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A white sunscreen bottle with a yellow cap is the central focus on the left side of the image. It is set against a blurred background of a sandy beach and a clear blue sky. The text is overlaid on the right side of the image.

IDENTIFYING BARRIERS TO SUNSCREEN USE AND SUN SAFETY EDUCATION

Seneca Hutson

Aug 2020

South End Clinic – Community Health Centers of Burlington

Project Mentors: Vivian Esparza, MD; Jacob Shaw, MD

Problem Identification and Need

Background

- Skin cancer is the most commonly occurring cancer in the US^{9,10}
- An estimated 90% of melanomas are due to UV exposure^{3,4}
- Physicians (all specialties) reported mentioning sunscreen at only 0.9% of visits that were associated with a diagnosis of skin disease¹¹
 - *Dermatologists reported mentioning sunscreen at only 1.6% of all dermatology visits¹¹*
- Despite most skin damage occurring before the age of 20, sunscreen was recommended the least for children between the ages of 0-9 years old¹¹

Vermont Statistics

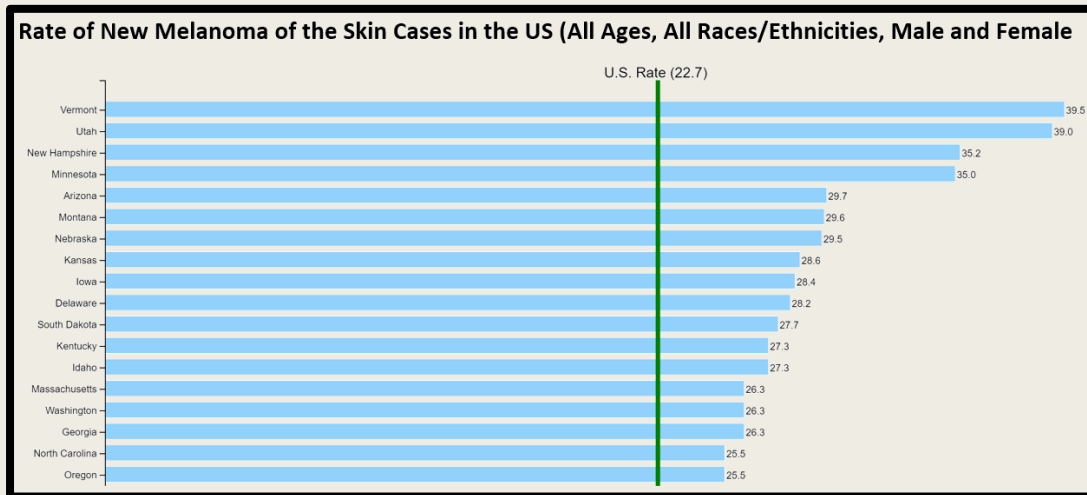
- According to the CDC and National Cancer Institute, Vermont has the highest per-capita incidence of new melanoma cases in the country¹²
- From 1994-2016, the rate of invasive melanoma was 35.8 per 100,000 persons⁸
 - *Higher than national rate of 21.7 per 100,000 persons⁸*
- 35% of Vermont adults and 54% of middle school students reported at least one sunburn in the past year⁷
- Only 16% of high schoolers and 27% of middle schoolers in Vermont routinely wear sunscreen²

Problem: These statistics underscore a discrepancy between skin cancer risk and sunscreen education during in-office visits

Need: The Vermont population could benefit from widespread sun safety education, both in-office and in the community

