NATIONAL GUIDELINE CLEARINGHOUSE™ (NGC) GUIDELINE SYNTHESIS

SCREENING AND PREVENTION OF SKIN CANCER

GUIDELINES BEING COMPARED

1. **Association of Comprehensive Cancer Centres (ACCC)**. Skin melanoma. Utrecht, The Netherlands: Association of Comprehensive Cancer Centres (ACCC); 2006 Jul 14. 9 p.
2. **Australian Cancer Network/New Zealand Guidelines Group (ACN/NZGG)**:
    - Prevention. In: Clinical practice guidelines for the management of melanoma in Australia and New Zealand. Wellington (NZ): The Cancer Council Australia, Australian Cancer Network, Sydney and New Zealand Guidelines Group; 2008. p. 1-4.
    - Population-based whole-body skin screening for melanoma. In: Clinical practice guidelines for the management of melanoma in Australia and New Zealand. Wellington (NZ): The Cancer Council Australia, Australian Cancer Network, Sydney and New Zealand Guidelines Group; 2008. p. 5-13.
    - Identification and management of high-risk individuals. In: Clinical practice guidelines for the management of melanoma in Australia and New Zealand. Wellington (NZ): The Cancer Council Australia, Australian Cancer Network, Sydney and New Zealand Guidelines Group; 2008. p. 15-21.
3. **Program in Evidence-based Care (PEBC)**. Screening for skin cancer: a clinical practice guideline. Toronto (ON): Cancer Care Ontario (CCO); 2007 Jun 19. 33 p. (Evidence-based series; no. 15-1). [79 references]
4. **U.S. Preventive Services Task Force (USPSTF)**. Screening for skin cancer: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med 2009 Feb 3;150(3):188-93. [12 references] PubMed

TABLE OF CONTENTS

AREAS OF AGREEMENT AND DIFFERENCE
COMPARISON OF RECOMMENDATIONS

- SCREENING
- PREVENTION
    - PRIMARY PREVENTION INTERVENTIONS
    - SKIN SELF EXAMINATION AND PREVENTIVE COUNSELING

STRENGTH OF EVIDENCE AND RECOMMENDATION GRADING SCHEMES
METHODOLOGY
SOURCE(S) OF FUNDING

BENEFITS AND HARMS
ABBREVIATIONS

AREAS OF AGREEMENT AND DIFFERENCE

A direct comparison of the recommendations presented in the above guidelines for the screening and prevention of skin cancer is provided below.

Areas of Agreement

Screening

All of the guidelines are in general agreement that there is insufficient evidence to support screening (PEBC and USPSTF specify using total body skin examination or patient skin self-examination) of the general population at average risk of skin cancer.

All of the groups do, however, recommend some sort of increased surveillance and/or skin examination for groups at increased risk. Factors to be considered in determining risk level identified by ACN/NZGG, PEBC and USPSTF include: history of skin cancer, number of naevi (common and atypical), family history of melanoma, skin and hair pigmentation, and response to sun exposure. ACN/NZGG recommends that individuals at high risk undergo a full body examination supported by total body photography and dermoscopy as required every 6 months. PEBC provides detailed risk factors to facilitate physician identification of individuals at high or very high risk, recommending that individuals at very high risk have a yearly total body skin examination performed. Individuals at high risk, PEBC continues, should be seen once a year by a health care provider trained in screening for skin cancers. ACCC recommends checking every 6 to 12 months for pigmented lesions in cases with a known familial increased risk of melanoma. They further note that increased attentiveness is advisable for individuals with a combination of risk factors resulting in a substantially increased risk of melanoma. USPSTF recommends clinicians remain alert for skin lesions with malignant features noted in the context of physical examinations performed for other purposes. Clinicians should also be aware of risk factors and known groups at substantially increased risk for melanoma according to USPSTF.

Preventive Interventions

ACN/NZGG, the only group to address preventive strategies, recommends that sunscreens be used to complement, not replace, physical methods of UV protection. They add that total lack of sun exposure is not advised without vitamin D supplementation. ACN/NZGG also recommends that the risks associated with tanning booths and sunbeds be explained.

Skin Self-Examination and Preventive Counseling/Education

None of the groups recommends that the general population at average risk of skin cancer be counseled about, or perform, skin self-examination. The ACN/NZGG and PEBC guidelines are in agreement regarding the benefit of skin self-examination (in addition to total body skin examination performed by a health care professional) in high-risk populations. According to PEBC, individuals at high

or very high risk should be counseled about skin self-examination and skin cancer prevention. ACN/NZGG similarly recommends that individuals at high risk of melanoma and their partner or carer be educated to recognize and document suspicious lesions. USPSTF does not address skin self-examination in high-risk populations.

Areas of Difference

There are no significant areas of difference between the guidelines.

