

Evidence-based Series 15-1 IN REVIEW

Screening for Skin Cancer

L. From, L. Marrett, C. Rosen, C. Zwaal, M. Johnston, K. Bak, G. Sibbald, J. Fong, and V. Mai

A Quality Initiative of the
Program in Evidence-based Care (PEBC), Cancer Care Ontario (CCO)

Report Date: June 19, 2007

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Section 1: Clinical Practice Guideline

Section 2: Systematic Review

Section 3: Guideline Development and External Review - Methods and Results

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Evidence-based Series #15-1: Section 1

Screening for Skin Cancer: A Clinical Practice Guideline

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Questions

1. Should primary care providers 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?
2. Should primary care providers 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?
3. Should individuals at high risk for melanoma, basal cell carcinoma, and squamous cell carcinoma of the skin be offered surveillance by a physician, including total-body skin examination and counselling to perform skin self-examination?
4. What characteristics should clinicians assess in order to determine risk for melanoma, basal cell carcinoma, and squamous cell carcinoma of the skin?

Recommendations

Very limited evidence was available to inform the following recommendations on screening. No prospective studies have evaluated the impact of screening on survival, quality of life, or morbidity from treatment for skin cancer nor are there data on the adverse effects of screening for skin cancer. As experts in the treatment and epidemiology of skin cancer, the guideline panel members were aware that some individuals are at increased risk for skin cancer because of personal characteristics or history. They reviewed key papers on risk and identified groups of patients who might be expected to benefit from increased surveillance for skin cancer. Separate recommendations are offered for two groups at increased risk (very high risk and high risk) and the general population.

Very high risk of skin cancer

- Individuals with any of the following risk factors have a very high risk 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 counselled 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 counselled 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 skin 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 counselling on skin self-examination by primary care providers is not recommended for individuals at average or low risk for skin cancer.

Key Evidence

(Please see Section 2 for the complete systematic review of the evidence conducted by the Skin Cancer Screening Guideline Panel)

- The guideline panel reviewed three evidence-based guidelines on screening for skin cancer (1-3), results from a pilot randomized controlled trial of a community-based screening program, a comparative cohort study of work-place screening and a case-control study of skin self-examination.

- 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 (4).
- The randomized trial and the 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 (4,5).
- A case-control study detected the reduced risk of melanoma and reduced mortality from melanoma associated with skin self-examination (6).
- Epidemiologic studies have found that people who have any of the following characteristics have a very high risk of developing skin cancer: 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 PUVA for psoriasis, or received radiation therapy for cancer in childhood. The risk of skin cancer is more than 10 times higher in these individuals than in the general population.
- There are other factors associated with significant but lower relative risks (roughly 5 times the risk of the general population for multiple susceptibility factors), such as 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, or skin that burns easily and tans poorly or not at all. Because risk is assumed to be multiplicative, overall risk can be estimated from the products of the relative risk associated with each factor present in an individual. Those who have two or more of the high-risk traits have a higher than average risk of developing skin cancer.

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