

Preventing Skin Cancer: Education and Policy Approaches in Outdoor Occupational Settings (2002 Archived Review)

Table of Contents

Review Summary	2
Intervention Definition	2
Summary of Task Force Finding	2
About the Interventions.....	2
Results from the Systematic Reviews	2
Publications.....	2
Task Force Finding.....	4
Intervention Definition	4
Task Force Finding.....	4
Supporting Materials	5
Analytic Framework	5
Evidence Gaps	5
What are Evidence Gaps?	5
Identified Evidence Gaps.....	5
Included Studies.....	8
Disclaimer.....	8

Review Summary

Intervention Definition

Educational and policy approaches to improve sun-protective behaviors among adults in work settings seek to improve “covering up” behavior, specifically, wearing protective clothing such as a shirt, long pants, and hat, or to increase shade use or staying out of the sun during peak UV hours. These single component and multicomponent interventions are designed to change behavior by increasing sun-protective knowledge, attitudes, intentions.

Summary of Task Force Finding

The Community Preventive Services Task Force finds insufficient evidence to determine the effectiveness of educational and policy approaches in outdoor occupational settings in increasing the sun-protective behavior of covering up or seeking shade, or in decreasing the incidence of sunburn and UV exposure, because the limited number of available reports showed inconsistent findings.

About the Interventions

- Interventions included one or more of the following:
 - Surveys and questionnaires to assess knowledge, attitudes, beliefs, intentions, and behaviors
 - Sun-safety training of safety officers, managers, or outdoor recreation and swimming pool staff
 - Peer leader modeling of sun-safe behaviors
 - Education using didactic instruction or brochures
 - Sun-safety lessons
 - Interactive activities
 - Provision or promotion of sun-protective gear or products (e.g., wide brimmed hats, sunscreen)
 - Screening assessments by dermatologists

Sunscreen use was considered a secondary outcome. This means that a change in sunscreen use alone would not result in a Task Force recommendation.

Results from the Systematic Reviews

Eight studies qualified for the review.

- Only two studies measured key behavioral or health outcomes.
- Effects on attitudes or beliefs were inconsistent (5 studies).

These results are based on a systematic review of all available studies led by scientists from CDC’s Division of Cancer Prevention and Control with input from a team of specialists in systematic review methods and experts in research, practice and policy related to preventing skin cancer.

Publications

CDC. [Preventing skin cancer. Findings of the Task Force on Community Preventive Services on reducing exposure to ultraviolet light](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5215a1.htm) [www.cdc.gov/mmwr/preview/mmwrhtml/rr5215a1.htm]. *MMWR* 2003;52(RR-15):1–12.

Saraiya M, Glanz K, Briss PA, et al. [Interventions to prevent skin cancer by reducing exposure to ultraviolet radiation: a systematic review](http://www.thecommunityguide.org/cancer/skin/ca-skin-AJPM-evrev-reduce-exposure.pdf) [www.thecommunityguide.org/cancer/skin/ca-skin-AJPM-evrev-reduce-exposure.pdf]. *Am J Prev Med* 2004;27(5):422-66.

Task Force on Community Preventive Services. [Recommendations to prevent skin cancer by reducing exposure to ultraviolet radiation](http://www.thecommunityguide.org/cancer/skin/ca-skin-AJPM-recs-reduce-exposure.pdf) [www.thecommunityguide.org/cancer/skin/ca-skin-AJPM-recs-reduce-exposure.pdf]. *Am J Prev Med* 2004;27(5):467-70.

Task Force on Community Preventive Services. [Cancer](http://www.thecommunityguide.org/cancer/Cancer.pdf) [www.thecommunityguide.org/cancer/Cancer.pdf]. In: Zaza S, Briss PA, Harris KW, eds. *The Guide to Community Preventive Services: What Works to Promote Health?* Atlanta (GA): Oxford University Press;2005:143-87 (Out of Print).

