



NATIONAL GUIDELINE CLEARINGHOUSE™ (NGC) GUIDELINE SYNTHESIS

SCREENING AND PREVENTION OF SKIN CANCER

Guidelines

1. **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]
2. **Scottish Intercollegiate Guidelines Network (SIGN).** [Cutaneous melanoma](#). A national clinical guideline. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network (SIGN); 2003 Jul. 50 p. (SIGN publication; no. 72). [277 references]
3. **U.S. Preventive Services Task Force (USPSTF).** [Counseling to prevent skin cancer: recommendations and rationale](#). MMWR Recomm Rep 2003 Oct 17;52(RR-15):13-7. [27 references]

INTRODUCTION

A direct comparison of the Program in Evidence-based Care (PEBC), Scottish Intercollegiate Guidelines Network (SIGN) and the U.S. Preventive Services Task Force (USPSTF) recommendations for skin cancer screening and prevention is provided in the tables below. The PEBC guideline focuses its discussion on screening for melanoma and nonmelanoma skin cancer. The USPSTF guideline provides recommendations for the prevention of melanoma and non-melanoma skin cancer, but does not address screening. The SIGN guideline focuses its skin cancer discussion on cutaneous melanoma, providing recommendations on screening and prevention, as well as the diagnosis, management, and treatment of skin cancer. Recommendations concerning diagnosis, management, and treatment of this skin cancer are compared in Part II of this synthesis (currently under development).

- [Table 1](#) provides a quick-view glance at the primary interventions considered by each group
- [Table 2](#) provides a comparison of the overall scope of both guidelines.
- [Table 3](#) provides a more detailed comparison of the specific recommendations offered by each group for the topics under consideration in this synthesis, including:
 - [Screening](#)
 - [Preventive Counseling/Education](#)
 - [Preventive Interventions](#)
 - [Skin Self Examination](#)
- [Table 4](#) lists the potential benefits and harms associated with the implementation of each guideline as stated in the original guidelines.
- [Table 5](#) presents the rating schemes used by the guideline groups to rate the level of evidence and/or the strength of the recommendations.

A summary discussion of the [areas of agreement](#) and [areas of differences](#) among the guidelines is presented following the content comparison tables.

Related Guideline

- Task Force on Community Preventive Services. [Preventing skin cancer: findings of the Task Force on Community Preventive Services on Reducing Exposure to Ultraviolet Light](#). MMWR Recomm Rep 2003 Oct 17;52(RR-15):1-12. [28 references]

Abbreviations used in the text and table:

- PEBC, Program in Evidence-based Care
- SIGN, Scottish Intercollegiate Guidelines Network
- SPF, Sun protection factor
- USPSTF, U.S. Preventive Services Task Force
- UV, Ultraviolet

TABLE 1: COMPARISON OF INTERVENTIONS AND PRACTICES CONSIDERED <i>("✓" indicates topic is addressed)</i>			
	PEBC (2007)	SIGN (2003)	USPSTF (2003)
Screening	✓	✓	
Preventive Counseling/Education	✓	✓	✓
Preventive Interventions		✓	✓
Skin Self Examination	✓	✓	✓

TABLE 2: COMPARISON OF SCOPE AND CONTENT	
Objective and Scope	
PEBC (2007)	<ul style="list-style-type: none"> • To evaluate whether primary care providers should routinely perform total-body skin examination on members of the general population to screen for melanoma, basal cell carcinoma, and squamous cell carcinoma of the skin • To evaluate whether primary care providers should routinely counsel members of the general population to perform skin self-examination for early detection of melanoma, basal cell carcinoma, and squamous cell carcinoma of the skin

