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Follow-up and Surveillance of Patients with Cutaneous Malignant Melanoma

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Cancer Care Alberta

Clinical Practice Guideline CU-001 – Version 3
www.ahs.ca/guru

Background

Malignant melanoma is a cancer of melanocytes, the pigment-producing cells of the skin. It is the most aggressive form of skin cancer due to its high potential for metastasis. In 2021, Alberta reported 1,115 new cases of melanoma and 96 related deaths.[1] Although melanoma can be fatal, early detection and treatment offer the best chance of survival. Surgery is the primary treatment and is often curative for early-stage disease.

Patients with no evidence of disease after curative-intent treatment require follow-up surveillance. The goals of follow-up are to educate patients on self-examination of the skin and lymph nodes, provide reassurance and psychosocial support, and detect both locoregional recurrences (LRRs) and second primary melanomas at an early stage. However, several uncertainties remain. Evidence guiding the optimal duration of follow-up, often set at five years, is limited, as relapse risk is largely inferred from the American Joint Committee on Cancer (AJCC) survival curves rather than direct recurrence data.[2-5] Similarly, while second and third primary melanomas are recognized risks, their prevalence is variable and not consistently quantified in existing guidelines. Definitions of “high-risk” patients also vary, adding complexity to tailoring follow-up.

In Alberta, follow-up approaches must be adapted to the realities of constrained clinical workforce and diagnostic resources, which differ from European contexts where often cited guidelines originate.[2] Lifetime surveillance is neither evidence-based nor feasible in this setting. Instead, follow-up must balance evidence, resources, and patient needs, recognizing that patients are best served within a multidisciplinary environment, but that responsibility should gradually shift to patients themselves. With appropriate education and self-examination, patients can increasingly take ownership of their long-term health.

Various organizations have published follow-up recommendations, but the optimal approach remains uncertain. Decisions regarding responsibilities, frequency, and testing should consider disease stage, treatment received, recurrence risk, patient and clinician preference, radiation exposure, and resource availability.

Guideline Objective

The objective of this guideline is to outline an Alberta-specific, consensus-based approach to the follow-up and surveillance of patients with malignant melanoma who are disease-free after curative-intent treatment. These recommendations are intended to define minimum standards and guiding principles for care across the province, while allowing flexibility for local adaptation based on available resources, clinician judgment, and institutional practices. It is recognized that follow-up may be provided by a range of qualified health care providers, and that local resources or institutional preferences may influence where and how follow-up is delivered.

Guideline Questions

1. What are the recommended clinical follow-up and imaging schedules for patients with cutaneous malignant melanoma by disease stage?
2. Which healthcare provider(s) should be responsible for conducting follow-up of patients with cutaneous malignant melanoma?
3. What patient education should be included in melanoma follow-up?

Search Strategy

A literature review was conducted in the PubMed electronic database for journal articles published between September 1, 2015, and September 1, 2025. The following search string was used: ((((follow up[Title/Abstract]) OR (follow-up[Title/Abstract])) OR (surveillance[Title/Abstract])) AND (melanoma[MeSH Terms])) NOT (uveal neoplasms[MeSH Terms]). The search was limited to clinical trials, comparative studies, controlled clinical trials, meta-analyses, multicenter studies, observational studies, randomized controlled trials, and systematic reviews, and to studies published in English and involving human subjects. A complementary search was conducted in the Cochrane Database of Systematic Reviews for the past 10 years using the terms 'skin cancer' AND 'follow-up' in titles, abstracts, and keywords. References lists of included articles were reviewed to identify additional relevant studies. A separate search for clinical practice guidelines published between August 2020 and August 2025 was performed by reviewing the websites and/or print publications of relevant national and international organizations. The complete search strategy and resulting evidence tables are available upon request.

Target Population

The following recommendations apply to adult patients with cutaneous malignant melanoma who are disease-free after curative-intent treatment.

