MelNet

Quality Statements to Guide Melanoma Diagnosis and Treatment in New Zealand

2021

MelNet

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Foreword and acknowledgements

New Zealand has the highest incidence of melanoma in the world, and it is hoped that the quality statements provided in this resource, which is aimed at clinicians but also a valuable resource for melanoma patients and their families/whānau, will inform efforts to reduce that incidence and improve outcomes for all melanoma patients.

The resource contains statements that reflect current best practice. They are aimed at improving health care services and activities that relate to melanoma care specifically. The statements have evolved from the *Standards of Service Provision for Melanoma Patients in New Zealand Provisional*, developed by the National Melanoma Tumour Standards Working Group for the Ministry of Health in 2013.

These quality statements were developed over a number of months in a collaborative effort by the Melanoma Network of New Zealand MelNet ,[1] the National Melanoma Working Group NMWG, see **Appendix 1** and feedback was received by key stakeholders and experts See **Appendix 4** .

These quality statements are part of an online resource that will be updated regularly as new evidence emerges. While the quality statements are largely evidence-based, in some instances, where there was a lack of evidence, their development was informed by expert opinion, which was arrived at by consensus.

The intention is that, in time, the statements will be used to inform the work of Te Aho o Te Kahu, the Cancer Control Agency Te Aho o Te Kahu [2] to develop melanoma quality performance indicators QPIs . Te Aho o Te Kahu develops QPIs in consultation with experts and key stakeholders. The QPIs use national-level data to report on district health board DHB performance and are an important part of the national cancer quality improvement programme.

I would like to thank Professor John Thompson, Emeritus Professor of Melanoma and Surgical Oncology, The University of Sydney, for his invaluable peer review and my colleague Dr Daniel Wen for his contribution to finalising the document. I also wish to acknowledge all the positive feedback received from individuals and groups that improved and enhanced the final document

Finally, I would like to thank my fellow working group members for all the hard work and robust discussion that went into creating this body of work. I look forward to the next steps in improving the management of melanoma in New Zealand.

Ngā mihi

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[1] For more information about MelNet, see their website at: **www.melnet.org.nz/resources**

[2] For more information about Te Aho o Te Kahu, see their website at: **https://teaho.govt.nz**

Chair of the National Melanoma Working Group

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Purpose

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

The National Melanoma Working Group NMWG and the Melanoma Network of New Zealand MelNet , in partnership with sector experts and key stakeholders, have developed the quality statements contained in this resource to guide work aimed at ensuring national consistency in the access and delivery of quality melanoma care. These statements aim to guide and inform government health organisations, clinicians and melanoma patients and their family/whānau in providing the best-quality care for melanoma in New Zealand.

The quality statements largely comprise evidence-based statements that describe good-quality care. Where there was a lack of evidence, the statements' development were informed by expert opinion, which was arrived at by consensus. The statements are intended to function as the evidence base for quality-improvement activities.

They have evolved from the *Standards of Service Provision for Melanoma Patients in New Zealand Provisional* that were developed by the National Melanoma Tumour Standards Working Group and published by the Ministry of Health in 2013.

For more information, please go to: **http://www.melnet.org.nz/resources**.

Background

A range of tumour standards have been 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.[3] The first were the 2011 service provision standards for lung cancer patients.[4] 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.[5]

In early 2019, the National Melanoma Working Group NMWG was convened to update the melanoma quality statements. The NMWG has 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 quality statements in this resource focus specifically on melanoma cancer. Standards for supportive care sit across all types of cancer and are being developed alongside this work. Each statement follows the format outlined below.

Component	Description
Description	A concise statement that provides guidance on important elements of high-quality health care for the specific topic.
Rationale	An evidence-based description of why the quality statement is important, including any appropriate additional context.
Good practice points	Practice points supported either 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 international/national evidence for the quality statement, rationale and good practice points.

[3] Cancer Control Taskforce. 2005. *The New Zealand Cancer Control Strategy: Action Plan 2005 2010.* Wellington: Ministry of Health.

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

[5] See the Ministry of Health webpage National Tumour Standards at: **www.health.govt.nz/our-work/diseases-and-conditions/cancer/previous-cancer-initiatives/national-tumour-standards**

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/months
Adjuvant therapy	Additional treatment in the form of radiotherapy or anti-PD1 or BRAF/MEK 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 B-Raf, 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/subcutaneous as described by pathologist Alexander Breslow.
CAP	College of American Pathologists
CGH	Comparative genomic hybridisation
Chemotherapy	Treatment with cytotoxic drugs
CMN	Congenital melanocytic naevi
CT	Computed tomography
Dermatoscopy	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
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
District health board DHB	The organisation responsible for ensuring publicly funded health and disability services are provided to people living in a particular geographical area relating to that DHB

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
FAMMM	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
Health care professional	Generic term that includes GPs, nurse specialists, nurse practitioners, dermoscopists, dermatologists and surgeons
Histology	The study of the structure, composition and function of tissues and cells under a microscope
Ilioinguinal	Pertaining to the hip and groin regions
Incisional biopsy	A biopsy where only part of the affected tissue is removed
Isolated limb infusion ILI	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
Magnetic resonance imaging MRI	A radiological technique used to form pictures of the anatomy and the physiological processes of the body
MDM	Multidisciplinary meeting
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

Term	Description
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
Naevus/Naevi	A medical term for moles. There are several types, including 'common,' which is harmless, and 'dysplastic,' which is atypical and may increase the 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.
New Zealand Cancer Registry NZCR	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.
Positron emission tomography/ computed tomography PET-CT	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
SCAN rule	An alternative to the ABCDEFG rule to identify early signs of melanoma: **S**ore **C**hanging **A**bnormal **N**ew
Sentinel node biopsy SNB	A procedure in which the sentinel lymph node is removed and examined histologically under a microscope to determine whether cancer cells are present

Term	Description
Sequential digital dermatoscopic imaging	The capture and assessment of successive dermatoscopic images
Skin lesions	Part of the skin that has abnormal growth or appearance compared with the skin around it
SLNB	Sentinel lymph node biopsy
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
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
UV index	The measure of the intensity of UVR
UVR	Ultraviolet radiation

The quality statements

The quality statements described in this resource are listed below, with a hyperlink to the full description for each statement.

ID	Quality statement title	Description
1.1	Prevention and early detection of melanoma	Prevention and early detection of melanoma is a key priority in reducing the incidence of melanoma and improving 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 rising incidence of melanoma. • people are offered information on risk factors and the early detection of melanoma • priority is given to early detection of melanoma
1.2	Training of primary health care professionals	Primary health care 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 FSA 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 FNA biopsy of suspected tumour occurs within 14 days of the request being received. 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	Quality statement title	Description
3.1	Patient access to trained health care professionals	Patients have access to: • health care professional trained in early detection and diagnosis of melanoma, including the use of dermatoscopy • health care professional trained in surgical skills required to undertake excision and direct closure of in-situ or thin melanoma • health care 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 or nurse who specialises in cancer care to coordinate all aspects of their care. This health professional should be a member of the MDM.
3.2	Excision of melanocytic lesions	The preferred biopsy technique for excision of melanocytic lesions suspected of being melanoma is a narrow complete excision biopsy, with 2mm 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.
3.4	Time to 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 and/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.

ID	Quality statement title	Description
3.6	Radiological staging	Radiological staging is dependent on melanoma TNM status and intended treatment. **Stages 0 (MIS), I and II** For patients with stage 0 MIS , I or II disease, excluding SNB where indicated , baseline cross-sectional imaging is not routinely recommended in asymptomatic patients. In patients with high-risk stage II B, C disease, baseline imaging investigation may be appropriate and should be discussed at a melanoma MDM. **Stage III** For patients with stage III A disease, baseline staging cross-sectional imaging is not routinely recommended in asymptomatic patients unless completion lymphadenectomy is planned. For patients with stage III B, C and D disease, baseline imaging with PET-CT and dedicated imaging of the brain is recommended. MRI brain is preferred over contrast-enhanced CT. **Stage IV** PET-CT is recommended if the result will change management that is, if the patient is a candidate for surgical management, radiotherapy or systemic therapy following review at a melanoma MDM . Otherwise, 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.
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. The outcome of the MDM is documented and communicated to the treating clinician, GP and patient.
5.1	Re-excision of histopathologically confirmed melanomas	Histologically confirmed melanomas are re-excised, with additional clinical margins determined by Breslow thickness. Lesions meeting histological staging AJCC T1b or higher are referred to an appropriately trained and experienced surgical specialist for consideration of SNB staging at the time of the re-excision.

ID	Quality statement title	Description
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 offered to patients with T1b or thicker melanoma who could benefit from the procedure and is performed by surgeons trained and experienced in the technique. 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/Completion lymphadenectomy	An oncological therapeutic lymphadenectomy is offered to all patients with macroscopic nodal disease or a completion lymphadenectomy for SNB-positive patients with 5 mm of disease after appropriate staging and discussion at a melanoma MDM.
5.5	Adjuvant therapy	All patients with resected stage III/IV melanoma or stage II B or C melanoma are: • discussed at a melanoma MDM • considered for adjuvant radiotherapy and/or adjuvant systemic treatment or enrolment in clinical trials.
5.6	Patients with loco-regionally recurrent, locally advanced and stage IV melanoma	Patients with loco-regionally recurrent, locally advanced or stage IV melanoma are seen or discussed by melanoma specialists experienced in the care of melanoma patients and part of a melanoma MDM.
6.1	Clinical follow-up and surveillance	Follow-up is carried out by a health care professional experienced in melanoma diagnosis and management. The health care professional may be a specialist, GP, nurse practitioner or a combination working in conjunction with the patient and their family/whānau.
6.2	Patient self-examination	Patient self-examination is taught and is an integral part of melanoma follow-up.

ID	Quality statement title	Description
6.3	Follow-up cross-sectional imaging	Follow-up cross-sectional imaging CT or PET-CT is determined by stage, symptoms/clinical findings and suitability for therapy. **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. **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. If there are equivocal findings on routine CT surveillance, PET-CT should be considered if it would influence a treatment change. If there is biopsy-proven local nodal, satellite or in transit recurrence or oligometastatic disease, PET-CT should be considered if the patient is a candidate for surgery, radiotherapy or systemic therapy. The PET-CT imaging request should be discussed at the MDM. Surveillance high-resolution brain imaging brain MRI or contrast-enhanced CT head should be considered in high-risk patients stage IIC, III B, C or D or IV at 3- to 12-monthly intervals in the first 3–5 years as stratified by clinical stage and time from diagnosis.
6.4	Ultrasound imaging of draining nodal basins	US imaging of the draining nodal field s can be considered in a select group of patients, in conjunction with routine clinical follow-up ± cross-sectional imaging as per TNM stage.
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 .
8.1	Care coordination	Patients managed by a melanoma MDT have access to a clinical nurse specialist 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.