COMPARISON OF RECOMMENDATIONS	
SCREENING **Abbreviations** **Back to TOC**	
ACCC (2006)	**Screening** **Is Screening for Skin Melanoma Useful?** The working group is of the opinion that routine checking for pigmented lesions warrants recommendation in cases with a known familial increased risk of melanoma. One check-up every 6 to 12 months is considered sufficient. According to the working group, increased attentiveness is advisable for individuals with a combination of risk factors resulting in a substantially increased risk of melanoma. The working group is of the opinion that population-based screening for melanoma is not warranted in the Netherlands.
ACN/NZGG (2008)	**Population Based Whole-Body Skin Screening for Melanoma** **C** - In the absence of substantive evidence as to its effectiveness in reducing mortality from melanoma, population-based skin screening cannot be recommended. **Identification and Management of High-Risk Individuals** **Family History of Melanoma** **B** - Clinical assessment of future risk of melanoma take into account: • Person's age and sex

	• History of previous melanoma or non-melanoma skin cancer • Number of naevi (common and atypical) • Family history of melanoma • Skin and hair pigmentation • Response to sun exposure • Evidence of actinic skin damage **Management of High-Risk Individuals** **C** - Individuals at high risk of melanoma and their partner or carer should 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. **GPP** - Prophylactic removal of nonsuspicious 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. **Genetic Risk Factors and Testing** **C** - Screening for a mutation such as the CDKN2A gene should 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.
PEBC (2007)	***Very High Risk of Skin Cancer*** Individuals with <u>any</u> of the following risk factors have a <u>very high risk</u> of skin cancer (approximately 10 or more times the risk of the general population): • On immunosuppressive therapy after organ transplantation • A personal history of skin cancer • Two or more first-degree relatives with melanoma • More than 100 nevi in total or 5+ atypical nevi • Have received more than 250 treatments with psoralen-ultraviolet A radiation (PUVA) for psoriasis • Received radiation therapy for cancer as a child Individuals at very high risk should be identified by their primary health care provider and offered total body skin examination by a dermatologist or a trained health care provider on a yearly basis. They should also be counseled about skin self-examination and skin cancer prevention by a health care provider (e.g., physician, nurse practitioner, or public health

	nurse). In the case of childhood cancer survivors, the site of radiation therapy should be monitored. ***High Risk of Skin Cancer*** Individuals with two or more of the main identified susceptibility factors are at a high risk for skin cancer (roughly 5 times the risk of the general population): • A first-degree relative with melanoma • Many (50-100) nevi • One or more atypical (dysplastic) nevi • Naturally red or blond hair • A tendency to freckle • Skin that burns easily and tans poorly or not at all Other factors that may influence the risk of skin cancers that are environmental include an outdoor occupation, a childhood spent at less than latitude 35°, the use of tanning beds during teens and twenties, and radiation therapy as an adult. Individuals at high risk should be identified by their primary health care provider and counseled about skin self-examination (specifically focused on the site of radiation for those having had therapeutic radiation) and skin cancer prevention by a health care provider (e.g., physician, nurse practitioner, or public health nurse). High risk individuals should be seen once a year by a health care provider trained in screening for cancers. ***The General Population Not at Increased Risk of Skin Cancer*** • There is at this time no evidence for or against skin cancer screening of the general population at average risk of developing skin cancer. • Based on the limited evidence available at present, routine total body skin examination by primary care providers is not recommended for individuals at average or low risk for skin cancer (i.e., those not included in the increased risk groups described above). • Based on the limited evidence available at present, routine counseling on skin self-examination by primary care providers is not recommended for individuals at average or low risk for skin cancer.
USPSTF (2009)	**Summary of Recommendation and Evidence** The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of using a whole-

	body skin examination by a primary care clinician or patient skin self-examination for the early detection of cutaneous melanoma, basal cell cancer, or squamous cell skin cancer in the adult general population. **This is an I statement**. **Clinical Considerations** **Suggestions for Practice Regarding the I Statement** Clinicians should remain alert for skin lesions with malignant features noted in the context of physical examinations performed for other purposes. Asymmetry, border irregularity, color variability, diameter greater than 6 mm (ABCD criteria), or rapidly changing lesions are features associated with an increased risk for cancer. Biopsy of suspicious lesions is warranted. **Assessment of Risk** Clinicians should be aware that fair-skinned men and women older than 65 years, patients with atypical moles, and those with more than 50 moles constitute known groups at substantially increased risk for melanoma. Other risk factors for skin cancer include family history and a considerable past history of sun exposure and sunburns. Benefits from screening are uncertain, even in high-risk patients.
PREVENTION **Abbreviations** **Back to TOC**	
Primary Prevention Interventions	
ACCC (2006)	No recommendations offered
ACN/NZGG (2008)	**Prevention** **B** - Sunburn be avoided and UV protection (physical methods complemented by sunscreens) adopted. **C** - Sunscreens should be used to complement but not to replace physical methods of UV protection. **C** - Risks associated with exposure to tanning booths and sunbeds should be explained. **C** - As brief sun exposures are needed to maintain vitamin D levels, total lack of sun exposure is not advised without vitamin

