



# Clinical Practice Guidelines

for the Management of **Melanoma** in Australia and New Zealand

Evidence-based  
Best Practice  
Guidelines

Approved by





Approved by the National Health and Medical Research Council  
on 31 October 2008

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## Disclaimer

This document is a general guide to appropriate practice, to be followed subject to the clinician's judgment and the patient's preference in each individual case.

The guidelines are designed to provide information to assist in decision-making. They are based on the best evidence available at time of compilation. The guidelines are not meant to be prescriptive.

## Conflict of interest

The development of these clinical practice guidelines has been undertaken by a non-remunerated working party of the Australian Cancer Network and NZGG, with further support from the Cancer Institute NSW, the Cancer Council Australia and the Clinical Oncological Society of Australia.

Some members have received sponsorship to attend scientific meetings, been supported in the conducting of clinical trials, or have been involved in an advisory capacity by pharmaceutical and biochemical companies. Others have special interests indicated in specific chapters.

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# Foreword

Melanoma is a disease that is particularly important in Australia and New Zealand. The incidence of melanoma in the USA is around one third of the rates in Australia and the UK has one quarter of the incidence rate.<sup>1</sup>

Melanoma is the fourth most common cancer in Australia with one in 14 males and one in 23 females expected to develop melanomas in their life time.<sup>2</sup> Its incidence has been increasing by 16% in males and 24% in females over the last decade. It is our second most prevalent cancer with around 38,000 people cured or alive with the disease in New South Wales alone.

We know that around 60% of adults in New South Wales get sunburnt every year and around 15% five or more times each year.<sup>3</sup>

Survival from melanoma measured five years after the diagnosis is high if caught early with 96% alive if localised but only 63% if melanoma had spread regionally.<sup>2</sup> Only 34% were alive at five years following a presentation with metastatic melanoma. Only 80% of melanomas are diagnosed when localised and this could be improved considerably. This data clearly provides a rationale for promoting early diagnosis with the rigorous application of appropriate treatment.

Overall results have changed only marginally over the last 25 years with five year survival improving from 88% in 1980 to 90% in 2004. However, in world terms these outcomes are good with USA reporting 92% five year survival and the UK 82%.<sup>4</sup> Optimal management of each stage of disease offers hope that survival can improve further. Strict adherence to best practice guidelines as presented in this report is the key to such improvements in outcomes in the future.

The *Clinical Practice Guidelines for the Management of Melanoma in Australia and New Zealand* provides the evidence for optimal care developed by an expert team. The widespread dissemination and use of these guidelines will lead to better outcomes for our patients. I commend them to you.

**James F Bishop** AO MD MMed MBBS FRACP FRCPA  
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Professor of Cancer Medicine, University of Sydney

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## References

1. Tracey EA, Chen S, Baker D, Bishop J, Jelfs P. Cancer in New South Wales: Incidence and Mortality 2004. 2006. Sydney, Cancer Institute NSW.
2. Tracey EA, Baker D, Chen W, Stavrou E, Bishop J. Cancer in New South Wales: Incidence, Mortality and Prevalence 2005. 2007. Sydney, Cancer Institute NSW.
3. Cotter T, Perez D, Dessaix A, Baker D, Murphy M, Crawford J et al. Cancer and Lifestyle Factors. 2007. Sydney, Cancer Institute NSW Monograph.
4. Tracey EA, Barraclough H, Chen W, Baker D, Roder D, Jelfs P et al. Survival from Cancer in New South Wales: 1980–2003. 2007. Sydney, Cancer Institute NSW Monograph.

# New Zealand foreword

*The New Zealand Cancer Control Strategy Action Plan* has specific actions for prevention, early detection and treatment goals that have supported the collaboration between Australia and New Zealand to develop this guideline.<sup>1</sup> The Early Detection Advisory Group (EDAG) recommendations<sup>2</sup> included development of a trans-Tasman management guideline that supports the recognition and management of melanoma in medical practice, and emphasises the importance of the promptness and accuracy of histological reporting. It is, therefore, pleasing that we can acknowledge the dedication of those who have contributed to the development of this guideline and the importance of this to support improved service delivery to those diagnosed with melanoma.

Malignant melanoma is an important health problem in New Zealand, with incidence and death rates being among the highest in the world. Melanoma is the fourth most common type of cancer registration for both males and females, with a total of 1896 new registrations and 249 deaths reported from the cancer registry in 2004.<sup>3</sup>

The age-standardised incidence rate for melanoma in New Zealand is approximately eight times higher in non-Māori than in Māori. However, between 1996 and 2001, the relatively small number of Māori cases had a significantly higher risk of being diagnosed at more advanced stages of disease spread than non-Māori.<sup>4</sup>

Analysis of New Zealand data on melanoma shows similar patterns to Australia, with the thickness of the lesion being the strongest predictor of prognosis; and in general, the thinner the lesion, the better the outcome.

Analysis of New Zealand data also shows that advanced age, non-European ethnicity and nodular and acral lentiginous types of melanoma are associated with thicker melanomas.

Implementation of these guidelines will provide challenges. However, alignment of practice with these guidelines will encourage improvements that lead to better outcomes. I encourage all those involved in the pathway of care for melanoma to continue collaboration for improvement of outcomes supported by this evidence-based guideline.

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## References

1. Cancer Control Taskforce. *The New Zealand Cancer Control Strategy: Action Plan 2005–2010*. 2005. Wellington, Ministry of Health.
2. Report on the Early Detection of Skin Cancer in New Zealand. Early Detection Advisory Group December 2006.
3. New Zealand Health Information Service. *Cancer: New Registrations and Deaths 2004*. 2007. Wellington, Ministry of Health.
4. Te Ropu Rangahau Hauora a Eru Pomare Wellington School of Medical and Health Sciences. *Unequal Impact: Māori and Non-Māori Cancer Statistic 1996–2006*. May 2006. Wellington, Ministry of Health.

# Preface

Australia and New Zealand have the highest melanoma incidence rates in the world. Melanoma is therefore a major public health problem in both countries, with important social and economic implications. The high incidence rates are attributed to the high proportions of the population in both countries who are of Anglo-Celtic descent, and who are inevitably exposed to high levels of solar radiation from earliest childhood.

It is well known that in both Australia and New Zealand there are fairly wide variations in the treatment recommendations given to melanoma patients, and also in the quality of care that they receive. It is hoped that these Management Guidelines will assist in raising standards and producing greater uniformity of care by specifying evidence-based protocols for the prevention, diagnosis, treatment and follow-up of melanoma. The Guidelines were compiled by a multidisciplinary working party whose members devoted countless hours of their time to the task, mostly on a voluntary basis. All the available evidence was systematically collected and evaluated using a process approved by the Australian NHMRC and the New Zealand Guidelines Group, allowing levels of evidence to be documented and grades assigned for each recommendation that was made. Even when the available evidence had been carefully analysed, however, differing points of view were sometimes expressed by members of the working group. When this occurred an explanation of the reasoning that led to the recommendation through a consensus process was provided, as well as documentation of the level of evidence for the statement or recommendation.

The Guidelines are designed primarily to assist clinicians who care for patients with melanoma. However, it is expected that as well as being a best practice resource for doctors, they will also be useful for other health care professionals and for patients themselves, who may not only seek information but who may also require reassurance that the treatment they are receiving is evidence-based.