Quality statements 1: Prevention and early detection

Quality statement 1.1: Prevention and early detection of melanoma

Description	Prevention and early detection of melanoma is a key priority in reducing the incidence of melanoma and improving 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 rising incidence of melanoma. • people are offered information on risk factors and the early detection of melanoma • priority is given to early detection of melanoma.
Rationale	There is consistent evidence that the best avenues for reducing the burden of melanoma are prevention and early diagnosis Whiteman 2017 . The causal association of cutaneous melanoma and non-melanoma skin cancer and solar exposure is established. Although there is no scientifically validated safe threshold level of UVR exposure that allows for maximal vitamin D synthesis without increasing skin cancer risk, it is established that the brief exposures required for vitamin D synthesis are unlikely to increase the risk Ministry of Health 2012 . 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 non-melanoma skin cancers. The risk increases with greater use and an earlier age at first use. Additionally, there is a need for raised awareness among Māori and other ethnic minorities as well as health practitioners to aid early detection and improve overall outcomes. The evidence shows that while melanoma is uncommon in Māori, they are more likely to be diagnosed with thicker melanoma with poorer survival than non-Māori Sneyd et al 2009, Hore et al 2010, Sneyd et al 2011 . Melanoma detected early at the in-situ pre-invasive stage and managed with a re-excised 5–10 mm margin Kunishige et al 2012 . 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 of melanoma 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 HPA and Melanoma Network of New Zealand 2017 .

Rationale (continued)	Early detection with full-body skin checks, utilising dermatoscopy and digital dermatoscopy is best practice. Clinicians who are performing skin examinations for the purpose of detecting skin cancer should be trained in and use dermatoscopy Cancer Council Australia Melanoma Guidelines Working Party 2019 .
Good practice points	1.1.1 People are advised as follows: • exposure to UVR 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 Ministry of Health 2012 . • 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 NMWG supports the position taken by the Cancer Society of NZ, Cancer Council Australia and the Australian College of Dermatologists that commercial artificial tanning devices should be banned. • when the UV index is forecast to reach three or above or when people are outside for extended periods from September through to the beginning of April, UVR protection should be adopted by: – slipping on a shirt with long sleeves and a collar – slipping into the shade – slopping on sunscreen that is at least 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 HPA and Melanoma Network of New Zealand 2017 . 1.1.2 Prevention strategies include: • schools and other education settings having and using sun protection and policies and sun smart accreditation programmes • comprehensive workplace programmes and policies, 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, PPE and skin checks. • shade structures factored into planning of public areas such as sports facilities, recreation spaces and private areas, • sunscreens being included as a therapeutic product to ensure quality standards of being fit for purpose Standards Australia/Standards New Zealand 2604:2021

Good practice points (continued)	• 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 HPA and Melanoma Network of New Zealand 2017 . 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 • get someone else to check areas that are difficult to see, such as their back • seek advice from a primary health care 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 Sneyd and Cox 2011 . 1.1.5 Information developed for or provided to patients and their families/whānau aligns with core messages in the *New Zealand Skin Cancer Primary Prevention and Early Detection Strategy 2017 to 2022* HPA and Melanoma Network of New Zealand 2017 .

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Quality statement 1.2: Training of primary health care professionals

Description	Primary health care professionals are trained to recognise skin lesions suspicious for melanoma.
Rationale	Primary health care 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 melanoma. The use of dermatoscopy 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 . Therefore, an introduction to learning the fundamental skills of dermatoscopy should be included in the General Practice Registrar GPEP training programme. Novel artificial or augmented intelligence tools based on convolutional neural networks 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 health care professionals are knowledgeable about the most precise methods to estimate a patient's risk of melanoma, and about subtypes of melanoma. 1.2.2 All primary health care professionals are alert for skin lesions with malignant features in the context of physical examinations performed for other reasons. 1.2.3 All primary health care professionals involved in early detection of melanoma should be trained in the use of the dermatoscope and regularly undertake refresher training Harkemanne et al 2021 . 1.2.4 As part of diagnosing a skin lesion, clinicians arrange to carry out a full skin check by themselves or another healthcare professional Aitken et al 2009 . 1.2.5 Teledermatology and e-referral systems should be implemented to allow accurate triage and therefore expedite management of atypical pigmented lesions. 1.2.6 Validated artificial intelligence tools are used alongside expert dermatoscopic analysis to enhance current clinical best 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 health care professional Melanoma Taskforce 2012 . 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 Johansson et al 2019 .

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Quality statement 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, FAMM syndrome, previous non-melanoma skin cancer and immunosuppression for example, in organ transplant recipients HPA and Melanoma Network of New Zealand 2017 . Large CMN >20 cm in diameter have an increased risk of developing melanoma and neurocutaneous melanocytosis Hale et al 2005; Krengel et al 2006 .
Good practice points	1.3.1 Health care 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. An alternative validated New Zealand based calculator is available using a *bestpractice* account login and password required at **http://www.melnet.org.nz/uploads/Bestpractice_Melanoma-RPT.pdf** Sneyd et al 2014 . 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 and/or multiple atypical naevi are examined carefully and: • are placed under the long-term care of a health care professional who is competent in skin surveillance using dermatoscopy and digital dermatoscopy monitoring • are considered for referral to regional clinical genetics services for further assessment, genetic counselling and discussion about genetic testing rarely indicated particularly those with multiple atypical naevi, are considered for baseline total body photography and high-quality sequential digital dermatoscopy imaging at 6- to 12-month intervals to detect new and changing lesions Salerni et al 2012 .

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Quality statements 2: Timely Access to Services

Quality statement 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 FSA 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 FNA biopsy of suspected tumour occurs within 14 days of the request being received. 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 standards in this cluster 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 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 standards is to address this issue.

Good practice points	2.1.1	The FCT indicators exclude melanoma in situ.
	2.1.2	Referral is ideally electronic, with high-quality macroscopic and/or dermatoscopic images of the lesion, including a ruler, attached. Suspicious lesions can then be triaged directly for diagnostic excision.
	2.1.3	Teledermatoscopy 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 reliable history of change over several months of observation, or observed by digital dermatoscopic surveillance.

Quality statements 3: Investigation, diagnosis and staging

Quality statement 3.1: Patient access to trained health care professionals

Description	Patients have access to: • health care professional trained in early detection and diagnosis of melanoma, including the use of dermatoscopy • health care professional trained in surgical skills required to undertake excision and direct closure of in-situ or thin melanoma • health care 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 or nurse who specialises in cancer care to coordinate all aspects of their care. This health professional should be a member of the MDM.
Rationale	Early detection of melanoma requires differentiating lesions with minor atypical features and/or documented changes from benign lesions. Trained health care professionals can detect thinner that is, more favourable prognosis melanomas than the patient or another layperson might be able to detect. Where health care professionals are trained in the technique, dermatoscopy improves diagnostic accuracy and reduces removal of benign lesions that do not have suspicious features Swetter et al 2019 . 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 health care practices, access to at least one designated primary health care professional trained in the dermatoscopic diagnosis and management of melanoma. Practices with solo practitioners who do not have this training should promptly refer patients to a trained clinician.
	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 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	Health care professionals should not rely solely on the use of automated 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 information specific to the process involved in diagnosis and treatment of melanoma.
	3.1.9	The nurse provides appropriate strategies to help the patient self-manage their disease.
	3.1.10	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.

Reference

- Swetter SM, Tsao H, Bichakjian CK, et al. 2019. Guidelines of care for the management of primary cutaneous melanoma. *Journal of the American Academy of Dermatology* 80 1 : 208–50.

Quality statement 3.2: 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 lesions may miss a small focus of melanoma. • partial biopsies with a punch device are at risk of sampling error. • shave biopsies prevent accurate measurement of a Breslow thickness. This may affect future management decisions regarding width of wide local excisions and suitability for SNB. • wide initial excisions, or complex wound closures should not occur because the use of flaps or significant undermining disrupt the lymphatics thereby reducing the accuracy of SNB and may compromise future reconstruction. • a greater than 2-mm margin on the initial excisional specimen will increase the difficulty of the closure after further wide local excision and may complicate assessment of adequacy of margins as a radial measure from the scar Swetter et al 2019 .
Good practice points	3.2.1 Suspicious lesions should be excised within 2 weeks of being identified. Alternatively, if the patient is referred to a melanoma specialist for excision, this should be actioned as soon as the biopsy result is available. 3.2.2 The 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 clinical/dermatoscopic description of the lesion. Where possible, especially for borderline lesions, clinical and dermatoscopic images, and/or an annotated diagram highlighting specific areas of concern within the lesion, are included. 3.2.3 A synoptic melanoma report such as those developed by the Royal College of Pathologists of Australasia RCPA or the College of American Pathologists CAP is strongly recommended for routine use refer **Appendix 2.2 and 2.3** for the RCPA and CAP form . 3.2.4 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. 3.2.5 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)	3.2.6	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 SLNB.
	3.2.7	Excisional biopsies must be performed considering the need for future wide local excision. These should follow lines of least tension Langer's lines in the standing neutral position.
	3.2.8	The use of skin flaps and grafts to close diagnostic excisional biopsy defects should be avoided.
	3.2.9	Practitioners should record the number needed to excise query melanoma to melanoma ratio severe atypia/MIS/melanoma .
	3.2.10	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.

Reference

- Swetter SM, Tsao H, Bichakjian CK, et al. 2019. Guidelines of care for the management of primary cutaneous melanoma. *Journal of the American Academy of Dermatology* 80 1 : 208–50.

Quality statement 3.3: Histopathological reporting

Description	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.
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. 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 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, at least three levels not simply serial sections of the biopsy tissue are examined. Breslow thickness in lesions in and around the 1-mm mark is critical for T1–T2 staging. Three to six levels are commonly obtained, and multiple are recommended. 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 RCPA or CAP is strongly recommended for routine use to support national consistency and the NZCR database refer **Appendix 2.2 and 2.3** for the RCPA form and CAP 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.

Good practice points (continued)	3.3.7	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 . The criteria for and the utility of prognostic molecular testing, including GEP, in aiding clinical decision-making for example, SLNB eligibility, surveillance intensity and/or therapeutic choice needs to be evaluated in the context of clinical studies or trials. • BRAF 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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- Gershenwald J, Scolyer R, Hess K, et al. 2017. Melanoma staging: evidence-based changes in the American Joint Committee on Cancer eighth edition cancer staging manual. *CA: A Cancer Journal for Clinicians* 67 6 : 472–92.