Recommendations

The *Follow-up Model of Care for Cancer Survivors* guideline is the overarching framework for follow-up within Cancer Care Alberta (CCA). While not melanoma-specific, it provides important context by outlining principles of survivorship care, clarifying roles and responsibilities, and complementing existing tools such as Transfer of Care letters.

Staging is assigned according to the AJCC 8th edition staging system (see Appendix A).[6] Management is based on the assigned stage. In patients who undergo sentinel lymph node biopsy (SLNB), pathologic staging incorporates nodal status, whereas patients without SLNB are staged clinically.

1. **Stage-Specific Follow-up and Imaging Schedules – Provincial Minimum Standard:** Follow-up frequency and imaging recommendations should be adapted to individual patient factors, including

age, comorbidities, cognitive function, and overall goals of care. The site and discipline responsible for follow-up are determined by local resources and clinician expertise and may occur at a cancer facility or in a community-based practice. The table outlines recommended duration and frequency, not the care setting, or the discipline. Follow-up intervals for stages IA-IIA were discussed extensively by the guideline working group members and reviewers. Rows 2-3 reflect a consensus compromise that balances local practice variations, with some centers advocating for shorter follow-up and others for longer follow-up.

Note: Follow-up for patients who received neoadjuvant immunotherapy should currently be guided by clinical stage at presentation, until high-level evidence for response-directed follow-up becomes available.

Stage	History and Physical Examination – Emphasis on Nodes and Skin	Routine Imaging	Nodal Surveillance Imaging
0	None	None	None
IA/IB (pT1b)*	Individualize†	None	None
IB, IIA‡	Annually x 3-5 years	None	None
IIB, IIC‡	Every 6 months x 2 years, then annually x 3 years	Without immunotherapy: • Baseline: Not required unless required prior to adjuvant therapy • Surveillance: Cross-sectional ± brain MRI annually x 5 years With Immunotherapy: • Baseline: Cross-sectional prior to initiation of adjuvant therapy, if applicable • Surveillance: same as above	None
IIIA‡	Every 6 months x 2 years, then annually x 3 years	• Baseline: Cross-sectional or prior to initiation of adjuvant therapy • Surveillance: Cross-sectional ± brain MRI annually x 5 years may be considered	For patients with positive sentinel nodes under active surveillance, nodal basin imaging should ideally be performed prior to clinical assessment every 6 months x 2 years, then every 6-12 months during years 3-5§
IIIB, IIIC, IIID‡	Same as above	• Baseline: Cross-sectional ± brain MRI	Same as above

* Clinical stage (where SLNB is not performed due to low predicted risk or other clinical/patient-specific factors).
† Follow-up may vary depending on local capacity and whether community dermatology follow-up is established.
‡ Pathologic stage (where SLNB is performed).
§ Not required after completion lymph node dissection or in patients already undergoing routine cross-sectional imaging (see Discussion section on the role of nodal US).

Stage	History and Physical Examination – Emphasis on Nodes and Skin	Routine Imaging	Nodal Surveillance Imaging
		• Surveillance: same as above	
Resected IV/complete responders	Same as above	• Baseline: Cross-sectional and brain MRI • Surveillance: same as above	Not applicable

MRI, magnetic resonance imaging; SLNB, sentinel lymph node biopsy; US, ultrasound. Cross-sectional imaging refers to CT with IV contrast of the chest, abdomen, and pelvis (± neck if indicated) or positron emission tomography/computed tomography (PET/CT).

2. **Healthcare Providers:** Follow-up for patients with stage IIB and above may involve several experts, including oncologists (medical, surgical, radiation, or general practitioner oncologists), their support team (nurse practitioners, physician assistants), dermatologists, and ancillary specialists such as psychosocial support providers, in collaboration with the patient's primary care physician. Patients who are stable and disease-free after the defined period of structured cancer centre follow-up outline in the table above may be transitioned to community-based care, where ongoing skin and lymph node surveillance can be provided by primary care providers or community dermatologists.

