NICE National Institute for Health and Care Excellence

NICE guideline

Melanoma: assessment and management

NICE guideline

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Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Contents

This guideline is the basis of QS130.

Overview

This guideline covers the assessment and management of melanoma (a type of skin cancer) in children, young people and adults. It aims to reduce variation in practice and improve survival.

Who is it for?

- Healthcare professionals in primary, secondary and tertiary care
- Commissioners and providers
- People with melanoma, their families and carers

Stages of melanoma

The stages of melanoma referred to in this guideline are based on the 8th editions of the Union for International Cancer Control (UICC) tumour node metastasis (TNM) classification of malignant tumours and the American Joint Committee on Cancer (AJCC) melanoma staging system.

Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in NICE's information on making decisions about your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

1.1 Communication and support

1.1.1 Give people with melanoma accurate and easy to understand information (both written and spoken) in a sensitive and timely manner throughout their care, tailored to their needs and circumstances. Topics to discuss include:

- melanoma and different types of skin cancer
- treatment options, including the risks and benefits
- where the person's appointments will take place
- which healthcare professionals will undertake the person's care and how to get in touch with them
- expected waiting times for consultations, investigations and treatments
- follow-up after treatment (see the section on follow-up after treatment for melanoma)
- preventing recurrence, and how to protect their skin from damage caused by exposure to the sun, while avoiding vitamin D depletion
- recognising signs and symptoms of suspicious skin lesions

- what to do if they have any concerns and how to re-access services local services and how to get in touch with them.

  For more guidance on giving information to people and discussing their preferences, follow the recommendations on communication and patient centred care in NICE's guidelines on patient experience in adult NHS services and shared decision making. **[2015]**

1.1.2 Discuss the psychological and emotional impact of melanoma with the person, ask whether they have any psychological or support care needs, and offer to carry out a holistic needs assessment. Topics to discuss include:

- their understanding of melanoma and its prognosis
- their specific concerns and preferences
- important values or personal goals for care and treatment
- risk of recurrence, metastatic spread or new primary cancers
- whether family members are at risk. **[2015**]

1.1.3 Explain to people with melanoma that they are welcome to bring a companion with them to appointments. **[2015]**

1.1.4 Ensure that each local skin cancer multidisciplinary team and specialist skin cancer multidisciplinary team has:

- at least 1 skin cancer clinical nurse specialist to provide people with information and support
- access to psychological support services for people with melanoma. **[2015]**

1.1.5 Ensure that healthcare professionals can support people with melanoma by attending training and being competent in:

- communicating complex and sensitive information clearly
- tailoring information and support to the person's individual needs and circumstances. **[2015]**

1.2 Managing vitamin D levels and concurrent drug treatment

1.2.1 Measure vitamin D levels at diagnosis in secondary care in all people with melanoma. **[2015]**

1.2.2 Give people whose vitamin D levels are thought to be suboptimal advice on vitamin D supplementation and monitoring in line with local policies and NICE's guideline on vitamin D. **[2015]**

1.2.3 Do not withhold or change drug treatment for other conditions, except immunosuppressants and immunomodulators, on the basis of a diagnosis of melanoma. For people on immunosuppressive or immunomodulatory treatments, seek advice from the person's specialist team, aiming to optimise quality of life while minimising the person's risk. **[2015, amended 2022]**

1.3 Assessing melanoma

Dermoscopy and other visualisation techniques

1.3.1 Assess all pigmented skin lesions that are either referred for assessment or identified during follow-up in secondary or tertiary care, using dermoscopy carried out by healthcare professionals trained in this technique. **[2015]**

1.3.2 Do not routinely use confocal microscopy or computer assisted diagnostic tools to assess pigmented skin lesions. **[2015]**

Photography

1.3.3 For a clinically atypical melanocytic lesion that does not need excision at first presentation in secondary or tertiary care:

- use baseline photography (preferably dermoscopic) and

- review the clinical appearance of the lesion, and compare it with the baseline photographic images, 3 months after first presentation to identify early signs of melanoma. **[2015]**

Assessing and managing atypical Spitzoid lesions

1.3.4 Discuss all suspected atypical Spitzoid lesions at the specialist skin cancer multidisciplinary team meeting. **[2015]**

1.3.5 Make the diagnosis of a Spitzoid lesion of uncertain malignant potential on the basis of the histology, clinical features and behaviour. **[2015]**

1.3.6 Manage a Spitzoid lesion of uncertain malignant potential as melanoma. **[2015]**

Taking tumour samples for genetic testing

1.3.7 If targeted systemic therapy is a treatment option, offer genetic testing using:

- a secondary melanoma tissue sample if there is adequate cellularity or
- a primary melanoma tissue sample if a secondary sample is not available or is of inadequate cellularity. **[2015]**

BRAF analysis of primary melanoma tissue samples

1.3.8 Do not offer BRAF analysis of melanoma tissue samples from people with stage IA or IB primary melanoma at presentation except as part of a clinical trial. **[2022]**

1.3.9 Consider BRAF analysis of melanoma tissue samples from people with stage IIA or IIB primary melanoma. **[2022]**

1.3.10 Carry out BRAF analysis of melanoma tissue samples from people with stage IIC to IV primary melanoma. **[2022]**

1.3.11 Local skin multidisciplinary teams should arrange BRAF analysis of

melanoma tissue samples and state the preferred tissue block for analysis. **[2022]**

1.3.12 When doing BRAF analysis, consider immunohistochemistry as the first test for BRAF V600E, if available. **[2022]**

1.3.13 If BRAF V600E immunohistochemistry is negative or inconclusive, use a different BRAF genetic test. **[2022]**

1.3.14 Offer BRAF analysis of melanoma tissue samples to people with melanoma if they are potential candidates for any ongoing clinical trials that require knowledge of genetic status. **[2022]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on BRAF analysis of melanoma tissue samples.

Full details of the evidence and the committee's discussion are in evidence review A: genetic testing for melanoma.