Quality statement 3.4: Time to 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 and/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

- Royal College of Pathologists of Australasia. 2019. *Turnaround Time in Anatomical Pathology*. URL: **https://www.rcpa.edu.au/Library/College-Policies/Guidelines/Turnaround-Time-in-Anatomical-Pathology#page67** accessed 30 July 2021 .

Quality statement 3.5: Sentinel node biopsy reporting

Description	The current MIA 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 . The protocol used to process and report SNB should achieve the best possible detection rate.
Good practice points	3.5.1 Latest RCPA or CAP guidelines should be followed for processing sentinel lymph nodes. 3.5.2 Reporting of the sentinel node is synoptic/structured to allow key elements to be easily identified for MDM review. The MIA fields are recommended refer **Appendix 2.4** . 3.5.3 A synoptic sentinel node report is strongly recommended for routine use to support national consistency and the NZCR database.

Reference

- Amin MB, Greene FL, Edge SB, et al. 2017. The eighth edition AJCC cancer staging manual: continuing to build a bridge from a population-based to a more 'personalized' approach to cancer staging. *CA: A Cancer Journal for Clinicians* 67 2 : 93–9.

Quality statement 3.6: Radiological staging

Description	Radiological staging is dependent on melanoma TNM status and intended treatment. **Stages 0 (MIS), I and II** For patients with stage 0 MIS , I or II disease, excluding SNB where indicated , baseline cross-sectional imaging is not routinely recommended in asymptomatic patients. In patients with high-risk stage II B, C disease, baseline imaging investigation may be appropriate and should be discussed at a melanoma MDM. **Stage III** For patients with stage III A disease, baseline staging cross-sectional imaging is not routinely recommended in asymptomatic patients unless completion lymphadenectomy is planned. For patients with stage III B, C and D disease, baseline imaging with PET-CT and dedicated imaging of the brain is recommended. MRI brain is preferred over contrast-enhanced CT. **Stage IV** PET-CT is recommended if the result will change management that is, if the patient is a candidate for surgical management, radiotherapy or systemic therapy following review at a melanoma MDM . Otherwise, 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.
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 .

Rationale (continued)	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 . In some high-risk clinical situations, baseline PET-CT may add value with regard to altering the proposed treatment/therapy. US 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. There is evidence that US can detect lymph node metastasis with a reasonable degree of accuracy, with literature supporting increased sensitivity of US compared with clinical examination Bafounta et al 2004; Machet et al 2005 . For patients with 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 and/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 . Therefore, follow-up surveillance imaging should be considered at an appropriate time interval based on risk of recurrence. 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. 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 and/or in-transit disease have been associated with increased risk of brain metastases Samlowski et al 2017 . 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 ideally be completed within 2 weeks of referral. **Body imaging** 3.6.2 In patients with high-risk stage II disease with thick melanomas that is, T4 and stage IIB or C disease , initial staging with PET-CT can be considered following MDM discussion. Especially consider PET-CT staging if SNB failed or was declined National Collaborating Centre for Cancer 2015 . 3.6.3 For patients with positive sentinel lymph nodes where completion lymphadenectomy is planned, baseline PET-CT is recommended. 3.6.4 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** . 3.6.5 Baseline PET-CT is recommended for patients with stage IIIB, C or D disease as potential upstaging may influence treatment/therapy NCCN 2019 . 3.6.6 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 • there are equivocal findings on conventional CT that could potentially change treatment decisions. 3.6.7 A 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 **section 6.4** . **Brain imaging** 3.6.8 Given the prognostic implications and treatment options now available, staging brain imaging is recommended for patients with stage IIIB, C and D and stage IV disease Vosoughi et al 2018 . 3.6.9 Contrast-enhanced brain MRI is preferred over contrast-enhanced CT due to improved diagnostic accuracy. **Note:** 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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Quality statements 4: Multidisciplinary care

Quality statement 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. The outcome of the MDM is documented and communicated to the treating clinician, GP and patient.
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 clinical nurse specialist and/or a cancer nurse coordinator. Other MDT members are encouraged to be involved, including nurse practitioners, dermatologists, GPs, 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 are recorded on a standardised MDM template.
	4.1.4	A dedicated clinical nurse specialist, cancer nurse coordinator or other health professional is appointed to coordinate written and verbal outcomes.
	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 as an electronic record and accessible to other members of a patient's health care team 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 as part of the continuum of standard care Ministry of Health 2010 .

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Quality statements 5: Treatment

Quality statement 5.1: Re-excision of histologically confirmed melanomas

Description	Histologically confirmed melanomas are re-excised, with additional clinical margins determined by Breslow thickness. Lesions with histological staging AJCC T1b or higher are referred to an appropriately trained and experienced surgical specialist for consideration of SNB staging at the time of the re-excision see **Quality Statement 5.3** .
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 RCTs Veronesi et al 1988, 1991; Balch et al 1993; Cohn-Cedermark et al 2000; Khayat et al 2003; Utjés et al 2019 . Generally, these studies have excluded head, neck and acral melanoma. 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 . Excision margins >2 cm for melanoma do not appear to influence survival Utjés et al 2019; Cohn-Cedermark et al 2000 . 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. For subungual melanoma, difficulty in obtaining adequate deep margin 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, 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.

Good practice points

5.1.1 All doctors 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 health care doctor or a melanoma specialist.

5.1.4 Lesions meeting histological staging AJCC T1b or higher are referred to an appropriately trained and experienced surgical specialist for consideration of 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.

5.1.6 Precise measurement of clinical margins is mapped out from the edge of the scar not minus the original biopsy margin with a ruler before the definitive excision.

5.1.7 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.

5.1.8 Patients undergoing surgery are offered the choice for their tissue to be disposed of by standard methods or utilising appropriate tikanga processes.

5.1.9 Patients are informed about melanoma in general and increased risks for new melanoma and advised to undergo regular full-body skin checks.

5.1.10 Appropriate data collection systems are in place to collate, publish and audit data on post-surgery complications.

5.1.11 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

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Quality statement 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. They have lower rates of sentinel node and distant metastasis Dunne et al 2017; Hughes et al 2021 . However, they also have an increased risk of local recurrence 6–15% Chen et al 2008; Guadagnolo et al 2014; Strom et al 2014 . Desmoplastic melanoma most commonly occur in males, older patients, and on the head and neck and 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 desmoplastic melanoma based on their clinical and histopathological risk factors and discussion at a melanoma MDM.

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Quality statement 5.3: Sentinel node biopsy technique

Description	SNB staging is offered to patients with T1b or thicker melanoma who could benefit from the procedure and is performed by surgeons trained and experienced in the technique. 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. There is an expected nodal positivity rate for intermediate thickness melanoma of approximately 20% Morton et al 2014 . SNB allows for accurate staging, prognostic information, improved regional control and potential access to adjuvant treatment Madu et al 2017; Wong et al 2018; Dummer et al 2016 Adjuvant trials – see med onc references – EORTC 18 071, COMBI –AD, EORTC11325/Keynote 054 study Cancer Council Australia Melanoma Guidelines Working Party 2019; Dummer et al 2012; National Collaborating Centre for Cancer 2015; NCCN 2019, 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. However, recent evidence of relapse free survival RFS with adjuvant treatments suggests full staging with SNB will allow informed discussion about adjuvant treatments Eggermont et al 2015, 2018; Long et al 2017; Weber et al 2017; Seth et al 2020 . There is no survival benefit proven for completion lymphadenectomy for micro-metastatic nodal disease, although the largest and most recent 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 .

Good practice points	5.3.1	SNB staging is considered for all patients with melanoma T1b or thicker. SNB should be used for patients with thick melanomas for accurate staging or to facilitate regional control or potential access to adjuvant treatment.
	5.3.2	In order to make an informed choice about SNB, patients are provided with information about the likelihood of the SNB being positive based on the histological features of their melanoma and utilisation of the MIA sentinel node positivity nomogram Melanoma Institute Australia 2021 . Clinicians inform patients of the role of SNB, the technique itself, its limitations, potential complications and alternative management options if it is declined. This discussion is facilitated by both the primary clinician and the surgeon who performs SNB.
	5.3.3	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.
	5.3.4	Lymphoscintigrams are reported by radiologists and nuclear medicine specialists trained and experienced in the technique.
	5.3.5	SNB is performed by surgeons trained and experienced in the technique.
	5.3.6	SNB is performed within 18 hours of lymphoscintigraphy.
	5.3.7	Incisions are marked out with consideration of completion lymphadenectomy access, should this be required.
	5.3.8	All patients with a positive SNB receive MDM discussion regarding the choice of observation versus completion lymphadenectomy or access to adjuvant treatment.
	5.3.9	Where SNB is not performed in patients with T1b or over melanoma, active clinical and radiological surveillance is offered unless comorbidities preclude US 4–6 monthly for 2 years .
	5.3.10	Appropriate data collection systems are in place to collate, report and audit post-surgery complications.

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Quality statement 5.4: Therapeutic/Completion lymphadenectomy

Description	An oncological therapeutic lymphadenectomy is offered to all patients with macroscopic nodal disease or a completion lymphadenectomy for SNB-positive patients with 5 mm of disease after appropriate staging and discussion at a melanoma MDM.
Rationale	Effective management of stage III melanoma results in better regional control, potential survival benefits and recruitment into clinical trials Morton et al 2014 . Therapeutic lymph node dissection is generally accepted and recommended for all patients with clinical or radiologically detectable disease Dummer et al 2012, 2016; National Collaborating Centre for Cancer 2015; NCCN 2019; Cancer Council Australia Melanoma Guidelines Working Party 2019, Smithers et al 2021 . There is a paucity of published prospective evidence comparing survival or morbidity of inguinal versus ilioinguinal node dissection, but in the MSLT II trial, there was no difference in lymphoedema rates between the two procedures Verver et al 2018; Faries et al 2017; Cancer Council Australia Melanoma Guidelines Working Party 2019; Spillane et al 2011, 2013; Kretschmer et al 2001; Kissin 1987; Allan et al 2008; Glover et al 2014; Jonk et al 1988 . A recently improved surgical technique that avoids wounds over the inguinal ligament along with improved monitoring with prophylactic compression hosiery may reduce morbidity. Planned trials in this area are slow to recruit Spillane et al 2013 . Iliac nodes are positive in 30–39% after an ilioinguinal node dissection, decreasing to 9.3% after a positive sentinel node only Verver et al 2018; Allan et al 2008; Spillane et al 2013; Kretschmer et al 2001 . There are reports of positive iliac node disease with negative inguinal nodes, but this is very uncommon. These are thought to be due to lymphatics draining directly to the deeper nodes or micrometastatic disease overlooked in the inguinal node histology Spillane et al 2011, Kissin et al 1987 . PET-CT before groin dissection may highlight positive iliac / obturator node disease but PET-CT is not sensitive <5 mm of disease. 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 .

