at by consensus. While it is acknowledged that the resources and protocols of individual centres may differ, the guidelines are intended to outline best practice and function as the evidence base for quality-improvement activities. They do not cover funding models.

The content is up to date at the time of publishing, and it is intended that the guidelines be formally reviewed periodically to ensure they remain an up-to-date resource for New Zealand clinicians. However, as a living document they can be updated at any time as new evidence emerges in the prevention, diagnosis and treatment of melanoma. Skin Cancer New Zealand as the guardian of this document **welcomes any feedback** outside of formal review periods to enable this to occur.

The intention is that the clinical guidelines and good practice points in this document be used to support improvements in quality melanoma care across New Zealand, and inform and align with cancer quality improvement programmes led by New Zealand Government agencies such as **Te Aho o Te Kahu, the Cancer Control Agency**.

Each chapter follows the format below. For quick reference, a summary of good practice points is also provided at the beginning of the document.

Component	Description
Description	A concise statement that provides guidance on important elements of high-quality healthcare for the specific topic.
Rationale	An evidence-based description of why the clinical guideline is important, including any appropriate additional context.
Good practice points	Practice points supported by international literature or the consensus of feedback from consultation with New Zealand clinicians who are involved in providing care to patients with a specific tumour type.
References	Supporting evidence for the clinical guideline, rationale and good practice points.

Quick reference guide

The clinical guidelines and associated good practice points in this resource are summarised below, with a hyperlink to the relevant chapter.

ID	Guideline title	Description
1.1	Prevention, early detection and equitable outcomes	Prevention and early detection of melanoma is a key priority in reducing the incidence of melanoma and improving equitable melanoma outcomes. It is important: • there are adequate prevention strategies that seek to both inform and protect the public regarding the dangers of excessive UVR exposure and its relationship to the incidence of melanoma. • people are offered information on risk factors and the early detection of melanoma • there is easily accessible information about referral pathways for anyone who is concerned about suspicious or concerning lesions.
1.2	Training of primary healthcare professionals	Primary healthcare professionals are trained to recognise skin lesions suspicious for melanoma.
1.3	People at increased risk of melanoma	People at increased risk of melanoma are identified and offered management appropriate to their level of risk.
2.1	Timely access to services	Patients referred urgently with a high suspicion of melanoma receive their first cancer treatment within 62 days of receipt of referral. • Patients referred urgently with a biopsy-confirmed or high suspicion of melanoma (including locally recurrent and metastatic melanoma and excluding melanoma in situ) have their first assessment appointment, whether it be in primary or secondary care within 14 days of receipt of referral. Urgent diagnostic excision for lesions suspicious for melanoma occurs within 14 days of specialist assessment or image-based triage. Image-guided core or fine-needle aspiration (FNA) biopsy of suspected regional or distant melanoma occurs within 14 days of the request being received. Patients should receive the results of their biopsy within ten days. Patients with a confirmed diagnosis of melanoma (including locally recurrent or metastatic melanoma and excluding melanoma in situ) receive their first cancer treatment within 31 days of the decision to treat.

ID	Guideline title	Description
3.1	Patient access to trained healthcare professionals	Patients have access to a: • healthcare professional trained in early detection and the diagnosis of melanoma, including the use of dermoscopy • healthcare professional trained in the surgical skills required to undertake excision and direct closure of in-situ or thin melanoma • healthcare professional trained in triage and referral of patients with lesions of uncertain diagnosis, thicker melanoma and lesions at sites where surgery is difficult. • melanoma clinical nurse specialist (CNS) or nurse who specialises in cancer care to coordinate all aspects of their care between secondary and primary care. This health professional should be a member of the MDM.
3.2	Diagnostic excision of melanocytic lesions	The preferred biopsy technique for excision of melanocytic lesions suspected of being melanoma is a narrow complete excision biopsy, with 2-mm margins that encompasses the entire lesion and is of sufficient depth to avoid transection at the base. All tissue specimens are sent for formalin-fixed paraffin-embedded histopathology.
3.3	Histopathological reporting	Melanoma is reported histopathologically and staged histopathologically, clinically and radiologically in accordance with the latest (8th edition) *AJCC Cancer Staging Manual*, 2017 (Amin et al 2017). The pathology report for the diagnosis of primary cutaneous melanoma and lymph node metastases is structured and includes a minimum data set for TNM staging and other variables thought to affect clinical behaviour and survival. Accurate pathological reporting of residual tumour after neoadjuvant therapy also provides critical prognostic information and helps inform management decisions. While guidelines are continuously being updated in this evolving field, the current International Neoadjuvant Melanoma Consortium guidelines (Tetzlaff et al 2018) provide recommendations for the sampling and structured reporting of these neoadjuvantly-treated melanomas.

ID	Guideline title	Description
3.4	Time to pathological diagnosis	A diagnosis of melanoma is reported in 5 working days in 80% of cases, and 90% of cases should have a final report in 10 working days. Cases requiring molecular studies or additional departmental consultation are excluded from this metric; however, these cases should have a provisional report or notification to the requesting clinician within 10 working days. Pathology departments should maintain a tracking system to monitor cases awaiting diagnosis and match diagnosis with request when received back in the department.
3.5	Sentinel node biopsy reporting	The current MIA or RCPA protocol fields are recommended for processing and reporting SNB.
3.6	Radiological staging	Radiological staging should be requested dependent on melanoma TNM status, level of risk and intended treatment. Accurate radiological staging is essential to guide appropriate management decisions. Recent reimbursement for systemic therapies in the perioperative setting has reinforced the importance of accurate staging to clarify local treatments such as surgery or radiation, as well as the duration of systemic treatments for those with more advanced disease. If patient factors/co-morbidities deem patients unfit for any further treatment, do not perform routine staging.
4.1	Multidisciplinary meetings	Patients with the following should be discussed at a MDM: • complex reconstruction cases, including MIS • Stages II (B and C) cases if management decisions are not straightforward • Stages III and IV cutaneous melanoma cases • desmoplastic melanoma • melanoma in people under 25 years of age • non-cutaneous melanoma. Once approved by the Chair, the outcome of the MDM is documented and communicated to the treating or referring clinician, GP and patient. Responsibility for informing the patient of the outcome must be confirmed during the meeting and clearly documented as part of the record. If the patient is not already linked in with a key contact such as a melanoma CNS or CNC, this should be raised during the meeting, offered to the patient and arranged as appropriate.

ID	Guideline title	Description
5.1	Re-excision of histopathologically confirmed melanomas	Histologically confirmed melanomas are re-excised, with additional clinical margins determined by Breslow thickness. Patients with a melanoma staging of T1b and greater with a SLN risk score of >5% based on the **Melanoma Institute of Australia sentinel node metastasis risk prediction tool** are referred to an appropriately trained and experienced surgical specialist for consideration of SNB staging at the time of the re-excision. A SLN may be indicated in a select group of patients with a T1a melanoma, but the validity of the SLN risk prediction tool normogram in this group is less certain.
5.2	Desmoplastic neurotropic melanoma	The MDM discusses the potential role of radiation treatment to improve local control in patients with desmoplastic neurotropic melanoma.
5.3	Sentinel node biopsy technique	SNB staging is considered for all patients who could benefit from the procedure with melanoma T1b or thicker and a sentinel node risk of >5% on the **Melanoma Institute of Australia sentinel node metastasis risk prediction tool**. This tool should be used to guide selection for SNB. If risk is <5%, SNB is not recommended. When risk is between 5 and 10%, SNB should be considered. At a risk of >10% SNB is recommended if the patient is clinically appropriate. SNB in melanoma is carried out using triple localisation with preoperative lymphoscintigraphy and SPECT scan. Intra-operative localisation is performed with blue dye and a gamma probe.
5.4	Therapeutic or completion lymphadenectomy	An oncological therapeutic lymphadenectomy is offered to all patients with clinically or radiologically evident nodal disease after appropriate staging and discussion at a melanoma MDM. In suitable patients this should be preceded by neoadjuvant immunotherapy.
5.5	Neoadjuvant systemic therapy in locoregionally advanced melanoma	The addition of effective systemic therapies to surgical management of patients with locoregionally advanced and resectable oligometastatic melanoma has significantly improved outcomes. Adjuvant therapy with either ICIs or targeted therapy with BRAF/MEK inhibitors after surgical resection of Stage III-IV melanoma has been shown to improve recurrence-free survival and represents a standard of care. Subsequent phase II and III randomized trials have demonstrated neoadjuvant ICI as a superior treatment for patients with clinically detectable Stage III or resectable Stage IV melanoma compared with adjuvant therapy. High rates of pathological complete response (pCR) and major pathological response (MPR) are observed in patients treated with neoadjuvant ICIs, correlating with excellent survival outcomes.

ID	Guideline title	Description
5.6	Adjuvant therapy in locoregionally advanced melanoma	All patients with resected Stage III-IV melanoma or Stage II (B or C) melanoma are: • discussed at a melanoma MDM (if management decisions are not straightforward) • considered for adjuvant systemic treatment (including enrolment in clinical trials) and adjuvant radiotherapy. Neoadjuvant immunotherapy (i.e., systemic treatment with immune checkpoint inhibitors (ICI) prior to curative intent surgery) is now standard of care for suitable patients with resectable Stage III or resectable Stage IV disease and should be considered for all suitable patients in this clinical context.
5.7	Patients with loco-regionally recurrent, locally advanced and metastatic melanoma	Patients with loco-regionally recurrent, locally advanced or metastatic melanoma are seen or discussed by melanoma specialists experienced in the care of melanoma patients and part of a melanoma MDM. Patients should be staged as per **Clinical Guideline 3.6.**
6.1	Clinical follow-up and surveillance	Follow-up is carried out by a healthcare professional experienced in melanoma diagnosis and management. The healthcare professional may be a hospital specialist, GP nurse practitioner, clinical nurse specialist or a combination working in conjunction with the patient and their family/whānau.
6.2	Patient self-examination	Patient self-examination is taught as integral part of melanoma follow-up.
6.3	Follow-up cross-sectional imaging	Follow-up cross-sectional imaging (CT or PET-CT) can be divided into surveillance (for those with no residual disease post-surgery and/or therapy), as monitoring/restaging during treatment or to reassess if new symptoms develop. It should be determined by stage, symptoms/clinical findings and suitability for therapy. Asymptomatic metastases may be appropriate for immunotherapy with a curative intent, surgery or radiotherapy. If patient factors/co-morbidities deem patients unfit for any further treatment, do not perform routine surveillance.
6.4	Ultrasound imaging of draining nodal basins	US imaging of the draining nodal basins(s) can be considered in a select group of patients, in conjunction with routine clinical follow-up ± cross-sectional imaging as per TNM stage.

ID	Guideline title	Description
7.1	Supportive care	Patients with melanoma and their families/ whānau have equitable and coordinated access to appropriate medical, allied health and supportive care services, in accordance with *Guidance for Improving Supportive Care for Adults with Cancer in New Zealand* (Ministry of Health 2010)) and informed by Te Aho o Te Kahu – Cancer Control Agency's Cancer Action Plan 2023 – 2025
8.1	Care coordination	Patients managed by a melanoma MDT have access to a CNS, CNC or other health professional who is a member of the MDM to help coordinate all aspects of their care. Each treatment centre has a melanoma clinical lead to provide necessary leadership, guidance and provision of melanoma care.

CLINICAL GUIDELINE 1: Prevention, early detection and equitable outcomes

1.1: Prevention, early detection and equitable outcomes

Description	Prevention and early detection are key priorities in reducing the incidence of melanoma and improving equitable melanoma outcomes. It is important that: • there are adequate prevention strategies that seek to both inform and protect the public regarding the dangers of excessive UVR exposure and its relationship to the incidence of melanoma. • people are offered information on risk factors and the early detection of melanoma • there is easily accessible information about referral pathways for anyone who is concerned about suspicious or concerning lesions.
Rationale	There is strong evidence that exposure to UVR in artificial tanning devices (such as sunbeds and tanning units) causes DNA damage that can lead to the development of both melanoma and keratinocytic skin cancers. The risk increases with greater use and an earlier age at first use (Boniol et al 2012). Recent evidence underscores the effectiveness of comprehensive prevention programmes combining public education, UV index awareness, sun-protective behaviours, and targeted outreach to high-risk populations, including outdoor workers and those with a family history of melanoma (Collins et al 2024). Mobile health technologies and AI-assisted dermatoscopy show promise in supporting earlier detection, especially in rural or underserved communities. (Sales 2025). Evidence shows that while melanoma is uncommon in Māori, they are more likely to be diagnosed with higher stage melanoma with poorer survival than non-Māori (Sneyd et al 2009, Hore et al 2010, Sneyd et al 2011, Win Myint et al 2022). There is a need for raised awareness among Māori and other ethnic minorities as well as health practitioners and health systems to aid early detection of skin cancer and improve overall outcomes. Māori, Pacific, and Asian people often do not display phenotypic characteristics commonly associated with melanoma risk—such as fair skin, light eyes, freckles, or red or blond hair. It is therefore important that clinicians maintain a high index of suspicion. Awareness of how melanoma presents across diverse populations supports earlier diagnosis and timely treatment, helping to reduce inequities in outcomes.

Rationale (continued)	In Aotearoa New Zealand, Māori, Pacific, and Asian people develop melanoma far less frequently than New Zealand Europeans, with melanoma incidence among Māori approximately one tenth that of New Zealand Europeans (Sneyd & Cox, 2002). Evidence shows that while melanoma is uncommon in Māori, they are more likely to be diagnosed with higher stage melanoma with poorer survival than non-Māori (Sneyd et al 2009, Hore et al 2010, Sneyd et al 2011, Win Myint et al 2022). Melanoma is best detected early at the in-situ pre-invasive stage. This avoids disease progression to advanced stages that requires excessive resourcing and a poorer outcome in terms of morbidity and mortality for patients. The prognosis for melanoma less than 1 mm thick is generally good; however, many patients with thin melanomas often only experience complications/progression between 5 and 15 years after initial diagnosis and therefore require long-term follow-up (Lo et al 2018). It is well documented that survival decreases with increasing thickness of the primary melanoma (Melanoma Network of New Zealand 2024). Early detection with full-body skin checks in those at increased risk (**Guideline 1.3**) or with a probable new melanoma, using dermoscopy and digital dermoscopy is best practice. Clinicians performing skin examinations for the purpose of detecting skin cancer should be trained in and use dermoscopy (Melanoma Network of New Zealand 2024).
Good practice points	1.1.1 People are advised as follows: • Sun protection is essential to prevent melanoma • exposure to UVR when the ultraviolet index (UVI) is 3 or higher or when spending time outdoors for extended periods of time should be limited and sunburn avoided. • brief sun exposure is needed to maintain vitamin D levels; total lack of sun exposure is not advisable without vitamin D supplementation. Vitamin D supplementation for darker skin types or for people who have all their skin covered when outside should be considered • the use of artificial tanning devices is illegal for those under the age of 18 years and is strongly discouraged for those 18 years and over. Solaria for cosmetic purposes (Standards Australia/Standards New Zealand 2008) specifies that those under the age of 18 years and those with skin phototype 1 should not use sunbeds. Those 18 years and over should be informed of the risks and lack of evidence for any health benefits. The National Melanoma Working Group (NMWG) supports the position taken by the Cancer Society of NZ, Cancer Council Australia and the Australasian College of Dermatologists that commercial artificial tanning devices should be banned. • when the UVI is forecast to reach three or above or when people are outside for extended periods, UVR protection should be adopted by: – slipping on a shirt with long sleeves and a collar – slipping into shade – slopping on sunscreen that is ideally SPF 50, broad spectrum and water resistant at least 20 minutes before going outside and reapplying every 2 hours especially after being in the water or sweating – slapping on a wide-brimmed hat that shades the face, head, neck and ears

	– wrapping on close-fitting wrap-around style sunglasses that meet the standards (Standards Australia/Standards New Zealand 1067.1 and 1067.2:2016). 1.1.2 Prevention strategies include: • melanoma education and self examination skills along with UV awareness including the sue of digital applications for UV risk is incorporated into school curriculums in order to embed a sun-safe culture in school communities. • schools and other education settings having a sun protection policy, use sun protection practices, including planning outdoor activities when the UV index is not at its peak and participating in the Cancer Society Sunsmart Schools accreditation programme.
Good practice points (continued)	• comprehensive workplace policies and programmes, especially for outdoor workplaces (Health and Safety at Work Act 2015). Workplaces should be supported to implement SunSmart policies to guide best practice in scheduling work, personal protective equipment and skin checks. • quality shade structures factored into planning of public areas such as sports facilities, recreation spaces, education spaces, workplaces and private areas. • require national and local government to develop and implement comprehensive policies and public awareness campaigns. • sunscreens being included as a therapeutic product to ensure quality standards of being fit for purpose (Standards Australia/Standards New Zealand 2604:2021) • UPF-rated clothing and sun protective hats (Standards Australia/Standards New Zealand 4399:2017). • public awareness campaigns supporting UV index awareness, sun protective behaviours and detection of melanoma at an early stage in a range of settings. 1.1.3 All adults, particularly those aged 50 years and over, are advised to: • regularly examine their skin (including skin not normally exposed to the sun) so they improve their awareness of any changes. The ABCDEFG rule or the SCAN rule (**https://www.scanyourskin.org/**)is recommended for identifying suspicious lesions get someone else to check areas that are difficult to see, such as their back • seek advice from a primary healthcare professional, surgeon, dermatologist or nurse specialist about suspicious lesions. Smart-phone applications should not be a substitute for a skin examination by a medical practitioner. 1.1.4 Information aimed at reducing melanoma deaths focuses on: • all adults; particularly males aged 50 years and over • raising awareness of melanoma in Māori and other ethnic minorities, including the specific features of nodular and acral lentiginous melanoma 1.1.5 Information developed for or provided to patients and their families/whānau aligns with core messages in the *Skin Cancer Prevention and Early Detection Strategy 2024 - 2028* (Melanoma Network of New Zealand 2024).

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1.2: Training of primary healthcare professionals

Description	Primary healthcare professionals are trained to recognise skin lesions suspicious for melanoma.
Rationale	Primary healthcare professionals play an important role in the opportunistic discovery of melanoma and non-melanoma skin cancer as part of their everyday practice. Therefore, it is essential they have the competence to identify lesions suspicious of malignancy. The use of dermoscopy as part of a full skin examination increases the likelihood of identifying thin and in-situ melanoma and reduces the unnecessary removal of benign lesions (Kittler et al 2002). All general practitioners are expected to be trained in dermoscopy, either during vocational training or as part of continuing professional development. Other primary and secondary care practitioners involved in skin cancer care — particularly early melanoma detection and follow-up of melanoma patients — should also undertake such training. Recent studies have emphasized the importance of continuous training and the integration of advanced technologies in melanoma diagnosis. A 2024 study highlighted the effectiveness of training general practitioners in dermoscopy using an e learning educational tool, demonstrating improved diagnostic accuracy and confidence among participants (Friche et al. 2024). Additionally, a 2023 protocol for a systematic review underscored the necessity of evaluating the impact of various training programs on the competence of healthcare professionals in melanoma detection (McCaffrey et al. 2023). Novel artificial or augmented intelligence tools are available to assist in the classification of suspicious skin lesions. Clinical validation is incomplete in local settings and such tools should be used with caution; they are likely to be increasingly useful for triage of high-risk lesions alongside expert dermatoscopic analysis to enhance current clinical practices (Ferrante di Ruffano et al 2018, Haggenmüller et al 2021).
Good practice points	1.2.1 All primary healthcare professionals are knowledgeable of risk prediction tools for melanoma (**Guideline 1.3**) and prevention advice particularly to young people in order to reduce their lifetime risk. 1.2.2 All primary healthcare professionals are alert for skin lesions with malignant features and knowledgeable of subtypes of melanoma. This includes in the context of physical examinations performed for other reasons. 1.2.3 All primary healthcare professionals should be trained in the use of the dermatoscope and regularly undertake refresher training. Training programmes should include dermoscopy e-learning modules to complement traditional methods such as face-to-face training and improve diagnostic accuracy. 1.2.4 As part of diagnosing a suspicious skin lesion, clinicians arrange to carry out a full skin check by themselves or by another healthcare professional. 1.2.5 Teledermatology and e-referral systems should be implemented to allow accurate triage and therefore expedite management of atypical pigmented lesions.

Good practice points (continued)	1.2.6	Validated artificial intelligence (AI) tools are used alongside expert dermatoscopic analysis to enhance current clinical best practice. Clinicians should be aware that a proportion of melanoma in situ diagnoses may represent overdiagnosis, with consequent risks of overtreatment, patient anxiety, and increased resource use. In the context of emerging artificial intelligence tools for early melanoma detection, it is essential that any new technology undergo robust clinical validation to ensure it improves diagnostic specificity without exacerbating overdiagnosis, before it is adopted as part of day-to-day practice.
	1.2.7	All allied professionals who come into contact with people's skin have access to training in recognising skin changes suggestive of melanoma and in advising patients with suspicious lesions to see a healthcare professional.
	1.2.8	Population-based skin screening is not recommended at this time in the absence of substantive evidence as to its effectiveness in reducing mortality.

