

# Screening for Skin Cancer: U.S. Preventive Services Task Force Recommendation Statement

U.S. Preventive Services Task Force\*

**Description:** Update of the 2001 U.S. Preventive Services Task Force (USPSTF) recommendation statement on screening for skin cancer.

**Methods:** To update its recommendation, the USPSTF reviewed evidence published since 2001 on studies on screening effectiveness, the stage of detection by screening, and the accuracy of whole-body examination by primary care clinicians and self-examination by patients.

**Recommendation:** The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for skin cancer by primary care clinicians or by patient skin self-examination. (I statement)

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\* For a list of Task Force members, see the **Appendix**, available at www.annals.org.

**T**he U.S. Preventive Services Task Force (USPSTF) makes recommendations about preventive care services for patients without recognized signs or symptoms of the target condition.

It bases its recommendations on a systematic review of the evidence of the benefits and harms and an assessment of the net benefit of the service.

The USPSTF recognizes that clinical or policy decisions involve more considerations than this body of evidence alone. Clinicians and policymakers should understand the evidence but individualize decision making to the specific patient or situation.

## 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.

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See the Clinical Considerations section for information on risk assessment and suggestions for practice regarding the I statement.

See the **Figure** for a summary of this recommendation and suggestions for clinical practice.

See **Table 1** for a description of the USPSTF grades and **Table 2** for a description of the USPSTF classification of levels of certainty about net benefit.

## RATIONALE

### Importance

Skin cancer—basal cell carcinoma, squamous cell carcinoma, and melanoma—is the most commonly diagnosed cancer. Although melanoma accounts for about 5% to 6% of skin cancer diagnoses, it accounts for approximately 75% of the mortality from skin cancer (1).

### Detection

There is fair evidence that screening by clinicians is moderately accurate in detecting melanoma. The evidence is insufficient to determine the extent to which screening by patient self-examination accurately detects skin cancer.

### 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 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.



## USPSTF Assessment

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for skin cancer by primary care clinicians or by patient skin self-examination. If this service is used, patients should be made aware of the uncertainty about the balance of benefits and harms.

## CLINICAL CONSIDERATIONS

### Patient Population Under Consideration

This recommendation applies to the adult general population without a history of premalignant or malignant lesions. The USPSTF did not examine the outcomes related to surveillance of patients at extremely high risk, such as those with familial syndromes (for example, the familial atypical mole and melanoma syndrome).

### 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 history of sun exposure and sunburns. Benefits from screening are uncertain, even in high-risk patients.

### 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.preventiveservices.ahrq.gov](http://www.preventiveservices.ahrq.gov)). 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](http://www.thecommunityguide.org)).

## DISCUSSION

### Burden of Disease

Skin cancer is the most commonly diagnosed cancer in the United States. The majority of skin cancer cases are basal cell carcinoma and squamous cell carcinoma. Basal cell and squamous cell skin cancer uncommonly metastasize or lead to death. Melanoma is eighth in frequency of occurrence of all causes of cancer in the United States. Although less common than other skin cancer types, melanoma may metastasize and lead to death. The lifetime risk for a diagnosis of melanoma in the United States is 1.94% for males and 1.30% for females;

the lifetime risk for death from melanoma is 0.35% for males and 0.20% for females (2).

### Scope of Review

In its previous review of screening for skin cancer in 2001, the USPSTF concluded that there was insufficient evidence to recommend for or against routine screening for skin cancer with a whole-body skin examination for early detection of cutaneous melanoma, basal cell cancer, or squamous cell skin cancer (an I statement) (3). The USPSTF issued this statement after reviewing the available evidence and concluding that there was little to no evidence regarding the effectiveness of skin examination by clinicians in reducing mortality or morbidity from skin cancer. The USPSTF also concluded that information was limited about the ability of primary care providers to perform adequate examinations in the context of usual care. Therefore, the USPSTF determined that this evidence update should focus on a systematic review of the evidence on screening for skin cancer with morbidity and mortality outcomes. In addition, the USPSTF examined the evidence on the stage of detection by screening and on the accuracy of whole-body examination by primary care clinicians and self-examination by patients.