1.4 Staging with sentinel lymph node biopsy

1.4.1 Do not offer imaging or sentinel lymph node biopsy (SLNB) to people who have stage IA melanoma. **[2022]**

1.4.2 Do not offer imaging before SLNB unless lymph node or distant metastases are suspected. **[2022]**

1.4.3 Consider SLNB for people who have melanoma with a Breslow thickness of 0.8 mm to 1.0 mm and at least one of the following features:

- ulceration
- lymphovascular invasion
- a mitotic index of 2 or more. **[2022]**

1.4.4 Consider SLNB for people who have melanoma with a Breslow thickness greater than 1.0 mm. **[2022]**

1.4.5 For women who are pregnant, discuss the option of delaying SLNB until after the pregnancy is completed. **[2022]**

1.4.6 Consider staging with whole-body and brain contrast-enhanced (CE)-CT for people with stage IIB melanoma. **[2022]**

1.4.7 Offer staging with whole-body and brain CE-CT to people with stage IIC to IV melanoma. **[2022]**

1.4.8 Consider staging with brain MRI, instead of brain CE-CT, if locally available and after discussion and agreement with the specialist skin cancer multidisciplinary team. **[2022]**

1.4.9 Offer staging with whole body and brain MRI, instead of CE-CT, to:

- children and young adults (from birth to 24 years) with stage IIB to IV melanoma
- women with stage IIB to IV melanoma who are pregnant. **[2022]**

1.4.10 Consider staging with brain MRI, instead of brain CE-CT, for people with stage IIIC to IV melanoma and one of the following risk factors:

- a mitotic index of 5 or more
- primary melanoma located on the scalp. **[2022]**

1.4.11 Consider a repeat staging scan before starting adjuvant treatment, unless imaging done within the past 8 weeks is available. **[2022]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on staging with sentinel lymph node biopsy and imaging.

Full details of the evidence and the committee's discussion are in evidence review B: use of sentinel lymph node biopsy in people with melanoma.

1.5 Managing stages 0 to II melanoma

Excision for stages 0 to II melanoma

1.5.1 Consider a clinical margin of at least 0.5 cm when excising stage 0 melanoma. **[2022]**

1.5.2 If excision for stage 0 melanoma does not achieve an adequate histological margin, discuss further management with the specialist skin cancer multidisciplinary team. **[2022]**

1.5.3 Use a clinical margin of:

- 1 cm when excising stage I melanoma or when a 2 cm excision margin would cause unacceptable disfigurement or morbidity
- 2 cm when excising stage II melanoma.

The clinical margin should be around the histological biopsy scar and take into account the primary melanoma margin. **[2022]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on excision for stages 0 to II melanoma.

Full details of the evidence and the committee's discussion are in evidence review C: surgical and histopathological excision margins for people with stage 0 to II melanoma.

Imiquimod for stage 0 melanoma

1.5.4 Consider topical imiquimod to treat stage 0 melanoma in adults if surgery to remove the entire lesion with a 0.5 cm clinical margin would lead to unacceptable disfigurement or morbidity. **[2015]**

1.5.5 Consider a repeat skin biopsy for histopathological assessment after treatment with topical imiquimod for stage 0 melanoma, to check whether it has been effective. **[2015]**

In July 2022, this was an off-label use of topical imiquimod in adults and imiquimod was not licensed for use in the UK in children and young people under 18. See NICE's information on prescribing medicines.

1.6 Managing stage III melanoma

Completion lymph node dissection for stage III melanoma

1.6.1 Do not routinely offer completion lymph node dissection to people with stage III melanoma and micrometastatic nodal disease detected by SLNB unless:

- there are factors that might make recurrent nodal disease difficult to manage, and
- after discussion with the person and the specialist skin cancer multidisciplinary team.

Examples of factors that might make recurrent nodal disease difficult to manage include melanoma of the head and neck, people for whom stage III adjuvant therapies are contraindicated, or when regular follow-up is not possible. **[2022]**

For a short explanation of why the committee made this recommendation and how it might affect practice, see the rationale and impact section on managing stage III melanoma.

Full details of the evidence and the committee's discussion are in:

- evidence review D: completion lymphadenectomy for micrometastatic nodal disease in stage III melanoma
- evidence review E: use of sentinel lymph node biopsy for people with stage III melanoma with microsatellite lesions.

Therapeutic lymph node dissection for stage III melanoma

1.6.2 Offer therapeutic lymph node dissection to people with palpable stage IIIB to IIID melanoma, or cytologically or histologically confirmed nodal disease detected by imaging. **[2015]**

Adjuvant treatments for resected stage III melanoma

Adjuvant systemic anticancer treatments

For guidance on specific treatments, see NICE's technology appraisal guidance on dabrafenib with trametinib for adjuvant treatment of resected BRAF V600 mutation-positive melanoma, pembrolizumab for adjuvant treatment of completely resected stage 3 melanoma and nivolumab for adjuvant treatment of completely resected melanoma with lymph node involvement or metastatic disease.

Adjuvant radiotherapy

1.6.3 Do not offer adjuvant radiotherapy to people with stage IIIA melanoma. **[2015]**

1.6.4 Do not offer adjuvant radiotherapy to people with resected stage IIIB to IIID melanoma unless a reduction in the risk of local recurrence is estimated to outweigh the risk of significant adverse effects. **[2015]**

Non-curative treatment for superficial skin metastases in stage III melanoma

1.6.5 Consider topical imiquimod to palliate superficial melanoma skin metastases. **[2015]**

In July 2022, this was an off-label use of topical imiquimod in adults and imiquimod was not licensed for use in the UK in children and young people under 18. See NICE's information on prescribing medicines.

Genomic biomarker-based treatment for stage III melanoma

The point at which to use genomic biomarker-based therapy in solid tumour treatment pathways is uncertain. See NICE's topic page on genomic biomarker-based cancer treatments for guidance on specific treatments.

1.7 Treating in-transit metastases in stages III and IV melanoma

1.7.1 Discuss management of in-transit metastases, including surgery or treatment in a regional specialist centre, with the specialist skin cancer multidisciplinary team. **[2022]**

1.7.2 Offer surgery as the first option and if surgery is not feasible, or if the person has recurrent in-transit metastases, consider one of the following options based on their suitability for the person:

- systemic anticancer therapy (see recommendations 1.8.6 to 1.8.15 on systemic anticancer treatments for untreated stage IV and unresectable stage III melanoma)
- talimogene laherparepvec, in line with NICE's technology appraisal guidance on talimogene laherparepvec
- isolated limb infusion or perfusion
- radiotherapy

- electrochemotherapy, in line with NICE's interventional procedures guidance on electrochemotherapy for metastases in the skin from tumours of non-skin origin and melanoma

- a topical agent such as imiquimod. **[2022]**

  In July 2022, most of the therapies recommended in this guideline were not licensed for use in the UK in children and young people under 18. See NICE's information on prescribing medicines. Refer to the summary of product characteristics for the individual treatments because there are differences in their licensed populations.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on treating in-transit metastases in stages III and IV melanoma.