Good practice points	5.4.1	Unless high-risk features such as extranodal spread, multiple positive nodes or an immune-suppressed patient are present, patients with SNB disease of <5 mm are recommended for observation with node field US every 6 months for the first 3 years by an experienced sonographer.
	5.4.2	Therapeutic node dissection is offered to patients with macroscopic nodal metastases or those who do not wish to or cannot be appropriately followed up with US where clinically indicated.
	5.4.3	All patients who are being considered for a completion lymphadenectomy receive a whole-body PET-CT beforehand.
	5.4.4	Lymphadenectomy is performed by trained and experienced surgeons.
	5.4.5	Operation notes fully describe the anatomical boundaries of the lymphadenectomy and lymph node levels removed.
	5.4.6	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.
	5.4.7	A therapeutic axillary lymphadenectomy includes levels I–III.
	5.4.8	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.
	5.4.9	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.
	5.4.10	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.
	5.4.11	For high-risk nodal disease adjuvant radiation treatment should be considered.
	5.4.12	Patients must have access to a lymphoedema therapist to prescribe and fit compression garments and provide education about pre- and post-operative lymphoedema management.
	5.4.13	Mean nodal harvest numbers for therapeutic node dissection should be as follows: • Neck dissection: 4 levels: 25* 3 levels: 15* • Axillary dissection: 18* • Inguinal node dissection: 7* • Ilioinguinal node dissection: 14* * These numbers are draft / proposed for feedback and will be adjusted as appropriate following the consultation period. We propose further data collection and that these numbers be refined in the future.
	5.4.14	Appropriate data collection systems are in place to collate, report and audit data on post-surgery complications.

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Quality statement 5.5: Adjuvant therapy

Description	All patients with resected stage III/IV melanoma or stage II B or C melanoma are: • discussed at a melanoma MDM • considered for adjuvant radiotherapy and/or adjuvant systemic treatment or enrolment in clinical trials.
Rationale	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; Weber et al 2017; Seth et al 2020 . There is randomised trial evidence that radiation after a lymph node dissection for patients considered at intermediate to high risk of recurrence in the nodal region can decrease the risk of recurrence by approximately 15% but does not improve overall survival Henderson et al 2015 .
Good practice points	5.5.1 Adjuvant systemic therapy is discussed in the following situations: • selected stage II B/C patients • stage III patients except IIIA if microscopic lymph node metastasis is <1 mm offered 12 months of adjuvant checkpoint inhibitor therapy • stage III patients expressing BRAF V600-activating mutation except IIIA if microscopic lymph node metastasis is <1 mm offered 12 months of adjuvant checkpoint inhibitor therapy or BRAF/MEK inhibitor therapy • stage IV patients with resected disease offered 12 months of adjuvant checkpoint inhibitor therapy . 5.5.2 Adjuvant post-operative radiation therapy is discussed in the following situations Henderson et al 2015 : • palpable macroscopic metastatic nodal involvement of one or more parotid nodes, two or more neck or axillary nodes or three or more groin nodes • extranodal spread of tumour A maximum metastatic node diameter of 3 cm in the neck or 4 cm in the axilla or groin.

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Quality statement 5.6: Patients with loco-regionally recurrent, locally advanced and stage IV melanoma

Description	Patients with loco-regionally recurrent, locally advanced or stage IV melanoma are seen or discussed by melanoma specialists experienced in the care of melanoma patients and part of a melanoma MDM.
Rationale	Surgery has been shown to be effective in palliating symptoms and, in carefully selected patients, it may improve overall survival Bello 2019 . Radiation treatment has been shown to be effective in controlling microscopic disease, palliating symptoms and decreasing recurrence of melanoma after surgery Henderson et al 2015 . Stereotactic radiation treatment of melanoma brain metastases gives high rates of local control Nieder et al 2014 . Systemic treatment with immune therapy or BRAF/MEK inhibitors has been shown to improve outcomes in resectable and unresectable stage III and IV disease Seth et al 2020 .
Good practice points	**Surgery** 5.6.1 Where there are multiple dermal recurrences: surgical excision/ablation, intralesional treatments and/or systemic checkpoint inhibitor or targeted therapies are considered. 5.6.2 ILI should be considered in patients who have failed all other treatment options currently provided by Waitematā DHB . 5.6.3 Isolated clinical recurrence in a previously resected node field is considered for resection when possible. If, on staging PET-CT, there is distant disease, checkpoint inhibitor immunotherapy or targeted therapy should be trialled first if clinically appropriate. 5.6.4 For patients with asymptomatic oligometastatic disease, for example, bowel, liver, lung or adrenal, surgical resection or radiation is considered along with adjuvant treatment options radiotherapy or systemic treatment . 5.6.5 For patients with limited brain metastasis and no or minimal extracranial disease, resection of the brain metastasis is considered. 5.6.6 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** 5.6.7 Stereotactic radiation treatment is considered for patients with a single or a small number of brain metastases and minimal or controlled extracranial disease Nieder et al 2014 . 5.6.8 Radiation to the tumour bed cavity after resection of a brain metastasis could be considered Mahajan et al 2017 . Whole brain radiation treatment has not been shown to improve survival outcomes following local treatment of brain metastases from melanoma Mahajan et al 2017 . 5.6.9 For patients with multiple brain metastases, whole brain radiation therapy may provide some palliative benefits. 5.6.10 Patients with localised symptoms from melanoma metastases at any site are considered for referral for radiation treatment to these sites. **Medical oncology** 5.6.11 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. 5.6.12 BRAF/MEK inhibitor therapy is available for BRAF-mutation-positive patients. 5.6.13 Checkpoint inhibitor immunotherapy should be available for all patients with unresectable stage III or IV disease. 5.6.14 Palliative systemic therapy is considered for patients who are not candidates for, or who have progressed following treatment with immunotherapy, BRAF-inhibitor therapy or appropriate clinical trial systemic therapy.

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Quality statements 6: Follow-up and surveillance

Quality statement 6.1: Clinical follow-up and surveillance

Description	Follow-up is carried out by a health care professional experienced in melanoma diagnosis and management. The health care professional may be a specialist, GP, nurse practitioner 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. Until recently, there have been no completed RCTs comparing various follow-up schedules, therefore follow-up recommendations have been based on expert opinion. It is generally accepted that those with more advanced disease should have more frequent follow-up, however, there is no international consensus, and schedules vary dramatically between countries Cancer Council Australia Melanoma Guidelines Working Party 2019; 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 . Less frequent follow-up visits are recommended than in earlier guidelines. The MELanoma FOllow-up MELFO study is a recently published randomised trial and has provided some support for this, showing the less frequent follow-up group reported significantly less cancer-related stress with the recurrence rate being the same in both groups Damude et al 2016 . Less frequent follow-up visits are now recommended in the Cancer Council Australia Melanoma Guidelines Working Party 2019 based on recurrence patterns and hazard rates. This provides a rational basis for timing and duration of follow-up Leiter et al 2012; Salama et al 2013 . 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 . 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 .

Rationale (continued)	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 Cancer Council Australia Melanoma Guidelines Working Party 2019 except for patients with additional risk factors see 6.1.6 and these patients should be provided access to long-term dermatologic exams and encouraged to perform 3-monthly regular self-examination. Selection of patients for long term surveillance will be aided as risk assessment tools are developed and certified Vuong et al 2014, Cust et al 2020 .
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 skin 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 . 6.1.4 Recommended follow-up protocols assessing for disease recurrence/metastatic spread are as follows: • stage IA melanoma should be assessed annually for 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. 6.1.5 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 those over 65 years of age, high risk sites acral, scalp and neck and nodular subtype Green et al 2012 . 6.1.6 Any person diagnosed with melanoma in situ should be offered biennial complete dermatoscopic skin check 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 and/or atypical naevi Gandini et al 2005 , for whom digital dermatoscopic surveillance is also recommended. Lifelong biennial 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 BCC's or SCC's 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 .

Good practice points (continued)	6.1.7	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 health care clinician once hospital-level care has been completed Nashan et al 2004, Murchie et al 2010, Francken et al 2010 .
	6.1.8	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 health care providers.
	6.1.9	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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Quality statement 6.2: Patient self-examination

Description	Patient self-examination is taught and is an integral part of melanoma follow-up.
Rationale	Patient education in self-skin examination is an integral component of the follow-up schedule and facilitates earlier detection of disease recurrence. The Yale Melanoma Unit, the MELFO Study and the *2008 Australia New Zealand Guidelines* deem self-skin examination as an important tool in detecting recurrence. In Australia, 75% of patients detect their own recurrence; the worldwide mean is 62% Ruark et al 1993; Francken et al 2005, 2007; Jillella et al 1995 . Interestingly, when self-skin examination was not included in the modelling analysis of the Melanoma Institute of Australia data, the numbers of patients in whom there was a delay in recurrence diagnosis rose from 1 to 4.5% Turner et al 2011 . Patient education in self-skin-examination should therefore be an integral component of the follow-up schedule.
Good practice points	6.2.1 Patients should be provided with written information and shown how to self-examine their skin and regional lymph nodes. Recommend following the ABCDEFG rule, or alternatively the SCAN rule. 6.2.2 Patients using smart phone teledermatoscopy as part of their self-examination 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 have confirmed that patients are accepting of and capable of taking high-quality dermatoscopic images at home to facilitate teledermatology Janda et al 2019; Manahan et al 2015; Wu et al 2015; Horsham et al 2016 .

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Quality statement 6.3: Follow-up cross-sectional imaging

Description	Follow-up cross-sectional imaging CT or PET-CT is determined by stage, symptoms/clinical findings and suitability for therapy. **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. **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. If there are equivocal findings on routine CT surveillance, PET-CT should be considered if it would influence a treatment change. If there is biopsy-proven local nodal, satellite or in transit recurrence or oligometastatic disease, PET-CT should be considered if the patient is a candidate for surgery, radiotherapy or systemic therapy. The PET-CT imaging request should be discussed at the MDM. Surveillance high-resolution brain imaging brain MRI or contrast-enhanced CT head should be considered in high-risk patients stage IIC, III B, C or D or IV at 3- to 12-monthly intervals in the first 3–5 years as stratified by clinical stage and time from diagnosis.
Rationale	These recommendations are made accepting that individual centre's resources and protocols may differ but should be considered as best practice. **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. 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 thick melanomas that is, T4 tumours , baseline staging with PET-CT is controversial, due to low yield and high false-positive rate as discussed in **Quality Statement 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.