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1.3: People at increased risk of melanoma

Description	People at increased risk of melanoma are identified and offered management appropriate to their level of risk.
Rationale	While identification of those at increased risk for melanoma provides the potential to focus early detection and prevention, at present, it is not possible to identify the absolute risk of an individual developing melanoma. There is no evidence to compare the relative effectiveness of specific surveillance techniques for high-risk patients with those for average-risk patients. Increased age, skin phototype and sun damage are important risk factors for melanoma. Other factors that should be considered in clinical risk assessment include a personal history of melanoma, familial melanoma, large numbers of naevi, familial atypical multiple mole melanoma (FAMM) syndrome, previous non-melanoma skin cancer and immunosuppression (for example, in organ transplant recipients) (Melanoma Network of New Zealand 2024). Large congenital melanocytic naevi (CMN) >20 cm in diameter have an increased risk of developing melanoma and neurocutaneous melanocytosis (Hale et al 2005; Krengel et al 2006). Sequential digital dermoscopy (SDD) relies on taking and storing macroscopic and dermatoscopic images of lesions of concern and repeating photos of these specific lesions over time to look for change. SDD has been studied extensively over the past two decades. SDD with short term monitoring (three months between images) has a sensitivity of 94% in diagnosing melanoma (excluding lentigo maligna which needs longer intervals) and specificity of 84% (Altamura et al 2008). SDD not only allows the diagnosis of melanoma at an earlier stage than clinical examination alone but can also detect melanoma before they exhibit characteristic dermatoscopic changes – one study demonstrated that 11% of changed lesions seen through SDD over a three-month period were melanoma with none of them demonstrating classical dermoscopy features (Menzies et al 2001). SDD has been shown to diagnose 20-50% of lesions that traditional dermoscopy could not diagnose with a single examination and melanoma diagnosed by SDD are shown to be significantly thinner than those diagnosed by other means (0.41mm average vs 0.62mm Breslow thickness) (Haenssle et al 2010). AI-based skin cancer diagnostic tools are encouraging advances, yet deployment without real-world, prospective validation may lead to unintended harms such as over-referral, misdiagnosis, patient distress and unnecessary cost. As highlighted by Brancaccio et al. (2024), real-world performance often lags behind controlled testing benchmarks. The Australasian College of Dermatologists (2025) insists that only Therapeutic Goods Administration (TGA)-approved AI systems that demonstrably augment clinician performance should be implemented and even then, as augmentative aids, not replacements for clinical judgement. Ethical principles of transparency, safety, equity, privacy, data sovereignty, security and accountability must underpin AI adoption in dermatology.
Good practice points	1.3.1 Healthcare professionals assess patients for future risk of melanoma using validated risk factors and a model that integrates personal risk factors into an overall index of risk. Appropriate and validated risk factors and model are provided at the website of the Melanoma Institute Australia (**www.melanomarisk.org.au**). Note: New Zealanders will need

		to enter 'Tasmania' as the 'Region in Australia most lived in' to ensure they receive an appropriate risk profile.
Good practice points (continued)	1.3.2	Individuals with two or more first-degree relatives with a history of melanoma at younger than 40 years of age and those found to have melanoma or multiple atypical naevi are examined carefully and: • are placed under the long-term care of a healthcare professional who is competent in skin surveillance using dermoscopy and digital dermoscopy monitoring. • patients at high risk for melanoma should be encouraged to have high quality photographs of all portions of their body. These are used by the patient to monitor for new or changing moles or other lesions of concern between skin checks. Provision of SDD should be considered best practice in clinics providing specialist services for skin malignancy screening.

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CLINICAL GUIDELINE 2: Timely access to services

2.1: Timely access to services

Description	Patients referred urgently with a high suspicion of melanoma receive their first cancer treatment within 62 days of receipt of referral. Patients referred urgently with a biopsy-confirmed or high suspicion of melanoma (including locally recurrent and metastatic melanoma and excluding melanoma in situ) have their first assessment appointment, whether it be in primary or secondary care within 14 days of receipt of referral. Urgent diagnostic excision for lesions suspicious for melanoma occurs within 14 days of specialist assessment or image-based triage. Image-guided core or fine-needle aspiration (FNA) biopsy of suspected regional or distant melanoma occurs within 14 days of the request being received. Patients should receive the results of their biopsy within ten days. Patients with a confirmed diagnosis of melanoma (including locally recurrent or metastatic melanoma and excluding melanoma in situ) receive their first cancer treatment within 31 days of the decision to treat.
Rationale	Timely access to quality cancer management is important to support good health outcomes for New Zealanders and to reduce inequities. Key components of successful cancer management include early recognition and reporting of symptoms, expertise in identifying patients requiring prompt referral and rapid access to investigations and treatment. A suspicion of melanoma or melanoma diagnosis is very stressful for patients and their family/whānau. It is important that patients, family/whānau and GPs know how quickly patients can receive treatment. Long waiting times may affect local control and survival benefit for some patients with melanoma and can result in delayed symptom management for palliative patients. The good practice points in this chapter ensure that: • patients receive quality clinical care • patients are managed through the pathway, and experience well-coordinated service delivery • delays are avoided as far as possible Shorter waits for cancer treatments is a government health target for all radiation treatment patients and chemotherapy patients. The Ministry of Health Faster Cancer Treatment (FCT) indicators adopt a timed patient pathway approach across surgical and non-surgical cancer treatment, and apply to inpatients, outpatients and day patients. Timely access to services is especially important to address inequities. It is well demonstrated that Māori tend to wait longer for cancer care and have worse outcomes. A major goal of these guidelines is to address this issue.

Good practice points	2.1.1	The Ministry of Health's FCT indicators exclude melanoma in situ.
	2.1.2	Referral is ideally electronic, with (high-quality, high resolution macroscopic or dermatoscopic) images of the lesion, including a ruler, attached. Suspicious lesions can then be triaged directly for diagnostic excision.
	2.1.3	Teledermoscopy reports are received by the referrer within five working days of the examination being performed.
	2.1.4	Reports are distributed electronically.
	2.1.5	'High suspicion of melanoma' refers to skin lesions likely to be invasive tumours; usually >6mm in diameter and irregular in structure and colour. There is often a history of change over several months of observation or observed by digital dermatoscopic surveillance.
	2.1.6	Staging investigations should be ordered and completed within two weeks of the specialist's assessment.
	2.1.7	Radiotherapy should occur within six weeks of decision to treat, earlier if clinically urgent.
	2.1.8	Systemic therapy should occur within twelve weeks of definitive surgery or if not post operative should begin within four weeks of decision to treat.
	2.1.9	Neoadjuvant therapy should begin within two weeks of decision to treat by both surgeon and oncologist.

CLINICAL GUIDELINE 3: Investigation, diagnosis and staging

3.1: Patient access to trained healthcare professionals

Description	Patients have access to a: • healthcare professional trained in early detection and the diagnosis of melanoma, including the use of dermoscopy • healthcare professional trained in the surgical skills required to undertake excision and direct closure of in-situ or thin melanoma • healthcare professional trained in the triage and referral of patients with lesions of uncertain diagnosis, thicker melanoma and lesions at sites where surgery is difficult • melanoma clinical nurse specialist (CNS) or nurse who specialises in cancer care to coordinate all aspects of their care between secondary and primary care. This health professional should be a member of the multidisciplinary meeting (MDM).
Rationale	Early detection of melanoma requires differentiating lesions with minor atypical features or documented changes from benign lesions. Trained healthcare professionals can detect thinner (that is, more favourable prognosis) melanomas than the patient or another layperson might be able to detect. Where healthcare professionals are trained in dermoscopy, it improves diagnostic accuracy and reduces removal of benign lesions that do not have suspicious features (Swetter et al 2019). While AI-assisted diagnostic tools show promise, evidence from real-world settings demonstrates that performance often falls short of controlled research environments, potentially leading to over-referral, unnecessary patient anxiety, and increased costs (Brancaccio et al, 2024). AI tools must undergo rigorous, prospective validation and obtain regulatory approval before adoption in clinical practice. Where used, AI should augment, not replace, clinician judgement (Australasian College of Dermatologists, 2025). Care coordination intended to improve equitable access to services and resources, improve communication and the transfer of information between services; recognising the complexity of the cancer journey. The coordination role includes provision of information and education and acts a single point of contact for patients and their family/whānau.

Good practice points	3.1.1 In primary healthcare practices, patients should have access to at least one designated primary healthcare professional trained in the dermatoscopic diagnosis and management of melanoma including knowledge of referral pathways and excision biopsy techniques. Practices with solo practitioners who do not have this training should promptly refer patients to a trained clinician. All patients diagnosed with melanoma are offered referral to a supportive care service such as the Cancer Society or Cancer Psychological and Social Support Service (CPSSS). 3.1.2 Assessment includes family history, ethnicity, history of change, symptoms and the time course of symptoms. 3.1.3 For the purpose of detecting melanoma, the whole skin surface is examined under good lighting. 3.1.4 High-quality, high-resolution digital macroscopic and dermatoscopic images of lesions suspicious for melanoma are used to obtain second opinions and for clinicopathological correlation. 3.1.5 Sequential digital dermatoscopic imaging may be used to detect changes in suspicious flat melanocytic lesions lacking dermatoscopic features of melanoma when monitored short-term (that is, over 3 months). 3.1.6 Suspicious raised lesions should be excised and not monitored. 3.1.7 Healthcare professionals should not rely solely on the use of automated or artificial intelligence-based instruments to diagnose primary melanoma. 3.1.8 Regional cancer centres employ a melanoma nurse specialist. The nurse will have the appropriate training and knowledge to provide patients and their family/whānau with information specific to the process involved in diagnosis and treatment of melanoma. 3.1.9 Information provided is free, easily accessible and meets the needs of the individual. Such information is accurate, unbiased, culturally appropriate and is evidence-based practice.

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3.2: Diagnostic excision of melanocytic lesions

Description	The preferred biopsy technique for excision of melanocytic lesions suspected of being melanoma is a narrow complete excision biopsy with 2-mm margins that encompasses the entire lesion and is of sufficient depth to avoid transection at the base. All tissue specimens are sent for formalin-fixed paraffin-embedded histopathology.
Rationale	Histopathological diagnosis requires evaluation of the architecture and cytology of the entire lesion. Evaluation of the architecture and cytology may not be achievable using the following procedures: • Partial biopsies of atypical melanocytic or collision lesions may miss a small focus of melanoma. • Partial biopsies with a punch device are at risk of sampling error. • Shave biopsies may prevent accurate measurement of a Breslow thickness affecting future management decisions regarding width of wide local excisions and suitability for sentinel node biopsy (SNB). • Wide initial excisions, or complex wound closures should be avoided as the use of flaps or significant undermining disrupt lymphatics, thereby reducing the accuracy of SNB and potentially compromising future reconstruction (Gannon et al 2006). • A greater than 2-mm margin on the initial excisional specimen will increase the difficulty of the closure after further wide local excision.
Good practice points	3.2.1 Suspicious lesions should be excised within 2 weeks of being identified. 3.2.2 A detailed clinical request form accompanying specimens submitted for biopsy is important for the accurate diagnosis of skin lesions. It should include a history, the specimen site, the type of biopsy and a clinical/dermatoscopic description of the lesion. Where possible, especially for borderline lesions, clinical and dermatoscopic images, or an annotated diagram highlighting specific areas of concern or 'derm dotting' by applying coloured nail varnish via a toothpick or a fine brush on the area of concern help pathologists make more accurate diagnoses. 3.2.3 Partial/incomplete sampling (incisional biopsy) is acceptable in select clinical circumstances, such as facial or acral location, very large lesion or low clinical suspicion or uncertainty of diagnosis. 3.2.4 When an incisional biopsy, rather than an excisional biopsy, is taken, this must be highlighted on the pathology form and a request for longitudinal sectioning should be made.

Good practice points (continued)	3.2.5	Narrow-margin excisional biopsy may be performed if an initial partial biopsy is inadequate for diagnosis or microstaging, but it should not generally be performed if the initial specimen meets the criteria for consideration of SNB.
	3.2.6	Excisional biopsies must be performed considering the need for future wide local excision. Excision biopsies on the extremities should be longitudinally orientated following the direction of lymphatic flow. In most cases, this will also facilitate the closure should a wide local excision be subsequently required.
	3.2.7	The use of skin flaps and grafts to close diagnostic excisional biopsy defects should be avoided.
	3.2.8	Practitioners should record and audit their malignant (lesions with severe atypia, melanoma in situ and melanoma) to benign pigmented naevi numbers aiming for a 1:5 ratio. The SCARD live data base can be used to track this in clinical practice. https://skincanceraudit.com/
	3.2.9	Use of 'derm dotting' by applying coloured nail varnish via a toothpick or a fine brush on the areas showing dermatoscopically concerning features can help pathologists make more accurate diagnoses.

References

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3.3: Histopathological reporting

Description	Melanoma is reported histopathologically and staged histopathologically, clinically and radiologically in accordance with the latest (8th edition) American Joint Committee on Cancer (AJCC) Cancer Staging Manual 2017 (Amin et al 2017). The pathology report for the diagnosis of primary cutaneous melanoma and lymph node metastases is structured and includes a minimum data set for TNM staging and other variables thought to affect clinical behaviour and survival. Accurate pathological reporting of residual tumour after neoadjuvant therapy also provides critical prognostic information and helps inform management decisions. While guidelines are continuously being updated in this evolving field, the current International Neoadjuvant Melanoma Consortium guidelines (Tetzlaff et al 2018) provide recommendations for the sampling and structured reporting of these neoadjuvantly-treated melanomas.
Rationale	Formal staging of cancer is fundamental in providing clinicians and patients with prognostic information, developing treatment strategies and directing and analysing clinical trials. Staging of cutaneous melanoma continues to evolve through identification and careful analysis of potential prognostic factors (Gershenwald et al 2017). Pathologic assessment of a tissue biopsy is a critical aspect in the multidisciplinary management of melanoma patients. Such assessment establishes a definitive diagnosis in most cases, and provides information that, to a major extent, influences patient prognosis and directs the next stages of management. Neoadjuvant immunotherapy is now a treatment option in Aotearoa New Zealand for patients with Stage IIIB melanoma or higher. After neoadjuvant immunotherapy, the lesion (either the primary lesion, in-transit mets, or involved lymph nodes) will undergo surgical excision. When these specimens arrive at the histopathology lab, they are sampled in a specific way. The pathologists are then able to provide a measure of treatment effect in these specimens (Tetzlaff et al 2018). The measure of treatment response can provide overall prognostic information (Blank et al 2024), as well as help inform decisions about on-going treatment options (Da Silva et al 2024). Consistency of reporting is improved by the use of discrete data elements. Structured pathology reports are more likely to be complete and therefore more usable for clinicians' purposes, which also improves decision-making for melanoma treatment. This type of reporting also allows for easy retrieval of data elements for a variety of uses, including audit, the New Zealand Cancer Registry (NZCR) and research. Synoptic reports may include a 'comments' or 'microscopic' section, which allows description of an unusual morphology and immunohistochemical stains.

Good practice points

3.3.1 The AJCC guidelines are adopted.

3.3.2 The lesion is sectioned and examined histologically after formalin fixation and paraffin embedding.

3.3.3 For accurate assessment of T1a, T1b and T2 lesions, multiple levels may need to be examined. Breslow thickness in lesions around the 1-mm mark is critical for T1–T2 staging.

3.3.4 Pathologists reporting melanocytic lesions and melanoma have undergone adequate training, participate in regular continuing medical education in this field and have ready access to a second opinion for difficult cases.

3.3.5 A synoptic melanoma report for melanoma primaries such as that developed by the Royal College of Pathologists Australasia (RCPA) or CAP is strongly recommended for routine use to support national consistency and the NZCR database (see **Appendix 3** for the RCPA form for fields required).

3.3.6 An indication as to whether the case has been reported to the NZCR is included on the report.

3.3.7 If immunotherapy has been given prior to surgical resection of the lesion:

- this should be documented on the lab form submitted with the specimen.
- specimens should be sampled according to International Neoadjuvant Melanoma Consortium (INMC) guidelines. These guidelines may be updated in the near future, as research suggests that more limited sampling can still accurately reflect treatment response (Rawson et al 2026).
- specimens should be reported as per INMC guidelines. This provides information on whether the tumour shows any treatment response. Depending on the percentage of viable tumour, tumour can show a pathologic complete response (pCR), partial pathologic response (pPR), or no response to the neoadjuvant immunotherapy.

3.3.8 Recommendations based on the current literature for diagnostic, prognostic and therapeutic molecular testing are as follows:

- ancillary diagnostic molecular techniques (for example, CGH, FISH, GEP) may be used to assist diagnosis for equivocal melanocytic neoplasms.
- routine molecular testing, including GEP, for prognostication is discouraged until better use criteria are defined. The application of molecular information for clinical management, for example, sentinel lymph node eligibility, follow-up and/or therapeutic choice is not recommended beyond a clinical study or trial.
- testing of the primary cutaneous melanoma for oncogenic mutations (for example, *BRAF*, *NRAS*) is not recommended in the absence of metastatic disease. There is insufficient evidence to recommend routine molecular profiling assessment for baseline prognostication. Evidence is also lacking around the use of molecular classification to alter patient management beyond current guidelines (for example, NCCN and AAD).
- molecular *BRAF* mutation testing should be performed for Stage III and IV patients if it will impact future management, that is, use of BRAF/MEK inhibitors.

References

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3.4: Time to pathological diagnosis

Description	A diagnosis of melanoma is reported in 5 working days in 80% of cases, and 90% of cases should have a final report in 10 working days. Cases requiring molecular studies or additional departmental consultation are excluded from this metric; however, these cases should have a provisional report or notification to the requesting clinician within 10 working days. Pathology departments should maintain a tracking system to monitor cases awaiting diagnosis and match diagnosis with request when received back in the department.
Rationale	A diagnosis of melanoma is an important first step in management and, as for all malignant diagnoses, a timely report is highly desirable. A target of five working days for 80% of cases allows for courier transport, adequate fixation of the specimen before sectioning, tissue processing and special stains (not for molecular testing where necessary), and finally examination by the pathologist, transcription and report release (Royal College of Pathologists of Australasia 2020). Additional immunohistochemical or molecular testing and referral to other colleagues in the same department, city or overseas for confirmation / expert opinion of the lesion may take longer than the prescribed limits. If the case is likely to take more than 10 days to report, an initial report or other communication to the clinician should be issued in the interim, followed by a supplementary or amended report.
Good practice points	3.4.1 A final report is produced within 5 working days in 80% of cases. 3.4.2 A final report is produced within 10 working days 90% of cases. 3.4.3 A final report is produced within 15 working days in 98% of cases. 3.4.4 Where there are delays in producing a final report (for example, in the case of an expert opinion being sought), a provisional report or notification is provided within 5 working days.

Reference

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3.5: Sentinel node biopsy reporting

Description	The current Melanoma Institute of Australia (MIA) or RCPA protocol fields are recommended for processing and reporting SNB.
Rationale	SNB is a very strong prognostic and staging technique; its use is supported by the literature, including by the AJCC (Amin et al 2017, Wen et al 2021). While there are different protocols used to process SNB (Cheng et al 2023), multiple H&E levels and IHC for melanocytic markers are usually completed for each SNB (Cook et al 2019).
Good practice points	3.5.1 Latest RCPA or CAP guidelines should be followed for processing sentinel lymph nodes. 3.5.2 Multiple levels should be examined for each SNB, including H&E and IHC for melanocytic markers. These protocols may vary by lab, but this often includes multiple H&E levels and IHC for S100 (or Sox10), melanA and HMB45 (Cook et al 2019). 3.5.3 Benign nodal naevi are a potential pitfall when assessing SNB. Careful assessment of morphology and IHC staining patterns can help differentiate these from deposits of metastatic melanoma. Depending on the immunoprofile of the primary melanoma, additional IHC for PRAME or BRAF may be helpful. 3.5.4 Reporting of the sentinel node in a synoptic format allows key elements to be easily identified for MDM review. The MIA fields are recommended (see **Appendix 4**). 3.5.5 A synoptic sentinel node report is strongly recommended for routine use to support national consistency and the NZCR database.

References

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3.6: Radiological staging

Description	Radiological staging should be requested dependent on melanoma TNM status, level of risk and intended treatment. Accurate radiological staging is essential to guide appropriate management decisions. Recent Pharmac funding for systemic therapies in the perioperative setting has reinforced the importance of accurate staging to clarify local treatments such as surgery or radiation, as well as the duration of systemic treatments for those with more advanced disease. If patient factors or co-morbidities deem patients unfit for any further treatment, do not perform routine staging. For ongoing surveillance see **Clinical Guideline 6.3**
Rationale	The available literature assessing various imaging techniques is limited; most studies are of retrospective design and are difficult to compare due to variability in both methodology and patient groups assessed (Cancer Council Australia Melanoma Guidelines Working Party 2019). These recommendations are made accepting that individual centre's resources and protocols may differ but should be considered as best practice. **Body imaging** PET-CT has improved diagnostic accuracy over CT alone, particularly for the detection of extracerebral distant metastatic disease (Xing et al 2011). A small retrospective study comparing staging PET-CT with CT alone found major therapy changes in 52% of patients based on PET-CT findings, particularly with regard to surgical management (Schüle et al 2016). Routine radiological staging for asymptomatic patients with Stage 0, I and II disease is generally not recommended due to low rates of true-positive findings and comparatively high rates of false-positive findings (Barsky et al 2014; Bikhchandani et al 2014; Orfaniotis et al 2012; Vural Topuz et al 2018; NCCN 2019). A reasonably large percentage of recurrence is local (nodal, satellite or in transit) and is often detected by the patient or clinician (Swetter et al 2018). For thick melanomas (that is, T4, Stage IIB and C disease), there are conflicting views in the literature. There is little evidence to support significant benefit of initial staging with PET-CT or CT due to low yield and high false-positive rates; although there are suggestions that PET-CT may play a role in early identification of distant metastases and consequent upstaging during initial staging workup (Arrangoiz et al 2012; Danielsen et al 2016, Yılmaz et al 2020, Ravichandran et al 2020). Additionally, there may be inherent value in establishing a baseline for future surveillance (Ravichandran et al. 2020). In some high-risk clinical situations, baseline PET-CT may add value with regard to altering the proposed treatment/therapy. The National Institute for Health and Care (NICE) guidelines (July 2022) now suggest considering staging CT imaging for Stage IIB and Stage IIC disease. As adjuvant therapy is increasingly being considered for patients with high-risk Stage II disease, baseline CT or PET-CT would allow for accurate staging prior to discussion or initiation of therapy (Vargas 2024). NCCN Clinical Practice Guidelines for Cutaneous Melanoma (NCCN 2025) recommend baseline imaging prior to discussion or initiation of adjuvant therapy. Adjuvant treatment is not funded for Stage IIB/C in Aotearoa New Zealand at this current time.