Full details of the evidence and the committee's discussion are in evidence review F: systematic and localised anticancer treatment for people with stage IV and unresectable stage III melanoma.

1.8 Managing stage IV and unresectable stage III melanoma

Management of oligometastatic stage IV melanoma

1.8.1 Refer the care of people who appear to have oligometastatic melanoma to the specialist skin cancer multidisciplinary team for recommendations about staging and management. **[2015]**

1.8.2 Consider surgery or other ablative treatments to prevent or control symptoms of oligometastatic stage IV melanoma in consultation with other site specific multidisciplinary teams. **[2015, amended 2022]**

Brain metastases

1.8.3 For guidance on diagnosing, monitoring and managing brain metastases

in people aged 16 or over see NICE's guideline on brain tumours (primary) and brain metastases in over 16s. **[2022]**

1.8.4 Discuss the care of people with melanoma and brain metastases with the specialist skin cancer multidisciplinary team. **[2015]**

1.8.5 Refer people with melanoma and brain metastases that might be suitable for surgery or stereotactic radiotherapy to the neuro-oncology multidisciplinary team for a recommendation about treatment. **[2015, amended 2022]**

Systemic anticancer treatments for untreated stage IV and unresectable stage III melanoma

In July 2022, most of the therapies in recommendations 1.8.7 to 1.8.12 and 1.8.14 and 1.8.15 were unlicensed for use in the UK in children and young people under 18. See NICE's information on prescribing medicines. Refer to the summary of product characteristics for the individual treatments because there are differences in their licensed populations.

1.8.6 When choosing systemic anticancer treatment for untreated stage IV or unresectable stage III melanoma, base treatment decisions on the following factors:

- comorbidities and performance status
- risk of treatment toxicity
- whether potential treatment toxicity will be tolerated
- presence of symptomatic brain metastases
- tumour biology (for example, high disease burden, rapid progression, lactate dehydrogenase level).

  Treatment decisions should be made after a full assessment of the risks and benefits by the treating oncologist and discussion with the person, in line with NICE's guideline on shared decision making. **[2022]**

1.8.7 Offer treatment with immunotherapy to people with untreated stage IV or unresectable stage III melanoma, as set out in recommendations 1.8.8 to 1.8.9. If immunotherapy is contraindicated or unsuitable, based on the factors in recommendation 1.8.6, follow recommendations 1.8.10 to 1.8.12 for alternative treatments based on BRAF type. **[2022]**

For other guidance on treatments for advanced melanoma, see NICE's technology appraisal guidance on the NICE topic page for skin cancer.

Immunotherapies

1.8.8 Offer nivolumab plus ipilimumab to people with untreated stage IV or unresectable stage III melanoma if suitable for them based on the factors in recommendation 1.8.6. **[2022]**

See NICE's technology appraisal guidance on nivolumab in combination with ipilimumab for treating advanced melanoma.

1.8.9 If nivolumab plus ipilimumab is unsuitable or unacceptable (for example, because of potential toxicity), offer pembrolizumab or nivolumab monotherapy. **[2022]**

See NICE's technology appraisal guidance on pembrolizumab for advanced melanoma not previously treated with ipilimumab and nivolumab for treating advanced (unresectable or metastatic) melanoma.

Targeted therapies for BRAF V600 mutation-positive melanoma

1.8.10 Offer encorafenib plus binimetinib, or dabrafenib plus trametinib, to people with untreated BRAF-mutant stage IV or unresectable stage III melanoma if:

- nivolumab plus ipilimumab, pembrolizumab, and nivolumab are contraindicated or

- it is predicted there is not enough time for an adequate immune response (for example, because of high disease burden or rapid progression). **[2022]**

  See NICE's technology appraisal guidance on encorafenib with binimetinib for unresectable or metastatic BRAF V600 mutation-positive melanoma and trametinib in combination with dabrafenib for treating unresectable or metastatic melanoma.

1.8.11 If encorafenib plus binimetinib, and dabrafenib plus trametinib, are both unsuitable or unacceptable to the person:

- offer dabrafenib or vemurafenib to people for whom binimetinib and trametinib are contraindicated or
- if targeted treatment is contraindicated, consider treatment with chemotherapy (dacarbazine) or best supportive care. **[2022]**

  See NICE's technology appraisal guidance on dabrafenib for treating unresectable or metastatic BRAF V600 mutation-positive melanoma and vemurafenib for treating locally advanced or metastatic BRAF V600 mutation-positive malignant melanoma.

  For other guidance on targeted therapies see NICE's technology appraisal guidance on the NICE topic page for skin cancer.

Alternatives to immunotherapies for BRAF wild-type melanoma

1.8.12 For people with untreated BRAF-wild type stage IV or unresectable stage III melanoma for whom nivolumab plus ipilimumab, pembrolizumab, and nivolumab are contraindicated, consider:

- treatment with chemotherapy (dacarbazine) or
- best supportive care. **[2022]**

Systemic anticancer treatments for previously treated stage IV or unresectable stage III melanoma

For guidance on immunotherapies, see NICE's technology appraisal guidance on

ipilimumab, nivolumab, nivolumab with ipilimumab and pembrolizumab. For guidance on targeted therapies for BRAF V600 mutation-positive melanoma, see NICE's technology appraisal guidance on encorafenib with binimetinib and trametinib with dabrafenib.

1.8.13 When making treatment decisions for previously treated melanoma, take into account the factors listed in recommendation 1.8.6. **[2022]**

1.8.14 For people with previously treated melanoma in whom immunotherapies and targeted therapies are contraindicated, unsuitable or unacceptable, consider:

- treatment with chemotherapy (dacarbazine) **or**
- best supportive care. **[2022]**

1.8.15 Do not routinely offer further cytotoxic chemotherapy to people with stage IV or unresectable stage III melanoma who have had previous treatment with dacarbazine except in the context of a clinical trial. **[2022]**

Referral to specialist palliative care services

1.8.16 Refer people with incurable melanoma to specialist palliative care services for symptom management. See NICE's guideline on end of life care for adults: service delivery. **[2022]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on managing stage IV and unresectable stage III melanoma.

Full details of the evidence and the committee's discussion are in evidence review F: systemic and localised anticancer treatment for people with stage IV and unresectable stage III melanoma.

Genomic biomarker-based treatment

The point at which to use genomic biomarker-based therapy in solid tumour treatment

pathways is uncertain. See NICE's topic page on genomic biomarker-based cancer treatments for guidance on specific treatments.