**John F Thompson** MD FRACS FACS

Chair, Melanoma Guidelines Working Party



# Executive summary

- In 2002 reporting of melanoma to cancer registries in Australia and New Zealand revealed it to be the fourth most common cancer and ninth most common cancer causing death in Australia and New Zealand. These registries reported melanoma incidence rates in males and females that were substantially above those from all other reporting registries worldwide<sup>1</sup>
- Increasing mortality from melanoma in Australian and New Zealand men is a disturbing trend
- Exposure to ultraviolet (UV) radiation in sunlight is the primary cause of most melanoma
- Intermittent pattern of sun exposure is most frequently associated with melanoma
- Sun bed and tanning bed exposure is associated with a small increase in melanoma risk and may be more significant when exposure occurs before 35 years of age
- Brief periods of sun exposure are needed to maintain vitamin D levels
- In the absence of any substantial evidence as to its effectiveness in reducing mortality population-based screening cannot be recommended
- It is important for practicing clinicians to be aware of high-risk groups in the population and that those in such groups also be aware of their status and establish a surveillance program
- Early detection and diagnosis of melanoma is clearly important in sound management
- Doubt in diagnosis or where melanoma is highly suspected, referral to a specialist or biopsy is appropriate. A 2mm margin for the biopsy is adequate. Prophylactic excision of benign naevi is not recommended
- Diagnosis may be enhanced by clinicians trained in dermoscopy
- It is imperative that all biopsy material be submitted for histopathological examination
- Management of involved lymph nodes should be undertaken in specialist centres
- Following diagnosis of metastatic melanoma, no further investigations are required unless surgery is planned and the detection of additional sites of distant disease would result in a change in management
- Communication skills training should help promote patient-centred care, shared decision-making, empathy and support where desired
- Timing of referral for palliative care relates to the needs of the patient and family, not just the stage of the disease
- In treating specific populations, it is important to recognise cultural differences, particularly the final disposal of body parts after surgical removal in Māori and Pacific peoples. It is also good practice in physical examination to ensure that skin areas examined include periungual and subungual skin and soles of feet
- Patients with high risk primary melanoma, lymph node involvement and melanoma in unusual sites (eg. mucosal and disseminated melanoma) are best managed by multidisciplinary teams in a specialist or melanoma facility

- These evidence-based guidelines have been developed by a multidisciplinary volunteer working party. They are aimed at encouraging improved management through evidence-based decision-making
- Guidelines are guides not rules and they are not prescriptive in any way. A good approach is to be fully aware of appropriate guidelines before making final management decisions

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## Reference

1. Australian Cancer Network Melanoma Guidelines Revision Working Party. Clinical Practice Guidelines for the Management of Melanoma in Australia and New Zealand. The Cancer Council Australia and Australian Cancer Network, Sydney and New Zealand Guidelines Group, Wellington (2008).

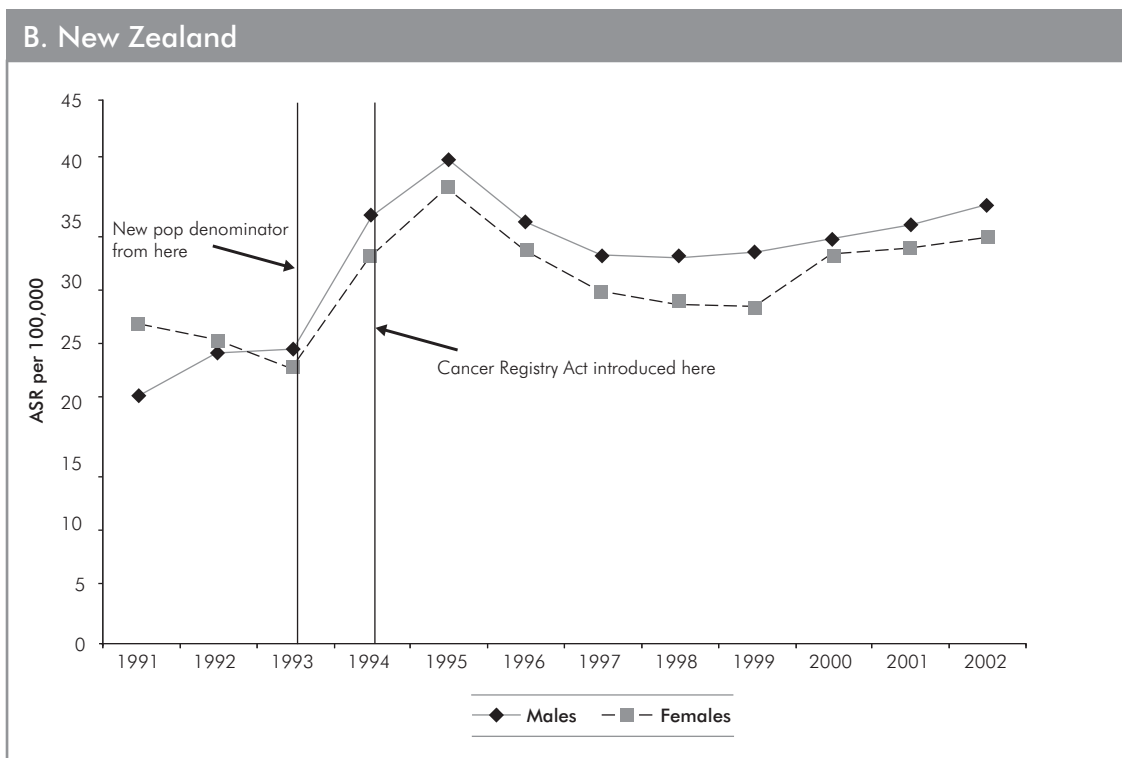
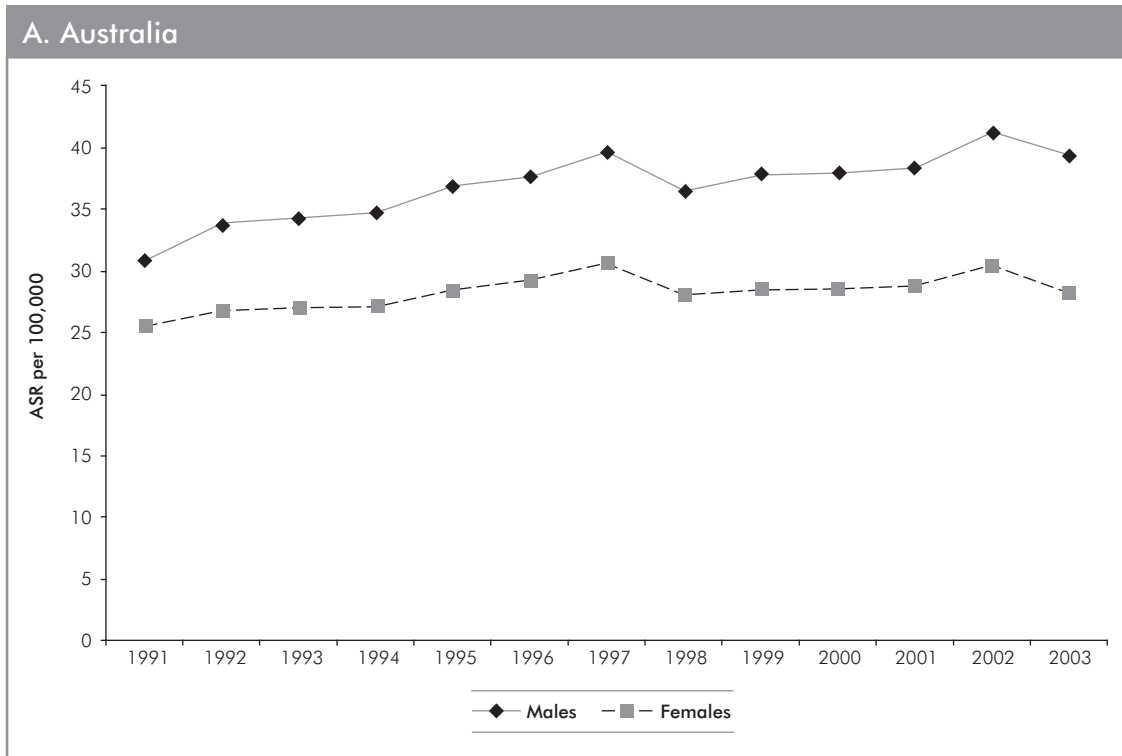
# Introduction