3. **Patient Education:** Patients should be educated on the schedule of follow-up care, including regular patient-led, partner-assisted self skin-examination (SSE) and lymph node examination to detect recurrent disease or new primary melanomas. While evidence is limited regarding the optimal frequency of SSE, quarterly SSE is reasonable for most patients, with more frequent SSE encouraged for higher-risk individuals or those willing to perform more frequent checks. They should also receive guidance on sun protection that emphasizes a multi-pronged approach, including protective clothing, shade, and sunscreen use. The potential psychological impact of follow-up, including anxiety related to assessments, imaging, or transition from cancer centre to community-based care, should be acknowledged, with support offered as needed.

Discussion

Stage-Specific Follow-up and Imaging Schedules

Variability in existing guidelines. A recent scoping review of 26 melanoma surveillance guidelines from 19 organizations demonstrated substantial variability in recommendations for imaging, laboratory testing, nodal assessment, and follow-up duration.[7] Many guidelines recommended lifelong annual skin surveillance, while the use and frequency of positron emission tomography (PET)/computed tomography (CT), CT, magnetic resonance imaging (MRI), and nodal ultrasound (US) varied widely, typically reserved for stage IIB or higher. Among nearly 18,000 publications screened for the Cancer Care Ontario (CCO) guideline, only one randomized controlled trial, and five non-randomized comparative studies including around 4,000 patients met inclusion criteria, and

unfortunately all began recruiting prior to the widespread use of modern therapies (e.g., PD-1 inhibitors and BRAF/MEK-targeted therapy), limiting application to the modern situation.[8] The European Society for Medical Oncology (ESMO) notes that, “There is no consensus on the optimal follow-up schedule or the utility of imaging and blood tests for patients with resected melanoma; respective national guidelines should be consulted, with adjustments as required, considering available resources, particularly after three years of follow-up.”[9]

Prospective evidence. Among the limited comparative evidence, the MELFO (MELanoma FOllow-up) trial provides important prospective data. This international phase III RCT randomized 388 sentinel node-negative patients (AJCC pT1b-pT4bN0) to either a conventional national guideline schedule or a reduced-frequency, stage-adjusted follow-up schedule.[10] In the conventional schedules used in the Netherlands and United Kingdom, patients were typically seen four times in the first year, then every 3-6 months for up to five years (13-16 visits total, depending on stage). In contrast, the experimental schedule was substantially less intensive:

- pT1b-pT2a (AJCC Stage IB): annually for five years (total five visits)
- pT2b-pT3a (Stage IIA): twice yearly visits for two years, then annually (total seven visits)
- pT3b-pT4b (Stage IIB/C-III): three times per year for the first two years, two visits in year three, then annually (total 10 visits)

This represented a reduction of approximately 3-11 visits per patient over five years, depending on stage. During follow-up, 19.4% of patients recurred, with over half recurring within the first two years, and no difference in recurrence rates between study arms (HR 0.87, 95% CI 0.54-1.39). Disease-free survival (DFS), distant metastasis-free survival (DMFS), and disease-specific survival (DSS) were also equivalent (DFS HR 1.00, 95% CI 0.49-2.07). Patient self-examination detected approximately 76% of recurrences in both groups. Compliance with the assigned schedule was 51.7%, with most noncompliant patients requesting additional visits rather than missing them. Over half of these visits occurred only once. Patient-reported outcomes, including anxiety, cancer worry, stress response symptoms, and physical and mental health-related quality of life, were similar between groups, with satisfaction exceeding 97%. Implementation of the reduced-frequency protocol resulted in a 39% reduction in hospital costs compared with the conventional schedule.