Task Force Finding

Intervention Definition

In 1991, more than 8% of the U.S. workforce primarily worked outdoors, making outdoor workers a crucial audience for sun protection programs. Occupational groups that work outdoors have been found to have high rates of nonmelanoma skin cancer, and outdoor workers may receive up to 6–8 times the dose of UV radiation that indoor workers receive. They have also been found to have low levels of sun protection.

Task Force Finding (July 2002)*

The Task Force found insufficient evidence to determine the effectiveness of interventions in occupational settings in increasing the sun-protective behaviors of covering up or seeking shade, or in decreasing the incidence of sunburn and UV exposure, because the limited number of available reports showed inconsistent findings.

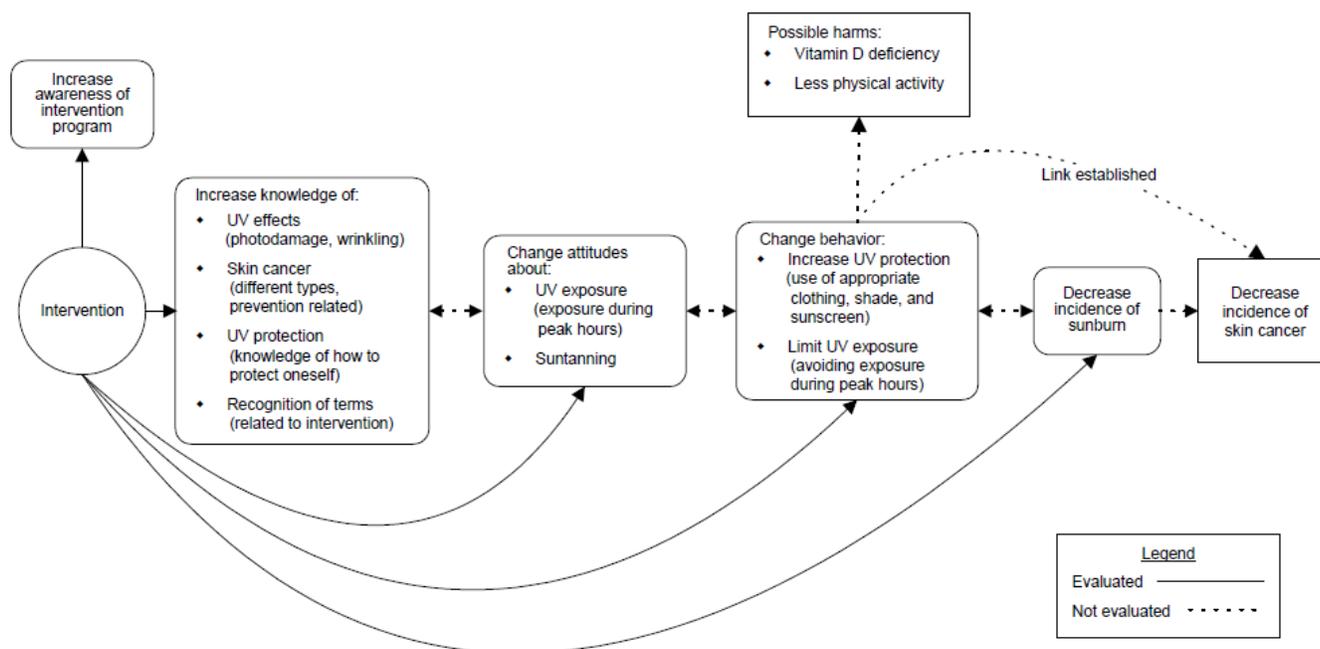
*From the following publication:

Task Force on Community Preventive Services. [Recommendations to prevent skin cancer by reducing exposure to ultraviolet radiation](http://www.thecommunityguide.org/cancer/skin/ca-skin-AJPM-recs-reduce-exposure.pdf) [www.thecommunityguide.org/cancer/skin/ca-skin-AJPM-recs-reduce-exposure.pdf]. *Am J Prev Med* 2004;27(5):467-70.