	<ul style="list-style-type: none"> To evaluate whether individuals at high risk for melanoma, basal cell carcinoma, and squamous cell carcinoma of the skin should be offered surveillance by a physician, including total-body skin examination and counselling to perform skin self-examination To determine the characteristics clinicians should assess in order to determine risk for melanoma, basal cell carcinoma, and squamous cell carcinoma of the skin
SIGN (2003)	<ul style="list-style-type: none"> To provide advice at all stages of the patient's pathway of care, from primary prevention to early recognition, treatment, and follow-up
USPSTF (2003)	<ul style="list-style-type: none"> To summarize the current USPSTF recommendations on counseling to prevent skin cancer and the supporting scientific evidence To update the 1996 recommendation contained in the Guide to Clinical Preventive Services, Second Edition
Target Population	
PEBC (2007)	<ul style="list-style-type: none"> Canada Members of the general population
SIGN (2003)	<ul style="list-style-type: none"> Scotland Individuals at risk for and/or diagnosed with cutaneous melanoma
USPSTF (2003)	<ul style="list-style-type: none"> United States The general population, including adults and children, seen in primary care settings
Intended Users	
PEBC (2007)	Physicians
SIGN (2003)	<p>Advanced Practice Nurses</p> <p>Allied Health Personnel</p> <p>Nurses</p>

	Physician Assistants Physicians Public Health Departments
USPSTF (2003)	Advanced Practice Nurses Allied Health Personnel Health Care Providers Nurses Physician Assistants Physicians

TABLE 3: RECOMMENDATIONS	
Screening Recommendations	
PEBC (2007)	<p><i>Very High Risk of Skin Cancer</i></p> <p>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):</p> <ul style="list-style-type: none"> • 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 <p>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.</p> <p><i>High Risk of Skin Cancer</i></p>

	<p>Individuals with <u>two or more</u> of the main identified susceptibility factors are at a <u>high risk</u> for skin cancer (roughly 5 times the risk of the general population):</p> <ul style="list-style-type: none"> • 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 <p>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.</p> <p>Individuals at high risk should be identified by their primary health care provider and <u>counseled about skin self-examination</u> (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.</p> <p><i>The General Population Not at Increased Risk of Skin Cancer</i></p> <ul style="list-style-type: none"> • 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, <u>routine total body skin examination</u> by primary care providers is <u>not recommended</u> for individuals at <u>average or low risk</u> for skin cancer (i.e., those not included in the increased risk groups described above). • Based on the limited evidence available at present, <u>routine counseling on skin self-examination</u> by primary care providers is <u>not recommended</u> for individuals at <u>average or low risk</u> for skin cancer.
<p>SIGN (2003)</p>	<p>The available evidence is insufficient to recommend for or against the use of routine screening of individuals at higher risk of melanoma. Interventions to promote the awareness of risk factors and skin self awareness are probably warranted.</p> <p>No randomised controlled trials on mass screening were identified. Two American systematic reviews of screening for melanoma (and other skin cancers) have identified observational data to suggest that screening in high-risk groups might be effective. (Evidence level 2++)</p>

	<p>Good Practice Point: A formal programme of mass screening for melanoma in Scotland is not recommended.</p> <p><i>Although mass screening is not recommended, the following recommendation is offered with respect to "Delay in Diagnosis":</i></p> <p>D - Health professionals should be encouraged to examine patients' skin during other clinical examinations.</p>
USPSTF (2003)	No recommendations offered.
PREVENTION RECOMMENDATIONS	
Preventive Counseling/Education	
PEBC (2007)	<p><i>Very High Risk of Skin Cancer</i></p> <p>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).</p> <p><i>High Risk of Skin Cancer</i></p> <p>Individuals at high risk should be identified by their primary health care provider and <u>counseled about skin self-examination</u> (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).</p> <p><i>The General Population Not at Increased Risk of Skin Cancer</i></p> <p>Based on the limited evidence available at present, <u>routine counseling on skin self-examination</u> by primary care providers is <u>not recommended</u> for individuals at <u>average or low risk</u> for skin cancer.</p>
SIGN (2003)	<p>Public Education to Promote Primary Prevention</p> <p>D - Brochures and leaflets should be used to deliver preventive information on melanoma to the general public.</p> <p>Leaflets, brochures, and educational packages can significantly influence increased short term user-knowledge of sun awareness measures and can assist in the early detection of melanoma.</p> <p>Insufficient evidence was identified to enable recommendations to be made about the style or content of leaflets and brochures.</p>