Rationale (continued)	Ultrasound of the draining nodal basins can provide a useful adjunct to clinical examination in selected clinical situations, such as high-risk Stage II patients with equivocal clinical examination, obesity or failed/declined SNB. For patients with clinically occult positive sentinel lymph nodes with low nodal tumour volume, there is little evidence to support the value of baseline cross-sectional imaging. In particular, staging imaging in this group has a high false-positive rate, which may lead to inappropriate further investigation or interventions (Holtkamp et al 2017). However, the rate of relapse in this group is not negligible, and it may be that the volume of loco-regional or distant metastatic disease is below the threshold for imaging detection at initial diagnosis (Wagner et al 2011, Moncrieff et al 2022). Therefore, follow-up surveillance imaging should be considered at an appropriate time interval based on risk of recurrence. For patients with clinically detected nodal disease, baseline PET-CT is recommended, particularly if the patient is eligible for neoadjuvant therapy. In patients with high-risk Stage III disease (Stage IIIB, C and D disease), baseline PET-CT detection of occult metastasis may upstage the patient which can have significant implications for further management. In a small retrospective study by Groen et al (2019), 18% of patients with Stage III disease were upstaged to Stage IV. Patients with Stage IV disease may present clinically or as an unexpected finding on imaging (with or without a history of melanoma). If widespread metastatic disease is identified on CT, PET-CT is unlikely to add value. **Brain imaging** It is widely accepted that MRI is superior to CT for the detection of cerebral metastases and is therefore preferable. Brain MRI also outperforms PET-CT (Tutic-Sorrentino 2024). The AJCC recognises patients with central nervous system metastases as having the worst prognosis of all melanoma patients with distant metastatic disease (M1d category) (Amin et al 2017). The incidence of developing brain metastases increases with TNM stage. The risk of cerebral metastasis in Stages I and II disease is low, and routine staging is generally not recommended. Patients with Stage III disease, macroscopic nodal or in-transit disease have been associated with increased risk of brain metastases (Samlowski et al 2017). A high mitotic rate has also been associated with increased risk of brain metastases (Haydu et al 2020). In Stage IV disease, the risk of concurrent cerebral and extracerebral metastasis at diagnosis is higher and has been reported in up to 20% of patients (Vosoughi et al 2018). There is a small subgroup of patients with metastatic disease involving only the brain.

Good practice points

3.6.1 All staging imaging investigations should be completed within 2 weeks of referral.

3.6.2 **Stages 0 (melanoma in situ), I and IIA**

For patients with Stage 0 (melanoma in situ (MIS)), I or II (A) disease, excluding SNB (where indicated), baseline cross-sectional imaging is not routinely recommended in asymptomatic patients.

3.6.3 **Stages IIB or C**

In patients with Stage IIC (T4b) disease PET-CT is recommended for initial staging. In patients with Stage IIB (T3b and T4a) disease, baseline PET-CT or CT imaging investigation may be appropriate dependent on patient age and comorbidities. Survival prediction tools such as that developed by the **Melanoma Institute of Australia for Stage II** may aid in decision making (Melanoma Institute of Australia, 2024).

3.6.4 **Stage IIIA**

For patients with Stage IIIA under clinical/US observation, initial cross-sectional imaging is not recommended due to low true-positive findings and high false-positive rates. Surveillance imaging is recommended to detect progression (discussed further in **section 6.3**).

If adjuvant therapy or completion lymphadenectomy is planned baseline PET-CT is recommended.

3.6.5 **Stage IIIB, C and D**

For patients with Stage III (B, C and D) disease, baseline imaging with PET-CT and dedicated imaging of the brain is recommended if potential upstaging may influence treatment/therapy. MRI brain is preferred over contrast-enhanced CT.

3.6.6 **Stage IV**

Contrast-enhanced staging CT of the chest, abdomen and pelvis should be performed. Neck CT should be added if the primary is in the head, neck or upper trunk. Dedicated brain imaging is recommended. MRI brain is recommended over contrast-enhanced CT.

Baseline PET-CT for Stage IV disease should be guided by the MDM and recommended in certain clinical circumstances, such as if:

- there is oligometastatic metastatic disease demonstrated on conventional CT that would be amenable to surgery or radiotherapy, with or without neoadjuvant treatment
- there are equivocal findings on conventional CT that could potentially change treatment decisions.

3.6.7 An US of the lymph node basins draining the primary site may be considered if physical examination is equivocal, limited by body habitus, or SNB has failed or was declined. Although the sensitivity of US is higher than clinical examination, it is no substitute to SNB (this is discussed further in **Clinical Guideline 6.4**). Negative nodal basin US is not a substitute for biopsy of clinically suspicious lymph nodes.

3.6.8 Contrast-enhanced brain MRI is preferred over contrast-enhanced CT due to improved diagnostic accuracy if diagnosing brain metastases early will alter management of the patient.

3.6.9 If low-dose CT is performed as part of the PET-CT examination, it is not of diagnostic quality for detection of brain metastases. Additional diagnostic quality brain imaging may therefore be required depending on the type of CT imaging acquired during PET-CT.

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CLINICAL GUIDELINE 4: Multidisciplinary care

4.1: Multidisciplinary meetings

Description	Patients with the following should be discussed at a MDM: • complex reconstruction cases, including MIS • Stages II (B and C) cases if management decisions are not straightforward • Stages III and IV cutaneous melanoma cases • desmoplastic melanoma • melanoma in people under 25 years of age • non-cutaneous melanoma. Once approved by the Chair, the outcome of the MDM is documented and communicated to the treating clinician, GP and patient. Responsibility for informing the patient of the outcome must be confirmed during the meeting and clearly documented as part of the record. If the patient is not already linked in with a key contact such as a melanoma CNS or Cancer Nurse Coordinator (CNC), this should be raised during the meeting, offered to the patient and arranged as appropriate.
Rationale	International evidence shows that multidisciplinary care is a key part of providing best-practice treatment and care for patients with cancer. Cancer MDMs are part of the philosophy of multidisciplinary care. Effective MDMs result in positive outcomes for patients receiving the care, for health professionals involved in providing the care and for health services overall. Benefits include improved treatment planning, improved equity of patient outcomes, more patients being offered the opportunity to enter relevant clinical trials, improved continuity of care and less service duplication, improved coordination of services, improved communication between care providers and more efficient use of time and resources (Thompson and Williams 2019). Patients with advanced melanoma can be complex to manage due to several factors, including variation in presentation, the potential involvement of any organ and the unpredictable course of their disease progression. Recent advances and controversies in melanoma management reinforce a need for carefully considered treatment pathways to optimise care. The collection and presentation of accurate patient information at MDMs and comprehensive feedback to patients are fundamental to high-quality care.

Good practice points	4.1.1	Minimum core membership of a melanoma MDM consists of a general surgeon and/or plastic surgeon, a pathologist, a radiation oncologist, a medical oncologist, a radiologist and a CNS or a CNC. Ideally other multidisciplinary team (MDT) members are encouraged to be involved, including dermatologists, nurse practitioners, GPs, geriatricians, Māori and Pacific liaison, adolescent and young adult key workers and palliative care team members.
	4.1.2	The melanoma MDM process within each hospital and region is documented, including: appointment of MDM members, referral pathways, meeting frequency and videoconferencing links between regional and provincial hospitals, where appropriate.
	4.1.3	Details of patients discussed at the MDM and their appropriateness for available clinical trials are recorded on a standardised MDM template.
	4.1.4	A dedicated CNS, CNC or other health professional is appointed to coordinate written and verbal outcomes (which may include informing the patient), as well as the timely management and tracking of any outgoing referrals.
	4.1.5	Adequate support staff and resources are available to the MDM. Smaller provincial MDTs or treating clinicians present patients to regional MDMs in person or via teleconferencing.
	4.1.6	The MDM records and discusses patients with Stage TIb melanoma and above if required.
	4.1.7	The MDM records information in a database that can be collated and analysed locally, regionally and nationally.
	4.1.8	Treating clinicians record reasons for not following treatment plans recommended by the MDM.
	4.1.9	Recommendations from MDM discussions are available, once approved by the Chair, as an electronic record and accessible to other members of a patient's healthcare team, including the patient's GP, within 2 working days.
	4.1.10	All Māori patients and their family/whānau are offered an opportunity to access Whānau Ora assessments and cultural support services.
	4.1.11	All patients diagnosed with melanoma are offered referral to a supportive care service such as the Cancer Society or Cancer Psychological and Social Support Service (CPSSS).
	4.1.12	The MDM process includes a review of patient access barriers (e.g. cost, transport, geographic location, deprivation, health literacy, cultural/language needs) and incorporates CNS/CNC input to mitigate these where possible.

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CLINICAL GUIDELINE 5: Treatment

5.1: Re-excision of histologically confirmed melanomas

Description	Histologically confirmed melanomas are re-excised, with additional clinical margins determined by Breslow thickness. Patients with a melanoma staging of T1b and greater with a SLN risk score of >5% based on the **Melanoma Institute of Australia sentinel node metastasis risk prediction tool** are referred to an appropriately trained and experienced surgical specialist for consideration of SNB staging at the time of the re-excision (see **Clinical Guideline 5.3**). A SLN may be indicated in a select group of patients with a T1a melanoma, but the validity of the SLN risk prediction tool normogram in this group is less certain.
Rationale	Wide excision with evidence-based clinical margins aims to provide enduring local control and cure patients without occult lymphatic or haematogenous spread. Excision margins for invasive melanoma are evidence based, with data from multiple prospective randomised controlled trials (RCT) (Veronesi et al 1988, 1991; Balch et al 1993; Cohn-Cedermark et al 2000; Khayat et al 2003; Utjés et al 2019). There are no RCTs to assess safe pathological margins. Decisions as to the need for a further re-excision if the wide local excision has residual melanoma should be based on the initial pathological margins already achieved, melanoma subtype and patient factors. Generally, these studies have excluded head, neck and acral melanoma. Amelanotic melanoma and desmoplastic may need wider excision as the margin can be difficult to see clinically. Excision margins for invasive melanoma of less than 1 cm are associated with higher local, regional and distant recurrence rates (Haydu et al 2016; MacKenzie et al 2016). For melanoma 2 mm or less, there is not strong evidence that margins >1 cm improve local recurrence or survival (Veronesi et al 1991). A large multicentre trial is currently underway comparing 1cm vs 2cm margins in T2 to T4 melanomas (Moncrieff et al 2018). Excision margins >2 cm for melanoma do not appear to influence survival (Utjés et al 2019; Cohn-Cedermark et al 2000). In anatomical sites where extending the wider excision from 1cm to 2cm would result in a significant increase in morbidity or disfigurement, electing towards a 1cm margin is appropriate Furthermore, deducting the reported pathological margin achieved at the initial excision biopsy from the planned wide local excision clinical margin is appropriate in anatomical areas where limiting morbidity or disfigurement is a priority

Rationale (continued)	Evidence for depth of excision in invasive melanoma is less robust, but expert consensus is that this should include tissue down to but not including deep fascia unless this is clinically involved. In anatomical areas of thick adipose, clinical judgement as to depth of excision is required. For subungual melanoma, difficulty in obtaining adequate deep margins has led to the recommendation for amputation at the next proximal interphalangeal joint. There is some evidence that more conservative surgery may give equivalent results in MIS of the nail unit (Cochran et al 2014; Duarte et al 2015). For T1b and thicker melanomas, with a sentinel node risk of >5% on the **Melanoma Institute of Australia sentinel node metastasis risk prediction tool**, SNB is the best staging and prognostic test. It allows potential access to adjuvant immune or targeted therapy and may confer a survival advantage in some patients. The appropriate use criteria for Mohs surgery published by the American College of Mohs Surgeons in 2012 included lentigo maligna melanoma and melanoma in situ as an indication for the use of Mohs micrographic surgery (MMS) in mask and head and neck areas, it was deemed "uncertain" on the torso and extremities (Ad Hoc Task Force 2012). This technique was first described by Zitelli's group in 1997 (Zitelli 1997). Staged excision is an alternative when MMS is not an option for the management of melanoma. It involves serial step radial sectioning through the specimen with rapid paraffin-fixed slide processing and pathologist review. Accurate mapping of the melanocytic lesion by the pathologist in conjunction with the surgeon allows for precise margin analysis with subsequent targeted serial surgical excision of areas not clear of melanoma. In a population of head and neck melanoma and melanoma in situ, Moyer et al reported in 2016 that 74% of the lentigo maligna subtype had a mean margin from visible lesion to clearance for melanoma in situ of 9.3mm and 13.7mm for invasive melanoma. Only 41% of melanoma in situ lesions and 3% with an invasive component were cleared with 5mm margins. 74.5% of melanoma in situ were clear with 10mm margins and 52% for invasive melanoma. They reported a 5-year recurrence rate of 1.4% increasing to only 2.2% at 10 years (Moyer et al 2016). There are no long term randomised controlled trials looking at a safe pathological clearance from the lesion for insitu disease after a classical wide local excision. Unless margin controlled surgery is performed, which is not practical for most of the increasingly large incidence of melanoma in situ, less than 5% of the margin of an excision biopsy is reviewed. Contraction on excision and formalin fixation causes shrinkage of the margin but this should only be expected to be in the order of 10-20% ie 1mm in the case of a 5mm excision. (find more references… Waal J ANZ 2021 to start) Short term, retrospective reviews would suggest that a pathological margin of at least 3mm confers a low risk of recurrence (0.5-3%) compared to those less than 3mm (3.8 -14%), with a pathological margin over 5mm being very unlikely to recur. (Joyce et al 2015 and Moura 2020). These studies had relatively short follow up, were not prospective, and appeared to rely on the patients self presenting with their recurrence. Particularly important in the younger age demographic, who have longer to develop a recurrence, it should be noted that the recurrence may be invasive disease in 11-20% of those who recur (Joyce et al, Moura et al).

Rationale (continued)	The patient's age, comorbidities along with the histological subtype, site of disease and closure technique required should be taken into account when counselling patients regarding the need for a further wide local excision. Lentigo maligna particularly will need larger margins to clear than classical melanoma in situ. Topical imiquimod may be considered off label for the treatment of lentigo maligna where surgery would be unacceptable to the patient or not feasible. It should only be used under the guidance of a skin cancer specialist. There is no consensus on treatment duration but treatment should be continued to achieve a sufficient inflammatory response. Patients will require clinical follow up after treatment to ensure clinical resolution and long term follow up to monitor for recurrence. Further biopsies may be considered to confirm pathological response where appropriate.
Good practice points	5.1.1 All health care professionals who undertake re-excision of melanoma are appropriately trained and experienced. 5.1.2 Margins may be modified by clinical site or patient co-morbidities. 5.1.3 Re-excision of melanoma in situ to 5–10 mm clinical margins and AJCC T1a cases of melanoma to 10 mm clinical margins can be performed as a local anaesthetic procedure by either an appropriately trained and experienced primary healthcare professional or a melanoma specialist. 5.1.4 Lesions meeting histological staging AJCC T1b or higher, and a sentinel node risk score of >5% are referred to an appropriately trained and experienced specialist for consideration of US surveillance or SNB staging at the time of the re-excision. 5.1.5 Excisions have vertical edges and extend to, but do not include, the deep fascia, as clinically appropriate. In anatomical areas of thick adipose, clinical judgement as to depth of excision is required. 5.1.6 Precise measurement of clinical margins is mapped out from the edge of the scar or remaining lesion with a ruler before the definitive excision. 5.1.7. Deducting the reported pathological margin achieved at the initial excision biopsy from the planned wide local excision clinical margin is appropriate in anatomical areas where limiting morbidity or disfigurement is a priority.
Good practice points (continued)	5.1.8 For in situ or invasive melanoma of lentigo maligna sub-type, management could be considered with margin-controlled surgery such as Mohs or staged excision with rushed paraffins. Staged excision can be performed by any surgeon or dermatologist, in concert with the local histopathologist increasing its utility at a population level. 5.1.9 Patients are provided with information about surgical excision risks: wound infection, haematoma, failure of skin graft and flap, numbness, scarring, seroma and lymphoedema and the possibility that further surgery will be required. 5.1.10 Patients undergoing surgery are offered the choice for their tissue to be disposed of by standard methods or utilising appropriate tikanga processes. 5.1.11 Patients are informed about melanoma in general and increased risks for new melanoma and advised to undergo regular full-body skin checks. 5.1.12 Appropriate data collection systems are in place to collate, publish and audit data on post-surgery complications. 5.1.13 Clinicians adhere to the guidelines listed in the following table:

Breslow thickness	**Additional clinical margin**

Naevus with severe cytological or architectural atypia	5 mm
Melanoma in situ (Tis)	5–10 mm
<1.0 mm (T1)	10 mm
1–2 mm (T2)	10–20 mm
2–4 mm (T3)	20 mm
>4 mm (T4)	20 mm

5.1.14 Pathological margins of 3mm on excision biopsy for in situ melanoma may be accepted without a further wide local excision after a discussion with the patient of increased risk of recurrence and potentially invasive disease. Case by case pathological review of these specimens will further delineate the risk profile – a clear cut margin at 3mm will be lower risk than one that petered out.

5.1.15 Topical imiquimod may be considered, off label and under the guidance of a melanoma specialist for the treatment of lentigo maligna where surgery would be unacceptable to the patient or not feasible with very close follow up.

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5.2: Desmoplastic neurotropic melanoma

Description	The MDM discusses the potential role of radiation treatment to improve local control in patients with desmoplastic neurotropic melanoma.
Rationale	Desmoplastic melanoma account for 1–4% of all primary cutaneous melanoma and exhibit different biological behaviour to non-desmoplastic melanoma. Desmoplastic melanoma is a subtype of invasive melanoma that induces a desmoplastic ('scar-like') stroma. The invasive tumour is usually paucicellular (has few cells), and can infiltrate some distance microscopically beyond the clinically-apparent lesion. It tends to recur locally (6–15%) (Chen et al 2008; Guadagnolo et al 2014; Strom et al 2014) and has a lower risk of metastasising to lymph nodes or distally (Dunne et al 2017; Hughes et al 2021). However, this pattern of melanoma may co-exist with other subtypes of melanoma. Desmoplastic melanoma may show neurotropism. Neurotropism in melanoma describes how an invasive melanoma (any subtype, including desmoplastic melanoma) may show perineural or intraneural invasion. Some subtypes of melanoma can also morphologically appear 'nerve-like' with bland, wavy melanocytes, and this is also sometimes called 'neurotropism'. The risk of spread to the sentinel node is very low in pure (>90% desmoplasia) desmoplastic melanomas (Dunne et al 2017). However, in mixed-type desmoplastic melanomas, where there is a conventional component the risk of sentinel node involvement is often >10% (Hodson et al 2022). As a result, accurate reporting on the degree of desmoplasia is important to plan management. Desmoplastic melanoma most commonly occur in males, older patients, and on the head and neck there is an increased risk (30–60%) of neurotropism (Quinn et al 1998; Hughes et al 2021). Currently, there have been no RCTs examining the excision margins required to minimise local recurrence in desmoplastic melanoma; however, studies have confirmed that local recurrence is strongly related to involved resection margins (Chen et al 2008; Guadagnolo et al 2014; Strom et al 2014; Hughes et al 2021). There are no published RCTs investigating the role of adjuvant radiotherapy in desmoplastic melanoma. Observational studies have reported a local recurrence benefit from adjuvant radiotherapy in desmoplastic melanoma with neurotropism and inadequate histological margins (Chen et al 2008; Guadagnolo et al 2014; Strom et al 2014; Varey et al 2017; Hughes et al 2021).
Good practice points	5.2.1 Radiation treatment is considered for patients with desmoplastic melanoma where the melanoma is unresectable or where the clinical margins are <8 mm (Varey et al 2017). 5.2.2 Radiation should be considered for head and neck primary sites and in other sites where the melanoma has marked neurotropism or is >4 mm thick (Chen et al 2008; Guadagnolo et al 2014; Strom et al 2014). 5.2.3 SNB should still be considered in patients with mixed-type desmoplastic melanoma based on their clinical and histopathological risk factors and discussion at a melanoma MDM.