Rationale (continued)	From the limited data available, baseline 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/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/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 NCCN 2019 . 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 and/or distant metastatic disease relevant Freeman et al 2019; 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, 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 regimes may be beneficial Lewin et al 2018 . 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 . **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 . 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 to directly support this.

Good practice points	6.3.1 If a patient develops suspicious clinical findings or 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. 6.3.2 In asymptomatic patients, the frequency of follow-up cross-sectional imaging should be determined by the probability of recurrence as per the TNM stage. Based on the currently available literature, the following is recommended as a guide to follow-up imaging: • 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. 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. 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. 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 . 6.3.3 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 symptomatology and/or for response assessment. The above schedule, however, may be a useful guide to the desirable minimum frequency of imaging.

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Quality statement 6.4: Ultrasound imaging of draining node basins

Description	US imaging of the draining node field s can be considered in a select group of patients, in conjunction with routine clinical follow-up ± 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 fields 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 fields 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 . Sonographic features suspicious for nodal malignancy as defined by Vassallo et al 1992 remain consistent criteria in the literature for lymph node malignancy and include longitudinal to transverse diameter ratio <2 mm, echogenic central hilum narrowed or absent suggesting diffuse hypoechogenicity and concentric or eccentric widening of the peripheral cortex. Nodal size alone is not a good discriminator as small nodes may have malignant features and benign reactive nodes may be notably enlarged. Other suspicious features include peripheral vascularity on colour Doppler sonography and intranodal necrosis Ahuja et al 2008 . A combination of more than one suspicious finding has been shown to increase the sensitivity of detection Moerhle et al 1999 . The success of sonographic nodal assessment therefore relies on 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 field 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 .
	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 field. For example, a primary tumour in the central torso may drain to either axillary or inguinal node fields and US assessment should include all relevant node fields. For primary tumours in the head and neck, bilateral neck US is advised.
	6.4.4	Sonographic features suspicious for malignancy include: longitudinal to transverse diameter ratio <2 mm, loss or narrowing of the echogenic central hilum / diffuse echogenicity, concentric or eccentric widening of the peripheral cortex and peripheral vascularity on colour doppler sonography. A combination of multiple suspicious findings is likely to improve diagnostic accuracy. Equivocal sonographic findings may need short-interval follow-up US or FNA biopsy.

References

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- Faries MB, Thompson JF, Cochran AJ, et al. 2017. Completion dissection or observation for sentinel-Node metastasis in melanoma. *New England Journal of Medicine* 376 23 : 2,211–22.
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- Machet L, Nemeth-Normand F, Giraudeau B, et al. 2005. Is ultrasound lymph node examination superior to clinical examination in melanoma follow-up? A monocentre cohort study of 373 patients. *British Journal of Dermatology* 152 1 : 66–70.
- Moehrle M, Blum A, Rassner G, et al. 1999. Lymph node metastases of cutaneous melanoma: diagnosis by B-scan and color Doppler sonography. *Journal of the American Academy of Dermatology* 41 5 : 703–9.
- Vassallo P, Wernecke K, Roos N, et al. 1992. Differentiation of benign from malignant superficial lymphadenopathy: the role of high-resolution US. *Radiology* 183 1 : 215–20.

Quality statements 7: Supportive Care

Quality statement 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 .
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 health care teams in hospitals and in the community. Adults with cancer enjoy improved quality of life following needs assessment and provision of supportive care. Non-government organisations, including the Cancer Society and Melanoma New Zealand, perform an important role in providing supportive care.
Good practice points	7.1.1 Patients have their supportive care and psychosocial needs assessed using validated tools such as the 'Distress Thermometer' or a cancer-related distress self-assessment tool and documented at each stage of their cancer journey and have access to services appropriate to their needs. The 'Distress Thermometer' is a simple widely used screening tool, but deficiencies in its utility as a standalone assessment of psychosocial stress in cancer patients should be recognised Mitchell 2007, Stewart-Knight et al 2012, Guan et al 2019, Ownby 2019, Jewett et al 2020, Klingenstein et al 2020 . 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 . 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. 7.1.4 Māori patients and their family/whānau are offered access to Whānau Ora assessments and cultural support services. 7.1.5 Māori patients and those from other cultural groups and their family/whānau are offered access to culturally appropriate cancer support services.

Good practice points (continued)	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.
	7.1.7	Health professionals ensure that patients understand the information provided or refer them on to suitably qualified service providers/advisors who can interpret information for them.
	7.1.8	Patients are provided with adequate support and information to make decisions about their future health care in consultation with health care providers and family/whānau.

References

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- Stewart-Knight K, Parry R, Abey A, et al. 2012. Does the distress thermometer work? A systematic review of the evidence for its use and validity. *BMJ Support Palliat Care* 2: A30.

Quality statements 8: Care Coordination

Quality statement 8.1: Care coordination

Description	Patients managed by a melanoma MDT have access to a clinical nurse specialist 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, and 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. • care coordination see above . • provision of information, support and nursing care • provision of advice/education to other nurses and health professionals. • ensuring best-practice service provision. • collaboration with other health professionals to improve outcomes for patients. Given the specialist knowledge required and responsibilities involved, care coordinators should be clinical nurse specialists.
Good practice points	8.1.1 All patients with melanoma have a nominated single point of contact – ideally a nurse or allied health professional with an in-depth/specialist knowledge of melanoma – to support them to access psychosocial support and information and provide coordination of their cancer journey. 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 Tools are developed to specifically meet the needs of Māori such as Whānau Ora assessments ; these tools are used to inform patient treatment plans and care coordination.

Appendices

Appendix 1: National Melanoma Working Group members

The National Melanoma Cancer Working Group comprised:

Chair

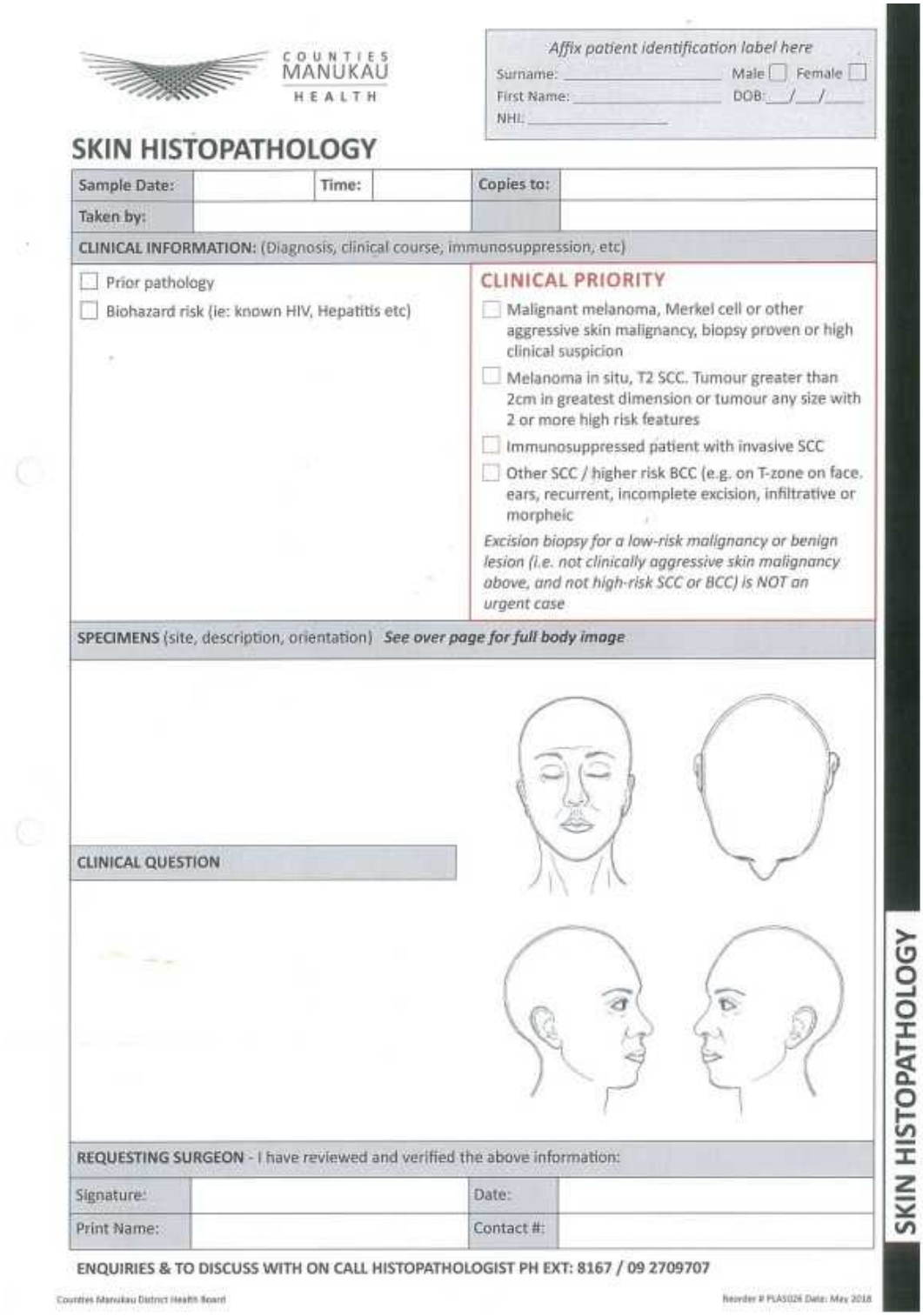
Dr Richard Martin, Cutaneous Surgical Oncologist, Waitematā DHB

Members

Dr Chris Adams, Plastic Surgeon, Hutt Valley DHB
Dr Mark Barnett, Radiologist, Waitematā DHB
Dr Catherine Barrow, Medical Oncologist, Capital & Coast DHB
Dr Chris Boberg, General Practitioner, Dr Boberg's Skin Cancer Clinic
Abbie Cameron, Cancer Nurse Coordinator for Melanoma and Skin Cancer, Canterbury DHB
Dr Peggy Chen, Dermatologist, Skin Institute, New Plymouth
Dr Gary Duncan, Consultant Plastic Surgeon, Hutt Valley DHB
Prof Mike Eccles, Department of Pathology, University of Otago
Dr Victoria Francis, Consultant Radiologist, Waitematā DHB
Dr Mark Foley, General Practitioner, The Skin Clinic, Marlborough
Dr Melissa James, Radiation Oncologist, Canterbury DHB
Trish Leatham, Skin Cancer Clinical Nurse Specialist, Counties Manukau DHB
Dr Will McMillan, Plastic and Reconstructive Surgeon, Southern DHB
Andrea Newland, Chief Executive Officer, Melanoma New Zealand
Katrina Patterson, Coordinator, Melanoma Network of New Zealand MelNet
Dr Paul Salmon, Dermatologic Surgeon, Skin Centre, Auckland
Dr Susan Seifried, General Surgeon, Nelson Marlborough DHB