	<p>Education to Promote Early Detection:</p> <p>B - Healthcare professionals and members of the public should be aware of the risk factors for melanoma.</p> <p>C - Individuals identified as being at higher risk should be:</p> <ul style="list-style-type: none"> • advised about appropriate methods of sun protection • educated about the diagnostic features of cutaneous melanoma
<p>USPSTF (2003)</p>	<p>The USPSTF concludes that the evidence is insufficient to recommend for or against routine counseling by primary care clinicians to prevent skin cancer. I recommendation.</p> <p><i>The USPSTF found insufficient evidence to determine whether clinician counseling is effective in changing patient behaviors to reduce skin cancer risk. Counseling parents may increase the use of sunscreen for children, but there is little evidence to determine the effects of counseling on other preventive behaviors (such as wearing protective clothing, reducing excessive sun exposure, avoiding sun lamps/tanning beds, or practicing skin self-examination) and little evidence on potential harms.</i></p>
<p>Preventive Interventions</p>	
<p>PEBC (2007)</p>	<p>No recommendations offered.</p>
<p>SIGN (2003)</p>	<p>There is indirect evidence that sun avoidance and other sun-protective measures (e.g., clothing, hats and opaque sunscreens) are likely to reduce the risk of melanoma.</p> <p>Sunscreen effectiveness is difficult to demonstrate for a number of reasons (see the original guideline document for details). Given these potentially adverse effects of sunscreens in relation to risk of melanoma, physical protection measures should be regarded as more important than sunscreen use (<i>Evidence level 2++</i>).</p> <p>In the absence of evidence to support recommendations about specific aspects of protection measures in Scotland, the advice listed below is based on Australian guidelines on melanoma, interpreted in the light of the Scottish climate (<i>Evidence level 4</i>):</p> <ul style="list-style-type: none"> • Use clothing as the primary means of protecting against the sun. • People of fair complexion should be especially careful about sun exposure. • Avoid using sun beds, tanning booths, and tanning lamps as an increased risk has been reported in some studies. • Use broad spectrum sunscreens with a minimum SPF of 15 as

	<p>an adjunct to sun avoidance and other sun protective measures, providing this does not lead to increased time spent in the sun.</p> <ul style="list-style-type: none"> • Avoid exposure to direct, intense sunlight, especially around midday (e.g., seek out shade). • Provide children with appropriate sun protection for outdoor activities.
<p>USPSTF (2003)</p>	<ul style="list-style-type: none"> • Using sunscreen has been shown to prevent squamous cell skin cancer. The evidence for the effect of sunscreen use in preventing melanoma, however, is mixed. Sunscreens that block both ultraviolet A (UV-A) and ultraviolet B (UV-B) light may be more effective in preventing squamous cell cancer and its precursors than those that block only UV-B light. However, people who use sunscreen alone could increase their risk for melanoma if they increase the time they spend in the sun. • UV exposure increases the risk for skin cancer among people with all skin types, but especially fair-skinned people. Those who sunburn readily and tan poorly, namely those with red or blond hair and fair skin that freckles or burns easily, are at highest risk for developing skin cancer and would benefit most from sun protection behaviors. The incidence of melanoma among whites is 20 times higher than it is among blacks; the incidence of melanoma among whites is about 4 times higher than it is among Hispanics. • Observational studies indicate that intermittent or intense sun exposure is a greater risk factor for melanoma than chronic exposure. These studies support the hypothesis that preventing sunburn, especially in childhood, may reduce the lifetime risk for melanoma. • Other measures for preventing skin cancer include avoiding direct exposure to midday sun (between the hours of 10:00 AM and 4:00 PM) to reduce exposure to UV rays and covering skin exposed to the sun (by wearing protective clothing such as broad-brimmed hats, long-sleeved shirts, long pants, and sunglasses). • The effects of sunlamps and tanning beds on the risk for melanoma are unclear due to limited study design and conflicting results from retrospective studies.
<p>Skin Self Examination</p>	
<p>PEBC (2007)</p>	<p><i>Very High Risk of Skin Cancer</i></p> <p>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</p>