Utility of imaging and laboratory tests. Several studies have shown that routine blood tests and cross-sectional imaging rarely detect occult metastatic disease in patients with clinical stage I-II melanoma. Blood tests lack sufficient sensitivity for early relapse detection, and imaging often yields nonspecific or false-positive findings unrelated to melanoma.[11-13] In patients with a positive sentinel lymph node, the detection of clinically occult distant metastases with baseline imaging is uncommon (0.5-3.7%), and true positives are usually limited to those with thick, ulcerated primaries and heavy nodal tumour burden.[14] Among symptomatic patients with clinically positive nodes, yield is somewhat higher (4-16%) but remains modest.[14]

The TRIM trial from Sweden is a prospective randomized study of over 1,000 patients with stage IIB-C or III melanoma. Patients were randomized 1:1 to standard follow-up or to follow-up with additional

whole-body imaging (CT or fluorodeoxyglucose [FDG]-PET/CT) and blood tests (including S100B and lactate dehydrogenase [LDH]) at baseline, six, 12, 24, and 36 months.[15] Interim results including 1,000 patients at a median follow-up of 31 months showed no significant differences between standard follow-up and follow-up with additional imaging for 3-year recurrence-free survival (RFS, 68.7% vs. 65.5%; p=0.26), DMFS (81.4% vs. 79.2%; p=0.22), or overall survival (OS, 88% vs. 87.6%; p=0.83).[16] Patient-reported quality of life and anxiety levels were similar between groups.[17]

Choice of imaging modality and frequency. While the value of routine imaging in stage I-II disease is limited, several studies have examined the yield and optimal frequency of cross-sectional imaging across melanoma stages. A Markov modeling study in the pre-systemic therapy era estimated that six-monthly CT or PET/CT detected surgically treatable regional or distant recurrence in 6.4% of patients with stage I, 18.5% with stage II, and 33.1% with stage III disease.[18] Detection rates were lower when imaging was performed at 12-monthly intervals (3.0%, 7.9%, and 13.0%, respectively). However, the false-positive rates of CT (20%) and PET/CT (9%) reduced the overall positive predictive value. A large meta-analysis suggested that PET/CT is superior to CT in detecting distant metastases, particularly in patients with stage III-IV melanoma, where additional information from PET/CT has been reported to influence treatment decisions in up to 30% of patients, mainly by refining surgical management.[19,20]

Role of nodal US. In a recent study of 225 sentinel node-positive patients managed without completion lymph node dissection (CLND) but with routine US surveillance, only 5% developed isolated recurrence restricted to the sentinel node field, with no other sites detected within two months of follow-up.[21] Notably, 53% of the patient population received adjuvant systemic therapy. Nodal metastases in this cohort were consistently detectable on both US and PET/CT, with a median interval of 18 days between modalities.

Some controversy exists regarding the necessity of nodal US when cross-sectional imaging is performed, as PET/CT may provide comparable detection of nodal recurrence.[21,22] Variability in US protocols, interpretation, and patient adherence can also limit its utility. Nonetheless, nodal imaging remains critical for sentinel node-positive patients, and either US or cross-sectional imaging can be used.

In contrast, the MSLT-II trial (pre-adjuvant era) reported a 5-year regional nodal (in-basin) recurrence rate of approximately 26% in the observation arm, including approximately 7.7% isolated to the nodal basin.[23] These findings highlight variability in recurrence rates depending on management approach, specifically whether patients opt for adjuvant therapy or not.

For patients with positive sentinel nodes, nodal basin imaging should ideally be performed prior to clinical assessment every 6 months for the first 2 years, and every 6 to 12 months during years 3 to 5. Performing imaging before the physical exam helps to minimize additional visits in cases where the radiologist identifies findings that require clinical correlation. Nodal basin imaging is not required after completion lymph node dissection or in patients already undergoing routine cross-sectional imaging.

Patterns of recurrence after modern adjuvant therapy. Emerging evidence sheds light on recurrence patterns and outcomes in the era of modern adjuvant therapy. An international multicentre retrospective cohort of 711 patients with resected stage II-IV melanoma who recurred after adjuvant anti-PD-1 therapy found that most recurrences occurred early (median 6.2 months), with 63% recurring on therapy.[24] Initial recurrence was evenly split between locoregional recurrence (LRR) (44%) and distant metastasis (43%). Outcomes were generally poor regardless of recurrence site or timing, with a 24-month OS of 65%. Some subgroups experienced better outcomes. For example, patients with LRRs treated with surgery plus BRAF/MEK inhibitors if eligible had a 12-month recurrence free survival of 69%, compared to 25% with surgery or local therapy alone.