Appendix 2: Example templates and associated guidance

2.1 Counties Manukau DHB: 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:

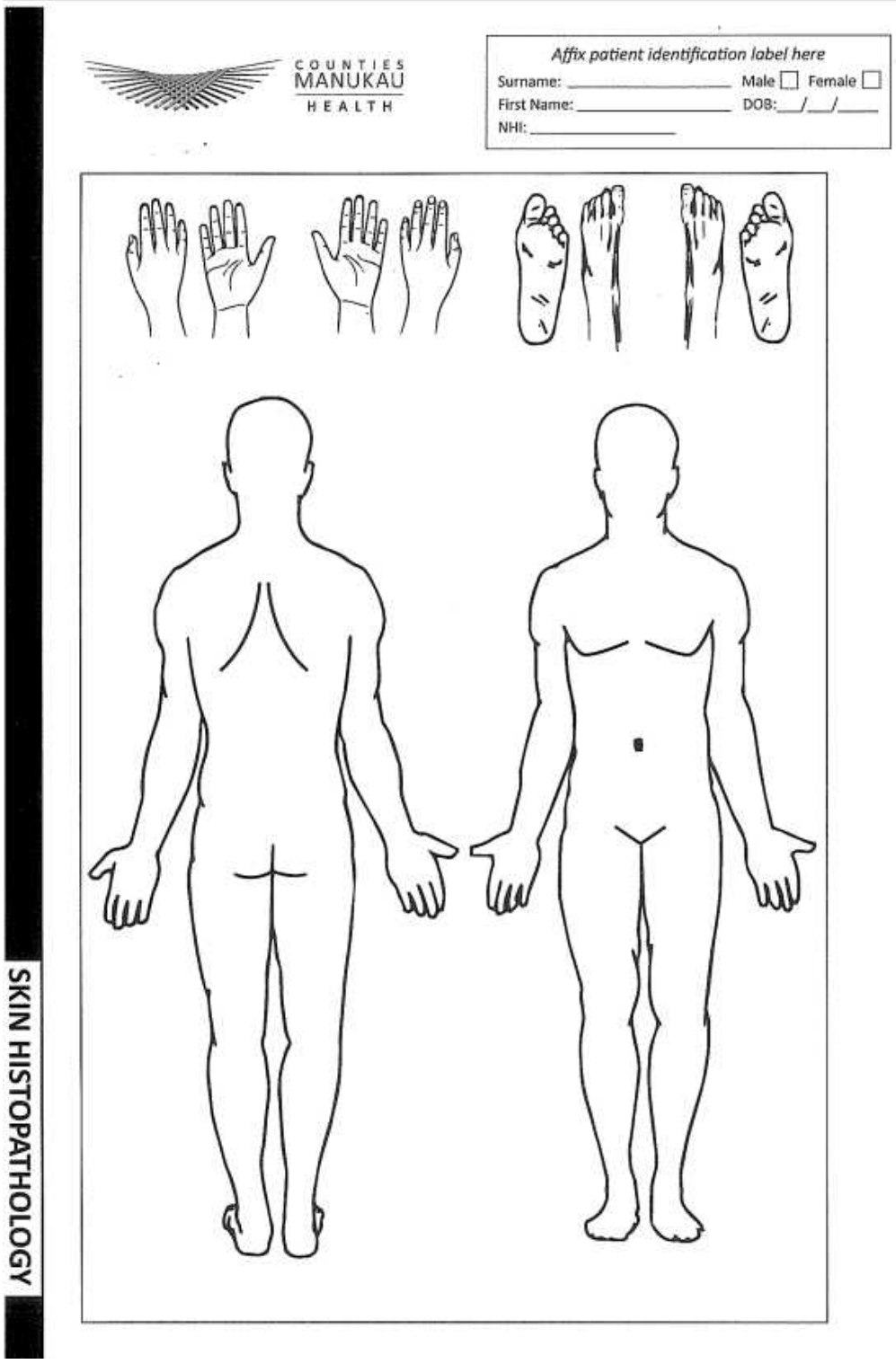
Signature:		Date:	
Print Name:		Contact #:	

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 .

2.2 Royal College of Pathologists of Australasia: Primary cutaneous melanoma structured reporting protocol 2nd edition

A guide to Primary Cutaneous Melanoma Histopathology Reporting

Includes the ICCR International Collaboration on Cancer reporting dataset denoted by *

Clinical details		
S1.02	**Clinical information provided on request form** (complete as narrative or use the structured format below)	Text
	*Tumour site	Not provided OR Text
	*Specimen laterality	Left Midline Right Not provided
	Clinical or differential diagnosis	Text
	*Specimen type	See p2
	If re-excision report the following:	
	Previous laboratory Previous pathology accession number Findings in previous biopsy	Text
	History and timing of lesional trauma, biopsy, irritation or treatment with topical agent	Text
	Past history of melanoma	Yes/No
	If yes, give details (e.g. site, thickness, timing, treatment etc)	Text
	Evidence of metastatic disease	Yes/No
	If yes, describe and consider recording serum LDH	Text
	Serum lactate dehydrogenase	___IU
	Other relevant history	Text
	Details of specimen orientation	Text
	Any clinically or dermatoscopically identified suspicious areas	Yes/No
	If yes, describe	Text
	Clinical or other relevant diagnostic imaging results	Text
	New primary melanoma or recurrence	See p2
S1.03	**Pathology accession number**	Text
S1.04	**Principal clinician caring for the patient**	Text
G1.01	Other clinical information received	Text
Macroscopic findings		
G2.01	*Specimen description	Text
G2.03	*Specimen dimensions	_x_x_mm
G2.04	*Specimen orientation	Not provided OR Text
G2.05	*Macroscopic primary lesion description	Text
G2.06	*Macroscopic primary lesion dimensions *(length x width x depth; depth is optional)*	_x_x_mm OR Indeterminate

Macroscopic findings (cont.)		
G2.07	*Other lesion(s)	Not identified Present
	*If yes, record macroscopic description of other lesion(s)	Text
G2.08	*Block identification key	Text
G2.09	Other comments	Text
Microscopic findings		
G3.01	Microscopic description	Text
S3.01	***Breslow thickness** *(**measurement should be to a minimum of 1 decimal point and to a degree of precision as to allow accurate AJCC staging)*	Indeterminate OR ___mm** OR At least:___mm**
S3.02	***SURGICAL MARGIN/TISSUE EDGE STATUS**	
	***In situ component: Peripheral margin** *(** by melanoma in situ)*	Cannot be assessed Not involved** Involved**
	If not involved, record ..	
	***distance of melanoma in situ from closest margin**	__mm
	***locations of closest uninvolved margin if possible**	Text
	If involved, record	
	***locations of involved margins if possible**	Text
	***Invasive component: Peripheral margin** *(** by invasive melanoma)*	Cannot be assessed Not involved** Involved**
	If not involved, record ..	
	***distance of invasive melanoma from closest margin**	__mm
	***locations of closest uninvolved margin if possible**	Text
	If involved, record ..	
	***locations of involved margins if possible**	Text
	***Invasive component: Deep margin** *(** by invasive melanoma)*	Cannot be assessed Not involved** Involved**
	If not involved, record ..	
	***distance of invasive melanoma from closest margin**	__mm
	***locations of closest uninvolved margin if possible**	Text
	If involved, record	
	***locations of involved margins if possible**	Text

Microscopic findings (cont.)		
S3.03	***Ulceration** If present, consider G3.02	Not identified Present Indeterminate
G3.02	*Extent of ulceration	___ mm
S3.04	***Mitotic count**	___ per mm^2
S3.05	***Satellites** If present, record ***Satellites: margin involvement**	Not identified Present Indeterminate Cannot be assessed Not involved by sat. Involved by satellite
G3.03	*Clark level	See p2
S3.06	***Lymphovascular invasion**	Not identified Present Indeterminate
G3.04	*Tumour-infiltrating lymphocytes (early regression)	Not identified Brisk Non-brisk
G3.05	*Tumour regression (intermediate and late) If present record the Extent of regression and consider recording G3.06	Not identified Present Indeterminate ___mm
G3.06	*Tumour regression (intermediate and late): margins If not involved, record *Clearance from margins of excision	Cannot be assessed Not involved by reg. Involved by reg. ___mm
S3.07	***Desmoplastic melanoma component** If present, record if ***Pure or mixed**	Not identified Present See p3
S3.08	***Neurotropism**	Not identified Present Indeterminate
G3.07	*Associated melanocytic lesion If yes, describe	Not identified Present Text
G3.08	Intraepidermal melanoma growth pattern	Pagetoid Lentiginous Mixed pattern
G3.09	*Melanoma subtype	See p3
S3.09	***LYMPH NODE STATUS** (If lymph nodes are not received these elements should NOT be reported.)	
	***Number of sentinel nodes examined**	___
	***Number of positive sentinel nodes** If >1 consider reporting G3.10	___
	***Total number of nodes examined (sentinel and non-sentinel)**	___
	***Total number of positive nodes examined (sentinel and non-sentinel)**	___

Microscopic findings (cont.)		
G3.10	*Sentinel lymph node metastasis: location of tumour within the lymph node	Subcapsular Intraparenchymal Both subcapsular & intraparenchymal
	*Sentinel lymph node metastasis: extranodal extension	Not identified Present Indeterminate
	*Sentinel lymph node metastasis: maximum single dimension of the largest discrete metastasis	___mm
G3.11	Additional comment	Text

Synthesis and overview		
S5.01	***PATHOLOGICAL STAGING (AJCC 7TH EDITION)**	
	***Primary tumour (T)**	See p3
S5.02	***Regional lymph nodes (N)**	See p3
S5.03	**Year and edition of staging system**	Text
G5.01	Diagnostic summary (Include:specimen type, tumour site and laterality, tumour type, tumour pT stage, tumour pN stage, whether or not the specimen margins are involved)	Text
S5.04	**Overarching comment**	Text

Notes

Specimen type

- Not provided
- Re-excision
- Excision
- Punch
- Incision
- Shave
- Curette
- Other (specify)

New primary melanoma or recurrence

- New primary
- Recurrence – local
- Recurrence – intransit metastasis (between primary site and regional node field)
- Recurrence – regional
- Recurrence – distant
- Not stated

G3.03 Clark level

- Confined to epidermis (I)
- Infiltrates but does not fill papillary dermis (II)
- Fills/expands papillary dermis (III)
- Infiltrates into reticular dermis (IV)
- Infiltrates into subcutaneous fat (V)