	<p>monitored.</p> <p>High Risk of Skin Cancer</p> <p>Individuals at high risk should be identified by their primary health care provider and <u>counseled about skin self-examination</u> (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).</p> <p>The General Population Not at Increased Risk of Skin Cancer</p> <p>Based on the limited evidence available at present, <u>routine counseling on skin self-examination</u> by primary care providers is <u>not recommended</u> for individuals at <u>average or low risk</u> for skin cancer.</p>
SIGN (2003)	C - Individuals identified as being at higher risk should be encouraged to perform self examination of the skin.
USPSTF (2003)	Only a single case-control study of skin self-examination has reported a lower risk for melanoma among patients who reported ever examining their skin over 5 years. Although results from this study suggest that skin self-examination may be effective in preventing skin cancer, these results are not definitive.

TABLE 4: BENEFITS AND HARMS	
Benefits	
PEBC (2007)	<ul style="list-style-type: none"> • 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.
SIGN (2003)	Improved prevention and early detection of melanoma

<p>USPSTF (2003)</p>	<p>Counseling</p> <p>Community and worksite educational interventions have demonstrated significantly increased use of skin protection measures, such as wearing hats and long-sleeve shirts and staying in the shade; however, evidence addressing the effectiveness of clinician counseling to prevent skin cancer is extremely limited. Most studies of counseling have examined intermediate outcomes such as knowledge and attitudes rather than changes in behavior. In a recent survey, 60% of pediatricians said that they usually or always counsel patients about skin protection, but advice to use sunscreen is more common than advice about wearing protective clothing or avoiding the midday sun.</p> <p>Simple reminders and instructional materials for clinicians can overcome some of the barriers to regular counseling. A randomized trial of a community-based intervention involving 10 towns in New Hampshire suggests that office-based counseling by physicians may be an effective component of a multi-modal program to promote skin protection. The proportion of children with some sun protection increased in the intervention towns (from 78% to 87%) but not in control communities (P = 0.029). More parents reported receiving some sun protection information from a clinician in the intervention towns. However, most of the change was due to increased sunscreen use rather than to reduced sun exposure.</p> <p>Subgroups Most Likely to Benefit</p> <p>UV exposure increases the risk for skin cancer among people with all skin types, but especially fair-skinned people. Those who sunburn readily and tan poorly, namely those with red or blond hair and fair skin that freckles or burns easily, are at highest risk for developing skin cancer and would benefit most from sun protection behaviors. The incidence of melanoma among whites is 20 times higher than it is among blacks; the incidence of melanoma among whites is about 4 times higher than it is among Hispanics.</p>
<p style="text-align: center;">Harms</p>	
<p>PEBC (2007)</p>	<p>Not stated</p>
<p>SIGN (2003)</p>	<p>Risks Related to Preventive Strategies</p> <ul style="list-style-type: none"> • Sunscreen use may be associated with greater sun exposure • Some ingredients found in sunscreens may be carcinogenic • Risks associated with sun avoidance, such as a lack of vitamin D
<p>USPSTF (2003)</p>	<p>Potential Harms of Skin Protection Behaviors</p>

	<p>There are limited data regarding potential harms of counseling or of specific skin protection behaviors. A possible result of skin cancer counseling that focuses on the use of sunscreen can lead to a false sense of security, which might lead to more time in the sun. For example, a randomized trial with young adults found that those who used sunscreen with a high SPF stayed longer in the sun than those who used sunscreen with a lower SPF. There has been some concern that use of a SPF of 15 results in vitamin D deficiency. However, a randomized trial in people over 40 years of age found that sunscreen use over the summer had no effect on 25-hydroxyvitamin D3 levels. Concerns related to sun avoidance include reduced physical activity levels among children and negative effects on mental health. However, no studies have evaluated the effects of sun protection behaviors on these outcomes.</p>
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TABLE 5: EVIDENCE AND RECOMMENDATION RATING SCHEMES	
PEBC (2007)	The recommendations are based on evidence-based practice guidelines, one case-control study, and two comparative studies.
SIGN (2003)	<p>Grades of Recommendation</p> <p>A: At least one meta-analysis, systematic review of randomised controlled trials (RCTs), or RCT rated as 1++ and directly applicable to the target population; or</p> <p>A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results</p> <p>B: A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results; or</p> <p>Extrapolated evidence from studies rated as 1++ or 1+</p> <p>C: A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; <i>or</i></p> <p>Extrapolated evidence from studies rated as 2++</p> <p>D: Evidence level 3 or 4; <i>or</i></p> <p>Extrapolated evidence from studies rated as 2+</p>