### Accuracy of Screening Tests

Primary care physicians are moderately accurate in diagnosing melanoma, with a sensitivity of 42% to 100% and a specificity of 70% to 98%. A large systematic review analyzed the evidence on diagnostic accuracy of primary care physicians and dermatologists; most of the studies used images of lesions that had been histologically confirmed. The systematic review included 11 studies with primary care physicians and found a sensitivity of 42% to 100% and a specificity of 98% in the diagnosis of melanoma. The authors concluded that the evidence was insufficient to determine whether dermatologists and primary care physicians differed in accuracy (4). However, most studies on the accuracy of diagnosis of melanoma by primary care physicians evaluated the ability to identify melanoma from images of lesions of a known diagnosis; the applicability of this evidence to a whole-body skin examination in the setting of screening for skin cancer is not clear.

### Effectiveness of Early Detection

No randomized studies have directly examined whether screening by clinicians is associated with improved clinical outcomes, such as reduced morbidity or mortality from skin cancer. The possibility that earlier treatment as a result of screening improves health outcomes must rely on indirect evidence.

Screening consistently identifies melanomas that are, on average, thinner than those found during usual care. It is not known whether detection of these lesions leads to decreased morbidity or mortality. A large evaluation study of the American Academy of Dermatology's Skin Cancer Screening Program (5) found that, during 1992 to 1994,

there was a higher percentage of lesions in early stages (<1.50 mm) in participants who had received screening through the American Academy of Dermatology program than in cases documented in the Surveillance, Epidemiology, and End Results (SEER) registry: 10% and 2%, respectively ( $P < 0.001$ ). A poor-quality case-control study in which skin self-examination was associated with a lower incidence of fatal melanoma provides indirect but insufficient evidence that the shift to earlier stages found in screening may be associated with better clinical outcomes. Evidence from studies of the consequences of delay in diagnosis is inconsistent.

Even without formal screening programs, the mortality rate from basal cell and squamous cell carcinoma is low compared with the mortality rate from melanoma; in theory, early detection and treatment could reduce morbidity and disfigurement from these types of cancer. No studies were found, however, that evaluate whether screening improves the outcomes of these types of cancer.

The USPSTF could not assess the magnitude of the benefits from screening for skin cancer by physicians or by self-examination because evidence on screening was limited.

### Potential Harms of Screening

Information on the harms of screening is limited. The majority of suspected melanoma lesions detected during screening programs are not actually melanoma, and these false-positive results lead to biopsies and possibly unnecessary treatment. In addition to detecting false-positive lesions, screening identifies nonmelanoma skin cancers and thin melanomas; some of these lesions may have little potential for malignant spread and mortality. Surgical or other treatment of these lesions could result in overtreatment. Information on harms is limited; therefore, the USPSTF could not assess the magnitude of harms from screening.

### Estimate of Magnitude of Net Benefit

No studies of the benefits of screening have compared a screened population with an unscreened population with respect to appropriate health outcomes. Although some evidence indicates that false-positive results of screening can often lead to interventions that may cause harm, evidence on the overall harms of screening is limited. The USPSTF could not assess the magnitude of benefits or harms and therefore could not estimate the magnitude of net benefit.

### How This Evidence Fits With Biological Understanding

Although the evidence is insufficient to make a recommendation because of the lack of evidence on benefits and harms of screening, many advocate whole-body screening as the best modality for early detection. For early detection to be effective in reducing adverse health outcomes, early treatment must affect the ultimate trajectory of the illness. Ecological data have shown that although the incidence of melanoma is increasing, primarily because of an increase in

early-stage lesions (probably from screening), the mortality from melanoma has not changed substantially (6).

### RECOMMENDATIONS OF OTHERS

The Canadian Task Force on Preventive Health Care last reviewed this topic in 1994 and reported that there was poor evidence to warrant including or excluding skin cancer screening from the periodic health examination of the general population (7). It also concluded that there is fair evidence to support the inclusion of whole-body skin examination for a very selected subgroup. The American Academy of Family Physicians concluded that evidence is insufficient to make a recommendation for or against routine screening for skin cancer in asymptomatic persons (8). The Physician Data Query (PDQ) program of evidence-based, peer-reviewed cancer information summaries provided by the National Cancer Institute reviewed the evidence for screening in 2005 and found that there is poor evidence that visual examination of the skin in asymptomatic individuals leads to a reduction in mortality from melanomatous skin cancer (9). The PDQ summary also reports that visual examination of the skin in asymptomatic individuals may lead to unavoidable increases in harmful consequences on the basis of fair, although unquantified, evidence.