A separate cohort of 85 patients who relapsed after adjuvant BRAF/MEK inhibitors reported median time to recurrence of 18 months, with 22% recurring during therapy.[25] Subsequent response rates were 63% with anti-PD-1 (with or without the trial agent), 62% with ipilimumab-nivolumab, 25% with targeted therapy rechallenges, and 10% for ipilimumab monotherapy. Two-year OS was highest with anti-PD-1 (84%) or ipilimumab-nivolumab (92%), and lowest with rechallenge (49%) or ipilimumab monotherapy (45%).

Early treatment initiation in advanced disease. Evidence from KEYNOTE-001, a phase I trial of pembrolizumab in patients with advanced melanoma after adjuvant therapy, highlights the importance of early treatment initiation in advanced melanoma. In a post hoc analysis of 583 patients with measurable baseline disease, smaller baseline tumour size (BTS, <10.2 cm, median) was associated with higher ORRs (44% vs 23%; $p<0.001$) and improved OS (HR 0.38, $p<0.001$) compared with larger tumours.[26] In multivariate analysis, BTS below the median remained an independent prognostic factor for OS (HR 0.61; $p<0.001$), while PD-L1-positive tumours and lower BTS were independently associated with higher response rates and longer survival. These observations are complemented by long-term outcomes from first-line BRAF/MEK combination therapy, which demonstrates durable benefit in a subset of patients with BRAF V600E/K mutations.[27] These trial data, combined with population-level recurrence and survival rates, inform risk-adapted follow-up strategies for patients across AJCC stages.

Population-based risk data. Population-based data further inform risk-adapted follow-up. A nationwide Danish cohort of approximately 26,000 patients with stage IA-IV cutaneous melanoma (median follow-up 5.9 years) found that 10.6% developed recurrence, with 56.6% of first recurrences presenting as distant disease.[4] Risk of recurrence was similar for stage IIIA vs IIB (29.7% vs. 33.2%) and stage IIIB vs IIC (35.9% vs. 36.8%). Melanoma-specific mortality was also comparable between stage IIIA versus IIA (13.0% vs. 13.6%) and IIIB vs IIB (18.4% vs. 22.0%). These findings highlight that AJCC 8th edition stage does not fully capture the progressive increase in recurrence or mortality risk with advancing stage, although it does align with OS outcomes reported in the 8th edition.

Prognosis for early AJCC stage disease. According to the AJCC 8th edition, long-term survival for stage IA, IB and IIA melanoma is excellent, with 5-year survival rates of 99%, 97%, and 94%, respectively, and corresponding 10-year survival rates of 98%, 94%, and 88%.[5] These outcomes

indicate that patients with Stage IA-IIA disease have a low risk of recurrence and are not candidates for adjuvant systemic therapy. Accordingly, low-risk patients do not require ongoing cancer centre follow-up, though an agreed-upon period of clinical surveillance may be scheduled based on stage before transitioning to community care. A post-operative education visit can be helpful for patients before transitioning back to their primary care provider. Surveillance should include examination of the primary site, all relevant nodal basins, and a review of systems for five years, as well as monitoring for new primary melanomas. These assessments can be provided by a dermatologist or a primary care provider experienced in managing melanoma patients.