1.9 Follow-up after treatment for melanoma

Information and support for people who have had melanoma

1.9.1 Ensure that people who have completed treatment for melanoma have been given direct contact details for specialist skin cancer services that can provide advice about problems or concerns related to their melanoma. **[2022]**

1.9.2 Offer psychosocial support to the person and their family or carers at all follow-up appointments. **[2022]**

1.9.3 Ensure that local follow-up policies:

- are in line with recommendations 1.1.1 to 1.1.3 in the section on communication and support
- include:
  - reinforcing advice about self examination
  - health promotion for people with melanoma and their families, including sun awareness and avoiding vitamin D depletion (see NICE's guideline on sunlight exposure: risks and benefits)
  - advice on stopping smoking for people who smoke (see NICE's guideline on tobacco: preventing uptake, promoting quitting and treating dependence). **[2022]**

Exceptions to routine follow-up

1.9.4 For people who have had stage 0 melanoma, provide advice at a clinic visit during the first year after treatment has been completed, in line with recommendation 1.9.3. **[2022]**

1.9.5 Offer personalised follow-up to people with unresectable stage III or IV melanoma. **[2022]**

1.9.6 Consider personalised follow-up for people who are at increased risk of further primary melanomas (for example, people with atypical mole syndrome, previous melanoma, multiple in-situ melanomas, or a history of melanoma in first degree relatives or other relevant familial cancer syndromes). **[2022]**

1.9.7 Offer whole-body and brain MRI, instead of CE-CT, to children and young adults (from birth to 24 years) having imaging as part of follow-up. **[2022]**

1.9.8 Offer whole-body and brain MRI, instead of CE-CT, to women who are pregnant and having imaging as part of follow-up. **[2022]**

1.9.9 Offer brain MRI for follow-up imaging, instead of brain CE-CT, to people with known or resected brain metastases. **[2022]**

1.9.10 Consider brain MRI for follow-up imaging, instead of brain CE-CT, if preferred locally and after discussion and agreement with the specialist skin cancer multidisciplinary team. **[2022]**

Planning routine follow-up

1.9.11 Full examination of the skin and regional lymph nodes at clinic appointments should be done by a healthcare professional who has skills and expertise in skin cancer and lymph node examination. They should have access to dermoscopy and medical photography as part of examinations. **[2022]**

1.9.12 For people having both CE-CT and ultrasound scans, alternate between the 2 types of scan. **[2022]**

1.9.13 Do not routinely use PET-CT during follow-up of people with melanoma. **[2022]**

1.9.14 Continue to follow the recommendations on managing concurrent drug

treatment. **[2022]**

1.9.15 Offer follow-up for 1 year to people who have had stage IA melanoma, and for 5 years to people who have had stages IB to IV melanoma, using the table on follow-up after stages I to IV melanoma. **[2022]**

Follow-up after stages I to IV melanoma

Stage of melanoma	Follow-up
IA	• Year 1: Consider 2 clinic appointments, with discharge at the end of year 1. Do not routinely offer screening investigations (including imaging and blood tests) as part of follow-up
IB	• Year 1: Offer 2 clinic appointments, and consider adding 2 ultrasound scans of the draining nodal basin if sentinel lymph node biopsy (SLNB) was considered but not done • Years 2 and 3: Offer 1 clinic appointment each year, and consider adding 1 ultrasound scan of the draining nodal basin each year if SLNB was considered but not done • Years 4 and 5: Offer 1 clinic appointment each year. Discharge at the end of year 5
IIA	• Years 1 and 2: Offer 2 clinic appointments each year, and consider adding 2 ultrasound scans of the draining nodal basin each year if SLNB was considered but not done • Year 3: Offer 1 clinic appointment, and consider adding 1 ultrasound scan of the draining nodal basin if SLNB was considered but not done • Years 4 and 5: Offer 1 clinic appointment each year. Discharge at the end of year 5

Stage of melanoma	Follow-up
IIB	• Years 1 and 2: Offer 4 clinic appointments each year, and consider 2 whole-body and brain contrast-enhanced CT (CE-CT) scans each year. Consider adding 2 ultrasound scans of the draining nodal basin each year if SLNB was considered but not done • Year 3: Offer 2 clinic appointments and consider 2 whole-body and brain CE-CT scans. Consider adding 2 ultrasound scans of the draining nodal basin if SLNB was considered but not done • Years 4 and 5: Offer 1 clinic appointment each year and consider 1 whole-body and brain CE-CT scan each year. Discharge at the end of year 5
IIC	• Years 1 and 2: Offer 4 clinic appointments and 2 whole-body and brain CE CT scans each year. Consider adding 2 ultrasound scans of the draining nodal basin each year if SLNB was considered but not done • Year 3: Offer 2 clinic appointments and 2 whole-body and brain CE-CT scans. Consider adding 2 ultrasound scans of the draining nodal basin if SLNB was considered but not done • Years 4 and 5: Offer 1 clinic appointment and 1 whole-body and brain CE-CT scan each year. Discharge at the end of year 5
IIIA to IIIC not currently having adjuvant therapy	• Years 1 to 3: Offer 4 clinic appointments and 2 whole-body and brain CE-CT scans each year. Consider adding 2 ultrasound scans of the draining nodal basin each year if the person has a positive sentinel lymph node • Years 4 and 5: Offer 2 clinic appointments and 1 whole-body and brain CE-CT scan each year. Discharge at the end of year 5

Stage of melanoma	Follow-up
IIID and resected IV not currently having adjuvant therapy	• Years 1 to 3: Offer 4 clinic appointments and 4 whole-body and brain CE-CT scans each year • Years 4 and 5: Offer 2 clinic appointments and 2 whole-body and brain CE-CT scans each year. Discharge at the end of year 5
IIIA to IIIC, IIID and resected IV having adjuvant therapy	• During adjuvant therapy, base follow-up on therapeutic requirements

Whole body CE-CT scans will routinely include the thorax, abdomen and pelvis. However, other sites such as the neck may need including based on the person's individual needs and circumstances (for example, when there is an increased risk of the melanoma spreading or for people who are exempt from routine follow-up).

This table sets out routine follow-up. Offer personalised follow-up to people with unresectable stage III or IV melanoma, people at increased risk of further primary melanomas, children and young adults, and women who are pregnant, in line with recommendations 1.9.5 to 1.9.10.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on follow-up after treatment for melanoma.

