

**Colorado Kids Sun Care Program**  
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**Intervention Protocol**

Overview

The intervention consists of three annual sets of semi-tailored educational newsletters about skin cancer and sun protection, and related sun protection resources such as a swim shirt, sun hat, sunscreen, and backpack. The intervention is intended for children as they age from 7 to 9 years old, and the intervention materials reflect the increasing developmental level and independence of children over that age range. In the spring of each year (mid-April to mid-May), packets are mailed to parents and/or children, at approximately 2-week intervals. In the first year, parents are sent four newsletters mailed two weeks apart. In the second year, parents are sent four newsletters and children are sent one. In the third year, parents are sent three newsletters and children are sent two.

The first parent newsletter in each annual series presents general information about skin cancer and its causes. For years one and two, the second newsletter to parents includes individualized risk factor information relevant to the child. This requires data collection prior to the delivery of the intervention for information on family history of skin cancer, at-risk phenotype, history of sunburns, and high number of moles. Subsequent newsletters discuss the effectiveness of sun protection strategies for reducing children's risk and ways to overcome barriers to those strategies. Shade, sunscreen, clothing/hats, and midday sun avoidance are each discussed, with the latter two emphasized. Parent testimonials convey positive social norms related to the use of sun protection. Interactive features such as a self-assessment of skin cancer risk and a tanning quiz are included. Newsletters for children include age-appropriate information and activities (e.g., word searches, crossword puzzles, and matching games) about the sun, skin cancer, and sun protection.

### Individualized Risk Information

Individualized risk information relies on the collection of the following: family history of skin cancer, phenotype (hair color, eye color, and skin color), history of sunburns, freckling and high number of moles (nevi). Telephone interviews are used to collect all information except freckling and number of moles. Skin exams are used to assess freckling and total number of moles. Skin color was assessed through both the telephone interview and the skin exams. For dissemination purposes, it may not be feasible to conduct skin exams of children unless this intervention is conducted through a health clinic. For example, children who are already receiving routine health exams could be assessed for freckling and moles.

For year 1, the top two risk factors are determined for each child and the second newsletter contains information about those top two risk factors, resulting in 17 versions of the newsletter. The order of priority for risk factors is: high number of moles, family history of melanoma, history of or propensity to sunburn, and phenotype (at-risk hair, eye and/or skin color). For year 2, the second newsletters reports all of the child's risk factors, so there are 82 different versions of the newsletter. In year 1, phenotypic risk factors (skin, hair and eye color) are combined into one risk factor, while in year 2, hair, eye and skin color are used as individual risk factors rather than grouped into an at-risk phenotype. Year 3 newsletters are not tailored by risk.

If the child has no risk factors and is Black or Asian race, the child receives the letter for Blacks and Asians. If the child has no risk factors and is not Black or Asian, the child receives the letter for darker-skinned white children.

### Cover Letters, Items included in Mailings, and Mailing Procedure

Cover letters are sent with each mailing. These letters remind the parent and child that they are participating in a project and include a brief introduction of the materials included in the

packet (e.g., newsletter and swim shirt). Samples of a parent and child cover letter are included.

Sun protection resources are included with newsletters as follows:

Year 1:

4th mailing: rash guard shirt (swim shirt) and 2 bottles of sunscreen

Year 2:

3<sup>rd</sup> mailing: 2 types of sunscreen: bottle of lotion and stick

4<sup>th</sup> mailing: sun protective hat, discount coupons for sun protective clothing

Year 3:

1<sup>st</sup> child mailing: tree seed kit to plant a shade tree

2<sup>nd</sup> child mailing: backpack to carry sun protection items, UV beads (beads that turn neon colors when exposed to UV light), spray sunscreen, carabineer with sunscreen

Mailings were sent using First Class U.S. Mail, with packaging appropriate to the contents of the mailing. For example, 9x12" envelopes were used for mailings that included only newsletters, while boxes were used when larger items such as sunscreen and backpacks were mailed.