While melanoma is comparatively infrequent globally, it is an important contributor to the burden of cancer in Australia and New Zealand. Together, Australia and New Zealand contributed 6.4% of the cases and 3.2% of the deaths to the estimated global totals of 160,000 newly diagnosed melanomas and 41,000 deaths from melanoma in the year 2002.<sup>1</sup> While melanoma was the 18th most frequent among 25 specific categories of cancer (excluding nonmelanocytic skin cancers), and 22nd most frequent as a cause of cancer death, globally in 2002 it was the fourth most commonly diagnosed cancer and the ninth most common cancer causing death in Australia and New Zealand. Australian and New Zealand cancer registries reporting to the International Agency for Research on Cancer in 1997 (the most recent year for which data are publicly available) all had melanoma incidence rates in males and females that were substantially above those from all other reporting registries worldwide.<sup>2</sup>

In spite of the high incidence of melanoma in Australia and New Zealand and the attention given to melanoma control in these countries, there is as yet limited evidence that their incidence rates are falling. For the period 1991–2003, incidence of melanoma in Australian males showed an upward trend; that for females, after increasing to 1997, remained steady (Figure 1A).<sup>3</sup> While corresponding patterns in New Zealand for the same period are somewhat complicated by an increase in completeness of cancer registration due to the passage of the Cancer Registry Act, 1993, the recent incidence trends are upwards in both sexes (Figure 1B).<sup>4</sup> Melanoma mortality shows a more encouraging picture in females, with the rates steady from 1991–2003 in New Zealand and falling a little in Australia to 2005; but in males, after initial periods of stability from 1991, rates now appear to be increasing in both countries (Figure 2).<sup>4,5</sup>

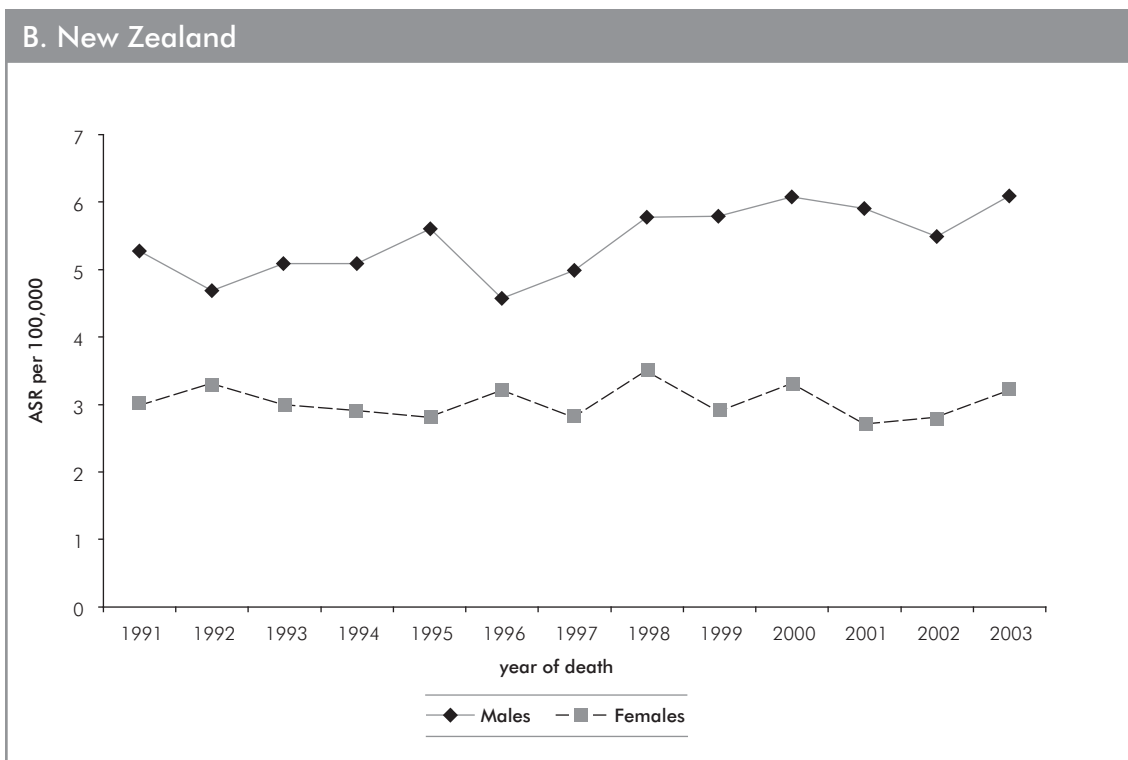
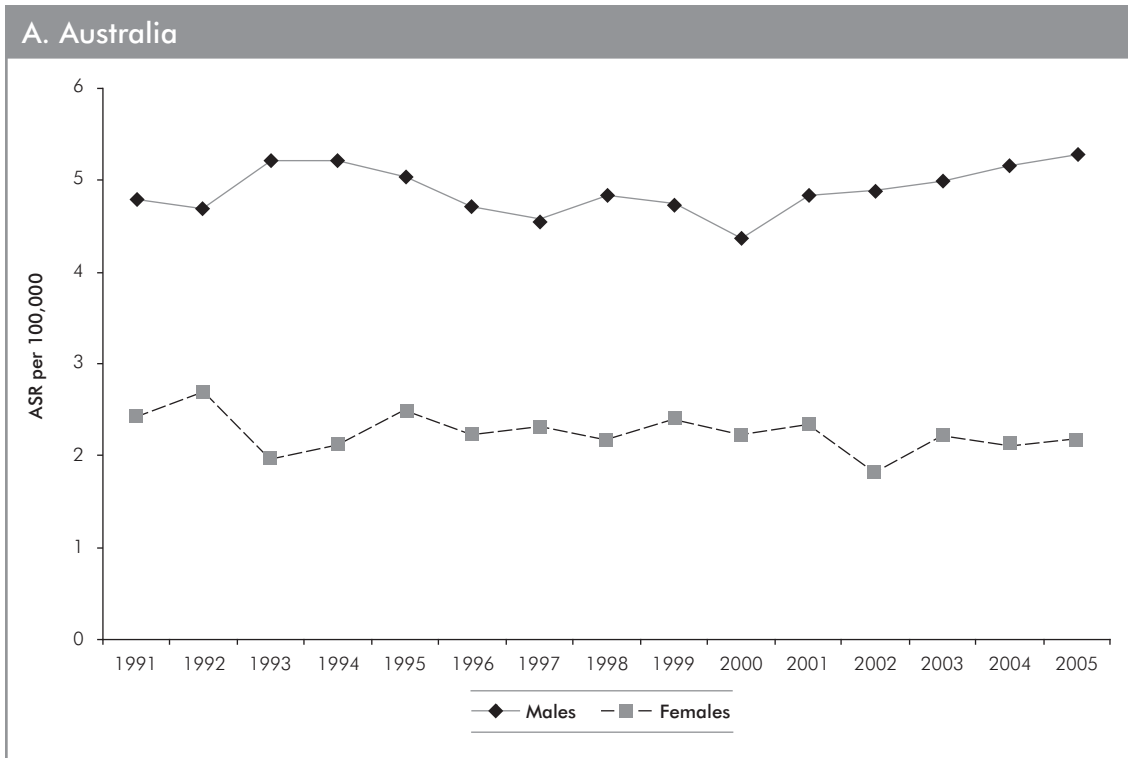
There is, though, some cause for hope, but also a warning note. An inspection of the incidence trends by age in Australia shows little evidence of any increase in incidence from 1991–2003 in any age-group under 45 years age.<sup>3</sup> The increases into the 1990s and 2000s have all been in older age groups and the older the age group the steeper the increase, particularly in men. Similar patterns by age are seen in the mortality trends, except that there was little upward trend in the 1990s in men up to 69 years of age and women up to 79 years of age, and there were downward trends in men up to 39 years of age and women up to 49 years of age.<sup>5</sup> It is reasonable to hope that these more favourable trends in younger age groups will extend to older age groups as the cohorts showing them age. However, there is an important exception to these patterns by age: reversal in previous flat or downward trends in most age-groups from 20–69 years of age have contributed to the increase in mortality in men that began in 2001, though it was driven mainly by continuing upward trends in the oldest men.