S3.07 Desmoplastic melanoma component

- Pure desmoplastic melanoma (>90% desmoplastic features)
- Mixed (mixed desmoplastic / non-desmoplastic melanoma)

G3.09 Melanoma subtype

Choose all that apply

- Superficial spreading melanoma
- Nodular melanoma
- Lentigo maligna melanoma
- Acral-lentiginous melanoma
- Desmoplastic melanoma
- Melanoma arising from blue naevus
- Melanoma arising in giant congenital naevus
- Melanoma of childhood
- Naevoid melanoma
- Persistent melanoma
- Melanoma, not otherwise classified
- Other (specify)

Pathological Staging (AJCC 7th Ed.)##

T classification

TX	Primary tumour cannot be assessed
T0	No evidence of primary tumour
Tis	Melanoma in situ
T1	Melanomas ≤1.0 mm in thickness
T1a	Without ulceration and mitosis <1/mm2
T1b	With ulceration or mitoses ≥ 1/mm2
T2	Melanomas 1.01–2.0 mm
T2a	without ulceration
T2b	with ulceration
T3	Melanomas 2.01–4.0 mm
T3a	without ulceration
T3b	with ulceration
T4	Melanomas >4.0 mm
T4a	without ulceration
T4b	with ulceration

N classification

No nodes submitted or found
OR

NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	1 node
N1a	micrometastasis*
N1b	macrometastasis**
N2	2–3 nodes
N2a	micrometastasis*
N2b	macrometastasis**
N2c	in transit met(s)/satellite(s) without metastatic nodes
N3	4 or more metastatic nodes, or matted nodes, or in transit met(s)/satellite(s) with metastatic node(s)

* Micrometastases are diagnosed after sentinel lymph node biopsy and completion lymphadenectomy (if performed).

** Macrometastases are defined as clinically detectable nodal metastases confirmed by therapeutic lymphadenectomy or when nodal metastasis exhibits gross extracapsular extension.

Used with the permission of the American Joint Committee on Cancer (AJCC), Chicago, Illinois. The original source for this material is the AJCC Cancer Staging Manual, Seventh Edition (2010) published by Springer Science and Business Media LLC, www.springerlink.com.

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/Skin-Adnexal/Guide-primary-cutaneous-melanoma

2.3 College of American Pathologists: Protocol for the examination of excision specimens from patients with melanoma of the skin

CAP Approved **Skin • Melanoma 4.1.0.0**
Excision

 # Note: For melanoma in situ, elements that assess the invasive component are not applicable and should not be reported.

Maximum Tumor (Breslow) Thickness (applicable to invasive tumor only) (Note D)
Specify (millimeters): ___ mm
or
At least (millimeters): ___ mm (explain): _____
___ Cannot be determined (explain): _____

Ulceration (required for invasive tumor only) (Note E)
___ Not identified
___ Present
+ Extent of ulceration (millimeters): ____ mm
___ Cannot be determined

Microsatellite(s) (applicable to invasive tumor only) (Note F)
___ Not identified
___ Present
___ Cannot be determined

Margins (Note G)

Peripheral Margins#
___ Negative for invasive melanoma
+ Distance of invasive melanoma from closest peripheral margin (millimeters):
+ ___ Specify ___ mm
+ ___ Less than ___ mm
+ ___ Greater than ___ mm
+ ___ Cannot be determined (explain): _____
+ Specify location(s), if possible: _____
___ Invasive melanoma present at margin
Specify location(s), if possible: _____
___ Negative for melanoma in situ
+ Distance of melanoma in situ from closest peripheral margin (millimeters):
+ ___ Specify ___ mm
+ ___ Less than ___ mm
+ ___ Greater than ___ mm
+ ___ Cannot be determined (explain): _____
+ Specify location(s), if possible: _____
___ Melanoma in situ present at margin
Specify location(s), if possible: _____
___ Cannot be assessed

Deep Margin#
___ Negative for invasive melanoma
+ Distance of invasive melanoma from deep margin (millimeters):
+ ___ Specify ___ mm
+ ___ Less than ___ mm
+ ___ Greater than ___ mm
+ ___ Cannot be determined (explain): _____
___ Invasive melanoma present at margin
___ Negative for melanoma in situ
___ Melanoma in situ present at margin
___ Cannot be assessed

Surgical Pathology Cancer Case Summary

Protocol posting date: August 2019

MELANOMA OF THE SKIN: Excision, Re-Excision

Select a single response unless otherwise indicated.

Procedure (select all that apply) (Note A)
___ Excision
___ Re-excision
___ Sentinel node(s) biopsy
___ Lymphadenectomy, regional nodes (specify): _____
___ Other (specify): _____
___ Not specified

+ Specimen Laterality
+___ Right
+___ Left
+___ Midline
+___ Not specified

+ Tumor Site (Note B): _____

Macroscopic Satellite Nodule(s) (applicable to invasive tumor only)
___ Not identified
___ Present
___ Cannot be determined

Histologic Type (Note C)
___ No residual melanoma identified

Invasive Melanoma
___ Superficial spreading melanoma (low-cumulative sun damage (CSD) melanoma)
___ Lentigo maligna melanoma
___ Desmoplastic melanoma
+____ Pure desmoplastic melanoma
+____ Mixed desmoplastic melanoma
___ Acral melanoma
___ Melanoma arising in a blue nevus (blue nevus-like melanoma)
___ Melanoma arising in a giant congenital nevus
___ Spitz melanoma (malignant Spitz tumor)
___ Nodular melanoma
___ Nevoid melanoma
___ Melanoma, not otherwise classified
___ Other histologic type not listed (specify): _____

Melanoma In Situ (anatomic level I)#
___ Melanoma in situ, superficial spreading type (low-cumulative sun damage (CSD) melanoma in situ)
___ Melanoma in situ, lentigo maligna type
___ Acral melanoma in situ
___ Melanoma in situ arising in a giant congenital nevus
___ Melanoma in situ, not otherwise classified
___ Other histologic type not listed (specify): _____

Mitotic Rate (applicable to invasive tumor only) (Note H)
___ None identified
___ Specify (mitoses/mm^2): _____ mitoses/mm^2
___ Cannot be determined

+ Anatomic (Clark) Level (applicable to invasive tumor only) (Note D)
+ ___ At least level _____ (explain): _____
+ ___ II (melanoma present in but does not fill and expand papillary dermis)
+ ___ III (melanoma fills and expands papillary dermis)
+ ___ IV (melanoma invades reticular dermis)
+ ___ V (melanoma invades subcutis)
+ ___ Cannot be determined

Lymphovascular Invasion (applicable to invasive tumor only) (Note I)
___ Not identified
___ Present
___ Cannot be determined

Neurotropism (applicable to invasive tumor only) (Note J)
___ Not identified
___ Present
___ Cannot be determined

+ Tumor-Infiltrating Lymphocytes (applicable to invasive tumor only) (Note K)
+ ___ Not identified
+ ___ Present, nonbrisk
+ ___ Present, brisk
+ ___ Cannot be determined

Tumor Regression (Note L)
___ Not identified
___ Present, involving less than 75% of lesion
___ Present, involving 75% or more of lesion
___ Cannot be determined

Regional Lymph Nodes (applicable to invasive tumor only) (Note M)
Note: If nodes from more than one nodal basin are included, each nodal basin should be reported separately.
___ No lymph nodes submitted or found
___ Uninvolved by tumor cells
Total Number of Lymph Nodes Examined: ____
Number of Sentinel Nodes Examined (if applicable): ____
___ Involved by tumor cells
Total Number of Lymph Nodes Involved: ____
___ Number cannot be determined (explain): _____
+ Location (specify)[#]: _____
[#]*Note: Locations may include subcapsular, intramedullary, and other locations.*
Number of Sentinel Nodes Involved (required only if sentinel nodes examined and involved): ____
___ Number cannot be determined (explain): _____

+ Size of Largest Metastatic Deposit[#] ____mm
[#] *Note: Relevant only if larger than sentinel lymph node metastatic deposits.*

+ Size of Largest Metastatic Deposit in Sentinel Lymph Node ____mm

+ Extranodal Extension

+ ___ Not identified
+ ___ Present
+ ___ Cannot be determined

Matted Nodes
___ Not identified
___ Present

Total Number of Lymph Nodes Examined: ____
___ Number cannot be determined (explain): _____
Number of Sentinel Nodes Examined (if applicable): ____

Pathologic Stage Classification (pTNM, AJCC 8th Edition) (Note N)

Note: Reporting of pT, pN, and (when applicable) pM categories is based on information available to the pathologist at the time the report is issued. Only the applicable T, N, or M category is required for reporting; their definitions need not be included in the report. The categories (with modifiers when applicable) can be listed on 1 line or more than 1 line.

+ ___ Classification assigned in this report includes information from a prior procedure (explain):
_____

Note: In general, CAP cancer protocol case summaries are intended to guide reporting on the specimen that the pathologist is evaluating at that time. However, melanoma cases frequently include multiple procedures. Because of this, a prior procedure that was performed may affect the pathologic classification of the tumor.

In order to represent this appropriately in the pathology report, information from prior procedures may be incorporated into the assignment of pathologic classification if it is available. When information from a prior procedure is included in this report, details of that procedure should be documented in the report as well.