	D supplementation.
PEBC (2007)	No recommendations offered
USPSTF (2009)	**Useful Resources** The USPSTF has previously reviewed the evidence for counseling to prevent skin cancer. The recommendation statement and supporting documents are available on the AHRQ Web site (www.ahrq.gov/clinic/prevenix.htm). The U.S. Task Force on Community Preventive Services has reviewed the evidence on interventions designed to reduce skin cancer; the recommendations are available at The Community Guide (www.thecommunityguide.org).
Skin Self-Examination and Preventive Counseling	
ACCC (2006)	No recommendations offered
ACN/NZGG (2008)	**Prevention** **C** - Risks associated with exposure to tanning booths and sunbeds should be explained. **Identification and Management of High-Risk Individuals** **Management of High-Risk Individuals** Regular skin examination can be done by the person himself or herself, perhaps aided by a partner or carer, or by a clinician. Both of these can be aided by total body photography, which provides a baseline that may aid recognition of new and changing lesions. The clinician examination can be aided by dermoscopy and short-term digital monitoring, in which suspicious lesions are photographed and reviewed at three months. In individuals with multiple naevi there is no evidence that prophylactic removal of lesions that are not clinically suspicious reduces prospective risk of melanoma. **C** - Individuals at high risk of melanoma and their partner or carer should 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.
PEBC (2007)	***Very High Risk of Skin Cancer***

	Individuals at very high risk should be counseled about skin self-examination and skin cancer prevention by a health care provider (e.g., physician, nurse practitioner, or public health nurse). In the case of childhood cancer survivors, the site of radiation therapy should be monitored. ***High Risk of Skin Cancer*** Individuals at high risk should be identified by their primary health care provider and counseled about skin self-examination (specifically focused on the site of radiation for those having had therapeutic radiation) and skin cancer prevention by a health care provider (e.g., physician, nurse practitioner, or public health nurse). ***The General Population Not at Increased Risk of Skin Cancer*** Based on the limited evidence available at present, routine counseling on skin self-examination by primary care providers is not recommended for individuals at average or low risk for skin cancer.
USPSTF (2009)	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of using a whole-body skin examination by a primary care clinician or patient skin self-examination for the early detection of cutaneous melanoma, basal cell cancer, or squamous cell skin cancer in the adult general population. **This is an I statement**.

STRENGTH OF EVIDENCE AND RECOMMENDATION GRADING SCHEMES **Abbreviations** **Back to TOC**	
ACCC (2006)	The type of supporting evidence is not specifically stated.
ACN/NZGG (2008)	**Designations of Levels of Evidence According to Type of Research Question**

Level	Intervention	Diagnosis	Prognosis	Aetiology
I	A systematic review of level II studies	A systematic review of level II	A systematic review of level II	A systematic review of level II

		studies	studies	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
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
III-2	A comparative study with concurrent controls: • Non-randomised, experimental trial • Cohort study • Case-control study • Interrupted time series with a control	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

	group			
III-3	A comparative study without concurrent controls: • Historical control study • Two or more single arm study • Interrupted time series without a parallel control group	Diagnostic case-control study	A retrospective cohort study	A case-control study
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

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

Recommendation Grades

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.
PEBC (2007)	The recommendations are based on evidence-based practice guidelines, one case-control study, and two comparative studies
USPSTF (2009)	**What the USPSTF Grades Mean and Suggestions for Practice**

Grade	Grade Definitions	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	The USPSTF recommends against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is moderate or high certainty that the net benefit is small.	Offer or provide this service only if other considerations support offering or providing the service in an individual patient.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.	Read "Clinical Considerations" section of USPSTF Recommendation Statement (see "Major Recommendations" field). If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The U.S. Preventive Services Task Force defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence

available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. The conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by such factors as: • The number, size, or quality of individual studies • Inconsistency of findings across individual studies • Limited generalizability of findings to routine primary care practice • Lack of coherence in the chain of evidence As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: • The limited number or size of studies • Important flaws in study design or methods • Inconsistency of findings across individual studies • Gaps in the chain of evidence • Findings that are not generalizable to routine primary care practice • A lack of information on important health outcomes More information may allow an estimation of effects on health outcomes.