**Figure 1** Trends in the age-standardised incidence rates (ASR) of melanoma in Australia and New Zealand<sup>3,4</sup>



**Note:** Rates are standardised to the Segi World Population.

**Figure 2** Trends in the age-standardised mortality rates (ASR) of melanoma in Australia and New Zealand<sup>4,5</sup>



**Note:** Rates are standardised to the Segi World Population.

The increasing mortality from melanoma in Australian and New Zealand men is a disturbing trend. The continuing incidence increase could have contributed to it, but this may not be a sufficient explanation. Could it be due to poorer survival due, perhaps, to later diagnosis, poorer treatment or some other factor? There are published data on trends in melanoma survival in New South Wales (NSW), the most populous Australian State, covering cases incident from 1980–1998 and deaths occurring up to the end of 2000 (Table 1).<sup>6,7</sup> Five-year relative survival for men and women together increased in successive diagnosis intervals to 91.0% in the most recent interval (1994–1998). Five-year relative survival for men and women diagnosed between 1995 and 2006 in New Zealand was 90.5%. These data show no hint of a worsening in survival, but they would not be sensitive to a trend only in men and beginning with deaths in 2001. NSW cancer registry data on trends in the distribution of melanoma by thickness up to 2002 also show little evidence of an unfavourable trend (NSW Central Cancer Registry personal communication) that might cause increasing melanoma mortality.

The trend data reviewed above clearly indicate that Australia and New Zealand have some way to go before they have melanoma ‘under control’. These new guidelines will make an important and timely contribution to ensuring that melanoma control in our two countries is informed to the greatest degree possible by research evidence. The trend data also point, as will the guidelines themselves, to areas where research is required if we are to observe more favourable trends in melanoma than we have seen over the past ten or so years and in particular, during the period since the first Australian guidelines were published.

**Table 1** Trends in five-year relative survival from melanoma diagnosed in New South Wales, Australia, from 1980 to 1998<sup>6,7</sup>

Diagnosis interval*	Five-year relative survival %†
1980–1984	87.4%
1985–1988	89.2%
1989–1992	90.6%
1993–1996	90.9%
1994–1998	91.0%

\* Survival percentages are adjusted for age, sex and extent of cancer at diagnosis.

† Those diagnosed from 1980–1984 to 1993–1996 were followed-up for survival until the end of 1998; those diagnosed in the interval 1994–1998 were followed-up until the end of 2000.

## References

1. Ferlay J, Bray F, Pisani P, Parkin DM. GLOBOCAN2002: Cancer Incidence, Mortality and Prevalence Worldwide. IARC CancerBase No 5. version 2.0 <<http://www-dep.iarc.fr/>> accessed 9th September 2007. 2004. Lyon, IARC Press.
2. Parkin DM, Whelan SL, Ferlay J, Storm H. Cancer Incidence in Five Continents, Vol I to VIII. IARC CancerBase No. 7 <<http://www-dep.iarc.fr/>> accessed 9th September 2007. 2005. Lyon, IARC Press.
3. Australian Institute of Health and Welfare (AIHW), Australasian Association of Cancer Registries. National Cancer Statistics Clearing House. 2007. <[http://www.aihw.gov.au/cancer/datacubes/index\\_2007.cfm](http://www.aihw.gov.au/cancer/datacubes/index_2007.cfm)> accessed 9th September 2007.
4. New Zealand Health Information Service. Cancer: New Registrations and Deaths 1996. 2000. Wellington, New Zealand Ministry of Health.
5. Australian Institute of Health and Welfare (AIHW). Australian Cancer Incidence and Mortality (ACIM) books <[http://www.aihw.gov.au/cancer/datacubes/acim\\_books\\_2007.cfm](http://www.aihw.gov.au/cancer/datacubes/acim_books_2007.cfm)> accessed 9th September 2007. 2007.
6. Yu XQ, O'Connell D, Armstrong B, Gibberd R. Trends in Cancer Survival in NSW 1980 to 1996. <<http://www.nswcc.org.au/editorial.asp?pageid=2252>> accessed 9th September 2007. 2006. Sydney, The Cancer Council NSW.
7. Yu XQ, O'Connell D, Gibberd R, Smith D, Armstrong B. Cancer Survival, Incidence and Mortality by Area Health Service in NSW 1994 to 2000 <<http://www.nswcc.org.au/editorial.asp?pageid=787>> accessed 9th September 2007. 2003. Sydney, The Cancer Council NSW.



# Summary of clinical practice recommendations

These guidelines are intended for use by all practitioners and health workers who require information about management of patients with melanoma. They are wide-ranging in scope, covering prevention, screening, diagnosis and psychosocial matters as well as the clinical aspects of surgery, radiotherapy and chemotherapy.

The guidelines have been produced by a process of systematic literature review; critical appraisal and consultation encompassing all interested parties in Australia and New Zealand (see Appendix 2, p182).

This summary provides a list of the evidence-based recommendations detailed in the text of each chapter. It also provides a grade for each recommendation (A–D). The key references that underpin the recommendation are provided in the last column.

Each recommendation was assigned a grade by the expert working group taking into account the volume, consistency, generalisability, applicability and clinical impact of the body of evidence supporting each recommendation.

## Grading of recommendations

Grade	Description
A	Body of evidence can be trusted to guide practice
B	Body of evidence can be trusted to guide practice in most situations
C	Body of evidence provides some support for recommendation(s) but care should be taken in its application
D	Body of evidence is weak and recommendation must be applied with caution

## Good practice points

Good practice points are used when the conventional grading of evidence is not possible – these points represent the views of the Guideline Development Group.