Full details of the evidence and the committee's discussion are in evidence review G: follow-up of people with melanoma.

Recommendations for research

The guideline committee has made the following recommendations for research.

Key recommendations for research

1 Monitoring and response biomarkers

Can biomarkers accurately classify recurrence, progression and response to treatment? **[2022]**

For a short explanation of why the committee made the recommendation for research, see the rationale section on BRAF analysis of melanoma tissue samples.

Full details of the evidence and the committee's discussion are in evidence review A: genetic testing for melanoma.

2 Safety, prognostic and predictive biomarkers

Can biomarkers be used for risk stratification and treatment planning for people with melanoma? **[2022]**

For a short explanation of why the committee made the recommendation for research, see the rationale section on BRAF analysis of melanoma tissue samples.

Full details of the evidence and the committee's discussion are in evidence review A: genetic testing for melanoma.

3 Effectiveness of localised treatments

What is the effectiveness of localised treatment for people with stages III and IV melanoma? **[2022]**

For a short explanation of why the committee made this recommendation for research, see the rationale section on treating in-transit metastases in stages III and IV melanoma.

Full details of the evidence and the committee's discussion are in evidence review F: systematic and localised anticancer treatment for people with stage IV and unresectable stage III melanoma.

4 Histological margins

What is the optimal histological excision margin in stage 0 melanoma? **[2022]**

For a short explanation of why the committee made this recommendation for research, see the rationale section on excision for stages 0 to II melanoma.

Full details of the evidence and the committee's discussion are in evidence review C: surgical and histopathological excision margins for people with stage 0 to II melanoma.

5 Surveillance strategies

How frequently should surveillance imaging be conducted, and which imaging modality should be used for people with stage IIB to IIIC melanoma? **[2022]**

For a short explanation of why the committee made this recommendation for research, see the rationale and section on follow-up after treatment for melanoma.

Full details of the evidence and the committee's discussion are in evidence review G: follow-up of people with melanoma.

Other recommendations for research

Survivorship

What are the experiences of people who are living with, through and beyond a melanoma diagnosis in terms of survivorship and their disease journey? **[2022]**

For a short explanation of why the committee made this recommendation for research, see the rationale and section on follow-up after treatment for melanoma.

Full details of the evidence and the committee's discussion are in evidence review G: follow-up of people with melanoma.

Techniques for confirming a diagnosis in people with suspected atypical Spitzoid melanocytic lesions

In people with reported atypical Spitzoid lesions, how effective are fluorescence in situ hybridization (FISH), comparative genomic hybridization (CGH) and tests to detect driver mutations compared with histopathological examination alone in predicting disease specific survival?

This should be investigated in a prospective diagnostic study. Secondary outcomes should include sensitivity, specificity, accuracy, positive predictive value, disease specific survival and progression free survival. **[2015]**

Why this is important

Atypical Spitzoid lesions continue to be diagnostically challenging. There are no reliably reproducible histological, immunohistochemistry or molecular features that allow exact typing and prognostic assessment of these lesions. The current 'gold standard' is histological examination with expert review, but it is not always possible to distinguish Spitzoid melanoma from benign Spitzoid melanocytic lesions.

Current molecular technologies such as FISH and CGH provide some help, but the results are difficult to interpret and may not be conclusive. Understanding and mapping changes in molecular pathways could predict outcome and inform individual treatment planning.

Surgical excision for people with lentigo maligna

For people with lentigo maligna (stage 0 in sun damaged skin, usually on the face) how effective is Mohs micrographic surgery, compared with excision with a 0.5 cm clinical margin, in preventing biopsy proven local recurrence at 5 years?

This should be investigated in a randomised controlled trial. Secondary outcomes should include cosmetic and functional outcomes. **[2015]**

Why this is important

Mohs micrographic surgery is a microscopically controlled surgical technique designed to allow complete excision of the tumour with minimal tissue loss. The technique can be useful for people with lentigo maligna because their lesions can be very large and located in a cosmetically sensitive site where surgery may cause significant scarring. However, the histological detection of small numbers of melanocytes at the edge of a sample is difficult, and can lead to false negative results. In addition, lentigo maligna may occur in an area of field change with a risk of skip lesions at the edge. Therefore, although Mohs micrographic surgery may ensure complete excision of lentigo maligna, it can be accompanied by the recurrence of a similar lesion in adjacent skin.

Vitamin D supplementation

In people with stage I to III melanoma does vitamin D supplementation improve overall survival?

This should be investigated in a placebo controlled randomised trial. Secondary outcomes should include disease specific survival and toxicity, including the development of renal stones and hypercalcaemia. **[2015]**

Why this is important

It has been reported that suboptimal levels of vitamin D at diagnosis are common in people with melanoma from the north of England and that higher levels are associated with lower melanoma related mortality. However, vitamin D levels are higher in leaner, fitter people and the nature of the relationship between vitamin D levels and melanoma survival is unclear.

There are 2 adjuvant trials of vitamin D supplementation listed as active currently, 1 in Italy and 1 in Australia. However, there are many uncertainties about the design of vitamin D trials, which might become clearer in the next few years. These include the dose of vitamin D, use of concurrent aspirin therapy and the baseline level at which vitamin D supplementation would be started.

The effect of drug therapy for concurrent conditions on melanoma survival

In people diagnosed with melanoma what is the effect of drug therapy to treat concurrent conditions on disease specific survival?

This should be investigated in a national prospective cohort study. Secondary outcomes should include overall survival and quality of life. **[2015]**

Why this is important

Drugs such as immunosuppressants and those used to treat conditions such as diabetes have effects that may affect survival in people with melanoma. For example, metformin, the most frequently prescribed drug for type 2 diabetes, is thought to reduce overall cancer rates in people with diabetes but to increase mortality from melanoma in approximately 40% of these people who have a somatic BRAF mutation.

There is a need to balance the risk of melanoma deaths with the benefits from the most effective treatment of the concurrent conditions. But there is currently no evidence to inform this decision.

Rationale and impact

These sections briefly explain why the committee made the recommendations and how they might affect practice.

BRAF analysis of melanoma tissue samples

Recommendations 1.3.8 to 1.3.14

Why the committee made the recommendations

Immunohistochemistry

The 2015 guideline recommended genetic testing for stage IIC and above melanoma. The 2022 committee extended this by recommending that BRAF analysis be considered for stage IIA or IIB melanoma, and carried out for stage IIC to IV melanoma. The committee agreed, based on their experience and in view of advances in targeted treatments since 2015, that early determination of BRAF status has practical utility. They noted that disease relapse occurs in a significant proportion of people with stage IIA to IIC melanoma (up to 50% at 5 years in people with stage IIC melanoma). Knowing BRAF status can speed up decisions about treatment for relapsed melanoma and optimise the use of these newer treatments.