## Telephone interviews for risk assessment

Telephone interviews of parents (or some other method) can be used to collect information needed for tailoring of newsletter 2 in years 1 and 2. The following questions can be used.

### Sunburns

To assess risk for sunburns, parents are asked two questions. The first question is:

I'd like you to think back to about this time last year and tell me as best as you can whether [child's name] has had any sunburns.

If any sunburns occurred, the child is considered to have the sunburn risk factor.

Parents were also asked the following question:

If [child's name] were outside in strong sunshine at the beginning of summer for one hour with no protection at all, which of these statements best describes what you think would happen to his/her skin?

1. A painful burn the next day and no tan one week later.
2. A painful burn the next day and a light tan one week later.
3. A slight burn the next day and a little tan one week later.
4. No burn the next day and a good tan one week later.

If the parent reports 1 or 2, the child is considered to have the sunburn risk factor.

### Hair color

Parents are asked the following question:

What is [child's name]'s hair color? Would you say:

1. Black
2. Dark Brown
3. Medium Brown
4. Light Brown
5. Blonde, or
6. Red?

If the parent reports that the hair color is 4, 5 or 6, the child is considered to have the hair color risk factor.

### Eye color

Parents are asked the following question:

What is [child's name]'s eye color? Would you say:

1. Black
2. Dark brown
3. Light brown
4. Blue
5. Gray
6. Green, or
7. Hazel?

If the parent reports that the eye color is 4 or 6, the child is considered to have the eye color risk factor.

### Skin color

For skin color, parents are asked the following question:

What is the color of [child's name]'s skin? Would you say...

1. Fair white
2. Medium white
3. Dark white or olive (if asked: Mediterranean skin type)
4. Light brown
5. Medium brown
6. Dark brown, or
7. Black?

If the parent reports that the skin color is 1, the child is considered to have the skin color risk factor. Note that skin color risk can also be assessed using a colorimeter during a skin exam.

In year 1, the newsletters utilize a combined "phenotype" risk factor. If the child has any of the following risk factors, the child is considered to have the "phenotype" risk factor: hair color, eye color or skin color. In year 2, the newsletters utilize hair, eye and skin color as individual risk factors.

### Family history of skin cancer

Parents are asked the following questions:

As far as you know, have any of [child's name]'s close blood relatives, that is, a parent, brother or sister, ever had skin cancer? IF YES: Was it melanoma?

As far as you know, have any of [child's name]'s other blood relatives, such as a grandparent, aunt or uncle, ever had skin cancer? IF YES: Was it melanoma?

If any of the child's first or second degree relatives have had melanoma, the child is considered to have the family history risk factor.

### Skin exams for risk assessment

Three risk factors are collected through skin exams: total number of moles (nevi), degree of freckling, and skin color.

Mole exams include the entirety of the body, with the exception of the scalp, genitals and buttocks. Moles are defined as any size pigmented macules or papules, excluding freckles, café-au-lait macules and warts. Moles are differentiated from freckles and café-au-lait macules by the fact that only moles are raised and flat moles are dark brown, have regular edges, and do not occur in patches as freckles do.

At age 6, children were classified as having a high number of moles if they had more than 35 of any size, for newsletters sent at age 7. At age 7, children were classified as having a high number if they had more than 45 of any size, for newsletters sent at age 8.

Freckling on the face was assessed using a 10-level chart (Gallagher et al., 1990). If the child had any freckles on the face, arms or back, the child was considered to have the freckling risk factor. NOTE: For dissemination of this intervention, parents could be asked if the child gets any freckles when they go in the sun, and this could be used to determine whether the child has the freckling risk factor.

Skin color was assessed using a colorimeter. If the child scored less than 11 on the 'b' scale indicating very light skin, the child was considered to have the skin color risk factor. Note that the interview alone can be used to assess skin color and determine this risk factor.