COMPARISON OF METHODOLOGY ***Click on the links below for details of guideline development methodology***			
ACCC METHODOLOGY (2006)	**ACN/NZGG METHODOLOGY (2008)**	**PEBC METHODOLOGY (2007)**	**USPSTF METHODOLOGY (2009)**
All four groups performed searches of electronic databases to collect the evidence; ACN/NZGG and PEBC also conducted hand-searches of published literature (both primary and secondary sources), and USPSTF conducted hand-searches of published			

secondary sources. A targeted review of the literature was prepared by the Agency for Healthcare Research and Quality (AHRQ) for use by USPSTF in the development of its guideline. PEBC, USPSTF and ACN/NZGG provide details regarding the search strategies employed, including the names of databases searched, the date range, search terms used, and inclusion/exclusion criteria. ACCC does not provide this information.

To assess the quality and strength of the evidence, PEBC and USPSTF employed expert consensus. ACCC and ACN/NZGG used weighting according to a rating scheme, but ACCC, in contrast to ACN/NZGG, does not provide the scheme. With regard to methods used to analyze the evidence, all of the groups, with the exception of ACCC, performed a systematic review (ACN/NZGG's systematic review incorporated evidence tables). In addition, a review of published meta-analyses was conducted by PEBC and ACN/NZGG. ACCC performed a review to analyze the evidence.

All of the groups employed expert consensus to formulate the recommendations and provide a description of the process; USPSTF also utilized balance sheets. The strength of the recommendations was graded by USPSTF and ACN/NZGG, and both provide the rating scheme.

ACN/NZGG was the only group to perform a cost analysis and to review published cost analyses. PEBC, USPSTF, and ACN/NZGG all employed both internal and external peer review to validate their guidelines and provide a description of the validation process; USPSTF also performed a comparison with guidelines from other groups. ACCC does not state if any method of guideline validation was used.

SOURCE(S) OF FUNDING **Abbreviations** **Back to TOC**	
ACCC (2006)	Association of Comprehensive Cancer Centres
ACN/NZGG (2008)	New Zealand Guidelines Group
PEBC (2007)	Cancer Care Ontario Ontario Ministry of Health and Long-Term Care
USPSTF (2009)	United States Government

BENEFITS AND HARMS Abbreviations Back to TOC	
Benefits	
ACCC (2006)	• Improved quality of care in patients with melanoma • Better results from treatment • Decreased metastases • Decreased mortality
ACN/NZGG (2008)	Appropriate prevention, diagnosis, and management of melanoma
PEBC (2007)	• The pilot phase of a randomized trial demonstrated the feasibility of implementing a screening program consisting of community education, general practitioner education and screening clinics to promote self-screening and whole-body screening by general practitioners. Early results detected an increase in the percentage of subjects reporting whole-body skin examination by a physician. • The randomized trial and a work-place screening study both found that people were more likely to perform skin self-examination if they had undergone a whole-body skin examination by a physician. • A case-control study detected a reduced risk of melanoma and reduced mortality from melanoma associated with skin self-examination.
USPSTF (2009)	**Benefits of Detection and Early Treatment** The evidence is insufficient (lack of studies) to determine whether early detection of skin cancer reduces mortality or morbidity from skin cancer. This is a critical gap in the evidence.
Harms	
ACCC (2006)	No screening-related harms are provided.
ACN/NZGG (2008)	Not stated
PEBC (2007)	Not stated

USPSTF (2009)	**Harms of Detection and Early Treatment** The evidence is insufficient (lack of studies) to determine the magnitude of harms from screening for skin cancer. Potential harms of screening for skin cancer include misdiagnosis, overdiagnosis, and the resultant harms from biopsies and overtreatment. This is a critical gap in the evidence.

Abbreviations
Back to TOC

ACCC, Association of Comprehensive Cancer Centres

ACN, Australian Cancer Network

GPP, Good Practice Point

NZGG, New Zealand Guidelines Group

PEBC, Program in Evidence-based Care

SPF, Sun protection factor

USPSTF, U.S. Preventive Services Task Force

UV, Ultraviolet

This synthesis was prepared by ECRI on April 19, 2005. The information was verified by USPSTF on May 2, 2005. This synthesis was updated on December 12, 2006 to withdraw USPSTF screening guidelines that no longer meet NGC's date criteria. This synthesis was revised on April 30, 2008 to add PEBC recommendations. The information was verified by PEBC on June 12, 2008. This synthesis was revised in December 2008 to add ACCC recommendations and remove USPSTF recommendations. This summary was updated in August 2009 to add ACN/NZGG and USPSTF recommendations. The information was verified by USPSTF on August 31, 2009 and by ACN/NZGG on October 9, 2009.

Internet citation: National Guideline Clearinghouse (NGC). Guideline synthesis: Screening and prevention of skin cancer. In: National Guideline Clearinghouse (NGC) [website]. Rockville (MD): 2009 Jun (revised 2009 Nov). [cited YYYY Mon DD]. Available: http://www.guideline.gov.

Copyright/Permission Requests

Date Modified: 4/5/2010