Supporting Materials

Analytic Framework

A Conceptual Approach to Prevention of Skin Cancer through Interventions to Reduce UV Light



*Improvements in sunscreen use alone would not result in a recommendation outcome (see full MMWR report)

Evidence Gaps

What are Evidence Gaps?

Each Community Preventive Services Task Force (Task Force) review identifies critical evidence gaps—areas where information is lacking. Evidence gaps can exist whether or not a recommendation is made. In cases when the Task Force finds insufficient evidence to determine whether an intervention strategy works, evidence gaps encourage researchers and program evaluators to conduct more effectiveness studies. When the Task Force recommends an intervention, evidence gaps highlight missing information that would help users determine if the intervention could meet their particular needs. For example, evidence may be needed to determine where the intervention will work, with which populations, how much it will cost to implement, whether it will provide adequate return on investment, or how users should structure or deliver the intervention to ensure effectiveness. Finally, evidence may be missing for outcomes different from those on which the Task Force recommendation is based.

Identified Evidence Gaps

Design and Analysis Considerations

- All of the designs included in this review have important strengths and weaknesses.

- Additional diverse approaches are worth pursuing, in terms of study design and execution, and with attention both to internal and external validity.
- Consistently rigorous analytic methods are needed, and future studies should control for relevant confounders, such as risk levels and weather conditions.

Description of Target Population and Context

- Several reports in this area of research did not contain basic descriptions of the intervention or population.
- In many instances, the distribution of the population by race and ethnicity or sun sensitivity was not described.
- Many of the settings could have been better described.
- Better descriptions are needed of annual UV exposure in the places in which studies were conducted.
- Better descriptions of these important issues would help assess the likely applicability of the findings or explain any variability of effects.

Description of Intervention

- It was difficult to disentangle what specific intervention components were, or how much emphasis there was on primary prevention (versus early detection) or on promoting use of sunscreen versus on covering-up or sun-avoidance behaviors.
- Further information is needed on which attributes of the interventions contribute most to intervention effectiveness or ineffectiveness (e.g., do policy components or education components contribute more to intervention effectiveness; what are the central "active ingredients" in complex interventions).
- Describing intervention characteristics in greater detail might also help practitioners replicate successes.

Duration of Interventions and Length of Follow up

- Given the seasonality of sun-protective behaviors and the importance of encouraging habitual as opposed to short-term behavior change, a longer follow-up is crucial.

Intervention Quality

- An encouraging trend can be seen in increasing use of formative research and pre-testing of interventions before they are implemented.
- Mediating factors deserve greater attention and need to be correlated with behavior changes. To date, few studies in this area of research have reported on both mediating factors and behavioral or health outcomes.
- A need also exists to develop measures of the effects of environmental and policy change strategies. Few interventions addressed policy or environmental changes and in those that did, the effects of the policy or environmental components could not be disentangled from other aspects of the intervention.

Measurement of Exposure

- Few studies reported process evaluation data, which can help to assess how much of the intervention was actually implemented.
- Improvement in this area would be helpful, especially for interventions of longer duration and increased complexity.

Measurement of Outcomes

- More behavioral and health outcomes need to be examined.

- Given recent concerns about the adequacy of sunscreen as a sole protective strategy, additional behavioral and health outcomes should also be measured.
- Outcomes need to be similar to evaluate effectiveness.
- Measurement of specific sun-protective behaviors is important.
- More interventions with a greater focus on covering up and sun-avoidance, and a decreased emphasis on sunscreen use are needed.
- Given recent research findings on the effectiveness of sunscreens, more detailed research on sunscreen use is needed.
 - Are higher SPF sunscreens being used?
 - Does sunscreen use extend the amount of time out in the sun?
- How do different sun-protective behaviors interact (e.g., does seeking shade make wearing sunscreen or a hat unnecessary)?
- Further work is needed to increase consistency between at least a core set of behavior change measures that can be used to compare and contrast study results.