Implications for risk-stratified follow-up. Patients with stage IIB and higher disease are considered high risk due to substantially worse survival outcomes and eligibility for adjuvant systemic therapy. These patients should receive structured, multidisciplinary surveillance at a cancer centre during the first 5 years, with intensity stratified by stage and treatment status. Long-term data from the CheckMate 067 trial, demonstrate that many patients with advanced melanoma treated with nivolumab alone or in combination with ipilimumab achieve durable survival, with median OS of 72 months for combination therapy and 37 months for nivolumab monotherapy.[28] Among patients who were progression-free at 3 years, 10-year melanoma specific survival (MSS) exceeded 95%. The recommendations are further supported by the 2020 Canadian Melanoma Conference consensus, which identified stages IIB-IV as high risk and endorsed a 5-year follow-up schedule in 92% of expert votes.[29]

Follow-up for central nervous system (CNS) involvement. Among patients with newly diagnosed metastatic melanoma (stage IV), roughly one-third present with brain metastases, 15-20% of these occur as the isolated first visceral site of disease spread, while up to half will eventually develop CNS involvement during the course of their disease.[30-33] The ABC trial, a phase II study, randomized patients with active, asymptomatic melanoma brain metastasis to ipilimumab plus nivolumab or nivolumab alone, and included a non-randomized cohort of patients with prior brain-directed therapy.[34] At a median follow-up of 7.6 years, the ipilimumab plus nivolumab arm achieved an intracranial response of 51%, 7-year intracranial progression-free survival (PFS) of 42%, and OS of 48%, compared with 20%, 15%, and 26% for the nivolumab alone arm. These results support guiding CNS surveillance by clinical risk and systemic therapy status.

Healthcare Providers

Several guidelines emphasize a multidisciplinary approach to melanoma follow-up. highlighting the roles of dermatologists, medical oncologists, surgical oncologists and other healthcare professionals in performing skin and lymph node examinations.[2,8,9,35] Psychosocial support and patient-centred care, including holistic needs assessments, are also commonly recommended.[2,36,37] Several guidelines stress that clinicians should be skilled in skin and lymph node assessment and have access to tools such as dermoscopy and photo-surveillance.[2,14,36,38] Despite this general consensus, specific responsibilities among providers and the timing of care transitions are generally not well defined. The CCO guideline notes that patients with low-risk disease may be transitioned to primary

care after 5 years, based on disease and clinical risk factors.[8] However, earlier transitions to primary care partnered with dermatology are encouraged to optimize resource allocation and patient-centred care.

Patient Education

Guidelines consistently highlight the importance of patient education for melanoma follow-up. Most recommend teaching patients to perform SSEs and assess regional lymph nodes to detect recurrent disease (local or regional) or new primary melanomas.[2,8,9,14,36,38,39] Patients should be informed of what areas to examine particularly if the nodal drainage is ambiguous. While some organizations recommend monthly SSE,[40,41] the optimal frequency has not been established. Quarterly SSE balances practicality and early detection. Sun safety education is also commonly advised, including guidance on avoiding peak sun exposure and using protective clothing.[8,9,14,36] Some guidelines specifically note the increased melanoma risk for patients' family members.[9,36] The National Institute for Health and Care Excellence (NICE) guideline emphasizes a comprehensive approach to follow-up care, incorporating psychological support and discussions on the emotional impact of melanoma.[36]

Recent evidence supports patient-led, partner assisted SSE as a feasible and effective adjunct to clinician-led follow-up after localized melanoma. Pilots and randomized trials demonstrate that structured SSE training, delivered in-person, remotely, or via brief skills sessions with periodic reinforcement increases the frequency and thoroughness of the self-exams, improves detection of new primary melanomas, and does not adversely affect psychological outcomes.[42-44] Patient-led interventions also identify lesions ahead of scheduled visits, suggesting potential for earlier detection without increasing unscheduled physician visits.