	<p>Levels of Evidence</p> <p>1++: High quality meta-analyses, systematic reviews of randomised controlled trials (RCTs), or RCTs with a very low risk of bias</p> <p>1+: Well-conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias</p> <p>1-: Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias</p> <p>2++: High quality systematic reviews of case control or cohort studies; high quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal</p> <p>2+: Well conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal</p> <p>2-: Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal</p> <p>3: Non-analytic studies (e.g., case reports, case series)</p> <p>4: Expert opinion</p>
<p>USPSTF (2003)</p>	<p>The Task Force grades its recommendations according to one of 5 classifications (A, B, C, D, I) reflecting the strength of evidence and magnitude of net benefit (benefits minus harms):</p> <p>A</p> <p>The USPSTF strongly recommends that clinicians provide [the service] to eligible patients. The USPSTF found good evidence that [the service] improves important health outcomes and concludes that benefits substantially outweigh harms.</p> <p>B</p> <p>The USPSTF recommends that clinicians provide [this service] to eligible patients. The USPSTF found at least fair evidence that [the service] improves important health outcomes and concludes that benefits outweigh harms.</p> <p>C</p> <p>The USPSTF makes no recommendation for or against routine provision of [the service]. The USPSTF found at least fair evidence that</p>

[the service] can improve health outcomes but concludes that the balance of benefits and harms is too close to justify a general recommendation.

D

The USPSTF recommends against routinely providing [the service] to asymptomatic patients. The USPSTF found at least fair evidence that [the service] is ineffective or that harms outweigh benefits.

I

The USPSTF concludes that the evidence is insufficient to recommend for or against routinely providing [the service]. Evidence that [the service] is effective is lacking, of poor quality, or conflicting and the balance of benefits and harms cannot be determined.

The USPSTF grades the **quality of the overall evidence** for a service on a 3-point scale (good, fair, poor):

Good

Evidence includes consistent results from well-designed, well-conducted studies in representative populations that directly assess effects on health outcomes.

Fair

Evidence is sufficient to determine effects on health outcomes, but the strength of the evidence is limited by the number, quality, or consistency of the individual studies, generalizability to routine practice, or indirect nature of the evidence on health outcomes.

Poor

Evidence is insufficient to assess the effects on health outcomes because of limited number or power of studies, important flaws in their design or conduct, gaps in the chain of evidence, or lack of information on important health outcomes.

GUIDELINE CONTENT COMPARISON

The Program in Evidence-based Care (PEBC), the Scottish Intercollegiate Guidelines Network (SIGN) and the U.S. Preventive Services Task Force (USPSTF) present recommendations for skin cancer screening and prevention. PEBC includes a review of the evidence supporting its recommendations; SIGN and USPSTF provide explicit reasoning behind their judgments and grade their

recommendations and the supporting evidence. PEBC reviewed the 2001 version of the USPSTF guideline in formulating its recommendations.

The PEBC guideline considers screening for both melanoma and nonmelanoma skin cancer, offering recommendations for three groups: very high risk of skin cancer, high risk of skin cancer, and the general population not at increased risk of skin cancer. The SIGN guideline focuses its skin cancer discussion on cutaneous melanoma, providing recommendations on screening and prevention, as well as the diagnosis, management, and treatment of skin cancer. The USPSTF guideline provides recommendations on preventive counseling interventions focusing its recommendations on melanoma and nonmelanoma skin cancer. Recommendations concerning diagnosis, management, and treatment of skin cancer are compared in Part II of this synthesis (currently under development).