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5.3: Sentinel node biopsy technique

Description	SNB staging is considered for all patients who could benefit from the procedure with melanoma T1b or thicker and a sentinel node risk of >5% on the **Melanoma Institute of Australia sentinel node metastasis risk prediction tool**. This tool should be used to guide selection for SNB. If risk is <5%, SNB is not recommended. When risk is between 5 and 10%, SNB should be considered. At a risk of >10% SNB is recommended if the patient is clinically appropriate. SNB in melanoma is carried out using triple localisation with preoperative lymphoscintigraphy and SPECT scan. Intra-operative localisation is performed with blue dye and a gamma probe.
Rationale	Studies have shown that the SNB technique is useful for identifying small lymph node metastases in patients with T1b and above melanoma. SNB allows for accurate staging, prognostic information, improved regional control and potential access to adjuvant treatment (Madu et al 2017; Wong et al 2018; Eggermont et al 2015, Long et al 2024; Eggermont et al 2021; Dummer et al 2012; Wen et al 2021). Thin melanomas (<1mm) are the most common form of melanoma and can usually be cured through surgical removal of the primary tumour. The expected rate of node positivity in thin melanoma is 5.2%, increasing to 8% in those >0.8 mm, where the benefit of SNB starts to outweigh the false-negative rate and risk (Han et al 2013; Wong et al 2018; Gershenwald and Scolyer 2018). The AJCC staging system has identified an improved prognosis for patients with thin melanoma >0.8 mm who had a SNB when negative compared with those who did not undergo SNB (Gershenwald et al 2017). Thick melanomas (>4 mm) are more likely to undergo haematogenous metastasis. There are few studies focusing on the use of SNB in patients with thick melanomas. Now with evidence of relapse-free survival (RFS) benefit with adjuvant treatments, together with the move towards public funding of adjuvant immunotherapy and targeted therapies for Stage IIIB melanoma and above full staging with SNB can support informed discussions about adjuvant treatment for patients with thick primary melanomas (Eggermont et al 2015, 2018; Long et al 2017; Weber et al 2017; Seth et al 2020). Amongst those with a primary T4b melanoma the risk of an involved sentinel node frequently exceeds 20%. PET-CT imaging to identify those who have sub-clinical, but radiologically evident nodal disease prior to undergoing SNB is important to allow the patient access to neoadjuvant immunotherapy if disease is upstaged. There is no survival benefit proven for completion lymphadenectomy for clinically occult nodal disease, although the largest trial (MSLT II) had a mean SNB deposit of only 1.11 mm in the observation group (interquartile range 0.23–1.38 mm) (Faries et al 2017; Leiter et al 2016, 2019). In Aotearoa New Zealand, where lymphoscintigraphy is usually not associated with preoperative USS (as is the case in many international melanoma centres) a SNB may pick up a node with a large deposit of tumour. MDM discussion should decide what size deposit is deemed large enough to have been picked up on preoperative imaging, if it had been performed. 5mm has shown to be detectable by USS by more than one centre (Starritt et al 2005; Sibon et al 2007; Pilko 2012)

Good practice points	5.3.1 SNB staging is considered for all patients who could benefit from the procedure, with melanoma T1b or thicker and a sentinel node risk of >5% on the **Melanoma Institute of Australia sentinel node metastasis risk prediction tool**.. This risk prediction tool should be used to guide selection for SNB. If <5%, SNB is not recommended. When 5-10% risk, SNB should be considered. At a risk of >10% SNB is recommended. 5.3.2 Clinically suitable patients with a T4b primary melanoma should undergo PET-CT staging prior to undergoing SNB to identify those with radiologically evident nodal disease that are suitable for neoadjuvant immunotherapy. If the PET-CT is negative for metastatic disease SNB should be recommended for even more accurate staging to facilitate access to adjuvant treatments. 5.3.3 Clinicians explain the role of SNB in guiding management, along with the technique, limitations, risks and alternatives. Initial assessment of eligibility can be performed by a suitably trained skin-cancer professional. Patients considered suitable should then be referred to an SNB-performing surgeon for full review and discussion. 5.3.4 Pre-operative lymphoscintigraphy and SPECT is carried out to identify which draining lymph node fields contain the sentinel node(s). Technetium-99 nanocolloid is injected intradermally either side of the middle of the scar. Dynamic and static lymphoscintigrams are obtained. 5.3.5 Lymphoscintigrams are reported by radiologists and nuclear medicine specialists trained and experienced in the technique. 5.3.6 SNB is performed by surgeons trained and experienced in the technique. 5.3.7 Ex vivo assessment of the removed sentinel node should be performed to take a radioactive 'count' of the node. If the wound bed has a count >10% of the sentinel node count, further exploration should be performed to identify other sentinel node(s). 5.3.8 SNB is performed within 18 hours of lymphoscintigraphy. 5.3.9 Incisions are marked out with consideration of completion lymphadenectomy access, should this be required. 5.3.10 All patients with a positive SNB receive MDM discussion regarding the choice of observation versus adjuvant immunotherapy versus completion lymphadenectomy. 5.3.11 Where SNB is not performed in patients with T1b (or over) melanoma, active clinical and radiological surveillance is offered unless comorbidities preclude (US 6 monthly for 2 years, CT if on the torso and multiple nodal beds require surveillance). 5.3.12 Appropriate data collection systems are in place to collate, report and audit post-surgery complications.

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5.4: Therapeutic or completion lymphadenectomy

Description	An oncological therapeutic lymphadenectomy is offered to all patients with clinically or radiologically evident nodal disease after appropriate staging and discussion at a melanoma MDM. In suitable patients this should be preceded by neoadjuvant immunotherapy.
Rationale	Management of the nodal bed in patients with high-risk melanoma has moved from elective node dissection in many to therapeutic dissection in those with clinical or radiological detectable disease and SNB in those without. Therapeutic nodal dissection for clinically involved nodes is associated with 5-year survival of 30-50% and thus is accepted and recommended. In Aotearoa New Zealand, therapeutic dissection ie removal of all clinically evident melanoma for clinical or radiological positive disease has previously meant no access to Pharmac-funded immunotherapy unless metastatic disease is found at a later date. On the 1 June 2025 both neoadjuvant and adjuvant immunotherapy became Pharmac funded. Adjuvant treatment has been shown to have a significant benefit on recurrence-free survival with neoadjuvant treatment providing even further benefit. See **Clinical Guidelines 5.5 and 5.6**. SNB has been used to distinguish Stage III patients at an earlier point in their disease process, providing excellent prognostic information and allowing the latest staging (see **Appendix 1 AJCC Melanoma of the skin staging 8th edition**) to stratify patients more effectively with improved survival in those classified in the earlier stages. There is a continued move towards less nodal surgery, with a further shift from nodal dissection in all patients with a positive sentinel node to a surveillance approach after two large trials (MSLT II and DeCOG-SLT) showed no difference in overall survival. However, these two trials either excluded or had few patients with high-risk sentinel node disease i.e. disease volume >2mm, extranodal spread, more than 3 positive nodes or patients with micro satellitosis. Recent Aotearoa New Zealand retrospective studies (Williams et al 2022, 2023) have shown a higher mean volume of sentinel node disease (2.55mm) as well as an increased rate of positive non sentinel nodes on completion dissection (22.2% v 11.5%). However, Broman et al (2021) have shown in a small number of matched high-risk patients who were observed versus had a complete lymph node dissection (n= 51), that although there were higher number of SLN-basin recurrences in the observation group, this was not significant and most recurrences were outside the SLN basin. There were no significant differences in distant metastasis, distant metastasis free survival or death due to melanoma. Patients with positive sentinel nodes should be discussed at an MDM and the patient made aware of the pros and cons of completion lymph node dissection for local control versus surveillance. Radiological surveillance is a key part of the observation and needs to be available if this is the preferred pathway.

Rationale (continued)	The previously used terms microscopic and macroscopic disease in lymph nodes have been variable in meaning. High volume melanoma centres contributing to the literature likely have easier access to high quality USS in clinic or at the time of lymphoscintigraphy, thus converting patients to 'macroscopic' nodal disease leading to a nodal dissection rather than SNB. The 8th edition of the AJCC melanoma staging replaces these terms with 'clinically occult' and 'clinically evident' i.e. found on clinical examination or imaging. The histological size of a clinically occult or clinically evident deposit in a positive sentinel node remains unclear. We have suggested 5mm or greater nodal disease could potentially be radiologically detected pre-op (Starrit et al 2005; Sibon et al 2007; Pilko 2012) and thus upstage the patient to Stage IIIB or above. In this situation the patient would be eligible for adjuvant immunotherapy. If immunotherapy was not an option, then a discussion regarding lymph node dissection and observation with serial US should be had in this group. In keeping with the move towards less nodal surgery, less iliac nodal dissection is being performed although there is a paucity of published prospective evidence comparing survival or morbidity of inguinal versus ilioinguinal node dissection. In the MSLT II trial, there was no difference in lymphoedema rates between the two procedures. Iliac nodes are positive in 30–39% after an ilioinguinal node dissection for macroscopic disease, decreasing to 9.3% after a positive sentinel node only. PET-CT before inguinal dissection may highlight positive iliac and obturator node disease but is not sensitive to small volume disease. Lymphoscintigraphy prior to the SNB may also give information on where the secondary tier nodes lie. (Verver et al 2018; Faries et al 2017; Spillane et al 2011; Kretschmer et al 2001; Kissin 1987; Allan et al 2008; Glover et al 2014; Jonk et al 1988). There is RCT evidence that radiation after a lymph node dissection for patients considered to be at intermediate to high risk of recurrence in the nodal region decreases the risk of recurrence but does not improve overall survival (Henderson et al 2015). For patients who have received neoadjuvant immunotherapy, adjuvant radiotherapy may be considered for patients with poor pathological response (<50% pathological response) and meeting criteria for adjuvant radiotherapy (see **Clinical Guidelines 5.5.14 and 5.6.7**) Surveillance of patients with resected positive sentinel node disease may be better focussed on distant spread, with cross sectional imaging. These patients are also at risk of nodal disease, which may potentially be found at a smaller size on US (Starritt et al 2005; Sibon et al 2007; Pilko 2012). US is more user dependent, time consuming, and in Aotearoa New Zealand, is a limited resource.
Good practice points	5.4.1 Patients with sentinel node disease of <5 mm and a primary melanoma T2a or thinner are recommended for observation with node field US every 6 months for the first 3 years by an experienced sonographer. If the nodal deposit is >5mm this may have been picked up on preop imaging and thus could be considered as 'radiologically evident' disease with a staging of IIIB or above. A primary melanoma of T2b and above with any size sentinel node deposit would be staged as IIIB or above. All Stage IIIB and above patients should have a discussion at MDM regarding adjuvant treatment. See **Clinical Guideline 5.6, Clinical Guideline 6.3 and Appendix 6.** 5.4.2 If positive sentinel nodes have high-risk features such as extranodal spread, multiple positive nodes or are in patients with immunosuppression or autoimmune disease (i.e. with contraindications to adjuvant therapy), completion lymphadenectomy for local control should be discussed at MDM.

Good practice points (continued)	5.4.3 Patients with positive sentinel nodes who do not wish to or cannot be appropriately followed up with US, or in whom the balance between local control versus the morbidity of surgery favours local control completion lymphadenectomy, should be discussed at MDM. 5.4.4 Therapeutic node dissection in conjunction with neoadjuvant or adjuvant immunotherapy is offered to patients with clinically or radiologically evident nodal metastases. 5.4.5 All patients who are being considered for a completion lymphadenectomy receive a whole-body PET-CT beforehand. 5.4.6 Lymphadenectomy is performed by trained and experienced surgeons. 5.4.7 Operation notes fully describe the anatomical boundaries of the lymphadenectomy and lymph node levels removed.5.4.8 Therapeutic neck lymphadenectomies are tailored to individual patients' metastatic disease and the site of the primary melanoma and may include radical, modified radical or selective neck lymphadenectomy with or without a parotidectomy. 5.4.9 A therapeutic axillary lymphadenectomy includes levels I–III. 5.4.10 A therapeutic inguinal lymphadenectomy involves skeletonisation of the femoral vessels and removal of pudendal nodes, nodes anterior to the external oblique and Cloquet's nodes in the femoral canal. 5.4.11 An ilioinguinal node dissection is performed for PET-CT positive or for biopsy-proven melanoma metastases in inguinal and pelvic nodes in the absence of distant disease. Ilioinguinal node dissection to be performed if the second-tier node of a positive SNB (not deemed appropriate for observation) is in the iliac chain on lymphoscintigraphy. 5.4.12 A therapeutic iliac and obturator lymphadenectomy involves skeletonisation of the iliac vessels and obturator nerve from at least the common iliac artery bifurcation to the inguinal ligament. 5.4.13 For high-risk nodal disease adjuvant radiation treatment should be considered. **See Clinical Guideline 5.6.** 5.4.14 Patients must have access to a lymphoedema therapist to prescribe and fit compression garments and provide education about pre- and post-operative lymphoedema management. 5.4.15 Appropriate data collection systems are in place to collate, report and audit data on post-surgery complications.

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5.5: Neoadjuvant systemic therapy in locoregionally advanced melanoma

Description	The addition of effective systemic therapies to surgical management of patients with locoregionally advanced and resectable oligometastatic melanoma has significantly improved outcomes. Adjuvant therapy with either immune checkpoint inhibitors (ICIs) or targeted therapy with BRAF/MEK inhibitors after surgical resection of Stage III-IV melanoma has been shown to improve recurrence-free survival and represents a standard of care. Subsequent phase II and III randomized trials have demonstrated neoadjuvant ICI as a superior treatment for patients with clinically detectable Stage III or resectable Stage IV melanoma compared with adjuvant therapy. High rates of pathological complete response (pCR) and major pathological response (MPR) are observed in patients treated with neoadjuvant ICIs, correlating with excellent survival outcomes.
Rationale	Stage IIIB-IV melanoma has typically been associated with poor clinical outcomes. Previous standard of care involved surgical resection, with five-year recurrence-free and overall survival estimates of 30-39% and 40-59% respectively (Garbe et al 2025). Adjuvant therapy for 12 months after complete surgical resection of Stage III and IV melanoma is considered standard of care on the basis of randomized phase III data demonstrating improvements in recurrence-free survival. Both single agent anti-PD-1 therapy and BRAF/MEK inhibitor targeted therapy (in *BRAF* V600 mutant melanoma) have an established role in this setting (Eggermont et al 2021; Long et al 2024; Wolchok et al 2022). More recently, the use of neoadjuvant ICI represents a significant advance in the management of locoregionally advanced melanoma. Two key trials have demonstrated superiority of neoadjuvant over adjuvant administration of ICI in clinically detectable Stage III melanoma (Patel et al 2023, Blank et al 2024). The phase II SWOG S1801 trial established neoadjuvant administration of pembrolizumab as superior to adjuvant administration in Stage IIIB to resectable Stage IV melanoma, with significant improvement in event-free survival (72% vs 49%, p=0.004). The phase III NADINA trial randomized patients to receive either neoadjuvant combination ipilimumab and nivolumab followed by surgery, or surgery followed by adjuvant nivolumab. Patients in the neoadjuvant arm that had a MPR (≤10% viable tumour cells) did not go on to receive adjuvant immunotherapy. In total 59% of patients demonstrated a MPR with those in this group having a 95% recurrence-free survival at 12 months (Blank et al 2024). Since June 2025, Pharmac have approved funding for perioperative pembrolizumab for resectable Stage IIIB-IV melanoma. Adjuvant treatment for Stage IIIB-IV is also available with adjuvant pembrolizumab or the option of BRAF/MEK inhibitor (dabrafenib and trametinib) for those with *BRAF* V600-mutated melanoma. With this transition, all patients with clinically detectable, resectable Stage IIIB-IV melanoma should be considered for neoadjuvant pembrolizumab (200mg intravenously every 3 weeks for 3 doses) prior to surgical resection. Patients receiving neoadjuvant pembrolizumab will also be eligible to receive further pembrolizumab adjuvantly to complete one year of therapy. Patients who have had upfront surgery and have resected Stage IIIB-IV melanoma should be considered for adjuvant systemic therapy.

Rationale (continued)	After confirming the presence of resectable Stage IIIB-IV melanoma and appropriate imaging to exclude wider systemic metastatic disease, marking of the involved nodal or in-transit disease is an important step prior to initiating neoadjuvant systemic treatment. In the case of multiple lymph nodes being involved, the largest involved node should be marked (index lymph node). Several options are available (van der Burg 2024). These allow for accurate intra-operative localisation of the initial site of disease at the time of surgery and are particularly important in cases when a complete clinical response prior to surgery occurs. Furthermore, the reporting pathologist can also use this marker to identify the index lymph node and report on the pathological response within this node. Pathological analysis of the resected disease should report on the pathological response to immunotherapy treatment (see **Clinical Guideline 3.3**). The NADINA trial (Blank et al 2024) demonstrated that in those with a MPR (≤10% viable tumour cells) after neoadjuvant ipilimumab/nivolumab, adjuvant nivolumab could be safely omitted without impacting the recurrence-free survival. A combination of neoadjuvant and adjuvant pembrolizumab was used in the SWOG1801 trial and, as such, current data supports all patients receiving pembrolizumab to complete a further 18 dose post-operative course when clinically appropriate regardless of the pathological response. The potential risk of disease progression to an inoperable state when patients undergo neoadjuvant immunotherapy has been assessed. Reassuringly, the risk of progression to systemic metastatic disease whilst on neoadjuvant immunotherapy is low, at approximately 2- 8% (Patel et al 2023, Blank et al 2024). As a result, radiological assessment of the response to neoadjuvant immunotherapy prior to surgery is important to assess for systemic progression of disease. It should be noted that in the OpACIN-NEO study the rate of radiological response was 52%, but the pathological response was 74% (Rozeman 2019) suggesting radiological response may lag or underestimate pathological response. The technical aspects of surgery among those who received neoadjuvant immunotherapy has been evaluated. A sub-study survey within the neo-ACTIVATE study found that technical aspects of performing a therapeutic lymph node dissection were deemed to be harder in 46% and easier in 17% of cases when compared to a normal, non-neoadjuvant therapeutic lymph node dissection (Hieken 2022). A final concern relating to neoadjuvant therapy relates to the impact of immunotherapy-related adverse events on delaying surgery and increasing the risk of post-operative complications. Pre-operative evaluation for endocrine, liver and cardiac abnormalities should be undertaken, and patients requiring steroid treatment should be postponed until they are improving to a grade 1 adverse event level (van Akkooi et al 2022). Practice is likely to evolve as further neoadjuvant trial data becomes available. The PRADO trial (Reigers et al 2022) was an extension cohort of the OpACIN-NEO trial evaluating whether using the reported pathological response to personalize follow-on treatment was feasible. In this study, patients underwent index lymph node excision after neoadjuvant ipilimumab/nivolumab. In patients with a MPR, data supported the safety of omitting therapeutic lymph node dissection and adjuvant therapy without significantly impacting the overall clinical outcome. The potential impact on minimizing patient morbidity and effective provision of resources is high. As a result, a randomized study (Multicentre selective lymphadenectomy-III trial) is in process to determine the safety of this surgical approach.

Good practice points	5.5.1 Patients with resectable clinical Stage IIIB-D and resectable Stage IV melanoma should be considered for neoadjuvant ICI therapy and discussed in a melanoma multi-disciplinary meeting. The primary melanoma should have a full excisional biopsy with narrow margins to enable complete staging. The wide local excision for local control can be done at the time of the nodal resection. 5.5.2 Close co-ordination regarding imaging, ICI therapy and surgery is an important component and should be led by the treating clinicians and clinical nurse specialist. 5.5.3 Patients with macroscopic nodal disease should have the diagnosis confirmed through core biopsy or FNA and undergo staging with a combination of whole-body PET-CT and dedicated contrast-enhanced MRI brain. 5.5.4 Only patients that are candidates to safely receive both ICI therapy and surgical resection should be considered for a neoadjuvant treatment pathway. 5.5.5 Within Aotearoa New Zealand, current neoadjuvant options include at least three doses of pembrolizumab (Pharmac funded) or two doses of combined ipilimumab and nivolumab (not funded). 5.5.6 Pre-operative marking of the index lymph node (largest involved node) or in-transit disease should be performed to allow accurate identification during surgery and to guide targeted pathological analysis of site of disease that was dominant prior to commencing neoadjuvant ICI therapy. 5.5.7 Pre-operative re-staging imaging (PET-CT or contrast enhanced CT) should be performed to assess for disease progression prior to proceeding with surgery. 5.5.8 Surgery should be planned approximately three weeks after completing neoadjuvant ICI therapy. 5.5.9 Surgery should involve a full therapeutic nodal dissection of the involved lymph node basin, or complete resection of the in-transit disease. 5.5.10 Pathological assessment of the resected specimen following neoadjuvant ICI should be completed in line with the details provided in the statement on pathological assessment of neoadjuvant surgical specimens. 5.5.11 In patients receiving neoadjuvant pembrolizumab, all patients should be considered for adjuvant treatment to complete one year of perioperative therapy. 5.5.12 In patients with a pathological partial response (50-90% response), an adjuvant course of immunotherapy should be offered. In patients with a pathological non-response (<50% pathological response) adjuvant immunotherapy should be considered. In those with a *BRAF* mutation, preference should be towards a course of an adjuvant BRAF/MEK inhibitor. 5.5.13 Amongst patients requiring adjuvant immunotherapy, but who developed significant adverse events during neoadjuvant treatment, consideration should be given towards adjuvant BRAF/MEK inhibitors in those with a *BRAF* mutation. 5.5.14 Adjuvant radiotherapy could be considered in those with a pathological non-response (<50% pathological response) in accordance with current criteria for radiotherapy in melanoma. Both concurrent and sequential delivery of radiotherapy with immunotherapy are acceptable strategies.