## Levels of evidence

Table 2		Designations of levels of evidence according to type of research question			
Level	Intervention	Diagnosis	Prognosis	Aetiology	Screening
I	A systematic review of level II studies	A systematic review of level II studies	A systematic review of level II studies	A systematic review of level II studies	A systematic review of level II studies
II	A randomised controlled trial	A study of test accuracy with: an independent, blinded comparison with a valid reference standard, among consecutive patients with a defined clinical presentation	A prospective cohort study	A prospective cohort study	A randomised controlled trial
III-1	A pseudo-randomised controlled trial (i.e. alternate allocation or some other method)	A study of test accuracy with: an independent, blinded comparison with a valid reference standard, among non-consecutive patients with a defined clinical presentation	All or none	All or none	A pseudo-randomised controlled trial (i.e. alternate allocation or some other method)
III-2	A comparative study with concurrent controls: <ul style="list-style-type: none"> <li>• non-randomised, experimental trial</li> <li>• cohort study</li> <li>• case-control study</li> <li>• interrupted time series with a control group</li> </ul>	A comparison with reference standard that does not meet the criteria required for Level II and III-1 evidence	Analysis of prognostic factors amongst untreated control patients in a randomised controlled trial	A retrospective cohort study	A comparative study with concurrent controls: <ul style="list-style-type: none"> <li>• non-randomised, experimental trial</li> <li>• cohort study</li> <li>• case-control study</li> </ul>
III-3	A comparative study without concurrent controls: <ul style="list-style-type: none"> <li>• historical control study</li> <li>• two or more single arm study</li> <li>• interrupted time series without a parallel control group</li> </ul>	Diagnostic case-control study	A retrospective cohort study	A case-control study	A comparative study without concurrent controls: <ul style="list-style-type: none"> <li>• historical control study</li> <li>• two or more single arm study</li> </ul>
IV	Case series with either post-test or pre-test/post-test outcomes	Study of diagnostic yield (no reference standard)	Case series, or cohort study of patients at different stages of disease	A cross-sectional study	Case series

**Note:** Explanatory notes for this table are outlined in the methods handbook<sup>9</sup> available on request from the Australian Cancer Network or the New Zealand Guidelines Group.

## Recommendations

Recommendations by chapter		Grade	Refs
<b>1</b>	<b>Prevention of melanoma</b>		
	1. Sunburn be avoided and UV protection (physical methods complemented by sunscreens) adopted	<b>B</b>	<b>2</b>
	2. Sunscreens be used to complement but not to replace physical methods of UV protection	<b>C</b>	<b>17, 19</b>
	3. Risks associated with exposure to tanning booths and sunbeds be explained	<b>C</b>	<b>8</b>
	4. As brief sun exposures are needed to maintain vitamin D levels, total lack of sun exposure is not advised without vitamin D supplementation	<b>C</b>	<b>10</b>
<b>2</b>	<b>Population screening for melanoma</b>		
	1. In the absence of substantive evidence as to its effectiveness in reducing mortality from melanoma, population-based skin screening cannot be recommended	<b>C</b>	<b>46</b>
<b>3</b>	<b>Identification and management of high-risk individuals</b>		
	1. Clinical assessment of future risk of melanoma take into account: <ul style="list-style-type: none"> <li>• person's age and sex</li> <li>• history of previous melanoma or non-melanoma skin cancer</li> <li>• family history of melanoma</li> <li>• number of naevi (common and atypical)</li> <li>• skin and hair pigmentation</li> <li>• response to sun exposure</li> <li>• evidence of actinic skin damage</li> </ul>	<b>B</b>	<b>1–6</b>
	2. Individuals at high risk of melanoma and their partner or carer be educated to recognise and document lesions suspicious of melanoma, and to be regularly checked by a clinician with six-monthly full body examination supported by total body photography and dermoscopy as required	<b>C</b>	<b>8</b>
	<b>Good practice point</b> <ul style="list-style-type: none"> <li>• Prophylactic removal of non-suspicious lesions is not recommended since it is unlikely to increase survival and therefore may incur unnecessary procedures and give false reassurance as many new melanomas in high-risk individuals will occur outside pre-existing naevi</li> </ul>		

continued over...

Recommendations by chapter	Grade	Refs
<b>3 Identification and management of high-risk individuals</b> continued...		
3. Screening for a genetic mutation such as the CDKN2A gene be contemplated only after a thorough clinical risk assessment (the patient is at personal high risk of melanoma), confirmation of a strong family history of melanoma (there is a significant probability of a family mutation), and appropriate genetic counselling	<b>C</b>	<b>9–14</b>
<b>4 Classification of melanoma</b>		
1. That the current AJCC/UICC classification system be used for staging patients with melanoma	<b>B</b>	<b>3</b>
<b>5 Clinical diagnosis</b>		
1. Training and utilisation of dermoscopy is recommended for clinicians routinely examining pigmented skin lesions	<b>A</b>	<b>21–30, 50</b>
2. Consider the use of sequential digital dermoscopy imaging to detect melanomas that lack dermoscopic features of melanoma	<b>B</b>	<b>34–37</b>
3. Consider the use of baseline total body photography as a tool for the early detection of melanoma in patients who are at high risk for developing primary melanoma	<b>C</b>	<b>42–50</b>
<p><b>Good practice points</b></p> <ul style="list-style-type: none"> <li>• Examination for melanoma detection requires examination of the whole skin surface under good lighting</li> <li>• A careful clinical history of specific changes in the lesion, any symptoms and their time course is critically important in assessing whether a lesion may be melanoma, particularly for melanomas that have absent or unusual clinical features for melanoma</li> <li>• Where there is a low index of suspicion for early, non-invasive melanoma a short period of observation aided by measurement, a clinical photo or dermoscopic imaging may be appropriate</li> <li>• All patients seeking advice about pigmented lesions be encouraged to regularly check their skin with the aid of a mirror or a partner and advised about the changes to look for in early melanoma</li> </ul>		

Recommendations by chapter		Grade	Refs
<b>6</b>	<b>Biopsy</b>		
	1. The optimal biopsy approach is complete excision with a 2mm margin and upper subcutis	C	1, 2, 3, 6
	2. Partial biopsies may not be fully representative of the lesion and need to be interpreted in light of the clinical findings	C	7
	3. Incisional, punch or shave biopsies may be appropriate in carefully selected clinical circumstances, for example, for large facial or acral lesions, or where the suspicion of melanoma is low	C	13–16, 18
	<b>Good practice point</b>		
	<ul style="list-style-type: none"> <li>It is advisable to review unexpected pathology results with the reporting pathologist</li> </ul>		
<b>7</b>	<b>Histopathological reporting of cutaneous melanoma</b>		
	1. The essential components of a histopathological report: <ul style="list-style-type: none"> <li>Breslow thickness</li> <li>margins of excision (microscopic)</li> <li>mitotic rate/mm<sup>2</sup></li> <li>level of invasion (Clark)</li> <li>ulceration</li> </ul>	A	1–7
	2. The following components of a histological report are of prognostic or other value: <ul style="list-style-type: none"> <li>vascular invasion, local metastases, microsatellites and in-transit metastases, tumour-infiltrating lymphocytes, regression, desmoplasia, neurotropism, associated benign melanocytic lesion, solar elastosis, predominant cell type, histological growth pattern, growth phase and immunohistochemistry</li> </ul>	C	8–24
	3. Histological criteria, review of the primary melanoma and clinicopathological correlation be used for distinguishing between persistent primary melanoma and local metastasis	C	25–27
	4. The synoptic report be used in conjunction with, but not as a replacement for, the descriptive report	C	28, 29

continued over...

