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More Research is Needed to Determine Effectiveness of Many Program Approaches to Improve Sun-Protective Behaviors

Skin cancer is one of the most common cancers in the United States. The strongest, preventable risk factor for developing skin cancer is exposure to the sun's ultraviolet (UV) rays.

A systematic review of published studies, conducted on behalf of the Task Force on Community Preventive Services by a team of experts, found that there was ***insufficient*** evidence (i.e. studies) to determine whether or not educational and policy approaches in the following settings, strategies, or populations improved sun protective "covering up" behavior (e.g. wearing protective clothing – hat, shirt, cover-up garment, or pants) or decreasing sun-induced damage (e.g. sunburns or moles):

- Educational and policy approaches in child care centers
- Educational and policy approaches in secondary schools and colleges
- Educational and policy approaches in recreational and tourism settings (for adults)
- Educational and policy approaches oriented to health care settings or providers
- Interventions oriented to children's parents or caregivers
- Media campaigns without other activities
- Communitywide multicomponent interventions

It is important to remember that **these findings do not mean this intervention does not work**, but rather indicates that additional research is needed to determine the effectiveness of these interventions.

Findings from the systematic review

- In its review of available studies on the effectiveness of these categories, many studies were not included in the Task Force review due to limitations in study design and execution. Some key components that could be improved in future sun safety research include the following
- Design and Analysis Considerations
  - Over half of the included studies did not have concurrent control groups. Studies that incorporate concurrent control groups help to control for changes over time (e.g., history, maturation) that are not attributable to the intervention. Several of the included studies demonstrated the importance of this control and showed either desirable or undesirable changes (as well as no change) in the control groups over time
- Description of the Target Population and Context
  - Several of the eligible studies that described an intervention failed to include an adequate description of the target population and context. Many studies did not report the year(s), the race/ethnicity or the sun-sensitivity of the populations
- Description of the Intervention
  - For specific settings, many reports did not describe the characteristics of the schools in which interventions took place (e.g., whether schools were private or public, how many students they served, and the characteristics (e.g. race and ethnicity) of the students and faculty).
  - Better descriptions of annual UV exposure in the places in which studies were conducted are needed. Better descriptions of these important issues will help to assess likely applicability of the findings or to explain any variability of effects.
  - More interventions evaluating the effect of policy or environment are needed. Most interventions were mainly didactic and not interactive.
- Duration of Interventions and Length of Follow-up
  - Longer duration and follow-up are needed to ensure that interventions have a sustained effect on behaviors and health outcomes
- Measurement of Exposure
  - Few studies reported process evaluation data, which can help to assess how much of the intervention was actually implemented.

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- Measurement of Outcomes
  - Most studies relied on self-reported behaviors or self-reported health outcomes (such as sunburns). More studies need to assess or have information on the validity and reliability of self-reported behaviors.
  - Standardization of acceptable behavioral outcomes should be considered.
  - More studies are needed on health outcomes such as sunburns or moles (nevi).
  - Many studies concentrated solely on improved sunscreen use without measuring other key behavioral outcomes. Given the current evidence on sunscreen, more studies need to look at whether increased sunscreen use may result in decreased clothing cover-up or decreased shade use in addition to sunburn frequency and increased time spent in the sun.
  - Many studies only measured knowledge, attitudes, and intentions. While these are important mediating factors, more effort should be made to measure sun protective behaviors.

- Along with the issue of effectiveness, other issues regarding these intervention approaches were identified during this review. These include:

  - What attributes of this intervention contribute to effectiveness? ? (e.g., are policy interventions or interventions aimed at caretakers more effective than interventions that are primarily mediated by affecting children's knowledge?)

  - Does this intervention result in other positive changes in use of preventive services?

  - How can this intervention be implemented with minimal administrative burden and little disruption to the primary mission of the education agency

  - Citation information regarding the studies included within the Task Force review are available (hyperlink to xml list)

What to do in the meantime?

- Use these research questions and suggestions for improvement in research components along with contact information from Cancer Control PLANET (http://cancercontrolplanet.cancer.gov) to find local cancer prevention partners to conduct or seek resources for further research.

Publications:

- **MMWR/Recommendations and Reports** – Fall 2003. A summary report on findings.

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