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# Promotion of Skin Protection in Children in Waterbury, VT

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# Promotion of Skin Protection in Children in Waterbury, VT

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KELSEY SULLIVAN

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PROJECT MENTOR: WILLIAM COVE, DO

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# Problem: High Skin Cancer Rates and Low Rates of Sun Protection

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Vermont has among the highest rates of skin cancer in the nation. Between 2001 and 2005, Vermont had the highest incidence of melanoma of any state, 63% higher than the national average<sup>1</sup>.

Skin protection, particularly with sunscreen, is widely recognized as an integral part of skin cancer prevention. Prevention in children is particularly important, as their skin is immature and cannot provide the same level of photoprotection as that of adults<sup>2,3</sup>.

- Additionally, it is estimated that by age 18-20, young adults receive 40-50% of the UV radiation dose that they will receive before age 60<sup>2</sup>.
- It is also estimated that if children under 18 regularly used sunscreen of at least SPF 15, the incidence of squamous and basal cell carcinomas would decrease by 78%<sup>2</sup>.

Despite widespread public knowledge of the protective effects of sunscreen use, only about 62% of US children under 12 report regular use of sunscreen<sup>2</sup>. Between 2001 and 2011, the rate of high schoolers regularly using sunscreen dropped from 67.7% to 56.1%<sup>2</sup>.

# Public Health Cost of Skin Cancer

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From the period of 2002-2006 to the period of 2007-2011, the incidence of skin cancer in the US increased from 3.4 million to 4.9 million. In the same period, the average annual cost of skin cancer treatment rose from \$3.6 billion to \$8.1 billion<sup>4</sup>.

- This represents a 25.1% rise in incidence of skin cancer, but a 126.2% rise in treatment costs. The increase in cost is therefore not only due to a rise in incidence, but a rise in treatment costs per case<sup>4</sup>.
- Modeling by the EPA and CDC suggests that recommended sun protection measures could prevent 11,000 cases of skin cancer, 50 deaths, and \$30 million in cancer treatment costs nationwide<sup>1</sup>.

The cost of treatment of melanoma depends on many factors, including stage of the cancer at the time of diagnosis, individual treatment decisions, and how long ago the cancer was diagnosed. Melanoma treatment is the most costly in the year of diagnosis, but may continue for many years<sup>5</sup>.

- The average cost of new stage II melanoma cases in 2008 was \$12.5k. The average cost of new stage IV melanoma cases in 2008 ranged from \$3.5k to \$156k depending on treatment decisions<sup>5</sup>.

In 2013, the CDC reported that the incidence of melanoma in Vermont was 32.3/100,000<sup>6</sup>. With a population of 626.5k, this corresponds to just over 200 cases of melanoma per year. Waterbury's population is about 5000, which correlates to approximately 1-2 cases of melanoma per year.

While the cost of skin cancer in Vermont cannot be well estimated with this data, it is safe to say that preventing skin cancer can save Vermonters substantially in treatment costs, lost productivity, and quality of life measures.

# Community Interviews

Interview with Allison Conyers, BSN, RN, school nurse at Thatcher Brook Primary School

Q: What are the attitudes and practices of skin protection of parents and kids in your school?

- A: The majority of the concern come out when the weather turns warm. There is not a lot of concern in the winter time because everyone is covered head to toe when we go outside for recess. I've had a couple of parents request that we apply sunscreen to their kids. We have 420 kids at our school, so it's not feasible to do for all the kids, but sometimes we make exceptions for when the kids are very young.

Q: What do you recommend for skin protection in kids at your school?

- A: I suggest that parents apply sunscreen before they come to school and supply a wide brimmed hat for recess. I do send out an email at the beginning of school and also when the weather begins to turn warm in the spring reminding them to apply sunscreen before school, and the kids can apply it themselves if they want. Our playground is well shaded with several trees and play structures that kids can seek shade under. We also have a link on our website to Pool Safely, which is all about being safe in the water and includes sunscreen use as well.

Q: Do kids/parents know about skin cancer risks and prevention?