Recommendations by chapter	Grade	Refs
<b>7</b> <b>Histopathological reporting of cutaneous melanoma</b> continued...		
5. Pathology reports should include information from sentinel lymph biopsies, derived from multiple histological sections of sentinel nodes (including sections stained with H&E and immunohistochemically for melanoma-associated antigens including S-100)	<b>C</b>	<b>35–38</b>
6. Non-sentinel lymph nodes should be carefully examined and reported	<b>D</b>	<b>39</b>
<b>8</b> <b>Appropriate investigations</b>		
1. Following the diagnosis of primary cutaneous melanoma (stage I, II) routine investigations are not required for asymptomatic patients	<b>D</b>	<b>1–9, 11–13</b>
2. Routine investigations, including radiology, are not indicated for patients following the diagnosis of a positive sentinel lymph node in the absence of symptoms suggestive of metastatic disease	<b>D</b>	<b>3, 5–25</b>
3. Following the diagnosis of locoregional melanoma, patients require a detailed history and physical examination. Investigations, including radiology, are indicated for symptoms suggestive of metastatic disease. CT scan of the chest, abdomen and pelvis or whole-body PET scan may be performed for the workup of otherwise asymptomatic patients prior to definitive therapy where the detection of occult metastatic disease would influence management	<b>D</b>	<b>3, 5–25</b>
4. Patients suspected of having lymph node metastasis from cutaneous melanoma should undergo fine needle aspiration biopsy, with ultrasound or radiological guidance when required, to confirm the presence of stage III disease	<b>D</b>	<b>3, 5–25</b>
5. Investigations, including serum LDH, CT, MRI, and/or PET scan, are indicated for symptoms suggestive of metastatic melanoma	<b>D</b>	<b>20, 24–31</b>
6. Following the diagnosis of metastatic melanoma, no further investigations are required unless surgical therapy is planned and the detection of additional sites of distant disease would result in a change in management	<b>D</b>	<b>20, 24–31</b>

Recommendations by chapter	Grade	Refs
<b>9 Congenital melanocytic naevi</b>		
<b>Small and medium congenital melanocytic naevi</b>		
1. Prior to puberty, decisions regarding removal of these lesions be based on cosmetic considerations alone	C	3–6, 11, 13–17
2. Parents or patients be informed that the evidence regarding risk in adult life does not support routine prophylactic removal of these lesions	C	3–6, 11, 13–17
3. Patients report any suspicious changes in these lesions	C	3–6, 11, 13–17
4. Biopsy or removal of any lesions showing suspicious features be undertaken	C	3–6, 11, 13–17
<b>Large congenital melanocytic naevi more than 20cm in diameter</b>		
5. Lifetime surveillance be undertaken whether or not any surgery has been performed. This could include baseline photography and three-monthly evaluation for the first year of life, followed by six-monthly evaluation for the next three years, and then yearly evaluation	C	7–13, 17
6. Parents or patients report immediately any concerning changes that occur between follow-up visits	C	7–13, 17
7. Biopsies be undertaken immediately of any areas which show suspicious features	C	7–13, 17
<b>Good practice points</b>		
<ul style="list-style-type: none"> <li>• All decisions regarding surgical management involve prolonged discussion with the parents, and later the patient, covering estimated risk of melanoma, what is involved in the surgery, the number and length of hospitalisations, possible morbidity of the procedures, and likely end cosmetic result</li> <li>• MRI of the brain be undertaken in patients with large CMN in an axial distribution and those with multiple large scattered lesion, if the facilities are available. Some features of neurocutaneous melanosis, such as hydrocephalus, are amenable to treatment</li> </ul>		

Recommendations by chapter		Grade	Refs
<b>10</b>	<b>Lentigo maligna</b>		
	1. Biopsy is indicated for changing pigmented lesions on the face	C	3, 6
	2. Where lentigo maligna is histologically confirmed, complete excision is the preferred management	C	5, 6
	3. Radiotherapy is an alternative treatment option for patients where surgical excision is problematic or best avoided	C	3–6
	4. Cryotherapy is a form of treatment that may occasionally be useful in patients with severe comorbidities or in those in whom surgery is not a possible option	D	6
	5. Topical treatment modalities for lentigo maligna cannot be recommended at this time	C	6
	<b>Key point</b>		
	<ul style="list-style-type: none"> <li>For some patients with lentigo maligna, observation for change utilising macroscopic and dermoscopic photography and measurement is an acceptable alternative to immediate excision, with a biopsy indicated for changing lesions</li> </ul>		
<b>11</b>	<b>Treatment of primary melanoma</b>		
	1. After initial excision biopsy; the radial excision margins, measured clinically from the edge of the melanoma, be:		5, 13
	1. (pTis) Melanoma <i>in situ</i> : margin 5mm	C	
	2. (pT1) Melanoma < 1.0mm: margin 1cm	B	
	3. (pT2) Melanoma 1.0–2.0mm: margin 1–2cm	B	
	4. (pT3) Melanoma 2.0–4.0mm: margin 1–2cm	B	
	5. (pT4) Melanoma > 4.0mm: margin 2cm	B	
	2. <b>Caution</b> be exercised for melanomas 2–4mm thick, because evidence concerning optimal excision margins is unclear. Where possible, it may be desirable to take a wider margin (2cm) for these tumours depending on tumour site and surgeon/patient preference	B	5–7
	3. <b>Acral lentiginous and subungual melanoma</b> are usually treated with a minimum margin as set out above, where practicable, including partial digital amputation usually incorporating the joint immediately proximal to the melanoma	D	1, 14–16

continued over...

Recommendations by chapter	Grade	Refs
<b>11 Treatment of primary melanoma</b> continued...		
<p><b>Good practice points</b></p> <ul style="list-style-type: none"> <li>• Excisions should have vertical edges to ensure consistent margins</li> <li>• Caution be exercised for melanomas thicker than 2mm, because evidence concerning optimal excision margins is unclear. Where possible, it may be desirable to take a wider margin (2cm) for thicker tumours depending on tumour site and surgeon/patient preference</li> <li>• Excision biopsy of the complete lesion with a narrow (2mm) margin is appropriate for definitive diagnosis of primary melanoma. Lesions excised with a margin less than those defined above should be re-excised as soon as practicable to achieve these margins</li> <li>• Depth of excision in usual clinical practice is excision down to but not including the deep fascia unless it is involved</li> <li>• Where tissue flexibility is limited, a flap repair or skin graft is sometimes necessary subsequent to an adequate margin of removal</li> <li>• Treatment of most melanomas can be achieved on an outpatient or day-surgery basis, under local anaesthesia, unless nodal surgery is required</li> <li>• Melanoma (i) is a risk factor for new primary melanoma(s) and (ii) also has the potential to recur or metastasise. Patients should be appropriately managed and followed-up for these aspects, as discussed elsewhere in these guidelines</li> <li>• Patients should be informed that surgical excision may be followed by wound infection, haematoma, failure of the skin graft or flap, risk of numbness, a non-cosmetic scar and the possibility of further surgery</li> <li>• Some tumours may be incompletely excised despite using the above-recommended margins. These include melanomas occurring in severely sun-damaged skin and those with difficult-to-define margins (e.g. amelanotic and desmoplastic melanomas). In these categories, the presence of atypical melanocytes at the margins of excision should be detected by comprehensive histological examination (including immunohistochemical staining) and followed by wider excision. The possible use of staged Mohs excision has been proposed in such situations</li> </ul>		

continued over...