Public Health Departments are included as intended users of the SIGN guideline as opposed to the PEBC and USPSTF guidelines, which focus on the primary care clinician-patient interaction.

Areas of Agreement

Screening Recommendations

The two guidelines that address screening, PEBC and SIGN, are in general agreement that there is insufficient evidence to support screening of the general population at average risk of skin cancer. SIGN cites data to suggest, however, that screening in high-risk groups might be effective. PEBC also recognizes the importance of screening in high-risk populations and provides detailed risk factors to facilitate physician identification of individuals at high or very high risk of skin cancer. They recommend that the former have a total body skin examination performed by a dermatologist or a trained health care provider on a yearly basis. The latter, PEBC continues, should be seen once a year by a health care provider trained in screening for skin cancers.

Potential Harms Associated with Preventive Interventions

SIGN and USPSTF acknowledge similar potential harms associated with certain preventive strategies. For instance, both groups acknowledge that use of sunscreen can lead to a false sense of security, which might lead to individuals spending more time in the sun thereby increasing their risk for skin cancer. Both groups also note that there are concerns about the use of sunscreens with SPF of 15 or higher and/or sun avoidance measures which may lead to the potential for vitamin D deficiency. USPSTF further notes the possible impact of avoiding sun exposure as a factor contributing to reduced physical activity, particularly in children.

Primary Prevention

SIGN and USPSTF are in general agreement that "indirect evidence" supports the use of preventive interventions, such as avoidance and other sun-protective measures in reducing the risk of melanoma. There are some differences however, in the interventions that they consider (see below).

Areas of Differences

Preventive Counseling/Education

There are some differences between the groups with respect to preventive counseling and education. While USPSTF notes that community and worksite educational interventions have demonstrated significantly increased use of skin protection measures, they find that there is insufficient evidence to recommend for or against routine counseling by primary care clinicians to prevent skin cancer. SIGN on the other hand recommends that brochures and leaflets be used to deliver preventive information on melanoma to the general public. They further note that individuals identified as being at higher risk should be advised about appropriate methods of sun protection and educated about the diagnostic features of cutaneous melanoma. PEBC recommends counseling about skin self-examination and skin cancer prevention for individuals identified to be at high or very high risk by their health care provider.

Primary Prevention and Interventions to Prevent Skin Cancer

SIGN regards physical protective measures as the most important preventive intervention, noting that use of sunscreen as a preventive measure may lead to a false sense of security and an increase in the amount of time spent in the sun. SIGN also notes that while most sunscreens reduce UVB exposure (thus reducing the risk of sunburn), they have little impact on UVA exposure, and that ingredients in some sunscreens may be carcinogenic.

USPSTF notes that avoiding direct sunlight is the most effective measure for reducing exposure to UV light but that there are no randomized trials of sun avoidance to prevent skin cancer. USPSTF also notes that observational studies suggest that intermittent or intense sun exposure is a greater risk factor for skin cancer than chronic exposure, supporting the hypothesis that prevention of sunburn (particularly in childhood) may reduce lifetime risk for melanoma. USPSTF further notes that using sunscreen has been shown to prevent squamous cell skin cancer, but that evidence supporting its use in preventing melanoma is mixed. Like SIGN, however, USPSTF adds that people who use sunscreen alone may increase their risk for melanoma if they increase the time they spend in the sun.

PEBC does not address preventive interventions.

Skin Self-Examination

Although SIGN found insufficient evidence to recommend for or against routine screening by health care professionals of individuals at higher risk of melanoma, they note that interventions to promote the awareness of risk factors and skin self awareness are warranted, supporting a recommendation for self examination by individuals at high risk. PEBC and USPSTF both cite a single case-control study of skin self-examination as supporting a lower risk of melanoma. Based on this study PEBC recommends that individuals at high or very high risk be counseled about skin self examination. USPSTF, however, notes that these results are not definitive and no recommendations are made either way regarding this practice.

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.

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