- A: I would say the parents with higher health literacy would have that knowledge in their back pocket. For kids, when information is presented to them as something that could maybe happen when they are 40, it's hard to relate to. I knew someone who was diagnosed with melanoma at 16, and her high school career changed course quite a bit. It's good for kids to know that it might not be so far off.

Interview with UVM dermatology residents Dr. Alyssa Fisher, PGY-3 and Dr. Andrew Hankinson, PGY-4

Q: Why is the skin cancer rate in Vermont is above average compared to the rest of the nation?

- A: There are a few reasons for that. The population here is predominantly white, and white people are more prone to developing skin cancers. Our summertime is pretty short, so people often are not appropriately using skin protection because they feel that they want to get the most out of it that they can. We also have people who are skiing here in the winter and don't realize that the reflection of the sun off the snow can have a lot of exposure.

Q: Why is skin care in children so important in preventing skin cancer?

- A: There's a lot of evidence that shows that intermittent severe sunburns in your youth predispose you to melanoma. In adults, sun exposure predisposes them more to squamous cell and basal cell carcinomas. Young kids have very sensitive skin, and the sun damage we expose ourselves to as kids sticks with us into adulthood.

Q: What makes adhering to skin protection guidelines difficult for some people? What are some of your suggestions for getting around those barriers?

- A: Definitely quite a few things. One is it's difficult to apply it, and the amount that you have to apply to get the protection that the sunscreen studies reach is a lot. You're supposed to put an ounce of sunscreen all over your body and reapply every 2 hours. For a large family, cost can be a factor as well. For sprays, people think it sprays onto the whole area, but half of it goes into the wind. Another big thing is that people will say it's overcast, but don't realize that 80% of UV rays can get through a cloud cover. A final thing people usually say as a limiting factor is vitamin D. But you can get vitamin D from supplements and from food. If one forearm is exposed to the sun for 15 minutes, you get all the vitamin D you need for the day. For kids, sun protective clothing is one of the best things for skin protection. Coolibar is a company that makes UV protective shirts. The American Academy of Dermatology recommends sun protective clothing in babies under 6 months. Babies should always have sunglasses on when they're in the sun. For people who like to look tan, I recommend Jergen's natural glow for an artificial tanner.

# Intervention and Methodology

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## Intervention:

To create an information sheet on skin protection and skin cancer prevention to be included in well-child visits at the Waterbury Health Center.

## Method:

I integrated state-specific data, national data, and epidemiologic facts about the risks of sun exposure and other risks for skin cancer with recommendations made by the UVM Dermatology residents who I interviewed, in order to create a brief yet fairly comprehensive fact sheet on skin protection in children. The information sheet also aims to address some common misconceptions about sunscreen use as identified through research and speaking with UVM Dermatology residents. Finally, the information sheet also includes a graphic demonstrating the ideal thickness with which to apply sunscreen in order to achieve the advertised SPF protection. The fact sheet is pictured on the next slide.

## PROTECTING YOUR CHILD'S SKIN

### WHY IS SKIN PROTECTION IMPORTANT?

Lifelong benefits of skin protection

- Nationwide, Americans have a 1 in 5 chance of developing skin cancer in their lifetime, and a 1 in 55 chance of developing melanoma, the most aggressive skin cancer<sup>1</sup>.
- According to the Centers for Disease Control (CDC), Vermont has among the highest skin cancer rates in the nation<sup>1</sup>.
- Vermonters have a high risk of developing melanoma. From 2001-2005, Vermont had the

**VERMONTERS HAD THE HIGHEST RATES OF MELANOMA FROM 2001-2005<sup>1</sup>. THE BEST WAY TO PROTECT YOUR CHILD FROM MELANOMA IS EARLY AND REGULAR SUNSCREEN USE<sup>2</sup>.**

- highest rate of new cases of melanoma in the nation<sup>1</sup>.
- Protecting your child's skin from a young age will have lasting benefits for their whole life.
- Consistently using sunscreen in children will decrease their risk of melanoma and other skin cancers later in life<sup>2</sup>. Using sunscreen will also protect your child's skin from sun damage that causes wrinkling<sup>2</sup>.