Recommendations by chapter	Grade	Refs
<b>11 Treatment of primary melanoma</b> continued...		
<ul style="list-style-type: none"> <li>Amelanotic melanoma can present significant difficulties for defining a margin with up to one third of subungual and nodular melanomas being non-pigmented. This may dictate choice of a wider margin, or further re-excision, where practicable</li> <li>For patients with deeper invasive melanomas (&gt; 1mm thick), referral to a specialised melanoma centre should be considered to ensure that best practice is implemented and for the collection of national outcome data. This may present logistic difficulties in regional and remote areas, but specialist care is recommended</li> <li>The AJCC/UICC (2001)<sup>20-23</sup> system has been recommended for melanoma staging. Sentinel node biopsy (SNB) is an important prognostic factor for melanoma<sup>24</sup> but there is debate about its use in treatment.<sup>24-26</sup> SNB should be considered in patients with primary melanomas &gt; 1.2mm thick, who want to be as informed as possible about their prognosis. SNB should be performed before wider local excision</li> </ul>		
<b>12 Management of regional lymph nodes</b>		
1. Patients with a melanoma greater than 1.0mm in thickness be given the opportunity to discuss sentinel lymph node biopsy to provide staging and prognostic information	<b>C</b>	<b>2, 4, 10, 12</b>
2. SLNB be performed only following a full discussion of the options with the patient, in a unit with access to appropriate surgical, nuclear medicine and pathology services	<b>C</b>	<b>2</b>
3. Patients who have positive sentinel lymph node biopsy be offered completion lymphadenectomy, or be referred to a specialist centre for discussion of further treatment options	<b>C</b>	<b>4</b>
4. Therapeutic node dissection be offered to all patients with evidence of metastatic nodal disease after excluding stage IV disease using appropriate investigations	<b>C</b>	<b>16</b>

continued over...

Recommendations by chapter	Grade	Refs
<b>12 Management of regional lymph nodes</b> continued...		
<p><b>Good practice points</b></p> <ul style="list-style-type: none"> <li>• A therapeutic node dissection includes a full levels (I to III) clearance in the axilla. A therapeutic neck dissection may include a superficial parotidectomy as clinically indicated</li> <li>• Patients with inguinal node metastases be considered for clearance of the intra-pelvic iliac and obturator nodes when the staging investigation demonstrates evidence of involvement</li> <li>• Elective clearance of the pelvic nodes be considered when there is gross macroscopic disease in the inguinal node field or there are three or more histologically positive nodes below the level of inguinal ligament</li> <li>• Patients with lymph node metastases be offered discussion with a multidisciplinary team with a view to enrolment in clinical trials</li> </ul>		
<b>13 Management of locoregionally recurrent melanoma</b>		
1. Persistent melanoma be excised completely	C	1
2. Adjuvant radiation therapy be considered for close or positive margins unsuitable for re-excision	C	2
3. Local metastasis, in transit metastases and satellitosis may be managed using a variety of local treatments	C	3, 4
4. Prophylactic isolated limb perfusion (ILP) is not recommended	A	5
5. Recurrence on a limb with multiple or rapidly progressive lesions not suitable for local treatments is best managed with ILP using melphalan under hyperthermic conditions if technically possible	A	6
6. ILI may be substituted for ILP	C	7
7. Recurrence involving multiple or rapidly progressive lesions that are unsuitable for regional drug therapy be managed on an individual basis by a multidisciplinary team proficient in a range of local treatments	C	3, 4

continued over...

Recommendations by chapter	Grade	Refs
<b>13 Management of locoregionally recurrent melanoma</b> continued...		
<p>In the context of locoregionally recurrent melanoma:</p> <p>8. SLNB be considered if the nodal basin has not been dissected and if there is no clinical evidence of nodal involvement</p>	<b>D</b>	<b>9</b>
<p>9. Lymph node dissection be performed for clinically involved nodes with no previous dissection, following confirmation of melanoma, preferably by fine needle biopsy</p>	<b>C</b>	<b>2, 8, 9</b>
<p>10. Postoperative adjuvant radiation therapy be considered for adverse pathological findings, though the value remains uncertain</p>	<b>C</b>	<b>10</b>
<p>11. Clinical recurrence in a previously dissected nodal basin be managed by excision if possible, followed by radiation therapy (unless given previously)</p>	<b>C</b>	<b>2,10</b>
<b>14 Adjuvant systemic therapy of melanoma</b>		
<p>1. Observation is acceptable management for patients with resected stage I–III melanoma</p>	<b>B</b>	<b>1, 2</b>
<p>2. These patients be considered for enrolment in clinical trials of adjuvant therapy. Sentinel lymph node biopsy is mandatory staging for the stratification of patients on adjuvant therapy trials. Trials of adjuvant therapy include an observation-only control arm</p>	<b>B</b>	<b>1, 2</b>
<p>3. Patients with high-risk disease be considered for adjuvant therapy with high-dose interferon-alpha</p>	<b>B</b>	<b>1, 2</b>
<p>4. Because the toxicity associated with high-dose interferon is considerable, the risks and benefits of therapy in individual patients be carefully reviewed before proceeding</p>	<b>B</b>	<b>1, 2</b>
<p>5. Patients be treated in an experienced medical oncology facility, monitored closely for toxicity related to treatment with interferon, and dose adjusted based on the degree of toxicity</p>	<b>B</b>	<b>1, 2</b>

Recommendations by chapter		Grade	Refs
<b>15</b>	<b>Treatment of disseminated melanoma</b>		
	1. Patients with metastatic melanoma be referred for consideration of chemotherapy and/or palliative care to improve their symptoms	C	3, 6, 11, 12, 15, 16, 37
	2. Patients with localised symptoms from melanoma metastasis be referred for radiotherapy	C	18
	3. To improve survival, patients with limited or no extracranial disease and with favourable prognosis brain metastases be considered for surgical resection and if unresectable, for stereotactic radiosurgery. Patients with unfavourable prognostic metastases receive palliation with surgery, whole brain radiotherapy, chemotherapy, steroids or palliative care	C	19, 23, 28–30
	4. Patients with surgically operable metastases be considered for resection	C	36–45
<b>16</b>	<b>Psychosocial issues</b>		
	1. Structured psychosocial interventions, such as cognitive behavioural group therapy and psycho-education, as well as support groups, be made available to all patients with melanoma to improve their quality of life	B	8–12
	2. Communication skills training be provided to health professionals treating people with melanoma to assist them in effectively providing information, patient-centred care, shared decision-making where desired, empathy and support	C	8, 17, 20–23
	3. If the matter is raised, patients be advised that there is no known (or proven) link between psychosocial factors and survival outcome	C	1, 6, 27–33
	4. Patients be advised that individual or group psychosocial intervention may not improve their overall survival	C	4–7