The committee also noted that BRAF analysis of melanoma tissue samples should be arranged by the local skin cancer multidisciplinary team to provide a more coordinated process. The pathology report on the primary lesion should also include the relevant tissue block suitable for molecular genetic testing, as specified by the dermatopathologist within the local skin cancer multidisciplinary team.

The 2015 guideline did not specify the type of genetic test. The 2022 committee looked at specific types of test. They concluded that immunohistochemistry using BRAF V600E analysis is the most rapid method and enables treatment to be started sooner than is the case with other types of genetic testing. They also noted evidence that showed BRAF V600E immunohistochemistry rarely produces false positive results. However, some false negative results do occur so the committee agreed that a different BRAF genetic test should be used to double-check a negative or inconclusive result.

The committee agreed to retain the 2015 recommendation that genetic testing should not be offered to people with stages IA to IB melanoma.

Genetic testing for people with melanoma who are potential candidates for clinical trials will streamline enrolment into clinical trials and identify more candidates for trials.

Biomarkers

Biomarkers are of increasing relevance in the diagnosis and monitoring of various cancers, but their utility in the context of melanoma is still unclear. The committee made recommendations for research on monitoring and response biomarkers, and safety, prognostic and predictive biomarkers.

How the recommendations might affect practice

The recommendations might increase the use of genetic testing. They are expected to increase immunohistochemistry with BRAF V600E analysis as a means of genetic testing and reduce variations in genetic testing practice.

Return to recommendations

Staging with sentinel lymph node biopsy and imaging

Recommendations 1.4.1 to 1.4.11

Why the committee made the recommendations

Sentinel lymph node biopsy

Evidence showed that sentinel lymph node biopsy (SLNB) should be done (or ruled out) before imaging for most people because imaging does not accurately detect lymph node metastases during staging. The committee agreed that imaging should only be offered before SLNB if lymph node or distant metastases are suspected.

Specific risk factors were shown by the evidence to be strongly associated with a positive sentinel lymph node and the committee recommended that SLNB be considered for

people with any of these risk factors. They agreed that SLNB is not cost effective if the risk of sentinel node metastases is low. The committee noted that the existing economic evidence was highly contradictory. They also noted that the model previously developed for the 2015 guideline and 1 study showed that SLNB was not cost effective.

The committee noted that women who are pregnant may have concerns about having SLNB because it needs to be done under a general anaesthetic and uses a radioactive tracer and an unlicensed drug. The committee agreed that, in their experience, there is no harm associated with delaying SLNB until after pregnancy. They noted that the decision should be made within the specialist skin cancer multidisciplinary team on a case-by-case basis after discussion with the person.

Imaging

Most of the evidence concerned imaging during follow-up. There was less evidence on imaging during staging, but the committee agreed that the imaging used for staging should be consistent with the imaging that will be used during follow-up, and made recommendations to reflect this (see the recommendations on imaging in the section on follow-up after treatment for melanoma).

The committee agreed that MRI has utility during staging, due to the increased sensitivity for detecting brain metastases compared with CE-CT. They recommended considering brain MRI instead of CE-CT when staging people with stage IIIC to IV melanoma because of their higher risk of developing brain metastases. The committee noted that many clinical factors are also associated with an increased risk of developing brain metastases and included the main risk factors in the recommendations.

The evidence showed a high rate of recurrence in the interim period between surgery and starting adjuvant therapy. The committee agreed that for people starting adjuvant therapy, imaging should be repeated to exclude recurrence if recent imaging is not available. They agreed to define this as imaging done within the past 8 weeks, based on their experience and noting that 1 study had used a definition of 7.4 weeks.

How the recommendations might affect practice

In current practice SLNB is commonly offered to people with melanoma and a Breslow thickness of 0.8 mm to 1.0 mm. The recommendations are expected to reduce SLNB in this group by targeting it specifically to those with risk factors for a positive SLNB. Ulceration is

the most common risk factor and is therefore likely to be the main reason for offering SLNBs.

Variation in the use of imaging during staging is expected to be reduced, with an increase in the use of CE-CT.

Return to recommendations

Excision for stages 0 to II melanoma

Recommendations 1.5.1 to 1.5.3

Why the committee made the recommendations

The committee agreed to retain the 2015 recommendations on clinical margins for excision.

The 2015 committee found no evidence on the optimal clinical margin for stage 0 melanoma. They made the recommendation on the basis of clinical experience suggesting that local recurrence may be seen when margins smaller than 0.5 cm are used. The 2022 committee found no further evidence so retained the recommendation.

Evidence supported the 2015 recommendations to use minimum clinical margins of 1 cm in stage I melanoma and 2 cm in stage II melanoma. The margin should be around the histological biopsy scar and take into account the primary melanoma margins. The committee acknowledged that smaller margins may be needed for cosmetic reasons on sites such as the face, head and digits. However, the use of smaller margins should be discussed within the specialist skin cancer multidisciplinary team. The reasoning for a smaller margin should be justified and the person should have clinical surveillance. The evidence confirmed that larger margins of 4 cm to 5 cm are associated with more adverse events and no improvement in outcomes.

The committee acknowledged continuing uncertainty about optimal excision margins, particularly in stage 0 disease, and made a recommendation for research on histological margins.

How the recommendations might affect practice

The recommendations are unchanged and are not expected to change current practice.

Return to recommendations

Managing stage III melanoma

Recommendation 1.6.1

Why the committee made the recommendation

Completion lymph node dissection

Evidence suggested that completion lymph node dissection for people with stage III melanoma does not improve survival or melanoma-specific survival when compared with routine surveillance, and that it is associated with an increased risk of lymphoedema. The committee concluded that the overall risks of completion lymph node dissection outweigh the benefits for most people, and agreed to amend the 2015 recommendation to reflect this. However, there is evidence of less nodal basin disease control in people who had SLNB and surveillance compared with people who had completion lymph node dissection. The committee acknowledged that certain factors can make it difficult to manage recurrent nodal disease. They therefore agreed that completion lymph node dissection may be considered for people with these factors.