### HOW TO BEST PROTECT YOUR CHILD'S SKIN

- For infants under 6 months, use sun protective clothing, a wide-brim hat, and sunglasses<sup>3</sup>. UVM dermatologists recommend Coolibar brand UV protective clothing<sup>4</sup>.
- For infants and toddlers over 6 months, use sunscreen designed for babies. These will have zinc and titanium in them, and will be less irritating to your child's skin<sup>4</sup>.
- Use sunscreen that is broad spectrum (covering UVA and UVB rays) that is at least SPF 30<sup>4</sup>.
- When applying sunscreen, use an ounce of sunscreen and reapply every 2 hours. If using spray, spray it into your hand first and rub it in<sup>4</sup>.

### WHAT PUTS CHILDREN AT RISK?

Early sun exposure increases risk of cancer later in life

- Early and repeated sunburns in childhood
- Increased sun exposure through working or playing outdoors
- Fair skin, especially if it burns or freckles easily or becomes sensitive in the sun
- Red or blonde hair
- Blue or green eyes
- Moles on the skin
- Tanning bed use, especially at a young age
- Family history of skin cancer<sup>5</sup>

March 4, 2017

## COMMON MYTHS ABOUT SKIN PROTECTION

And other reasons we get sunburned

- Myth: I don't have to apply sunscreen when it is cloudy outside, or during the winter
- Fact: 80% of the sun's harmful ultraviolet (UV) rays can still penetrate through a cloud cover, so it is important to use sun protection even when it is overcast. Additionally, exposure to UV rays increases when it is reflected off of shiny surfaces, including snow. This means it is also important to put sunscreen on your face when you are outdoors in the wintertime, such as while skiing<sup>6</sup>.
- Myth: I need to expose myself to the sun to get enough Vitamin D
- Fact: Vitamin D can be found in many foods and supplements, including in fortified milk. While you do get some vitamin D from the sun, the amount you need for a whole day is equivalent to exposing one forearm to the sun for 15 minutes<sup>6</sup>.
- Myth: I can use the same bottle of sunscreen year after year
- Fact: While many sunscreens have a shelf life of about 3 years, it is important to check the expiration date of your sunscreen before using it. Also, sunscreen can be damaged by high temperatures, so if you leave your sunscreen in a pool bag or in the hot sun, it may not be as effective<sup>6</sup>.
- Myth: I don't need to wear sunscreen if I am covered with clothing
- Fact: Most tee shirts have an SPF rating of less than 15, so it is important to use sunscreen even on parts of your body that may be covered in fabric<sup>6</sup>.

## HOW MUCH SUNSCREEN TO USE:

THE SUNSCREEN SHOULD BE THICK ENOUGH TO COVER THE SKIN



THIS IS NOT ENOUGH



Wikimedia Commons. (2011, November 2). Sunscreen coverage [Diagram]. Retrieved from [https://commons.wikimedia.org/wiki/File:Sunscreen\\_coverage.svg](https://commons.wikimedia.org/wiki/File:Sunscreen_coverage.svg)

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# Results

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According to providers in the office, this information sheet will be a useful addition to their resources to give to patients and parents during well child visits.

- Previous iterations of information sheets given at well-child visits at this clinic included some skin protection information, but this new intervention is entirely dedicated to skin protection in children.
- This information sheet includes information on the risks associated with lack of skin protection, as well as how to best protect a child's skin and common misunderstandings or mistakes made in regard to sunscreen use.

The success of this intervention can further be evaluated by:

- Conducting a survey among patients and parents to whom this information sheet is presented during well child visits. This survey could follow up with patients and their families a short while after their visit and ask whether they received and read the information sheet, as well as whether they found the information helpful. Finally, this survey would also ask how likely the family is to improve their skin care habits after reading this information sheet.
- Conducting a survey among the providers in the practice to assess whether they give the information sheet to their patients and families, whether it has sparked conversations about skin care with their patients, and whether they have observed improved skin protection practices in their patients and families.