Recommendations by chapter		Grade	Refs
<b>17</b>	<b>Palliative care</b>		
	1. Palliative care specialists be included in the multidisciplinary melanoma treatment team to: <ul style="list-style-type: none"> <li>• provide assistance with symptom control</li> <li>• support melanoma patients and their families</li> <li>• when necessary, coordinate care of melanoma patients between settings</li> <li>• assist in clarifying goals of care</li> </ul>	<b>A</b>	<b>4, 5 11–14</b>
	2. Referral for palliative care be based on the needs of the patient and family, not just the stage of the disease	<b>C</b>	<b>16–19, 23</b>
	3. Patients and their families with complex needs including physical, psychosocial and spiritual domains be referred to a specialist palliative care team at any stage during the illness	<b>A</b>	<b>12–14, 22, 25, 29</b>
<b>18</b>	<b>Multidisciplinary care</b>		
	1. Multidisciplinary care be considered throughout the management of patients with melanoma	<b>C</b>	<b>7</b>
<b>19</b>	<b>Follow-up</b>		
	1. Self-examination by patients is essential and they should be taught the process. Routine follow-up by the patient's preferred health professional may be appropriate to emphasise sun smart behaviour and perform skin checks	<b>C</b>	<b>14–16</b>
	2. Follow-up intervals are preferably six-monthly for five years for patients with stage I disease, three-monthly or four-monthly for five years for patients with stage II or III disease, and yearly thereafter for all patients. Ultrasound may be used in conjunction with clinical examination only in the follow-up of patients with more advanced primary disease. For patients enrolled in clinical trials, the above recommendations may vary in accordance with the follow-up protocols of these trials	<b>D</b>	<b>20–25</b>
	3. While it is important that clinicians weigh up the advantages and disadvantages of undertaking routine follow-up, individual patient's needs be considered before appropriate follow-up is offered	<b>C</b>	<b>6, 13, 26, 27</b>

Recommendations by chapter		Grade	Refs
<b>20</b>	<b>Clinical trials</b>		
	1. Patients can be informed that they are unlikely to be disadvantaged by participation in an RCT	<b>A</b>	<b>2</b>
	<b>Good practice point</b>		
	<ul style="list-style-type: none"> <li>Given the lack of evidence in treating melanoma, patients be given the opportunity to enter clinical trials</li> </ul>		
<b>21</b>	<b>Treatment of desmoplastic melanoma</b>		
	1. Local wide excision for desmoplastic neurotropic melanoma conforms with the same margins as for other forms of cutaneous melanoma	<b>C</b>	<b>2</b>
<b>22</b>	<b>Mucosal melanoma</b>		
	1. The primary lesion for melanoma of the anorectal region should be managed by sphincter preserving complete local excision in most cases. APR is indicated only for patients with loco-regional disease whose primary tumour cannot be completely resected by a limited procedure	<b>D</b>	<b>2–14</b>
	2. Pelvic node failure as an isolated event is uncommon. Extended pelvic lymphadenectomy is not indicated	<b>D</b>	<b>2–14</b>
	3. There is no evidence to support elective (as compared to therapeutic) inguinal lymphadenectomy	<b>D</b>	<b>2–14</b>
	4. Sentinel node biopsy has been described in a small number of cases but there is no evidence to support its routine use at the present time	<b>D</b>	<b>2–14</b>
	5. The role for radiotherapy (RT) in patients with close/involved margins after wide local excision or abdomino perineal resection is unknown but it may be considered	<b>D</b>	<b>2–14</b>
	6. The care of patients with anorectal melanoma be undertaken by a multidisciplinary team experienced in the management of these patients	<b>D</b>	<b>2–14</b>
	7. Patients with mucosal melanoma of the head and neck are best managed by complete surgical excision. Radiotherapy has not been shown to be of benefit to patients who have undergone a complete resection but may be of benefit in patients who have residual disease	<b>D</b>	<b>17–22</b>

continued over...

Recommendations by chapter		Grade	Refs
<b>22</b>	<b>Mucosal melanoma</b> continued...		
	8. Patients be referred to a specialist unit with experience in head and neck melanoma	D	17–22
	9. Histologically confirmed melanoma of the vulva be managed by wide excision with limited margins (1–2cm). Extensive lesions particularly those centrally located may require extensive/exenterative procedures. In the absence of proven regional lymph node spread lymphadenectomy is not indicated	D	23–30
	10. Patients with vulval melanoma be referred to a specialist unit with expertise	D	32
	<b>Good practice points</b> <ul style="list-style-type: none"> <li>• Any suspicious lesions of the genital tract should be biopsied</li> <li>• As there is a high incidence of systemic disease in these cases, a CT/PET scan is indicated prior to radical surgery</li> </ul>		
<b>23</b>	<b>Occult melanoma</b>		
	1. Patients with metastases and no obvious primary tumour be examined for primary melanomas in obscure sites. If none are found, assume that the primary melanoma has completely regressed	D	1, 2
<b>24</b>	<b>Ocular melanoma</b>		
	1. Ocular melanoma is a complex and uncommon form of melanoma that should be managed in specialised units where eye-conserving therapies are available	C	2
<b>25</b>	<b>Melanoma in children</b>		
	1. The pathology slides of all Spitz-like lesions in children suspected of being malignant be referred to histopathologists who are highly experienced in the differential diagnosis of such lesions	C	8–12
	2. All facets of melanoma treatment and follow-up in adults may be integrated into the treatment and follow-up of children. Parents may be assured that survival in children is at least equivalent and probably better than it is in adults with the same stage of disease	C	15–17, 21–26

Recommendations by chapter	Grade	Refs
<b>26 Melanoma in pregnancy (including hormone replacement therapy and oral contraceptives)</b>		
1. Any naevus that changes during pregnancy and/or has other features suggestive of melanoma be investigated	C	1–3
2. Melanoma in a pregnant woman be treated according to tumour thickness and ulceration, that is, as for a non-pregnant woman	C	25
3. Women of childbearing age who are within five years of primary treatment of a high-risk melanoma should be fully informed of their prognosis when considering pregnancy	C	25
4. Sentinel node biopsy can be performed using only technetium in pregnant women	B	5–8
5. Pregnant women with thicker melanomas and nodal metastases be treated in consultation with specialised centres	C	
6. Hormone replacement therapy and oral contraceptives are not contraindicated in women who have or have not had melanoma	C	32, 37–53
<b>27 Prognostic factors and survival outcomes in cutaneous melanoma</b>		
<b>28 Complementary and alternative medicine</b>		
1. Patients be encouraged to share with their treating clinician(s) their wishes to embark on either a complementary or alternative therapy	C	1–8
2. There is no available evidence to recommend CAM over conventional therapy for adjuvant management of melanoma	C	9
3. Patients are advised to discuss planned CAM therapy with their clinician, to ensure the safety of their action	C	12, 13
<p><b>Key point</b></p> <ul style="list-style-type: none"> <li>• There is level IV evidence suggesting patients may derive emotional benefit from CAM therapy</li> </ul>		

Recommendations by chapter	Grade	Refs
<b>29 Melanoma in specific populations in Australia</b>		
<p><b>Good practice point</b></p> <ul style="list-style-type: none"> <li>When examining melanocytic lesions in non-Caucasians, it is important to keep in mind the possibility of melanoma. Furthermore, the skin areas examined should include the palms, periungual and subungual skin and especially the soles of the feet</li> </ul>		
<b>30 Melanoma in Māori and melanoma in Pacific peoples in New Zealand</b>		
<p><b>Good practice points</b></p> <ul style="list-style-type: none"> <li>Accurate ethnicity data be collected by all service providers</li> <li>Māori-specific cancer services or service components be provided where possible</li> <li>Health practitioners and others providing cancer care receive training and support in culturally competent, patient-centred care</li> <li>Health practitioners consult with Māori patients about final disposal of tissue or body parts surgically removed</li> </ul>		