Research Needs and Work in Progress

The field of behavior change for skin cancer prevention has progressed significantly, but important areas for further advancement exist. As outlined above, these include design, measurement, better description of interventions, development of a better understanding of how environmental and policy interventions work, and studies in multiethnic populations. The use of new communication technology and international collaborations can make significant contributions in these areas. The team hopes that the availability of systematic reviews that identify both progress to date and the remaining gaps will help to reduce the gaps in available research.

- **Specific Research Issues.** Although most of the evidence gaps described above were general and could explain why most setting specific categories did not produce sufficient evidence to determine effectiveness, a few research issues were specific to the setting or target group.
- **Interventions for Secondary Schools.** More studies are needed to examine sun-protective behaviors of adolescents and young adults, and to determine what kind of approach might work best in this population, especially given the low baseline prevalence of sun-protective behaviors.
- **Interventions in Occupational Settings.** Studies that target the most common outdoor occupational workers—mail carriers, agricultural workers, landscapers, horticulturists, foresters, construction workers, telephone line workers, commercial fishery workers, land surveyors and mappers, oil field workers, amusement park attendants, and athletes—are needed.
- **Interventions in Healthcare Settings.** Almost all studies in this category examined the counseling behavior of the provider and not the patient. More studies that examine the behavioral or health outcome of the end user—the patient—are needed. In this small subset of studies, the provider was most often a physician or a physician-in-training, but studies examining the role of the nonphysician provider would help identify whether counseling skills to change behavior might be better suited for providers with the time and skills, such as a nurse or a health educator. Additionally, more studies are needed to examine healthcare system studies oriented directly to patients.
- **Interventions for Parents and Caregivers.** Studies are needed to examine the effect of interventions on nonparental caregivers, as it is becoming increasingly common for children to be cared for by nonparental caregivers while both parents are at work outside the home.

- **Interventions in Multicomponent Community Settings.** Approaches to better define the "active ingredients" (i.e., the most important components that contribute to the success of these interventions) would be helpful, as would determining the applicability of these interventions to the U.S. population.

Included Studies

Azizi E, Flint P, Sadetzki S et al. A graded work site intervention program to improve sun protection and skin cancer awareness in outdoor workers in Israel. *Cancer Causes and Control* 2000;11:513-21.

Dobbinson S, Borland R, Anderson M. Sponsorship and sun protection practices in lifesavers. *Health Promot Internation* 1999;14:167-76.

Geller AC, Glanz K, Shigaki D, Isnec MR, Sun T, Maddock J. Impact of skin cancer prevention on outdoor aquatics staff: the Pool Cool program in Hawaii and Massachusetts. *Prev Med* 2001;33:155-61.

Girgis A, Sanson-Fisher RW, Watson A. A workplace intervention for increasing outdoor workers' use of solar protection. *Am J Public Health* 1994;84:77-81.

Glanz K, Chang L, Song V, Silverio R, Muneoka L. Skin cancer prevention for children, parents, and caregivers: a field test of Hawaii's SunSmart program. *Journal of the American Academy of Dermatology* 1998;38:413-7.

Glanz K, Maddock JE, Lew RA, Murakami-Akatsuka L. A randomized trial of the Hawaii SunSmart program's impact on outdoor recreation staff. *J Am Acad Dermatol* 2001;44:973-8.

Hanrahan PF. The effect of an educational brochure on knowledge and early detection of melanoma. *Aust J Public Health* 1995;19:270-4.

Lombard D, Neubauer TE, Canfield D, Winett RA. Behavioral community intervention to reduce the risk of skin cancer. *J Appl Behav Anal* 1991;24:677-86.

Disclaimer

The findings and conclusions on this page are those of the Community Preventive Services Task Force and do not necessarily represent those of CDC. Task Force evidence-based recommendations are not mandates for compliance or spending. Instead, they provide information and options for decision makers and stakeholders to consider when determining which programs, services, and policies best meet the needs, preferences, available resources, and constraints of their constituents.

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