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5.6: Adjuvant therapy in locoregionally advanced melanoma

Description	All patients with resected Stage III-IV melanoma or Stage II (B or C) melanoma are: • discussed at a melanoma MDM (if management decisions are not straightforward) • considered for adjuvant systemic treatment (including enrolment in clinical trials) and adjuvant radiotherapy. Neoadjuvant immunotherapy (i.e., systemic treatment with immune checkpoint inhibitors (ICI) prior to curative intent surgery) is now standard of care for suitable patients with resectable Stage III or resectable Stage IV disease and should be considered for all suitable patients in this clinical context (see **Clinical Guideline 5.5**).
Rationale	Adjuvant systemic therapies have been shown to improve disease-free survival in patients with resected Stage III and IV melanoma (Eggermont et al 2015, 2018; Long et al 2017, 2024; Weber et al 2017). Both pembrolizumab, and dabrafenib and trametinib (for *BRAF* V600E mutant disease) are now Pharmac-funded for adjuvant systemic treatment of resected Stage IIIB – resected Stage IV melanoma. There is randomised trial evidence that adjuvant radiation after a lymph node dissection for patients considered at intermediate to high risk of recurrence in the nodal region may decrease the risk of local recurrence but does not improve overall survival (Henderson et al 2015). In the era of effective neoadjuvant and adjuvant systemic therapies for melanoma, the role of adjuvant radiotherapy requires careful MDM evaluation.
Good practice points	5.6.1 All patients with resected Stage III melanoma should be considered for adjuvant systemic therapy and be discussed in a melanoma multidisciplinary meeting. • Patients with resected Stage IIIB to resected Stage IV melanoma are eligible for Pharmac funded adjuvant systemic therapy with anti-PD-1 therapy (pembrolizumab), or dabrafenib and trametinib in the presence of a *BRAF* mutation • All patients with resected Stage III – IV melanoma should have tumour *BRAF* mutation testing to aid clinical decision-making regarding adjuvant systemic therapy options • Eligible patients with resected Stage III – IV melanoma should be referred for discussion with a medical oncologist regarding the role of adjuvant systemic therapy. 5.6.2 Adjuvant pembrolizumab for 12 months may be considered for all patients with resected Stage IIIB – IV melanoma. Treatment discussions should consider recurrence-free survival and distant metastasis-free survival benefits, lack of confirmed overall survival benefit and risk of treatment related toxicity. 5.6.3 Adjuvant dabrafenib and trametinib for 12 months may be considered for patients with resected Stage IIIB – IV melanoma with a *BRAF* V600E mutation. 5.6.4 Adjuvant systemic treatment should be initiated within 12 weeks of complete surgical resection.

Good practice points (continued)	5.6.5 Other groups that may be considered for adjuvant systemic therapy include selected patients with resected Stage IIB, IIC and Stage IIIA (lymph node metastasis >1mm) melanoma (not currently Pharmac funded for these indications). 5.6.6 The decision to recommend adjuvant radiation therapy should be made in a melanoma MDM where all options for further local and systemic therapy are addressed. With effective adjuvant systemic therapies now available, the role of adjuvant radiation therapy is evolving. 5.6.7 Adjuvant post-operative radiation therapy to regional lymph node basins may be considered in the following situations if neoadjuvant or adjuvant therapy is not appropriate or unavailable: • palpable (macroscopic) metastatic nodal involvement of one or more parotid nodes, two or more neck or axillary nodes or three or more inguinal nodes • extranodal spread (of tumour) • a maximum metastatic node diameter of ≥3 cm in the neck or ≥4 cm in the axilla or inguinal region 5.6.8 Adjuvant post-operative radiation therapy to the primary site may be considered where there are positive margins or recurrent disease. 5.6.9 Adjuvant radiotherapy could be considered in those with a pathological non-response (<50% pathological response) after neoadjuvant immunotherapy. Both concurrent and sequential delivery of radiotherapy with immunotherapy are acceptable strategies.

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5.7: Patients with loco-regionally recurrent, locally advanced and metastatic melanoma

Description	Patients with loco-regionally recurrent, locally advanced or metastatic melanoma are seen or discussed by melanoma specialists experienced in the care of melanoma patients and are part of a melanoma MDM. Patients should be staged as per **Clinical Guideline 3.6.**
Rationale	Historically the prognosis for patients with advanced melanoma was dismal, with less than 10% of patients surviving beyond five years. The advent of effective systemic therapies including targeted therapy (BRAF/MEK inhibitors) and most importantly immune checkpoint inhibitors (ICIs) have dramatically improved outcomes for patients with advanced melanoma. It is now expected that up to 50% of patients with advanced melanoma treated with ICIs may achieve durable disease control, meaning long-term survival is now possible for many. Management of patients with advanced melanoma is complex and requires multidisciplinary care. There are a number of recognised prognostic indicators for patients with advanced disease, some of which are adopted into the AJCC staging system, including site(s) of metastases, serum lactate dehydrogenase (LDH) and BRAF molecular status. It is therefore recommended that all patients with advanced disease undergo complete radiological staging and tumour molecular testing for the presence of a BRAF mutation. Some patients with metastatic melanoma present with surgically resectable disease. Surgery is an option for select patients, preferentially combined with systemic therapy. With several systemic therapy options available for patients with advanced melanoma, selection of initial therapy can be challenging. Additionally, not all available systemic therapies are Pharmac funded in Aotearoa New Zealand, Combination or single agent ICI approaches offer the potential for durable disease control to a significant proportion of patients with advanced melanoma. Patient and disease factors will impact the choice of best initial systemic therapy. For patients with a *BRAF V600* mutation, several prospective trials have evaluated the approach to sequencing systemic therapy (Ascierto et al. 2023, Atkins et al, 2023). Based on these studies, an anti-PD1 based regimen is the preferred initial systemic therapy over targeted therapy with BRAF/MEK inhibitors given the superior survival observed with this approach. A significant proportion of patients with advanced melanoma will develop brain metastases and specific considerations are required for these patients. Stereotactic radiotherapy offers high rates of local control and can be considered. Whole brain radiotherapy is associated with neurocognitive decline (Tallet et al 2012). In recent years, the role of whole brain radiotherapy in melanoma brain metastases has significantly declined due to the emergence of more effective and targeted treatment options, such as stereotactic radiosurgery (SRS), immune checkpoint inhibitors, and targeted therapies (BRAF/MEK inhibitors). A meta-analysis indicates a poor survival after whole brain radiation alone for multiple brain metastases (four months) and a one-year local control of 5.5% (Thompson et al). Multidisciplinary evaluation and individualized treatment based on symptoms, metastatic burden, performance status and systemic treatment options is essential.

Rationale (continued)	Although ipilimumab is not funded in Aotearoa New Zealand, the preferred systemic therapy for patients with brain metastases is combination anti-PD1 (pembrolizumab or nivolumab) and ipilimumab, which offers superior response and survival compared with anti-PD1 immune checkpoint inhibitors alone ((Long et al 2025, Tawbi et al 2021). Data from the prospective ABC study demonstrated 7-year survival rates of 48% for asymptomatic patients with melanoma brain metastases treated with ipilimumab and nivolumab. Retrospective data from Aotearoa New Zealand reported survival of 30% in melanoma brain metastases patients treated with anti-PD1 monotherapy (Walsh et al 2025).
Good practice points	**Medical oncology** 5.7.1 Where treatment is being considered, patients with advanced melanoma (unresectable Stage III or IV disease) should have their tumour assessed for the presence of the *BRAF* V600 mutation. 5.7.2 Anti-PD-1 based therapy is standard-of-care for patients with unresectable Stage III or IV disease who are eligible for systemic therapy. 5.7.3 Both anti-PD-1 monotherapy and combination immune checkpoint inhibitor with anti-PD-1 + anti-CTLA4 or anti-PD-1 + anti-LAG3 are acceptable first-line systemic therapy options for patients with advanced melanoma. 5.7.4 Targeted therapy with BRAF/MEK inhibitors is an effective systemic therapy for patients with advanced melanoma with a *BRAF* V600 mutation. 5.7.5 Preferred first-line therapy for patients with advanced melanoma with a *BRAF* V600 mutation is an anti-PD-1-based regimen. 5.7.6 Multi-disciplinary discussion is needed for melanoma brain metastases to consider systemic treatment options, as well as local therapies (radiation or surgery) if needed. 5.7.7 For patients with asymptomatic brain metastases, combination ipilimumab and nivolumab is recommended (not funded). Anti-PD-1 treatment can also be considered. **Surgery** 5.7.8 Where there are multiple dermal recurrences: surgical excision, ablation or systemic ICI or targeted therapies are considered as first line treatment. Where these have failed or are not appropriate, intralesional or topical treatments may be appropriate. 5.7.9 Isolated limb infusion (ILI) could be considered in appropriately selected patients with progressive disease after all other treatment options (currently provided by Te Whatu Ora Waitematā). 5.7.10 Isolated clinical recurrence in a previously resected node field is considered for neoadjuvant immunotherapy and subsequent resection when possible. If, on staging PET-CT, there is distant disease, ICI immunotherapy or targeted therapy should be initiated if clinically appropriate. 5.7.11 For patients with asymptomatic oligometastatic disease, for example, bowel, liver, lung or adrenal, neoadjuvant immunotherapy and follow-on surgical resection or radiation is considered along with adjuvant treatment options (radiotherapy or systemic treatment). 5.7.12 For patients with limited brain metastasis and no or minimal extracranial disease, resection of the brain metastasis is considered. 5.7.13 For patients with single-level spinal cord compression and minimal or no other metastatic disease, urgent surgical or radiation treatment is considered.

Good practice points (continued)	**Radiation oncology** 5.7.14 Stereotactic radiation treatment is considered for brain metastases in appropriate patients. 5.7.14 Radiation to the tumour bed cavity after resection of a brain metastasis could be considered. Whole brain radiation treatment has not been shown to improve survival outcomes following local treatment of brain metastases from melanoma. 5.7.15 Whole brain radiotherapy should generally be reserved for patients with widespread intracranial disease not amenable to focal therapy or with symptomatic leptomeningeal spread. 5.7.16 Patients with localised symptoms from melanoma metastases at any site are considered for referral for radiation treatment to these sites.

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CLINICAL GUIDELINE 6: Follow-up and surveillance

6.1: Clinical follow-up and surveillance

Description	Follow-up is carried out by a healthcare professional experienced in melanoma diagnosis and management. The healthcare professional may be a hospital specialist, GP, nurse practitioner, clinical nurse specialist or a combination working in conjunction with the patient and their family/whānau.
Rationale	The purpose of follow-up is to: • detect recurrence early • detect new primary melanoma • provide ongoing patient education regarding self-examination and safe sun exposure • provide psychosocial support • detect lymphoedema Historically, recommendations for follow-up schedules were based on expert opinion (Francken et al 2005, 2008; Nieweg and Kroon 2006; Dicker et al 1999; Speijers et al 2010; Francken and Hoekstra 2009; Marsden et al 2010; Swetter et al 2019; Turner et al 2011). The only RCT directly comparing follow-up frequency, MELFO (Netherlands), demonstrated that a reduced, stage-adjusted schedule was as safe as conventional schedules for Stage IB–IIC melanoma at one and three years, with lower patient stress and healthcare use (Damude et al 2016, Deckers et al 2020). MELFO-UK prospectively validated the reduced schedule in UK routine care, finding no excess adverse outcomes over ~3 years (Moncrieff et al 2020). Since 2019, patient preference studies and systematic reviews have reinforced the safety and acceptability of alternative follow-up modalities. In particular, the MEL-SELF randomized clinical trial demonstrated that app-supported self-examination with teledermoscopy is safe, feasible, and acceptable, and enabled earlier detection of new melanomas compared to clinician-led follow-up (Ackermann et al 2022, Drabarek et al 2022). Furthermore, a recent meta-analysis found that reduced-frequency follow-up in early-stage melanoma is non-inferior to conventional schedules, and speculates that teleconsultations may help meet patients' needs while reducing clinic burden (Richter et al 2023). Contemporary guidance now supports individualised, stage- and risk-based schedules, often incorporating technology-enabled surveillance. Overall studies in Stages I–III disease show 80% of recurrences occur within the first 3 years. The risk for recurrence for all stages after 10 years decreases to approximately 1% (Cancer Council Australia Melanoma Guidelines Working Party 2019). However, for Stage I melanoma, almost 25% of melanoma-related deaths occur after 10 years. Those with melanoma 0.9–1.0mm thick being at significantly greater risk than those with melanoma 0.8 mm or thinner (Lo et al 2018).

Rationale (continued)	Patients with a history of melanoma (including melanoma in situ) have an increased risk of developing subsequent primary melanoma (Kang et al 1992, Johnson et al 1998, Goggins et al 2003, Schoellhammer et al 2009, Youlden et al 2014, Pomerantz et al 2015, Cust et al 2020). The risk varies significantly between patients (Müller et al 2019, Pastor-Tomás al 2020) and the risk factors may be different to first primary melanoma risk factors (Müller et al 2019, Cust et al 2020). There is little benefit in long-term extension of follow-up beyond 10 years except for patients with additional risk factors and these patients should be provided access to long-term dermatological exams and encouraged to perform 3-monthly regular self-examination.).
Good practice points	6.1.1 Clinical surveillance consists of a review of systems for signs or symptoms of disease recurrence, physical examination of the excision scar and surrounding skin, regional and distant lymph node examination, and head-to-toe dermatoscopic examination. 6.1.2 Follow-up visits should involve a thorough history focusing on symptoms that can indicate recurrent disease. For example: new skin lesions, palpable tumours in lymph node fields and unexplained systemic complaints such as fatigue, shortness of breath, headache or gastrointestinal symptoms. 6.1.3 Follow-up visits should include examination of the primary melanoma site and a physical examination for lymphadenopathy. Particular attention should be given to the in-transit pathway, that is, the skin between the site of the melanoma and the draining lymph node field(s) as well as a thorough full body skin examination for new primary lesions while reinforcing patient self-examination techniques. 6.1.4 Establish a monitoring process for patients at risk of lymphoedema development: • Closely monitor any symptoms, especially during first year after surgery (Hyngstrom et al 2013). • It is recommended to use the bioimpedance method to identify subclinical lymphoedema (Hidding et al 2016; Ridner et al 2019). The device measures electrical impedance and uses prediction equations to estimate body composition. • Raise awareness among patients and educate regarding any symptoms during follow up. • Ensure access to early interventions if symptoms are detected or there is 5% to 10% increase in limb volume (Rockson et al 2019) 6.1.5 Recommended follow-up protocols assessing for new melanomas, disease recurrence or metastatic spread are as follows: • Stage 0 melanoma in situ; assess annually over the long-term by a clinician experienced in dermoscopy. • Stage IA melanoma should be assessed annually for at least 10 years. • Stage IB, IIA melanoma should be assessed 6 monthly for 2 years and then annually until the 10th anniversary. • Stage IB and above melanoma with no SNB should receive 6 monthly US of draining node fields for 2 years. • Stage IIB-IIC, IIIA-D melanoma should be assessed 4 monthly for 2 years, 6 monthly in the third year and annually thereafter until the 10th anniversary. • Stage IV melanoma should be assessed as for Stage III, with additional visits as per clinical requirements.

Good practice points (continued)	6.1.6	Follow-up frequency and duration may vary depending on the patient's needs and risk assessment. It may be appropriate to follow-up Stage I melanoma beyond 10 years because of the late mortality in this group (Lo et al 2018) and higher risk patients (including patients with a previous diagnosis of melanoma in situ or past history of non-melanoma skin cancer), including those over 65 years of age, high risk sites (acral, scalp and neck) and nodular subtype (Green et al 2012).
	6.1.7	Any person diagnosed with melanoma in situ should be offered annual complete dermatoscopic skin checks for at least 10 years for early identification and treatment of new suspicious skin lesions. Lifelong annual surveillance is recommended for patients with multiple melanomas, atypical mole syndrome, multiple naevi (especially >100 naevi) or atypical naevi (Gandini et al 2005), for whom digital dermatoscopic surveillance is also recommended. Lifelong annual skin checks are also recommended for patients over 65 years, Fitzpatrick skin type I or II, significant actinic keratosis, or a history of epithelial cancers such as BCCs or SCCs (Müller et al 2019). Risk for subsequent melanomas can be calculated through the **Melanoma Institute of Australia Subsequent Primary Melanoma Risk Calculator** (Melanoma Institute Australia 2021).
	6.1.8	A written follow-up plan should be made with the patient and given to the patient and their GP. A lead clinician should be nominated and made known to the patient and GP. Ideally, this would change from a hospital-based clinician to a primary healthcare clinician once hospital-level care has been completed (Nashan et al 2004, Murchie et al 2010, Francken et al 2010).
	6.1.9	The lead clinician should be responsible for maintaining and actioning the patient's melanoma follow-up, investigation requests and results. Recalling and corresponding with the patient may be delegated to other healthcare providers.
	6.1.10	Follow-up should provide patients with clinically appropriate reassurance and psychosocial support. Many patients experience anxiety before and during their follow-up visits. Some patients may require additional follow-up visits for reassurance (Rychetnik et al 2013).

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6.2: Patient self-examination

Description	Patient self-examination is taught as an integral part of melanoma follow-up.
Rationale	Patient education in self-skin examination (SSE) is a cornerstone of melanoma follow-up. Evidence indicates that trained patients can detect new primary or recurrent melanomas earlier than routine scheduled visits alone. The MEL-SELF pilot randomized controlled trial demonstrated that patient-led surveillance, including structured SSE and use of teledermatology, resulted in earlier detection of 8% of new melanomas ahead of scheduled clinic visits, compared with none in clinician-led surveillance alone. This complements earlier data showing high rates of self-detection in both Australia and internationally, with estimates ranging from 62–75% (Ruark et al 1993; Francken et al 2005, 2007; Jillella et al 1995), and supports SSE as an essential part of follow-up planning.
Good practice points	6.2.1 **Education and training:** Patients should be provided with written information and in-person instruction on how to systematically self-examine their skin and regional lymph nodes. The ABCDEFG rule or the SCAN rule (**https://www.scanyourskin.org/**)is recommended for identifying suspicious lesions. Education should include instruction on lesion photography and when to seek professional review. 6.2.2 **Digital and teledermatology support:** Patients using smartphone dermatoscopes as part of SSE should be encouraged to use validated applications. 6.2.3 Patient adoption of smartphone applications to communicate suspicious lesions to the lead carer is encouraged. Studies, including MEL-SELF have confirmed that patients are accepting of and capable of taking high-quality images at home to facilitate teledermatology (Janda et al 2019; Manahan et al 2015; Wu et al 2015; Horsham et al 2016). 6.2.4 **Integration into follow-up schedules:** Patient-led surveillance should complement, not replace, clinician-led follow-up. Regular SSE and timely reporting of suspicious lesions may reduce the need for routine in-person visits while ensuring early detection of new or recurrent melanoma. Structured training and ongoing support are key to optimizing adherence and accuracy.

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6.3: Follow-up cross-sectional imaging

Description	Follow-up cross-sectional imaging (CT or PET-CT) can be divided into surveillance as monitoring and restaging during treatment or to reassess if new symptoms develop. It should be determined by stage, symptoms and clinical findings and suitability for therapy. Asymptomatic metastases may be appropriate for immunotherapy with curative intent, surgery or radiotherapy. If patient co-morbidities deem patients unfit for any further treatment, do not perform routine surveillance.
Rationale	These recommendations are made accepting that individual centre's resources and protocols may differ but should be considered as best practice. See **Appendix 6** for example follow-up schedule. **Body imaging** The optimal cross-sectional imaging (PET-CT or CT) surveillance regime for high-risk melanoma remains controversial, and there is currently no international consensus. Even in high-risk melanoma patients, there are no high-quality data to indicate improved survival outcomes following routine follow-up cross-sectional imaging (Dieng et al 2022). However it is generally agreed that in the rapidly changing landscape of therapeutic options, early detection may allow for improved outcomes (Yan et al 2022). It is generally agreed that PET-CT has superior diagnostic accuracy over conventional CT (Xing et al 2011). In those clinical settings where CT findings are equivocal or there are clinical findings highly suspicious for recurrence, PET-CT results may alter the treatment course, particularly when surgery is being considered (Schüle et al 2016). There are, however, no prospective data that directly compare the two modalities with regard to the magnitude of differences in survival outcomes. For patients with T4 tumours, staging with PET-CT is controversial, due to low yield and high false-positive rate (as discussed in **Clinical Guideline 3.6**). There are, however, significant relapse rates, particularly in patients with stage IIC disease. In a retrospective study of pathologic Stage II patients by Lee et al (2017), 46% of Stage IIC patients relapsed, and of those, 52% of first relapses were systemic. Imaging detected relapse in 31% of these patients. Stage IIC patients notably relapsed earlier with a higher proportion of systemic metastases (especially in lung and brain) when compared to other Stage II subgroups. Bleischer et al 2020 retrospective cohort study of Stage II melanoma patients reported that 27% of patients recurred and 27% of those recurrences were detected by surveillance imaging. Of those who recurred with Stage IIC melanoma, imaging detected recurrence in 44%. The National Institute for Health and Care (NICE) guidelines (July 2022) suggest considering staging and surveillance CT imaging for Stage IIB disease and offering staging and surveillance imaging for Stage IIC disease.

Rationale (continued)	From the limited data available, staging cross-sectional imaging in patients with a positive SLN (Stage IIIA with low nodal tumour volume) appears to be of little benefit, with low yield and high rates of false-positive tests (Holtkamp et al 2017; Lewin et al 2018; Scheier et al 2015). This can lead to further unnecessary investigations, some of which may be invasive or morbid. However, the rate of recurrence in this group is not insignificant. Although a high percentage of first relapses are loco-regional and often detected by the patient or clinician, a less intensive PET-CT surveillance regime in this group has been shown to detect asymptomatic recurrence or progression with 70% sensitivity and 87% specificity (Lewin et al 2018). The approach to cross-sectional imaging surveillance of patients with higher Stage III and Stage IV disease varies widely. For example, the National Comprehensive Cancer Network (NCCN) in the United States suggests follow-up PET-CT or CT every 3–12 months for 2 years, then 6-12 months for another 3yrs to screen for recurrence or metastatic disease (NCCN 2025). Regarding salvage curative surgery, radiotherapy or emerging systemic therapies, there is some evidence that treatments are more effective in the setting of low tumour volume, making early detection of recurrence or distant metastatic disease relevant (Ibrahim et al 2020, Freeman et al 2019; Joseph et al 2018, Leon-Ferre et al 2017). In conjunction with intensive clinical follow-up, the addition of routine cross-sectional imaging does allow earlier detection of recurrent disease (Park et al 2017, Lim et al 2018), but the impact on overall survival is still unclear (Podlipnik et al 2016). Cross-sectional imaging follow-up should be guided by the probability of recurrence at any stage. For patients with asymptomatic Stage IIIB, C, D or Stage IV disease, more frequent cross-sectional imaging, for example, 3–6 monthly in the first 3 years, should be considered, when the rates of recurrence are highest. Particularly in Stage III disease, a sub-stage approach to follow-up regimens may be beneficial (Melanoma Focus 2023, Lewin et al 2018). Recently, it has been reported that CT and PET-CT have reasonable sensitivity and specificity for detection of recurrence over long follow-up periods (Turner et al. 2021). Surveillance CT has also been shown to be cost-effective (Podlipnik et al 2019) With emerging systemic therapies, routine follow-up cross-sectional imaging also provides assessment of therapeutic response. In particular, the apparently high negative predictive value of PET-CT seems to be reasonably consistent and notably reassuring (Leon-Ferre et al 2017). In Stage IIC, Stage IIIB, C, D and Stage IV disease, more frequent surveillance imaging (for example, 3, 4 or 6 monthly in the first 3 years) is recommended with the aim of detecting relapse at an earlier time point (Lim et al 2018, Garbe et al 2024). This acknowledges that although the actual benefit of earlier imaging detection on survival outcomes is not yet known, there are now more treatment options available. For younger patients, it is important to consider minimising ionizing radiation dose. This can be achieved by limiting the scan range, using lower dose CT techniques or MRI instead where possible. For example, low-dose chest CT with MRI abdomen/pelvis +/- brain MRI. Dose reduction techniques can be employed in PET-CT scanning by reducing the radiopharmaceutical dose and using non diagnostic quality low dose CT (Kaste 2011). For pregnant patients, risks to the fetus from CT and MRI vary at different stages of the pregnancy. In lower-risk pregnant patients, surveillance may be delayed to the postpartum period. For both these groups, the imaging strategy should be considered specifically for each patient and may need consultation with a radiologist (Melanoma Focus 2023).