SLNB (no recommendations)

There was no evidence on the benefit of SLNB for people with stage III melanoma and microsatellite lesions. The committee discussed the potential benefits and harms in the absence of evidence. They agreed that the presence of microsatellite lesions indicates that the melanoma has progressed beyond the lymph nodes and so would automatically become stage IIIB or IIIC disease without the need for SLNB.

The committee agreed that SLNB may sometimes be thought useful as a way of finding out whether the melanoma has spread to the lymph nodes. However, its prognostic utility in this context is unclear. The committee also agreed that most centres in the UK do not currently offer SLNB to people with stage III disease. Therefore they agreed not to make

recommendations in this area.

How the recommendation might affect practice

Completion lymph node dissection is no longer standard practice and the recommendations will not change this.

Return to recommendation

Treating in-transit metastases in stages III and IV melanoma

Recommendations 1.7.1 and 1.7.2

Why the committee made the recommendations

Good quality evidence on localised treatments is lacking. The committee agreed that several treatment options can be considered but that in the absence of good evidence, this decision should be based on treatment suitability for the person with melanoma. They also agreed to remove the option of CO_2 laser listed in the 2015 guideline because it is no longer used in standard practice.

The committee concurred that there is uncertainty about the best option for people with different clinical characteristics and made a recommendation for research on effectiveness of localised treatments.

How the recommendations might affect practice

Treatments for in-transit metastases are rarely used. The recommendations may help to target these treatments but will not lead to substantial changes in practice.

Return to recommendations

Managing stage IV and unresectable stage III melanoma

Recommendations 1.8.3 and 1.8.6 to 1.8.16

Why the committee made the recommendations

The committee looked at evidence on immunotherapies (ipilimumab, nivolumab, pembrolizumab, and nivolumab plus ipilimumab) and targeted therapies (encorafenib plus binimetinib, trametinib plus dabrafenib, dabrafenib monotherapy and vemurafenib monotherapy). These therapies were also compared in a health economic model.

The committee noted the complexities and nuances in the treatment pathway. They identified a number of factors that should be taken into account when considering treatment choices to allow appropriate and individualised treatment decisions.

The evidence showed that, overall, the immunotherapies are more clinically effective than the targeted therapies. Within the immunotherapies, nivolumab plus ipilimumab was the most clinically effective. The health economic model demonstrated that it is also the most cost effective.

However, the committee noted evidence showing that the risk of toxicity with immunotherapies is higher than with targeted therapies, and that this risk increases when immunotherapies are used in combination. They therefore agreed that monotherapy should be an option if combination immunotherapy is deemed unsuitable for people, for example those with poor performance status or comorbidities who are less likely to tolerate toxicity. The evidence showed that nivolumab and pembrolizumab have similar clinical effectiveness and cost effectiveness when used as monotherapies so the committee agreed that either of these options should be offered.

The committee noted NICE technology appraisal guidance recommending ipilimumab monotherapy for untreated advanced (unresectable or metastatic) melanoma, but did not include this option in their recommendation because it is not commonly used as first-line treatment and monotherapy with either nivolumab or pembrolizumab is more cost effective in this population. The committee also acknowledged that ipilimumab is licensed for use as monotherapy in adults and young people aged 12 and over. However, based on their clinical experience, its use as a monotherapy is considered to be the same as in

adults.

If immunotherapy, either in combination or as monotherapy, is unsuitable, the committee agreed that targeted therapies based on BRAF status are an option. The committee noted that someone with symptomatic brain metastases will usually need steroids, which excludes treatment with immunotherapy. In addition, for people with a high disease burden or rapid progression there may not be enough time to generate the necessary immune response that is associated with immunotherapy. Within the targeted therapies, evidence showed that encorafenib plus binimetinib, or trametinib plus dabrafenib, had similar clinical effectiveness. The health economic model did not demonstrate clear differences in cost effectiveness between these 2 options. Therefore, the committee agreed that either of these options for combination treatment could be recommended. If both of these options are unsuitable, the committee agreed that monotherapy with dabrafenib or vemurafenib should be offered.

If targeted treatment for BRAF-mutated melanoma is unsuitable, or if the melanoma is BRAF-wild type, the committee agreed that the options are limited to chemotherapy with dacarbazine or best supportive care.

The committee made recommendations on treatments for previously treated stage IV or unresectable stage III melanoma. The evidence for the clinical and cost effectiveness of treatment in this area was limited. Therefore, the committee preferred to list the available treatment options, and to highlight the factors that should be taken into account when considering treatment choices for previously treated melanoma.

No evidence was found for the effectiveness of systemic cancer therapies specific to children and young people. However, the committee agreed that treatment should not differ between children and adults, and that recommendations also apply to children and young people. When treating children and young people, healthcare professionals should refer to the individual summary of product characteristics for the treatment being considered. This is because most of the treatments recommended in this guideline are not licensed for use in the UK in children and young people under 18, but there are differences in their licensed populations.

The committee noted that people with incurable melanoma have a high symptom burden which should be managed at an early stage, and recommended referral to specialist palliative care services.

How the recommendations might affect practice

The recommendations are expected to increase the proportion of people who are offered nivolumab plus ipilimumab as systemic treatment for stage IV and unresectable stage III melanoma.

The recommendations for previously treated melanoma are not expected to have an impact on practice, as all available treatments are listed alongside the factors that should be considered when making treatment recommendations.

Return to recommendations

Follow-up after treatment for melanoma

Recommendations 1.9.1 to 1.9.15

Why the committee made the recommendations

Information and support for people who have had melanoma

The committee agreed, based on their experience, that the information given to people after treatment for melanoma varies, and that it is particularly important to give people details of a specialist skin cancer service that they can contact if they have questions or concerns after treatment. The committee agreed to retain the 2015 recommendation to provide psychosocial support and to include provision of advice in local follow-up policies. The committee noted the lack of evidence on the views of people who have had melanoma and made a recommendation for research on survivorship.

Exceptions to routine follow-up

Based on their experience, the committee agreed that people who have completed treatment for stage 0 melanoma can be discharged after a clinic visit for advice. They also identified groups who should be offered personalised follow-up, including people with unresectable melanoma and those at increased risk of further primary melanomas.

The committee also identified groups for whom MRI should be considered, as a substitute for CE-CT. See the rationale section on imaging during follow-up.

Frequency of follow-up

The committee sought to find a frequency of clinical follow-up that would balance the need for prompt identification of recurrence or progression with the need to reduce the burden of follow-up appointments for people with melanoma and avoid the costs of unnecessary follow-up.