# Effectiveness and Limitations

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## Effectiveness:

- While the effectiveness of this intervention cannot be assessed until the information sheet has been distributed to patients and their families in the Waterbury Health Center, it is possible that it will help address knowledge gaps on the part of children and especially parents who may not be aware of the risks of sun exposure in children, as well as how to best to protect their children from UV rays.
- Ideally, this information sheet will also serve as a way for the providers or patients/parents in the practice to initiate conversations about skin protection. Having skin protection become a more prominent topic during well-child visits will help emphasize to the community that skin protection is an important aspect of preventive health care.

## Limitations:

- This intervention was mainly targeted at parents, who, while largely responsible for the skin protection of young children, may have a less involved role in the skin protection of older children and adolescents. While the information put forth on this information sheet may appeal to older children and adolescents, it is also likely that this population may have different priorities in skin care, including cosmetic appeal.
- For young children, this information sheet would not be engaging as it has no pictures and is not interactive.
- For both children and adolescents, information on skin cancers may seem to distant to be relatable and relevant.
- As a one-page information sheet, there are many aspects of skin protection that could not be discussed, including skin protection for specific populations such as people of color or those undergoing chronic treatments that may put their skin at risk.

# Recommendations for future interventions

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## Creating an interactive educational modality for young children

- An interactive educational experience for children could include working with school nurses and health educators to create modules on skin care in the school setting, creating presentations that can be brought to the school setting, and creating coloring pages or similar modalities that contain simple messages promoting skin protection to children.

## Creating age-specific information sheets for different age groups

- Information sheets could be directed at young children, school-age children, and adolescents, with age-specific information that would be more likely to appeal to their age group and be relevant to them. Creating such information sheets could be performed in conjunction with children from the age groups in question in order to maximize the effectiveness of the intervention.

## Addressing skin protection in the adult population

- Since adults are more likely to be experiencing the effects of sun damage on their skin, an information sheet for adults would be most effective if it also included information on how to identify suspicious skin lesions and how to decide when to seek health care for skin problems.

## Addressing skin protection for special populations

- There are many additional populations who may need specific information on skin protection.

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# Consent forms for interviews

**INTERVIEW CONSENT FORM**  
Promotion of Skin Protection in Children in Waterbury, VT  
Kelsey Sullivan  
2/28/2017

Thank you for agreeing to be interviewed. This project is a requirement for the Family Medicine clerkship. It will be stored on the Dana Library ScholarWorks website. Your name will be attached to your interview and you may be cited directly or indirectly in subsequent unpublished or published work.

The interviewer affirms that he/she has explained the nature and purpose of this project.

The interviewee affirms that he/she has consented to this interview.

Yes

Name: Alyssa Fischer, MD Alyssa Fischer

Name: Andrew Hankinson, MD

If not consenting as above: please add the interviewee names here for the Department of Family Medicine information only.

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

If you received informed consent, please upload this page as a separate document entitled: "Name of Project/Interview Consent Form".

If an informed consent was not received, please do not upload this page to ScholarWorks. However, you should include this consent page when submitting your PowerPoint to the Family Medicine Department.

**INTERVIEW CONSENT FORM**  
Promotion of Skin Protection in Children in Waterbury, VT  
Kelsey Sullivan  
(Date)

Thank you for agreeing to be interviewed. This project is a requirement for the Family Medicine clerkship. It will be stored on the Dana Library ScholarWorks website. Your name will be attached to your interview and you may be cited directly or indirectly in subsequent unpublished or published work.

The interviewer affirms that he/she has explained the nature and purpose of this project.

The interviewee affirms that he/she has consented to this interview.

Yes

Name: Delisa Conyers

Name: \_\_\_\_\_

If not consenting as above: please add the interviewee names here for the Department of Family Medicine information only.

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

If you received informed consent, please upload this page as a separate document entitled: "Name of Project/Interview Consent Form".

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