Brain imaging

It is widely accepted that MRI is superior to CT for the detection of cerebral metastases.

The AJCC recognises that patients with central nervous system metastases have the worst prognosis of all melanoma patients with distant metastatic disease (M1d category) (Amin et al 2017).

The incidence of developing brain metastases increases with TNM stage. For Stage III patients, macroscopic nodal and in-transit disease has been associated with an increased risk of brain metastases (Samlowski et al 2017). There has also been an association between primary tumour ulceration and development of brain metastasis (Zakrzewski et al 2011) and increased mitotic rate (Haydu et al 2020).

As with relapse at other sites, development of brain metastases generally occurs in the first 3 years (Samlowski et al 2017; Fife et al 2004).

Previously, the poor prognosis of those with brain metastases may have precluded routine surveillance for those at risk. However, with the recent advances in surgery, stereotactic radiotherapy and systemic therapy, there are improved treatment outcomes (particularly in the setting of smaller tumour volume and asymptomatic lesions).

This would suggest that earlier detection increases the treatment options available to patients, although there is little evidence as yet to directly confirm this (Eggen et al 2021).

Given the prognostic implications and treatment options available in low-volume metastatic brain disease, regular surveillance brain imaging is recommended for patients with Stage IIC, Stage IIIB, C, D and Stage IV disease in the first 3 years with less frequent surveillance following this. Contrast-enhanced brain MRI is preferred over contrast-enhanced CT due to improved diagnostic accuracy (particularly if there is previous documented metastatic brain disease).

Good practice points

6.3.1 **Stage I and II (A and B)**

For patients with Stage I or II (A and B) disease, routine surveillance imaging is not recommended if the patient is asymptomatic, unless SNB is omitted. See **Clinical Guideline 6.4**.

6.3.2 **Stage IIC, III and IV**

In asymptomatic patients, routine follow-up with contrast-enhanced CT of the chest, abdomen and pelvis (± neck) can be considered at 3- to 12-monthly intervals in the first 3–5 years as stratified by clinical stage and time from diagnosis.

Surveillance high-resolution brain imaging (brain MRI or contrast-enhanced CT head) should be considered in high-risk patients at 3- to 12-monthly intervals in the first 3–5 years as stratified by clinical stage and time from diagnosis.

The following is recommended as a guide to follow-up imaging - see **Appendix 6** for a tabulated example follow up schedule.

- Stage IIC: CT chest, abdomen and pelvis ± neck and brain MRI or CT head 6 monthly for 3 years. Consider annual surveillance imaging in years 3–5 following diagnosis.
- Stage IIIA: CT chest, abdomen and pelvis (± neck) at 6 months and then at 12 months. Annually after that until the third anniversary.
- Stage IIIB, C, D and Stage IV: CT chest, abdomen and pelvis ± neck and brain MRI or CT head 3–6 monthly for 3 years. Annual follow-up imaging in years 3–5 following diagnosis.

Good practice points (continued)	6.3.3	If a patient develops suspicious clinical or equivocal radiological findings, biopsy-proven local recurrence or distant metastatic disease, PET-CT is recommended if the patient is a candidate for further surgical management, radiotherapy or systemic therapy. When CT has shown widespread metastatic disease and PET-CT will not change the planned management, the latter can be omitted.
	6.3.4	For patients with Stage III and Stage IV disease on active treatment (systemic therapy or radiotherapy), the follow-up imaging schedule will be determined by the oncology team, likely based on symptoms or for response assessment. The above schedule, however, may be a useful guide to the desirable minimum frequency of imaging.
	6.3.5	In younger or pregnant patients, attempts should be made to minimise exposure to ionizing radiation which may include low dose CT techniques or MRI instead. An appropriate imaging strategy should be individualised for these patients, and may require consultation with a radiologist
	6.3.6	If patient factors orcomorbidities deem patients unfit for further treatment, do not perform routine follow-up imaging.

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6.4: Ultrasound imaging of draining node basins

Description	US imaging of the draining node basin(s) can be considered in a select group of patients, in conjunction with routine clinical follow-up and cross-sectional imaging as per TNM stage.
Rationale	These recommendations are made accepting that individual centre's resources and protocols may differ but should be considered as best practice. US of the draining regional lymph node basins may provide a useful adjunct to clinical examination, particularly when clinical examination is limited (such as in obese patients), when SNB has failed or not performed when indicated, or as surveillance of SNB-positive node basins when completion lymphadenectomy is not performed. Following the results of the MSLT-II trial, nodal surveillance with US is likely to increase (Faries et al 2017). There is evidence that US can detect lymph node metastasis with a reasonable degree of accuracy, with literature to support increased sensitivity of US compared with clinical examination (Bafounta et al 2004; Machet et al 2005, Sibone et al 2007; Pilko et al 2012; Rossi et al 2003). The success of sonographic nodal assessment relies on the resolution of the device and the expertise of the sonographer, requiring a high level of technical skill and knowledge.
Good practice points	6.4.1 US imaging of the node basin(s) should be performed in a select group of patients, in conjunction with routine clinical examination and appropriate cross-sectional imaging surveillance based on TNM stage: • patients with Stage IB, Stage IIA, B or C where SNB is not performed when clinically indicated • patients with SNB-positive Stage III disease where completion lymphadenectomy is not performed • patients in whom SNB failed • considered for patients where clinical examination is difficult (for example, obesity). See **Appendix 6** for example follow up schedule. 6.4.2 Recommended frequency of US imaging is 4–6 monthly for 2 years. For those patients undergoing US surveillance who have not had SNB, baseline US is also advised. 6.4.3 There may be more than one draining node basin. For primary tumours in the head and neck, bilateral neck US is advised. In the torso this would be bilateral axilla, neck, inguinal and iliac basins so cross sectional imaging may be more practical with CT neck, chest, abdomen, pelvis down to the upper thigh. 6.4.4 Equivocal sonographic findings may need short-interval follow-up US or FNA biopsy.

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CLINICAL GUIDELINE 7: Supportive care

7.1: Supportive care

Description	Patients with melanoma and their families/whānau have equitable and coordinated access to appropriate medical, allied health and supportive care services, in accordance with *Guidance for Improving Supportive Care for Adults with Cancer in New Zealand* (Ministry of Health 2010) and informed by Te Aho o Te Kahu – Cancer Control Agency's Cancer Action Plan 2023 – 2025.
Rationale	The psychological, social, physical and spiritual needs of cancer patients are many and varied. These needs can to a large extent be met by allied healthcare teams in hospitals and in the community. Adults with cancer enjoy improved quality of life following needs assessment and provision of supportive care. Trauma can affect how patients engage and interact with health systems and practitioners, It is therefore important to create a physically and psychologically safe environment, building trust with patients, offering choice and control, and recognising the signs and effects of trauma to prevent re-traumatisation. Non-government organisations, including the Cancer Society and Melanoma New Zealand, perform an important role in providing supportive care. Supportive care should be grounded in principles of equity, person-centred care and cultural safety, particularly for Māori and Pacific peoples who experience worse outcomes.
Good practice points	7.1.1 Patients have their supportive care and psychosocial needs assessed using validated tools (such as the 'Distress Thermometer', Patient Health Questionnaire (PHQ-9), Kessler Psychological Distress Scale (K-10), Generalised Anxiety Disorder (GAD-7), or a cancer-related distress self-assessment tool) and documented at each stage of their cancer journey with access to services appropriate to their needs. Screening should be accompanied by clinical judgement, cultural safety principles and (where relevant) whānau engagement. 7.1.2 Information in a language and format appropriate to the patient is offered to each new patient with cancer, and meets the guidelines set out in *Rauemi Atawhai: A guide to developing health education resources in New Zealand* (Ministry of Health 2012). This also aligns with the principles outlined in Whakamaua: Māori Health Action Plan 2020–2025 and Te Whatu Ora's updated health literacy guidance. 7.1.3 Patients have access to mental health services appropriate to their needs. Those experiencing significant distress or disturbance are referred to appropriate specialist health practitioners. Use of culturally safe services and integration with primary mental health and wellbeing support is encouraged. 7.1.4 Māori patients and their family/whānau are offered access to Whānau Ora assessments and cultural support services. This includes access to Kaupapa Māori providers, Māori cancer navigators or kaiārahi

Good practice points (continued)	7.1.5 Māori patients and those from other cultural groups and their family/whānau are offered access to culturally appropriate cancer support services. This includes support through Pacific health services, ethnic-specific organisations, and cultural navigators where available. Cultural assessments should be embedded early in the care pathway and not treated as add-ons. 7.1.6 Individually tailored written information in a plain language format is offered to each new patient with melanoma, and cover: • general background information about melanoma. • treatment options: specific local arrangements, including information about the MDT and support services, and whom the patient should contact if necessary. • local self-help/support groups and other appropriate organisations. Information should be available in multiple formats, including digital, to suit the patient's preference and level of literacy. 7.1.7 Health professionals ensure that patients understand the information provided or refer them on to suitably qualified service providers or advisors who can interpret information for them. This includes access to interpreter services (in-person, phone or digital) and communication support tools. 7.1.8 Patients are provided with adequate support and information to make decisions about their future healthcare in consultation with healthcare providers and family/whānau. Shared decision-making principles should be followed, and patients should be supported to participate in advanced care planning discussions where appropriate. 7.1.9 Patients are supported through survivorship or the transition to palliative care with access to rehabilitation, psycho-oncology, peer support, return to work guidance, and appropriate long-term surveillance. Survivorship care planning should be integrated early and reflect individual needs, preferences and whānau involvement.

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- Te Aho o Te Kahu. 2023. Cancer Action Plan 2023–2025. Wellington: Ministry of Health. URL: **https://teaho.govt.nz/reports/canceractionplan**

- Te Aho o Te Kahu. 2023. Survivorship Pathway and Resources. URL: **https://teaho.govt.nz**

CLINICAL GUIDELINE 8: Care coordination

8.1: Care coordination

Description	Patients managed by a melanoma MDT have access to a CNS, CNC or other health professional who is a member of the MDM to help coordinate all aspects of their care. Each treatment centre has a melanoma clinical lead to provide necessary leadership, guidance and provision of melanoma care.
Rationale	The cancer journey is complex; it is not uncommon for a patient to be seen by many specialists and across the public and private sectors. 'Care coordination' refers to a system or a role primarily intended to expedite patient access to services and resources, improve communication and the transfer of information between services, address patients' information needs and improve continuity of care throughout the cancer continuum. Key responsibilities of care coordinators include: • early identification and assessment of patients at greatest need of support to enable timely and appropriate care. • care coordination, including managing and aligning appointments and investigations to reduce patient burden and improve access. • provision of clear, culturally appropriate information and holistic nursing care that supports understanding of diagnosis and treatment. • provision of advice and education to other nurses and health professionals. • ensuring best-practice service provision through evidence-informed approaches and ongoing quality improvement. • collaboration with other health professionals to improve patient outcomes and support integrated care pathways. • acting as the central communication link between patients, their whānau and healthcare providers to ensure clear, co-ordinated care. • offering emotional, psychosocial, and survivorship support throughout the patient journey. • facilitating smooth transitions between services (e.g. oncology, palliative care, primary care) to maintain continuity of care. • connecting patients with Māori, Pacific, and other culturally aligned services and supports to ensure equity and cultural safety. • identifying opportunities to streamline processes and address inequities within the cancer care pathway. Given the specialist knowledge required and responsibilities involved, care coordinators should be a health professional with special interest in melanoma.

Good practice points	8.1.1	All patients with melanoma have a nominated single point of contact – ideally a nurse with an in-depth specialist knowledge of melanoma – to support them to access psychosocial support and information, help them self-manage their disease and provide coordination of their cancer journey, e.g., coupling radiology investigations or outpatient visits together.
	8.1.2	Services provide all patients with this person's name and contact details, and the care coordinator makes initial contact with the patient within seven days of the initial diagnosis.
	8.1.3	Culturally responsive models and tools – such as Whānau Ora, Te Whare Tapa Whā, and the Meihana Model – should be used to assess needs, inform care planning, and guide connection with culturally appropriate services.
	8.1.4	Digital solutions (e.g. shared care plans, electronic MDT notes, secure messaging, and documentation of Advance Care Plans) should be used where possible to support real-time communication and continuity of care between the care coordinator, primary care specialists and the patient and their whānau.
	8.1.5	When care transitions to another sector (e.g. oncology, palliative care or primary care), the care coordinator ensures a clear handover to the next key contact. Patients should be informed of their new contact and how to reach them.

References

- Ministry of Health. 2015. Evaluation of the Cancer Nurse Coordinators Initiative. Wellington: Ministry of Health.
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Glossary of terms

Term	Description
AAD	American Academy of Dermatology
ABCDEFG rule	A rule to recognise the early signs of melanoma: **A**symmetry: the spot is not symmetrical like a normal mole or freckle **B**order: the spot has a blurry or jagged edge **C**olour: the spot has more than one colour or changes colour **D**ifferent: the spot is larger than 6 mm diameter or different from the rest of your skin lesions (ugly duckling) **E**levated: the spot is raised with an uneven surface **F**irm: feels firm to touch **G**rowing: over weeks or months
Adjuvant therapy	Additional treatment in the form of radiotherapy or medications
AJCC	American Joint Committee on Cancer
Biopsy	Removal of tissue to be looked at under a microscope to help in the diagnosis of a disease
BRAF	An oncogene that encodes for the production of a protein called BRAF, which is involved in signal transduction and regulation of cell division.
Breslow thickness	The single most important prognostic factor for clinically localised primary melanoma. The deeper the melanoma has grown, the more likely it is that some cells have spread through the blood stream or lymphatic system. Breslow thickness or 'depth' is measured from the top of the granular layer of the epidermis (or, if the surface is ulcerated, from the base of the ulcer) to the deepest invasive cell across the broad base of the tumour (dermal or subcutaneous) as described by pathologist Alexander Breslow.
CAP	College of American Pathologists
CGH	Comparative genomic hybridisation
Chemotherapy	Treatment with cytotoxic drugs
CLND	Complete lymph node dissection
CMN	Congenital melanocytic naevi
CNC	Cancer Nurse Coordinator
CNS	Clinical Nurse Specialist
CT	Computed tomography
Dermoscopy	Examination of skin lesions via an incident light magnification system, using immersion oil on the skin surface or a polarised lens so the epidermis appears translucent. Dermoscopy is often used as an alternative term.
Desmoplastic melanoma	Malignant melanocytic tumour with fibroblastic proliferation appearing as an enlarging scar-like plaque
Diagnosis	The process of identifying a disease, such as a cancer, from its signs and symptoms

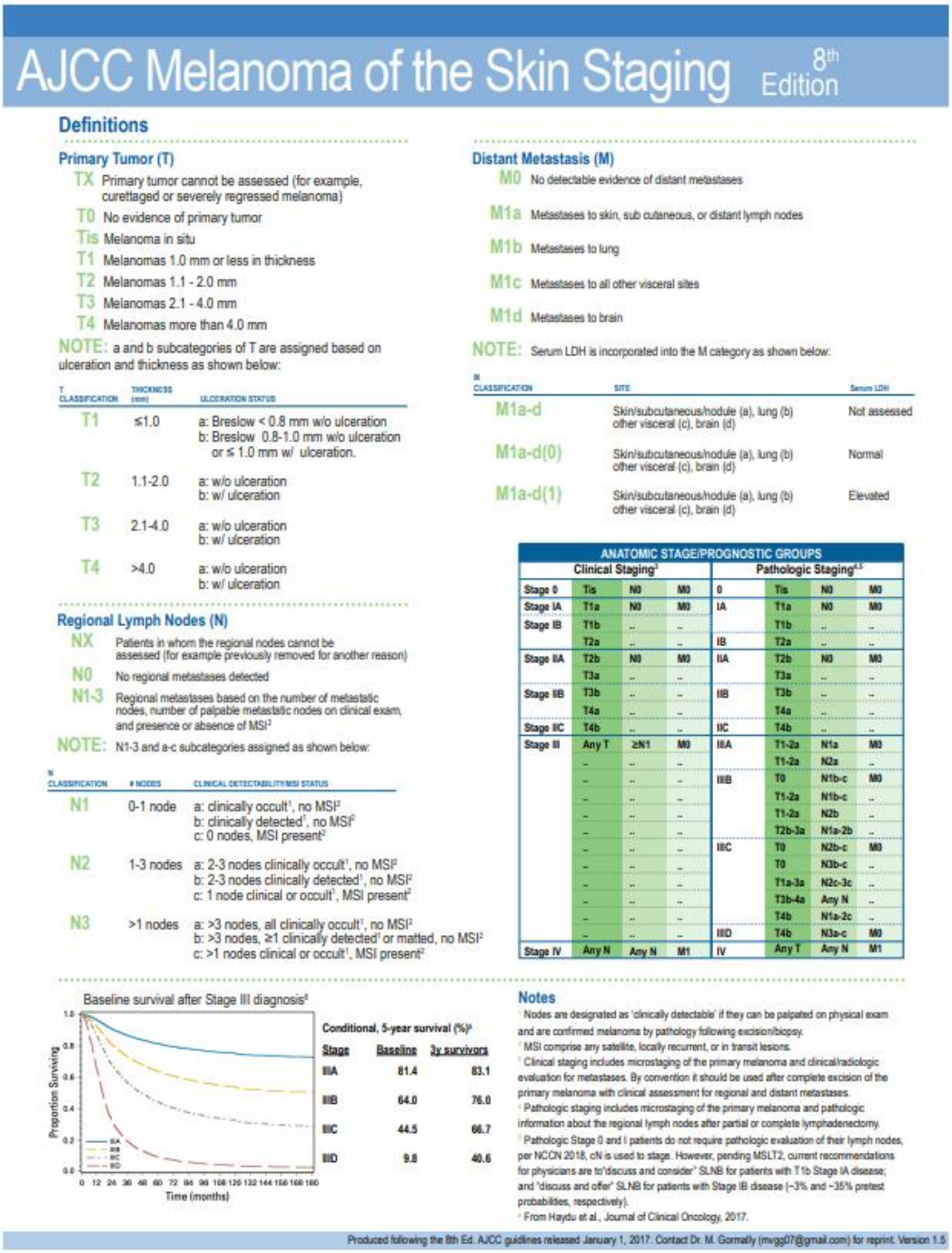
Term	Description
DNA	Deoxyribonucleic acid (the molecule that carries the genetic instructions for the development, functioning, growth and reproduction of all living things) *or* did not attend (an appointment)
Excisional biopsy	A biopsy where the entire piece of affected tissue is removed for pathological examination
FAMM	Familial atypical multiple mole melanoma
FCT	Faster cancer treatment
FISH	Fluorescence in-situ hybridisation, the use of DNA sequences linked to a fluorescent marker, which acts as a probe to bind to specific DNA sequences on intact chromosomes
FNA	Fine-needle aspiration
FSA	First specialist assessment
GEP	Gene expression profile
GP	General practitioner
GPEP	General practice education programme
Healthcare professional	Generic term that includes doctors, nurses and allied health workers.
Histology	The study of the structure, composition and function of tissues and cells under a microscope
Ilioinguinal	Pertaining to the pelvis and groin regions
Incisional biopsy	A biopsy where only part of the affected tissue is removed
Isolated limb infusion	A form of regional chemotherapy for recurrent disease that is confined to a limb
Langer's lines	Any one of a number of linear striations in the skin that delineate the general structural pattern, direction and tension of the subcutaneous fibrous tissue
Lesion	An area of abnormal tissue
Lymph node dissection	Surgical removal of a lymph node(s). Also called lymphadenectomy.
Lymph nodes	Small oval-shaped structures found in clusters throughout the lymphatic system. They form part of the immune system and are also known as lymph glands.
Lymphadenopathy	Disease or swelling of the lymph nodes
Lymphoscintigraphy	A nuclear-medicine-based diagnostic technique using scintillation scanning of technetium-99m antimony trisulphide colloid
MRI	Magnetic resonance imaging. A radiological technique used to form pictures of the anatomy and the physiological processes of the body
MDM	Multidisciplinary meeting. A forum for health professionals with expertise in diagnosing and managing specific cancers to collectively review pertinent clinical information and make timely decisions regarding the recommended optimal treatment and care of individual patients at identified points in their cancer journey.