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Appendix A: AJCC Staging System (8th Edition)

Melanoma TNM definitions

Primary Tumour (T)			
T category		**Thickness**	**Ulceration status**
TX: primary tumour thickness cannot be assessed (e.g., diagnosis by curettage)		Not applicable	Not applicable
T0: No evidence of primary tumour (e.g., unknown primary or completely regressed melanoma)		Not applicable	Not applicable
Tis (melanoma *in situ*)		Not applicable	Not applicable
T1		≤ 1.0 mm	Unknown or unspecified
	T1a	<0.8 mm	Without ulceration
	T1b	<0.8 mm	With ulceration
		0.8 to 1 mm	With or without ulceration
T2		> 1 to 2 mm	Unknown or unspecified
	T2a	> 1 to 2 mm	Without ulceration
	T2b	> 1 to 2 mm	With ulceration
T3		> 2 to 4 mm	Unknown or unspecified
	T3a	> 2 to 4 mm	Without ulceration
	T3b	> 2 to 4 mm	With ulceration
T4		> 4 mm	Unknown or unspecified
	T4a	> 4 mm	Without ulceration
	T4b	> 4 mm	With ulceration
Regional lymph nodes (N)			
N category		**Extent of regional lymph node and/or lymphatic metastasis**	
		Number of tumour-involved regional lymph nodes	**Presence of in-transit, satellite, and/or microsatellite metastases**
NX		Regional nodes not assessed (e.g., SLNB not performed, regional nodes previously removed for another reason). **Exception**: Pathological N category is not required for T1 melanomas, use cN.	No
N0		No regional metastases detected.	No
N1		One tumour-involved node or in-transit, satellite, and/or microsatellite	

			metastases with no tumour-involved nodes.	
	N1a		One clinically occult (i.e., detected by SLNB)	No
	N1b		One clinically detected	No
	N1c		No regional lymph node disease	Yes
N2			Two or three tumour-involved nodes or in-transit, satellite, and/or microsatellite metastases with one tumour-involved node	
	N2a		Two or three clinically occult (i.e., detected by SLNB)	No
	N2b		Two or three, at least one of which was clinically detected	No
	N2c		One clinically occult or clinically detected	Yes
N3			Four or more tumour-involved nodes or in-transit, satellite, and/or microsatellite metastases with two or more tumour-involved nodes, or any number of matted nodes without or with in-transit, satellite, and/or microsatellite metastases	
	N3a		Four or more clinically occult (i.e., detected by SLNB)	No
	N3b		Four or more, at least one of which was clinically detected, or presence of any number of matted nodes	No
	N3c		Two or more clinically occult or clinically detected and/or presence of any number of matted nodes	Yes
Distant metastasis (M)				
M category			**M criteria**	
			Anatomic site	**LDH level**
M0			No evidence of distant metastasis	Not applicable
M1			Evidence of distant metastasis	See below
	M1a		Distant metastasis to skin, soft tissue including muscle, and/or nonregional lymph node	Not recorded or unspecified
		M1a(0)		Not elevated
		M1a(1)		Elevated
	M1b		Distant metastasis to lung with or without M1a sites of disease	Not recorded or unspecified
		M1b(0)		Not Elevated
		M1b(1)		Elevated
	M1c		Distant metastasis to non-CNS visceral sites with or without M1a or M1b sites of disease	Not recorded or unspecified
		M1c(0)		Not Elevated
		M1c(1)		Elevated
	M1d			Not recorded or unspecified
		M1d(0)		Normal

		M1d(1)	Distant metastasis to CNS with or without M1a, M1b, or M1c sites of disease	Elevated

Suffixes for M category: (0) LDH not elevated, (1) LDH elevated. No suffix is used if LDH is not recorded or is unspecified.

AJCC, American Joint Committee on Cancer; CNS, central nervous system; LDH, lactate dehydrogenase; TNM, tumour, node, metastasis; SLNB sentinel lymph node biopsy.

Melanoma TNM definition

Clinical (cTNM)

Clinical staging includes microstaging of the primary melanoma and clinical/radiologic/biopsy evaluation for metastases. By convention, clinical staging should be used after biopsy of the primary melanoma, with clinical assessment for regional and distant metastases. Note that pathological assessment of the primary melanoma is used for both clinical and pathological classification Diagnostic biopsies to evaluate possible regional and/or distant metastasis also are included. Note there is only one stage group for clinical Stage III melanoma.