TNM Descriptors (required only if applicable) (select all that apply)
___ m (multiple)
___ r (recurrence or retreatment)
___ y (posttherapy or post-neoadjuvant therapy)

Primary Tumor (pT)
___ pTX: Primary tumor thickness cannot be assessed (eg, diagnosis by curettage) (explain): _____
___ pT0: No evidence of primary tumor (eg, unknown primary or completely regressed melanoma)
___ pTis: Melanoma in situ (ie, not an invasive tumor: anatomic level I)
___ pT1: Melanoma 1.0 mm or less in thickness, ulceration status unknown or unspecified (see Note D)
___ pT1a: Melanoma <0.8 mm in thickness, no ulceration
___ pT1b: Melanoma <0.8 mm in thickness with ulceration OR melanoma 0.8 to 1.0 mm in thickness with or without ulceration
___ pT2: Melanoma >1.0 to 2.0 mm in thickness, ulceration status unknown or unspecified
___ pT2a: Melanoma >1.0 to 2.0 mm in thickness, no ulceration
___ pT2b: Melanoma >1.0 to 2.0 mm in thickness, with ulceration
___ pT3: Melanoma >2.0 to 4.0 mm in thickness, ulceration status unknown or unspecified
___ pT3a: Melanoma >2.0 to 4.0 mm in thickness, no ulceration
___ pT3b: Melanoma >2.0 to 4.0 mm in thickness, with ulceration
___ pT4: Melanoma >4.0 mm in thickness, ulceration status unknown or unspecified
___ pT4a: Melanoma >4.0 mm in thickness, no ulceration
___ pT4b: Melanoma >4.0 mm in thickness, with ulceration

Regional Lymph Nodes (pN) (applicable to invasive tumor only)
___ pNX: Regional lymph nodes not assessed (e.g., SLN biopsy not performed, regional nodes previously removed for another reason)

___ pN0: No regional lymph node metastasis detected
___ pN1: One tumor-involved node or in-transit, satellite, and/or microsatellite metastases with no tumor-involved nodes
___ pN1a: One clinically occult tumor-involved node (ie, detected by sentinel node biopsy) with no in-transit, satellite and/or microsatellite metastases
___ pN1b: One clinically detected tumor-involved node with no in-transit, satellite and/or microsatellite metastases#
___ pN1c: Presence of in-transit, satellite and/or microsatellite metastases with no regional lymph node disease
___ pN2: Metastasis in two to three regional nodes or in-transit, satellite, and/or microsatellite with one tumor-involved node
___ pN2a: Two to three clinically occult tumor-involved node (ie, detected by sentinel node biopsy) with no in-transit, satellite and/or microsatellite metastases
___ pN2b: Two to three tumor-involved nodes at least one of which was clinically detected with no in-transit, satellite and/or microsatellite metastases#
___ pN2c: One clinically occult or clinically apparent tumor-involved node with presence of in-transit, satellite and/or microsatellite metastases
___ pN3: Metastasis in four or more regional lymph nodes, or in-transit, satellite or microsatellite metastases with two or more tumor-involved nodes or any number of matted nodes without or with in-transit, satellite or microsatellite metastases
___ pN3a: Four or more clinically occult tumor-involved nodes (ie, detected by sentinel node biopsy) with no in-transit, satellite and/or microsatellite metastases
___ pN3b: Four or more tumor-involved nodes, at least one of which was clinically detected, with no in-transit, satellite and/or microsatellite metastases#
___ pN3c: Two or more clinically occult or clinically detected tumor-involved nodes with in-transit, satellite and/or microsatellite metastases and/or any number of matted nodes with in-transit, satellite and/or microsatellite metastases

 # Note: pN1b, 2b, and 3b subcategories are dependent on clinical information that may be unavailable to the pathologist. If this information is not available, the parent category (pN1, pN2 or pN3) should be selected.

Distant Metastasis (pM) (required only if confirmed pathologically in this case)

Note: AJCC pM category suffixes "(0)" and "(1)", which denote LDH level of elevation, are NOT included in the surgical pathology report. LDH levels, as with other clinical parameters, may be included in the final classification by clinicians with access to this data.

___ pM1: Distant metastasis (documented in this specimen)
___ pM1a: Distant metastasis in skin, subcutaneous tissues, soft tissues including muscle and/or nonregional lymph nodes
___ pM1b: Distant metastasis to lung with or without M1a sites of disease
___ pM1c: Distant metastasis to non-CNS visceral sites with or without M1a or M1b sites of disease
___ pM1d: Distant metastasis to CNS with or without M1a, M1b or M1c sites of disease

Specify site(s), if known: _____

+ Additional Pathologic Findings (select all that apply)

+ ___ Associated nevus (specify type): _____
+ ___ Other (specify): _____

+ Ancillary Studies

Note: For molecular genetic reporting, the CAP Melanoma Biomarker Template should be used. Pending biomarker studies should be listed in the Comments section of this report.

+ Comment(s)

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.

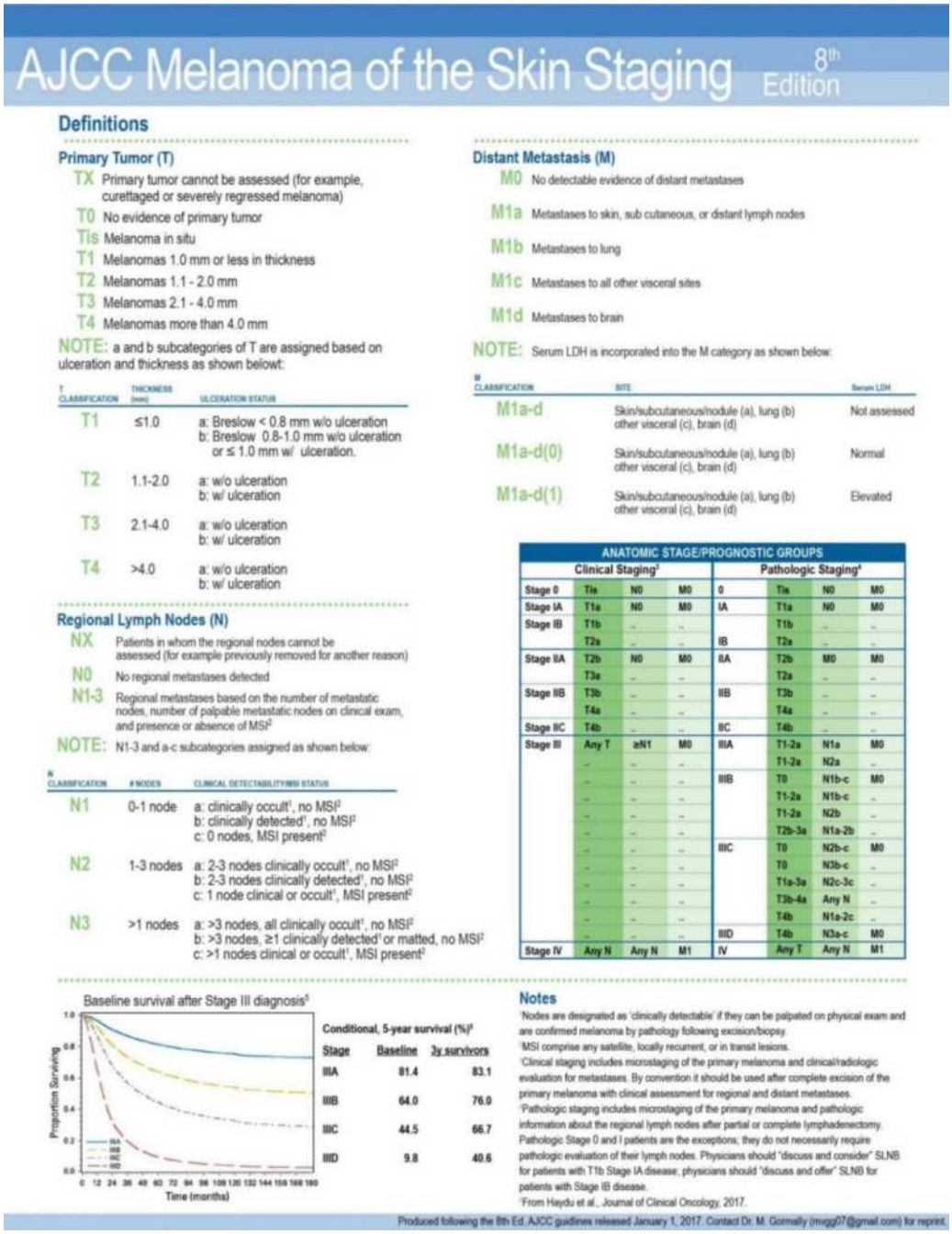
Available from: https://documents.cap.org/protocols/cp-skin-melanoma-excision-19-4100.pdf

2.4 Melanoma Institute Australia: sentinel node biopsy form

Feature	Description
Anatomical site of sentinel node node field	
Number of tumour foci	
Intranodal location involved by tumor	
Maximum dimension of largest deposit mm	
Maximum tumour penetrative depth mm	
% cross-sectional area of sentinel node involved by tumor	
Perinodal lymphatic invasion	
Extranodal spread	
Immunophenotype of tumour • S-100 • HMB-45 • MelanA	
Nodal naevus cells	
Other comments	

Courtesy of Professor Richard Scolyer, Melanoma Institute Australia.

Appendix 3: American Joint Committee on Cancer: 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 belowt:

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[2]

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[3]
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[3]
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[3]

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]		
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	M0	M0
	T3a	..	..		T2a	..	..
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[5]

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

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

'Nodes are designated as 'clinically detectable' if they can be palpated on physical exam and are confirmed melanoma by pathology following excision/biopsy.
'MSI comprise any satellite, locally recurrent, or in transit lesions.
'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.
'Pathologic staging includes microstaging of the primary melanoma and pathologic information about the regional lymph nodes after partial or complete lymphadenectomy. Pathologic Stage 0 and I patients are the exceptions; they do not necessarily require pathologic evaluation of their lymph nodes. Physicians should "discuss and consider" SLNB for patients with T1b Stage IA disease; physicians should "discuss and offer" SLNB for patients with Stage IB disease.
'From Haydu et al., Journal of Clinical Oncology, 2017.

Produced following the 8th Ed. AJCC guidlines released January 1, 2017. Contact Dr. M. Gormally (mxgg07@gmail.com) for reprint.

Reference

- Landlaeknir.is. 2021. Melanoma Staging 8th edition Poster. URL: **https://www.landlaeknir.is/servlet/file/store93/item34972/MelanomaStaging8thEdPoster_1-4.pdf** accessed 1 June 2021 .

Appendix 4: Feedback Contributors

Following the publication of Quality Statements to Guide Melanoma Diagnosis and Treatment in New Zealand: Draft for Consultation", feedback from the following parties was evaluated by the New Zealand Melanoma Working Group and included where appropriate:

Institution

Cancer Society New Zealand
New Zealand Dermatological Society Incorporated
New Zealand Medical Association
New Zealand Nurses Organisation Cancer Nurses College
The Royal Australian and New Zealand College of Radiologists
The Royal College of Pathologists of Australasia
Skin Cancer College of Australasia

Individual

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Dr Keith Monnington, Skin Cancer Doctor and Immediate Past President of Skin Cancer College of Australasia
Lee-Ann Creagh, Clinical Nurse Specialist, Waikato Hospital
Linda Buxton, Health Promotion, Otago/Southland Division, Cancer Society
Lucia Bercinskas, Senior Policy Analyst, New Zealand Nurses Organisation
Dr Mark Taylor, Clinical Director of Primary and Integrated Care, Waikato DHB
Dr Stuart Johnson, Lead Anatomic Pathologist, Hutt Hospital Wellington SCL
Susan Mary Millmow, Clinical Nurse Specialist/Cancer Care Coordinator, Hutt Valley DHB
Dr Amanda Oakley, Dermatologist, Waikato DHB.
Dr Richard Massey, Pathologist, Pathology Associates New Zealand