Term	Description
Melanoma	Any of a group of malignant neoplasms that originate in the skin and are composed of melanocytes (skin cells that are capable of producing melanin)
MELFO	MELanoma FOllow-up study, an international phase 3 randomised trial investigating the effects of a reduced stage-adjusted follow-up schedule for Stage IB-IIC cutaneous melanoma patients
MEK	Mitogen-activated extracellular signal-regulated kinase
Metastases	Also known as 'secondaries'; tumours or masses of cells that develop when cancer cells break away from the original (primary) cancer and are carried by the lymphatic and blood systems to other parts of the body
Metastasis	The spread of cancer from the primary site (place where it started) to other places in the body via the blood stream or the lymphatic system
MIA	Melanoma Institute Australia
Microstaging	A technique used to determine the stage of melanoma and certain squamous cell cancers
MIS	Melanoma in situ
MMS	Mohs micrographic surgery
Naevus/Naevi	A medical term for moles. There are several types of melanocytic naevus, including 'common naevus,' which is harmless, and 'dysplastic naevus' which is a term used by some pathologists to indicate architectural and cytological atypia. Patients with many naevi have an increased risk of melanoma.
NCCN	National Comprehensive Cancer Network, a non-profit alliance of more than 30 leading cancer centres in the United States dedicated to improving cancer care.
NZCR	New Zealand Cancer Registry. A population-based register of all primary malignant diseases diagnosed in New Zealand, excluding squamous and basal cell skin cancers
NRAS	An oncogene that encodes for the production of a protein called N-Ras, which is involved in the regulation of cell division.
PET-CT	Positron emission tomography - computed tomography A specialised imaging technique that demonstrates uptake of 18FDG in areas of high cell metabolism and can help differentiate between benign and malignant masses
PPE	Personal protective equipment, anything that is used or worn by a person (including clothing) to minimise risks to the person's health and safety
Radiotherapy	Treatment using high-energy X-rays to destroy cancer cells
RCPA	The Royal College of Pathologists of Australasia
RCT	Randomised controlled trial
RFS	Recurrence-free survival

Term	Description
SCAN rule	An alternative to the ABCDEFG rule to identify early signs of melanoma: **S**ore **C**hanging **A**bnormal **N**ew
Sequential digital dermoscopy	The capture and assessment of successive macroscopic and dermatoscopic images
Skin lesions	Part of the skin that has abnormal growth or appearance compared with the skin around it
SNB	Sentinel node biopsy: A procedure in which the sentinel lymph node is removed and examined histologically under a microscope to determine whether cancer cells are present
SPECT	Single-proton emission computed tomography (also known as SPET)
SPF	Sun protection factor, a standard used to measure the effectiveness of sunscreens
Stage	A way of describing the size of a cancer and how far it has grown. Staging is important because it helps determine the treatments that are required
Te Aho o Te Kahu, Cancer Control Agency	A government agency created in recognition of the impact cancer has on the lives of New Zealanders. It is charged with leading and uniting efforts to deliver better cancer outcomes for *Aotearoa* New Zealand. Te Aho o Te Kahu is guided by the goals and outcomes in the National Cancer Action Plan 2019-2029.
Te Whatu Ora – Health New Zealand	The organisation responsible for ensuring all publicly funded health and disability services, including hospital and specialist services and primary and community care, are provided to all New Zealanders.
TNM staging	The most widely used cancer staging system and the global standard used to record the anatomical extent of disease. In the TNM system, each cancer is assigned a letter or number to describe the tumour, node and metastases. **T** refers to the size and extent of the original (primary) tumour **N** refers to the number of nearby lymph nodes that have cancer **M** refers to whether the cancer has metastasised (spread from the primary tumour to other parts of the body).
Tumour	An abnormal mass of tissue that results when cells divide more than they should or do not die when they should. Tumours may be benign (not cancer) or malignant (cancer).
UPF	Ultraviolet protection factor, a standard used to measure the effectiveness of sun protective fabrics
US	Ultrasound
UVI	UV Index. The measure of the intensity of UVR
UVR	Ultraviolet radiation

Appendices

Appendix 1: AJCC Melanoma of the skin staging (8th edition)



AJCC Melanoma of the Skin Staging 8th Edition

Definitions

Primary Tumor (T)

- TX Primary tumor cannot be assessed (for example, curettaged or severely regressed melanoma)
- T0 No evidence of primary tumor
- Tis Melanoma in situ
- T1 Melanomas 1.0 mm or less in thickness
- T2 Melanomas 1.1 - 2.0 mm
- T3 Melanomas 2.1 - 4.0 mm
- T4 Melanomas more than 4.0 mm

NOTE: a and b subcategories of T are assigned based on ulceration and thickness as shown below:

T CLASSIFICATION	THICKNESS (mm)	ULCERATION STATUS
T1	≤1.0	a: Breslow < 0.8 mm w/o ulceration b: Breslow 0.8-1.0 mm w/o ulceration or ≤ 1.0 mm w/ ulceration.
T2	1.1-2.0	a: w/o ulceration b: w/ ulceration
T3	2.1-4.0	a: w/o ulceration b: w/ ulceration
T4	>4.0	a: w/o ulceration b: w/ ulceration

Regional Lymph Nodes (N)

- NX Patients in whom the regional nodes cannot be assessed (for example previously removed for another reason)
- N0 No regional metastases detected
- N1-3 Regional metastases based on the number of metastatic nodes, number of palpable metastatic nodes on clinical exam, and presence or absence of MSI[3]

NOTE: N1-3 and a-c subcategories assigned as shown below:

N CLASSIFICATION	# NODES	CLINICAL DETECTABILITY/MSI STATUS
N1	0-1 node	a: clinically occult[1], no MSI[2] b: clinically detected[1], no MSI[2] c: 0 nodes, MSI present[2]
N2	1-3 nodes	a: 2-3 nodes clinically occult[1], no MSI[2] b: 2-3 nodes clinically detected[1], no MSI[2] c: 1 node clinical or occult[1], MSI present[2]
N3	>1 nodes	a: >3 nodes, all clinically occult[1], no MSI[2] b: >3 nodes, ≥1 clinically detected[1] or matted, no MSI[2] c: >1 nodes clinical or occult[1], MSI present[2]

Distant Metastasis (M)

- M0 No detectable evidence of distant metastases
- M1a Metastases to skin, sub cutaneous, or distant lymph nodes
- M1b Metastases to lung
- M1c Metastases to all other visceral sites
- M1d Metastases to brain

NOTE: Serum LDH is incorporated into the M category as shown below:

M CLASSIFICATION	SITE	Serum LDH
M1a-d	Skin/subcutaneous/nodule (a), lung (b) other visceral (c), brain (d)	Not assessed
M1a-d(0)	Skin/subcutaneous/nodule (a), lung (b) other visceral (c), brain (d)	Normal
M1a-d(1)	Skin/subcutaneous/nodule (a), lung (b) other visceral (c), brain (d)	Elevated

ANATOMIC STAGE/PROGNOSTIC GROUPS

	Clinical Staging[3]			Pathologic Staging[4,5]			
Stage 0	Tis	N0	M0	0	Tis	N0	M0
Stage IA	T1a	N0	M0	IA	T1a	N0	M0
Stage IB	T1b	..	..		T1b	..	..
	T2a	..	..	IB	T2a	..	..
Stage IIA	T2b	N0	M0	IIA	T2b	N0	M0
	T3a	..	..		T3a	..	..
Stage IIB	T3b	..	..	IIB	T3b	..	..
	T4a	..	..		T4a	..	..
Stage IIC	T4b	..	..	IIC	T4b	..	..
Stage III	Any T	≥N1	M0	IIIA	T1-2a	N1a	M0
	..	..	..		T1-2a	N2a	..
	..	..	..	IIIB	T0	N1b-c	M0
	..	..	..		T1-2a	N1b-c	..
	..	..	..		T1-2a	N2b	..
	..	..	..		T2b-3a	N1a-2b	..
	..	..	..	IIIC	T0	N2b-c	M0
	..	..	..		T0	N3b-c	..
	..	..	..		T1a-3a	N2c-3c	..
	..	..	..		T3b-4a	Any N	..
	..	..	..		T4b	N1a-2c	..
	..	..	..	IIID	T4b	N3a-c	M0
Stage IV	Any N	Any N	M1	IV	Any T	Any N	M1

Baseline survival after Stage III diagnosis[6]

Conditional, 5-year survival (%)[6]

Stage	Baseline	3y survivors
IIIA	81.4	83.1
IIIB	64.0	76.0
IIIC	44.5	66.7
IIID	9.8	40.6

Notes

[1] Nodes are designated as 'clinically detectable' if they can be palpated on physical exam and are confirmed melanoma by pathology following excision/biopsy.

[2] MSI comprise any satellite, locally recurrent, or in transit lesions.

[3] Clinical staging includes microstaging of the primary melanoma and clinical/radiologic evaluation for metastases. By convention it should be used after complete excision of the primary melanoma with clinical assessment for regional and distant metastases.

[4] Pathologic staging includes microstaging of the primary melanoma and pathologic information about the regional lymph nodes after partial or complete lymphadenectomy.

[5] Pathologic Stage 0 and I patients do not require pathologic evaluation of their lymph nodes, per NCCN 2018, cN is used to stage. However, pending MSLT2, current recommendations for physicians are to "discuss and consider" SLNB for patients with T1b Stage IA disease; and "discuss and offer" SLNB for patients with Stage IB disease (~3% and ~35% pretest probabilities, respectively).

[6] From Haydu et al., Journal of Clinical Oncology, 2017.

Produced following the 8th Ed. AJCC guidelines released January 1, 2017. Contact Dr. M. Gormally (mvgg07@gmail.com) for reprint. Version 1.5

Reference

- Gormally M, Medical Oncologist, Memorial Sloan Kettering Cancer Center, New York, United States of America. Melanoma Staging 8th edition Poster. Provided by email 1 August 2023.
- American Joint Committee on Cancer. 2017. *AJCC Cancer Staging Manual 8th edition.* New York, Springer New York.

Appendix 2: Te Whatu Ora Counties Manukau: Skin histology request form

COUNTIES MANUKAU HEALTH

Affix patient identification label here

Surname: _____ Male ☐ Female ☐

First Name: _____ DOB: __/__/____

NHI: _____

SKIN HISTOPATHOLOGY

Sample Date:		Time:		Copies to:	
Taken by:					

CLINICAL INFORMATION: (Diagnosis, clinical course, immunosuppression, etc)

☐ Prior pathology

☐ Biohazard risk (ie: known HIV, Hepatitis etc)

CLINICAL PRIORITY

☐ Malignant melanoma, Merkel cell or other aggressive skin malignancy, biopsy proven or high clinical suspicion

☐ Melanoma in situ, T2 SCC. Tumour greater than 2cm in greatest dimension or tumour any size with 2 or more high risk features

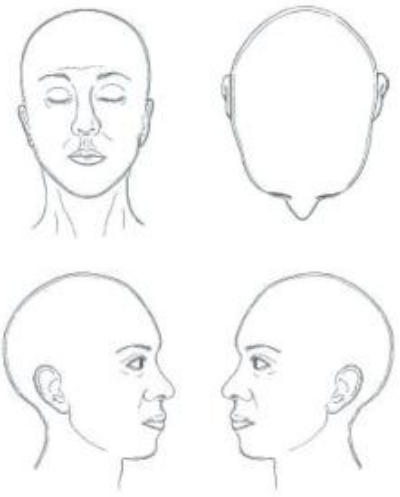
☐ Immunosuppressed patient with invasive SCC

☐ Other SCC / higher risk BCC (e.g. on T-zone on face. ears, recurrent, incomplete excision, infiltrative or morpheic

Excision biopsy for a low-risk malignancy or benign lesion (i.e. not clinically aggressive skin malignancy above, and not high-risk SCC or BCC) is NOT an urgent case

SPECIMENS (site, description, orientation) ***See over page for full body image***

CLINICAL QUESTION



REQUESTING SURGEON - I have reviewed and verified the above information:

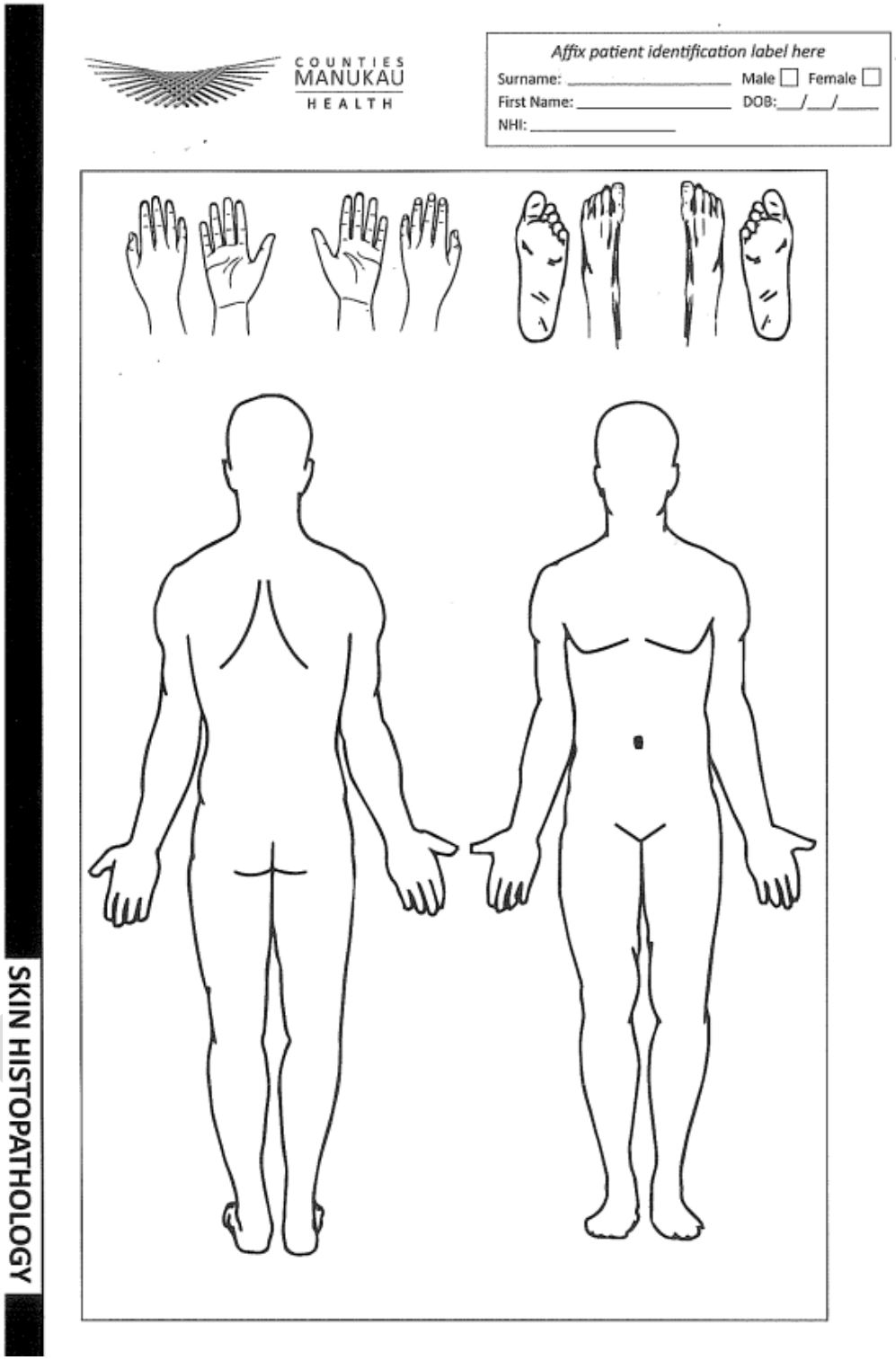
Signature:		Date:	
Print Name:		Contact #:	

ENQUIRIES & TO DISCUSS WITH ON CALL HISTOPATHOLOGIST PH EXT: 8167 / 09 2709707

Counties Manukau District Health Board

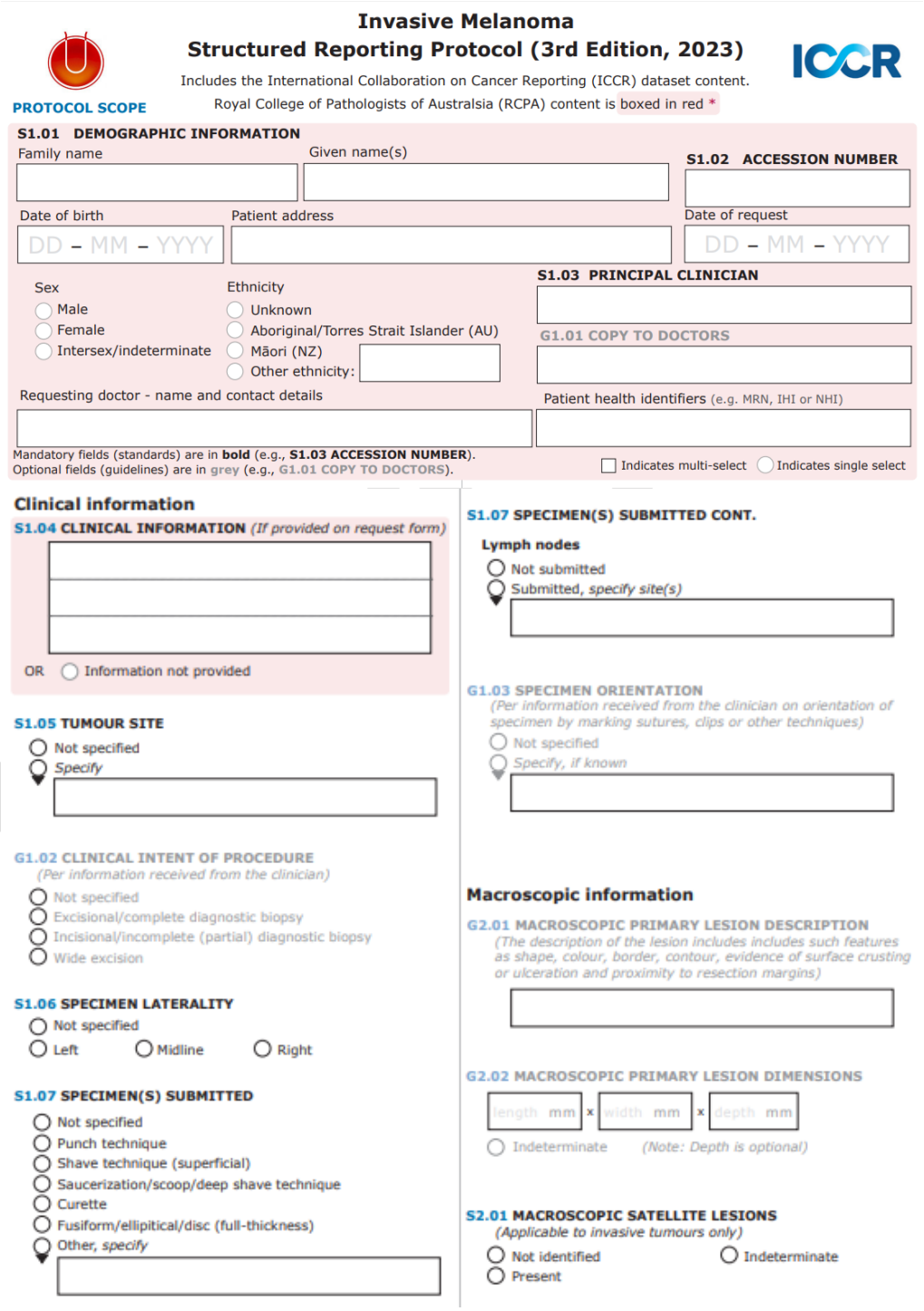
Reorder # PLA5026 Date: May 2018

SKIN HISTOPATHOLOGY



(Courtesy of Counties Manukau District Health Board).

Appendix 3: RCPA Primary cutaneous melanoma structured reporting protocol 3rd edition



Invasive Melanoma
Structured Reporting Protocol (3rd Edition, 2023)

Includes the International Collaboration on Cancer Reporting (ICCR) dataset content.
Royal College of Pathologists of Australasia (RCPA) content is boxed in red *

PROTOCOL SCOPE

S1.01 DEMOGRAPHIC INFORMATION

Family name | Given name(s) | **S1.02 ACCESSION NUMBER**

Date of birth (DD – MM – YYYY) | Patient address | Date of request (DD – MM – YYYY)

Sex: ○ Male ○ Female ○ Intersex/indeterminate

Ethnicity: ○ Unknown ○ Aboriginal/Torres Strait Islander (AU) ○ Māori (NZ) ○ Other ethnicity:

S1.03 PRINCIPAL CLINICIAN

G1.01 COPY TO DOCTORS

Requesting doctor - name and contact details

Patient health identifiers (e.g. MRN, IHI or NHI)

Mandatory fields (standards) are in **bold** (e.g., **S1.03 ACCESSION NUMBER**).
Optional fields (guidelines) are in grey (e.g., G1.01 COPY TO DOCTORS).

☐ Indicates multi-select ○ Indicates single select

Clinical information

S1.04 CLINICAL INFORMATION *(If provided on request form)*

OR ○ Information not provided

S1.05 TUMOUR SITE
○ Not specified
○ *Specify*

G1.02 CLINICAL INTENT OF PROCEDURE
(Per information received from the clinician)
○ Not specified
○ Excisional/complete diagnostic biopsy
○ Incisional/incomplete (partial) diagnostic biopsy
○ Wide excision

S1.06 SPECIMEN LATERALITY
○ Not specified
○ Left ○ Midline ○ Right

S1.07 SPECIMEN(S) SUBMITTED
○ Not specified
○ Punch technique
○ Shave technique (superficial)
○ Saucerization/scoop/deep shave technique
○ Curette
○ Fusiform/elliptical/disc (full-thickness)
○ Other, *specify*

S1.07 SPECIMEN(S) SUBMITTED CONT.