The American Cancer Society recommends a cancer-related checkup by a physician, including a skin examination, during a periodic health examination for people age 20 years or older. The American Cancer Society also recommends monthly skin self-examination by all individuals (10). The American College of Preventive Medicine recommends that total cutaneous examinations be performed, targeting populations at high risk for malignant melanoma (11). The American Academy of Dermatology promotes free skin examinations by volunteer dermatologists for the general population through the Academy's Melanoma/Skin Cancer Screening Program. It also encourages regular self-examinations by individuals (5). The American College of Obstetricians and Gynecologists recommends skin examinations for females age 13 years or older with increased recreational or occupational exposure to sunlight, family or personal history of skin cancer, or clinical evidence of precursor lesions (12).

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Figure. Screening for Skin Cancer: Clinical Summary of U.S. Preventive Services Task Force Recommendation.



**Annals of Internal Medicine**  
**SCREENING FOR SKIN CANCER**  
**CLINICAL SUMMARY OF U.S. PREVENTIVE SERVICES TASK FORCE RECOMMENDATION**

Population	Adult General Population *
"I" Statement: Insufficient Evidence	No recommendation due to insufficient evidence
Risk Assessment	<p>Skin cancer risks: family history of skin cancer, considerable history of sun exposure and sunburn</p> <p>Groups at increased risk for melanoma:</p> <ul style="list-style-type: none"> <li>• fair-skinned men and women older than 65 years</li> <li>• patients with atypical moles</li> <li>• patients with more than 50 moles</li> </ul>
Screening Tests	There is insufficient evidence to assess the balance of benefits and harms of whole-body skin examination by a clinician or patient skin self-examination for the early detection of skin cancer.
Suggestions for Practice	Clinicians should remain alert for skin lesions with malignant features that are noted while performing physical examinations for other purposes. Features associated with increased risk for malignancy include asymmetry, border irregularity, color variability, diameter >6 mm ("A," "B," "C," "D"), or rapidly changing lesions. Suspicious lesions should be biopsied.
Other Relevant Recommendations from the USPSTF and the U.S. Task Force on Community Preventive Services	<p>The USPSTF has reviewed the evidence for counseling to prevent skin cancer. The recommendation statement and supporting documents can be accessed at <a href="http://www.preventiveservices.ahrq.gov">www.preventiveservices.ahrq.gov</a>.</p> <p>The U.S. Task Force on Community Preventive Services has reviewed the evidence on interventions to reduce skin cancer. The recommendations can be accessed at <a href="http://www.thecommunityguide.org">www.thecommunityguide.org</a>.</p>

For a summary of the evidence systematically reviewed in making these recommendations, the full recommendation statement, and supporting documents, please go to [www.preventiveservices.ahrq.gov](http://www.preventiveservices.ahrq.gov).

\* Note: The USPSTF did not examine outcomes related to surveillance of patients with familial syndromes, such as familial atypical mole and melanoma (FAM-M) syndrome.

**Table 1. What the USPSTF Grades Mean and Suggestions for Practice**

Grade	Definition	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer/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/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/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. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

USPSTF = U.S. Preventive Services Task Force.

**Table 2. U.S. Preventive Services Task Force Levels of Certainty Regarding Net Benefit**

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. This 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.

\* The U.S. Preventive Services Task Force (USPSTF) 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.

**Requests for Single Reprints:** Reprints are available from the USPSTF Web site ([www.preventiveservices.ahrq.gov](http://www.preventiveservices.ahrq.gov)).

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## APPENDIX: U.S. PREVENTIVE SERVICES TASK FORCE

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†Members of the Task Force at the time this recommendation was finalized. For a list of current Task Force members, go to [www.ahrq.gov/clinic/uspstfab.htm](http://www.ahrq.gov/clinic/uspstfab.htm).