Evidence showed that for stage IB to IIC disease, a lower frequency of follow-up visits did not increase mortality or cancer recurrence, or worsen quality of life. The committee therefore agreed to reduce the frequency of follow-up visits. They agreed to retain 4 visits per year for the first 2 years after stages IIB to IIC melanoma to coincide with their recommended imaging frequency, but to reduce this to 2 visits in year 3. Recommendations for clinic visits after resected stage III to IV disease were made to allow for a clinic visit after each imaging scan.

Imaging during follow-up

The committee agreed that CT scanning during follow-up after all stages of melanoma should include the head because of the frequency of brain metastases developing during follow-up. The committee considered that the radiation risk from exposure to ionising radiation during CE-CT scans was not serious. However, the committee agreed that brain MRI could be considered instead of CE-CT, if it is more suitable (for example, when there are high-risk factors associated with brain metastases or when MRI has been used in staging). This will reduce radiation exposure and potentially increase accuracy of assessing brain metastases. They noted that this should be after a discussion with the specialist skin cancer multidisciplinary team. The committee acknowledged the logistical difficulties and increased burden on MRI capacity of arranging separate CE-CT and MRI scans.

Evidence on stage III melanoma suggested that while PET-CT is more sensitive for detecting metastases compared with CE-CT it was not cost effective. The committee agreed that frequent imaging with CE-CT, particularly in the first 2 to 3 years when rates of recurrence are highest, will ensure timely identification of recurrences. The committee therefore agreed to recommend twice yearly imaging with CE-CT in the first 3 years, then once yearly in years 4 and 5. There was no evidence on CE-CT after stages IIB and IIC melanoma, but there was evidence suggesting a high risk of recurrence, particularly in stage IIC melanoma, that was worse than the risk of recurrence after stage IIIA disease. Based on this, the committee agreed that CE-CT imaging should be considered after stage IIB, and offered after stage IIC, at the same frequency as stage III.

The committee agreed that MRI should be offered for children and young adults having follow-up because of the cumulative risk of radiation associated with CE-CT scanning, and during pregnancy when CE-CT is undesirable.

Ultrasound scanning was shown by the evidence to be more sensitive than clinical examination and alternative imaging modalities (particularly CE-CT) for detecting local lymph node metastases. The committee agreed, based on their experience, that CE-CT alone can miss or delay detection of lymph node recurrences. However, there was no good quality evidence to show that ultrasound reduces mortality or time to recurrence in people with positive sentinel lymph nodes. Moreover, in current practice people with positive sentinel lymph nodes are offered frequent cross-sectional imaging and it is unclear whether ultrasound offers practical benefit above and beyond this imaging. This guideline does not recommend routine completion lymph node dissection, based on evidence comparing it with ultrasound scanning. However, there is no randomised controlled trial evidence comparing completion lymph node dissection with surveillance alone (with no ultrasound scanning). In addition, evidence suggested that most nodal recurrences develop within the first few years of diagnosis. The committee noted that nodal status is unknown in people who have not had an SNLB, and thus their staging is incomplete. Based on this, the committee agreed to recommend ultrasound surveillance for 3 years for people with a positive sentinel lymph node and those who were considered for but did not have an SLNB.

The committee acknowledged the practical implications of ultrasound imaging during follow-up, such as the capacity to provide increased numbers of scans and the variable experience of healthcare professionals involved in follow-up. They noted the need for more evidence to inform future guidance on follow-up after melanoma and made a recommendation for research on surveillance strategies.

How the recommendations might affect practice

Current practice varies and it is expected that these recommendations will help to standardise practice across centres. Clinic visits for people with stages I to IIC melanoma may be reduced, especially for people with stage IA melanoma. It is therefore important that people are given contact details for the specialist skin cancer multidisciplinary team. The use of ultrasound, CE-CT or MRI scanning is expected to increase, but the use of PET-CT is expected to decrease.

Return to recommendations

Context

Melanoma is the fifth most common skin cancer in the UK, accounting for 4% of all new cancer cases and more cancer deaths than all other skin cancers combined. During 2016 to 2018 there were 16,744 new cases of melanoma and 2,333 deaths from melanoma. Of those who develop melanoma, 87% survive for 10 years or longer.

Incidence rates for melanoma skin cancer in the UK are highest in people aged 85 to 89. Each year more than a quarter (29%) of all new melanoma skin cancer cases in the UK are diagnosed in people aged 75 and over. Since the early 1990s, melanoma skin cancer incidence rates have more than doubled (140%) in the UK. Rates in females have around doubled (106%), and rates in males have almost tripled (186%), from 2016 to 2018. Incidence rates for melanoma skin cancer are projected to rise by 7% in the UK between 2014 and 2035, to 32 cases per 100,000 people by 2035.

A person's risk of developing cancer depends on many factors, including age, genetics, and exposure to risk factors (including some potentially avoidable lifestyle factors). Most cases of melanoma (86%) in the UK are preventable. Melanoma is most common in people with pale skin however it is often diagnosed at a more advanced stage in people with darker skin. This highlights a need for equal opportunity of diagnoses for people with darker skin. The risk factors are skin that tends to burn in the sun, having many moles, intermittent sun exposure and sunburn.

Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the NICE topic page on skin cancer.

For full details of the evidence and the guideline committee's discussions, see the evidence reviews. You can also find information about how the guideline was developed, including details of the committee.

NICE has produced tools and resources to help you put this guideline into practice. For general help and advice on putting our guidelines into practice, see resources to help you put NICE guidance into practice.

Update information

July 2022: We have reviewed the evidence on assessment, management and follow-up for people with melanoma. These recommendations are marked **[2022]**.

We have also made some changes without an evidence review:

- Immunomodulators were added to recommendation 1.2.3 and wording was added to clarify seeking specialist team advice for people who are having immunosuppressive or immunomodulatory treatments.
- The 2015 recommendation on minimising or avoiding immunosuppressants was deleted because it was superseded by the amended recommendation 1.2.3.
- Examples of ablative treatments were removed from recommendation 1.8.2.
- Wording was added to recommendation 1.8.5 to clarify that people with melanoma and brain metastases should be referred to a neuro-oncology team.

These recommendations are marked **[2015, amended 2022]**.

Recommendations marked **[2015]** last had an evidence review in 2015. In some cases minor changes have been made to the wording to bring the language and style up to date, without changing the meaning.

Minor changes since publication

July 2019: We added option grids to help with discussion of potential treatments. Links to technology appraisal guidance on the NICE topic page for melanoma added to sections 1.7 and 1.8.

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