Lymph nodes
○ Not submitted
○ Submitted, *specify site(s)*

G1.03 SPECIMEN ORIENTATION
(Per information received from the clinician on orientation of specimen by marking sutures, clips or other techniques)
○ Not specified
○ *Specify, if known*

Macroscopic information

G2.01 MACROSCOPIC PRIMARY LESION DESCRIPTION
(The description of the lesion includes includes such features as shape, colour, border, contour, evidence of surface crusting or ulceration and proximity to resection margins)

G2.02 MACROSCOPIC PRIMARY LESION DIMENSIONS
length mm x width mm x depth mm
○ Indeterminate *(Note: Depth is optional)*

S2.01 MACROSCOPIC SATELLITE LESIONS
(Applicable to invasive tumours only)
○ Not identified ○ Indeterminate
○ Present

G2.03 OTHER LESION(S)

- ○ Not identified
- ○ Present
  - Macroscopic description of other lesion(s)

G2.04 NATURE AND SITE OF ALL BLOCKS

G2.05 OTHER MACROSCOPIC COMMENTS

Microscopic information

G3.01 MELANOMA SUBTYPE (select all that apply)
(Value list modified from the World Health Organization Classification of Skin Tumours (2023))

- ☐ Low-CSD melanoma (superficial spreading melanoma)
- ☐ Lentigo maligna melanoma (high-CSD melanoma)
- ☐ Desmoplastic melanoma
- ☐ Malignant Spitz tumour (Spitz melanoma)
- ☐ Acral melanoma
- ☐ Mucosal melanomas (genital, oral, sinonasal)
- ☐ Melanoma arising in blue naevus
- ☐ Melanoma arising in giant congenital naevus
- ☐ Nodular melanoma
- ☐ Naevoid melanoma
- ☐ Melanoma, not otherwise classified
- ☐ Other, *specify*

S3.01 SURGICAL MARGIN/TISSUE EDGES

- ○ Cannot be assessed
- ○ Not involved by melanoma in situ or invasive melanoma
  - Distance of melanoma in situ or invasive tumour from closest margin: ○ ≤1 mm ○ >1 mm
  - *Specify closest location(s), if possible*
- ○ Involved by melanoma in situ
  - *Specify location(s), if possible*
- ○ Involved by invasive melanoma
  - *Specify location(s), if possible*

S3.02 BRESLOW THICKNESS
(Measurement should be to the nearest 0.1 mm as per AJCC staging)

Specify / At least: ____ mm ○ Indeterminate

S3.03 ULCERATION

- ○ Not identified ○ Indeterminate
- ○ Present
  - **G3.02 EXTENT OF ULCERATION** ____ mm

S3.04 MITOTIC COUNT

____ /mm² ○ Indeterminate

S3.05 MICROSATELLITES

- ○ Not identified ○ Indeterminate
- ○ Present
  - **S3.06 MICROSATELLITES: MARGINS**
    - ○ Cannot be assessed
    - ○ Not involved by microsatellite
    - ○ Involved by microsatellite

S3.07 LYMPHOVASCULAR INVASION

- ○ Not identified ○ Indeterminate
- ○ Present

G3.03 TUMOUR-INFILTRATING LYMPHOCYTES

- ○ Not identified
- ○ Brisk
- ○ Non brisk

G3.04 TUMOUR REGRESSION

- ○ Not identified ○ Indeterminate
- ○ Present
  - **G3.05 TUMOUR REGRESSION: MARGINS**
    - ○ Cannot be assessed
    - ○ Not involved by regression
    - ○ Involved by regression

S3.08 NEUROTROPISM/PERINEURAL INVASION

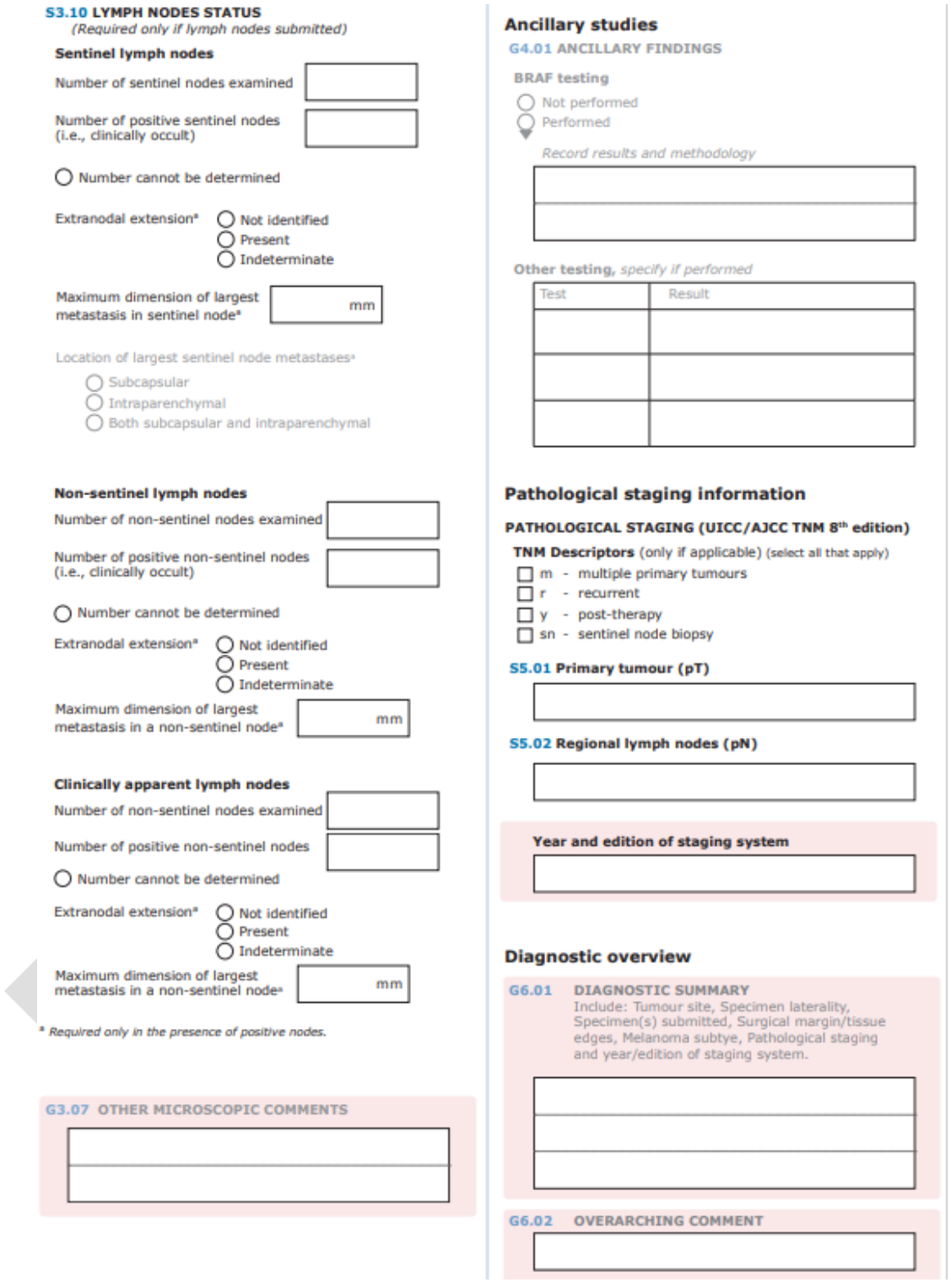
- ○ Not identified ○ Indeterminate
- ○ Present

S3.09 DESMOPLASTIC MELANOMA COMPONENT

- ○ Not identified
- ○ Present
  - ○ Pure (>90% desmoplastic melanoma)
  - ○ Mixed desmoplastic/non-desmoplastic melanoma

G3.06 ASSOCIATED MELANOCYTIC LESION

- ○ Not identified
- ○ Present, *describe*



S3.10 LYMPH NODES STATUS
(Required only if lymph nodes submitted)

Sentinel lymph nodes

Number of sentinel nodes examined

Number of positive sentinel nodes (i.e., clinically occult)

○ Number cannot be determined

Extranodal extension[a] ○ Not identified ○ Present ○ Indeterminate

Maximum dimension of largest metastasis in sentinel node[a] mm

Location of largest sentinel node metastases[a]
○ Subcapsular
○ Intraparenchymal
○ Both subcapsular and intraparenchymal

Non-sentinel lymph nodes

Number of non-sentinel nodes examined

Number of positive non-sentinel nodes (i.e., clinically occult)

○ Number cannot be determined

Extranodal extension[a] ○ Not identified ○ Present ○ Indeterminate

Maximum dimension of largest metastasis in a non-sentinel node[a] mm

Clinically apparent lymph nodes

Number of non-sentinel nodes examined

Number of positive non-sentinel nodes

○ Number cannot be determined

Extranodal extension[a] ○ Not identified ○ Present ○ Indeterminate

Maximum dimension of largest metastasis in a non-sentinel node[a] mm

[a] *Required only in the presence of positive nodes.*

G3.07 OTHER MICROSCOPIC COMMENTS

Ancillary studies

G4.01 ANCILLARY FINDINGS

BRAF testing

○ Not performed
○ Performed

Record results and methodology

Other testing, *specify if performed*

Test	Result

Pathological staging information

PATHOLOGICAL STAGING (UICC/AJCC TNM 8th edition)

TNM Descriptors (only if applicable) (select all that apply)

☐ m - multiple primary tumours
☐ r - recurrent
☐ y - post-therapy
☐ sn - sentinel node biopsy

S5.01 Primary tumour (pT)

S5.02 Regional lymph nodes (pN)

Year and edition of staging system

Diagnostic overview

G6.01 DIAGNOSTIC SUMMARY
Include: Tumour site, Specimen laterality, Specimen(s) submitted, Surgical margin/tissue edges, Melanoma subtye, Pathological staging and year/edition of staging system.

G6.02 OVERARCHING COMMENT

Note: The above protocol is the most recent version available as of the time of publication. The most up to date version of the reporting protocol should always be used.

Available from: https://www.rcpa.edu.au/Library/Practising-Pathology/Structured-Pathology-Reporting-of-Cancer/Cancer-Protocols

Appendix 4: Melanoma Institute Australia: sentinel node biopsy reporting template

No. of sentinel lymph nodes received: _
No. of nodes containing metastatic melanoma: _

For each involved lymph node:
Site: _
No. of tumour foci: _
Intranodal compartment(s) involved by tumour: Subcapsular_parenchymal (or both)
Size of largest discrete deposit: _mm
Maximum tumour penetrative depth: _mm
Cross-sectional area of SN involved by tumour: _%
Perinodal lymphatic invasion: Present_Absent
Extranodal spread: Present_Absent
Nodal nevus cells: Present_Absent
Ancillary tests: Immunohistochemistry (BRAF VE1) (_positive/negative/equivocal) _Molecular testing (pending)/ _Insufficient material for testing.

(Courtesy of Professor Richard Scolyer, Dr Louise Jackett and Dr Robert Rawson)

Appendix 5: Example table for melanoma staging

Stage	Investigation when clinically appropriate
Melanoma In Situ	N/A
IA	
IB, IIA	Sentinel node biopsy considered
IIB	CT head, chest, abdomen, pelvis Sentinel node biopsy if above negative
IIC	PET-CT MRI brain Sentinel node biopsy if above negative
IIIA	If adjuvant therapy or completion lymphadenectomy is planned baseline PET-CT
IIIB, IIIC, IIID	PET- CT MRI brain
IV	CT chest, abdomen, pelvis +/- Neck PET-CT if CT scan is indeterminate or if only resectable disease found on CT and the patient is suitable for treatment MRI brain if CT head not already performed

The MIA sentinel node risk calculator should be used to guide selection for sentinel node biopsy in patients with Stage IB disease and above. If <5%, SNB is not recommended. When 5-10% risk, SNB should be considered. At a risk of >10% SNB is recommended.

Appendix 6: Example melanoma follow-up schedule

Stage	Clinical Follow Up	Radiology
Melanoma In Situ IA	12-monthly GP review for ten years	N/A
IB, IIA (-ve SNB)	Initial postoperative review SOPC 6-monthly GP review first two years 12-monthly GP review until year ten	
IB , IIA (no SNB)	6-monthly SOPC review first two years 12-monthly GP review until year ten	**If no SNB and clinically appropriate** USS nodal basin 6-monthly for two years (CT instead if on torso)
IIB (negative or no SNB)	4-monthly review first two years (SOPC/GP) 6-monthly review third year (SOPC/GP) 12-monthly GP review until year ten	**If no SNB and clinically appropriate** USS nodal basin 6-monthly for two years (CT instead if on torso)
IIIA (+ve SNB)	4-monthly review first two years (SOPC/GP) 6-monthly review third year (SOPC/GP) 12-monthly GP review until year ten	**No completion dissection:** Alternate USS nodal basin with CT chest, abdomen, pelvis 6-monthly for three years **Completion node dissection:** CT chest, abdomen, pelvis 6-monthly for one year then annually to three years
IIC IIIB, C, D IV resected	4-monthly review first two years (SOPC/GP) 6-monthly review third year (SOPC/GP) 12-monthly GP review until year ten	CT chest, abdomen, pelvis and brain MRI at three months then 6 monthly for three years then annual for year four and five
IV un-resected	Tailored as indicated by treatment, symptoms or MDT	
Guide	SOPC = Surgical Out-Patient Clinic (Hospital) GP = General Practitioner (Family Doctor)	

Follow up should include:

- Examination of the primary site and nodal basins along with the lymphatic route
- Annual whole body skin surveillance
- Order appropriate next investigations if still clinically appropriate
- Give sun protection advice, consider Vitamin D supplementation

Appendix 7: National Melanoma Working Group members

The National Melanoma Cancer Working Group (4th edition) comprised:

Chair

Dr Susan Seifried, General Surgeon, Te Whatu Ora Nelson Marlborough

Members

Abbie Cameron, Registered Nurse, Melanoma New Zealand

Dr AJ Seine, Dermatologist and Mohs Surgeon, Skin Centre Tauranga

Dr Alistair Brown, Dermatologist and Mohs Surgeon, Skin Centre Tauranga

Dr Annie Wong, Medical Oncologist, Te Whatu Ora Capital, Coast and Hutt Valley

Dr Bronwen McNoe, Senior Research Fellow Preventative and Social Medicine, University of Otago

Dr Catherine Bennett, Medical Oncologist, Te Whatu Ora Auckland

Dr Chris Boberg, General Practitioner, Skin Check

Dr Danielle Vignati, Dermatopathologist, Middlemore Hospital

Dr Dirk Venter, General Practitioner, Venter Medical Ltd

Dr Jeat Lee, Radiation Oncologist, Kathleen Kilgour Centre

Dr Victoria Francis, Radiologist, Te Whatu Ora Waitematā

Mr Dan Butler, Plastic, Reconstructive and Cosmetic Surgeon, Te Whatu Ora Bay of Plenty

Katrina Patterson, Chief Executive Officer, Melanoma Network of New Zealand (MelNet)

Appendix 8: Summary of changes

This section describes the clinical changes made in this edition and the previous one. Minor corrections and editorial changes have not been identified.

	2023, Third Edition	
Clinical Guideline 1.1: Prevention and early detection of melanoma	• Inclusion of statement that information on referral pathways be made available (Description) • Terminology of 'thicker' changed to 'higher stage' (Rationale) • Reference to months of the year when UVR protection should be used removed (GPP 1.1.1) • Sunscreen SPF rating changed from "at least 30 to 50" to "ideally SPF 50" • Additional reference: Boniol (2012)	
Clinical Guideline 1.3: People at increased risk of melanoma		
Clinical Guideline 3.1: Patient access to trained healthcare professionals		

Clinical Guideline 3.2: Excision of melanocytic lesions		
Clinical Guideline 3.4: Time to diagnosis	• Chapter title changed to "Time to *pathological* diagnosis" (Title)	
Clinical Guideline 3.6: Radiological staging	• Description and good practice points significantly reworked to merge recommendations from description into good practice points • Level of risk added as a dependency for radiological staging (Description) • Addition of statements addressing oligometastasis, asymptomatic metastases and patient factors/co-morbidities (Description). • Inclusion of statement about usefulness of PET-CT in establishing a baseline for future surveillance (Rationale) • Inclusion of information on NICE guidelines (2022) use of CT imaging for staging of IIB and IIC disease (Rationale) • Reference to MIA Stage II prediction tool added (GPP 3.6.3) • Additional references: Ravichandran (2020), NICE Guidelines (updated to 2022), Melanoma Institute of Australia (2024)	

Clinical Guideline 4.1: Multidisciplinary meetings	• Assessment of patient appropriateness for clinical trials included in details recorded at MDM (GPP 4.1.3) • Additional references: Te Aho o Te Kahu (2021), Ministry of Health (2012)	
Clinical Guideline 5.1: Re-excision of histologically confirmed melanomas	• Addition of statement on pathological excision margins and the need for further re-excision if WLE has residual melanoma (Rationale) • Addition of statement on excision of amelanotic and desmoplastic melanoma (Rationale) • Inclusion of information on Moncrieff trial (Rationale) • Additional reference: Moncrieff (2018)	
Clinical Guideline 5.3: Sentinel node biopsy technique	• Updated reference: NICE guidelines	
Clinical Guideline 5.4: Therapeutic/completion lymphadenectomy	• Reference to NZ retrospective studies and future research on surveillance for high risk groups (Rationale) • Addition of statement that patients with positive sentinel nodes be discussed at MDM and the patient made aware of the pros and cons of management approaches (Rationale) • Addition of statement on importance of radiological surveillance in observation (Rationale) • Additional references: Williams (2021, 2023), NICE guidelines (updated)	

Clinical Guideline 5.6: Adjuvant therapy	• Chapter title changed to "Adjuvant *and neoadjuvant* therapy" (Title) • Inclusion of neo-adjuvant therapy in description (Description) • Neoadjuvant therapy trial data updated (SWOG 1801) (Rationale) • Additional references: Patel (2023)	
Clinical Guideline 5.7: Patients with loco-regionally recurrent, locally advanced and Stage IV melanoma	• Use of intralesional and topical treatments amended to be as a second-line treatment option only (GPP 5.6.1)	
Clinical Guideline 6.1: Clinical follow-up and surveillance		
Clinical Guideline 6.3: Follow-up cross-sectional imaging	• Addition of statements addressing oligometastasis, asymptomatic metastases and patient factors/co-morbidities (Description). • Description and good practice points significantly reworked to merge recommendations from description into good practice points • Data from Bleischer et al 2020 and reference to NICE guidelines added (Rationale) • Research on effectiveness of surveillance CT and PET-CT added (Turner, Podlipnik) (Rationale) • Statement on use of imaging in younger and pregnant patients added (Rationale) • Inclusion of good practice point on use of imaging in younger or pregnant patients (GPP 6.3.4)	

	Additional references: Bleicher (2020), Ibrahim (2020), Joseph (2018), Kaste (2011), Park (2017), Melanoma Focus (2023), Lewin (2018), Lim (2018), Turner (2021), Nice Guidelines (updated), NCCN (updated to 2023)	
Clinical Guideline 6.4: Ultrasound imaging of draining node basins	• Terminology of 'fields' changed to 'basins'	
Clinical Guideline 7.1: Supportive care	• Additional references: Cancer Society (2018)	
Clinical Guideline 8.1: Care coordination	• Example of how care could be coordinated provided (GPP 8.1.1)	
Appendices	• Link to RCPA reporting form updated (Appendix 3) • Appendix 3 (RCPA Structured Reporting Protocol) updated to 3rd edition	

Appendix 9: Background to the Aotearoa New Zealand Melanoma Clinical Guidelines

A range of tumour standards were developed by health sector working groups and patient representatives led by the four regional cancer networks that were set up to facilitate the implementation of the New Zealand Cancer Control Action Plan 2005–2010.[1] The first were the 2011 service provision standards for lung cancer patients.[2] These were followed in 2013 by provisional tumour standards for breast, bowel, head and neck, lymphoma, melanoma, myeloma, gynaecological, sarcoma, thyroid and upper gastrointestinal cancers.

In early 2019, the National Melanoma Working Group (NMWG) was convened to update the *Standards of Service Provision for Melanoma Patients in New Zealand – Provisional.* The NMWG reviewed the melanoma-specific sections of the provisional melanoma standards and updated these based on current evidence and best practice or, where evidence has not been available, through expert opinion, which was arrived at by consensus. The final document was released on the MelNet website in November 2021 and formally launched at the New Zealand Melanoma Summit in February 2022.

The NMWG reconvened in July 2022 and July 2023 with the purpose of reviewing the document to ensure the clinical guidelines continued to reflect latest research and best practice. This resulted in the publication of the second edition in September 2022 and third edition in September 2023. Feedback received during the review processes was considered by the NMWG, of which most has been incorporated. Significant changes to clinical material are included as **Appendix 8**.

This body of work wouldn't have been possible without the hard work and robust discussion of the working group members. Thanks must also go to Professor John Thompson, Emeritus Professor of Melanoma and Surgical Oncology, The University of Sydney, for his invaluable peer review of the initial document and XXX for his review of the most recent update in 2025, along with the numerous individuals and groups whose positive feedback has helped shape this document.

1 Cancer Control Taskforce. 2005. *The New Zealand Cancer Control Strategy: Action Plan 2005–2010.* Wellington: Ministry of Health.

2 National Lung Cancer Working Group. 2011. *Standards of Service Provision for Lung Cancer Patients in New Zealand.* Wellington: Ministry of Health.