When T is…	And N is…	And M is…	Then the clinical stage group is…
Tis	N0	M0	0
T1a	N0	M0	IA
T1b	N0	M0	IB
T2a	N0	M0	IB
T2b	N0	M0	IIA
T3a	N0	M0	IIA
T3b	N0	M0	IIB
T4a	N0	M0	IIB
T4b	N0	M0	IIC
Any T, Tis	≥ N1	M0	III
AnyT	Any N	M1	IV

Pathological (pTNM)

Pathological staging includes microstaging of the primary melanoma, including any additional staging information from the wide-extension (surgical) specimen that constitutes primary tumour surgical treatment and pathological information about the regional lymph nodes after SLNB or TLND for clinically evidence regional lymph node disease.

When T is…	And N is…	And M is…	Then the pathological stage group is…
Tis	N0	M0	0
T1a	N0	M0	IA
T1b	N0	M0	IA
T2a	N0	M0	IB
T2b	N0	M0	IIA
T3a	N0	M0	IIA
T3b	N0	M0	IIB
T4a	N0	M0	IIB
T4b	N0	M0	IIC
T0	N1b, N1c	M0	IIIB
T0	N2b, N2c, N3b, or N3c	M0	IIIC
T1a/b-T2a	N1a or N2a	M0	IIIA
T1a/b-T2a	N1b/c or N2b	M0	IIIB
T2b/T3a	N1a-N2b	M0	IIIB
T1a-T3a	N2c or N3a/b/c	M0	IIIC
T3b/T4a	Any N ≥ N1	M0	IIIC

T4b	N1a-N2c	M0	IIIC
T4b	N3a/b/c	M0	IIID
Any T Tis	Any N	M1	IV

Pathological stage 0 (melanoma *in situ*) and T1 do not require pathological evaluation of lymph nodes to complete pathological staging; use cN information to assign their pathological stage.

SLNB sentinel lymph node biopsy; TLND, therapeutic lymph node dissection; TNM, tumour, node, metastasis.

Development and Revision History

This guideline was developed by a multidisciplinary working group comprised of members from the Alberta Provincial Cutaneous Tumour Team and a methodologist from the Guideline Resource Unit. The draft was externally reviewed and endorsed by other members of the Alberta Provincial Cutaneous Tumour Team who were not involved in its development, including surgical oncologists, radiation oncologists, medical oncologists, dermatologists, nurses, pathologists, and pharmacists. A detailed description of the methodology followed during the guideline development process can be found in the Guideline Resource Unit Handbook.

This guideline was originally developed in June 2009 and revised in February 2013 and December 2025.

Maintenance

A formal review of the guideline will be conducted in 2028. If critical new evidence is brought forward before that time, however, the guideline working group members will revise and update the document accordingly.

Abbreviations

AHS, Alberta Health Services; AJCC, American Joint Committee on Cancer; BTS, baseline tumour size; CCA, Cancer Care Alberta; CCO, Cancer Care Ontario; CNS, central nervous system; CT, computed tomography; DFS, disease-free survival; DMFS, distant metastasis-free survival; DSS, disease-specific survival; ESMO, European Society for Medical Oncology; LRR, locoregional recurrence; MRI, magnetic resonance imaging; MSS, melanoma-specific survival; NCCN, National Comprehensive Cancer Network; NICE, National Institute for Health and Care Excellence; PET, positron emission tomography; PFS, progression-free survival; OS, overall survival; RFS, recurrence-free survival; SSE, self skin-examination; US, ultrasound.

Disclaimer

The recommendations contained in this guideline are a consensus of the Alberta Provincial Cutaneous Tumour Team and are a synthesis of currently accepted approaches to management, derived from a review of relevant scientific literature. Clinicians applying these guidelines should, in consultation with the patient, use independent medical judgment in the context of individual clinical circumstances to direct care.

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