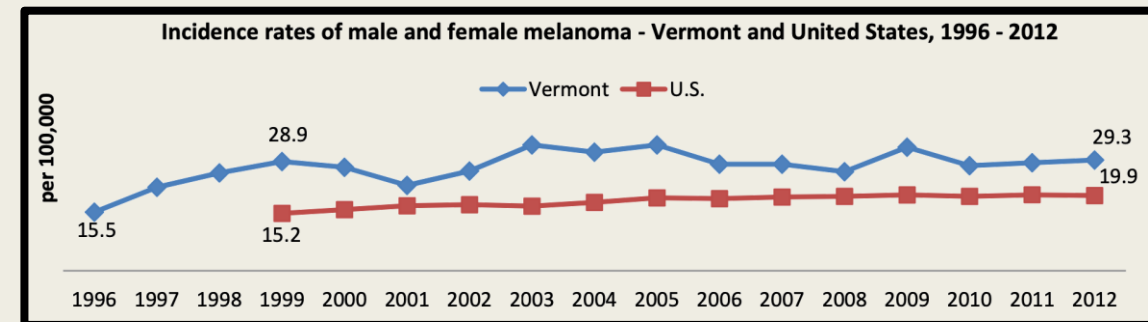
Problem Identification and Need

NATIONALLY

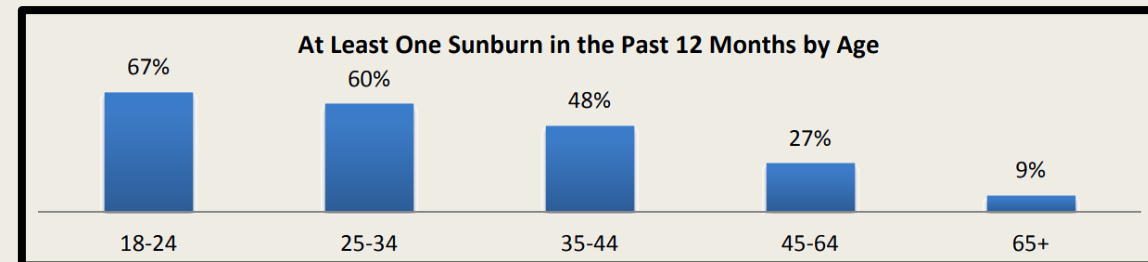


[Figure 1]. Retrieved from <https://gis.cdc.gov/Cancer/USCS/DataViz.html>

VERMONT



[Figure 2]. Retrieved from: https://www.healthvermont.gov/sites/default/files/documents/2016/12/stat_MelanomaDataBrief.pdf



[Figure 3]. Retrieved from https://www.healthvermont.gov/sites/default/files/documents/2016/12/stat_MelanomaDataBrief.pdf

Public Health Cost

- Melanoma treatment in the US costs approximately \$3.3 billion annually¹⁰
- Annual treatment of skin cancer in the US from 2007-2011 averaged roughly \$8.1 billion, more than double the treatment cost from the prior four years⁹
- In 2013, an estimated 34,000 emergency department visits related to sunburn in the US totaled approximately \$11.2 million¹⁰
- Non-melanoma skin cancer treatment in the US costs an estimated \$4.8 billion annually¹⁰



Community Perspective

Vivian Esparza, MD

South End Health Center

“I usually remind patients of skin and sun protection at the annual physical exam, and I educate about melanoma and what to look for since that is the most dangerous skin malignancy. I think it would be helpful to have patient education in the room that they can read while they wait. It preps for the conversation, and it helps them get the information if the visit is too busy. Even an educational poster can help.”

Keith Karpinski, PT

Long Trail Physical Therapy

“Physical therapists are hands-on professionals, and we can be good screening tools. I think that surveying physical therapists in the state and gauging their interest in incorporating brochures about melanoma into their office could be worthwhile. Disseminating more information about epidemiology might help too because I think a lot of people just don’t know about the prevalence of skin cancer.”

Bhumika Patel, MA

South End Health Center

“A lot of times patients come in for something completely different [than skin concerns], so sunscreen use is something that may or may not come up during the visit. There is a big knowledge piece as well. I once had a patient tell me that they did not know what kind of SPF to use, so a quick pamphlet with that kind of information would be helpful.”

Intervention and Methodology

- **Intervention #1:** Create a survey to gauge the barriers to sunscreen use in Burlington's South End Clinic patient population
- In 2016, Weig et al created a survey to evaluate the barriers to sunscreen use in a subset of patients at the University of Iowa Hospital's Dermatology Clinic¹
 - *Two of the survey questions from Weig et al.'s 2016 study were adopted into this intervention's survey to gauge barriers to sunscreen use in Vermonters*
- The survey was administered via an online google form survey to gauge barriers to sunscreen use

Sun Safety Survey

Gender

- Female
- Male
- Non-binary/Genderfluid

Which of the following best describes your skin type?

- Type I: Pale white skin, always burns, never tans
- Type II: White skin, usually burns, then tans
- Type III: Light brown skin, may burn, tans well
- Type IV: Moderate brown skin, rarely burns, tans well
- Type V: Dark brown skin, very rarely burns, tans well
- Type VI: Very dark skin, very rarely burns, tans well

How often do you wear sunscreen?

- Almost always
- Majority of the time
- Minority of the time
- Almost never

Which of the following factors may prevent you from using sunscreen regularly? (select all that apply)

- Cost of sunscreen
- It takes too long to apply sunscreen
- I forget to bring sunscreen/apply it when outside
- I do not like the feel/smell of sunscreen on my skin
- I do not like the appearance of sunscreen on my skin
- I do not know how to select the most appropriate sunscreen
- I was not aware that I had to use sunscreen regularly
- I do not believe that it is necessary for me to use sunscreen
- None of the above/nothing stops me from wearing sunscreen
- Other (please explain)

Choose the statement that most accurately reflects your belief.

- It is more important for me to wear sunscreen compared to others
- It is equally important for me to wear sunscreen compared to others
- It is less important for me to wear sunscreen compared to others

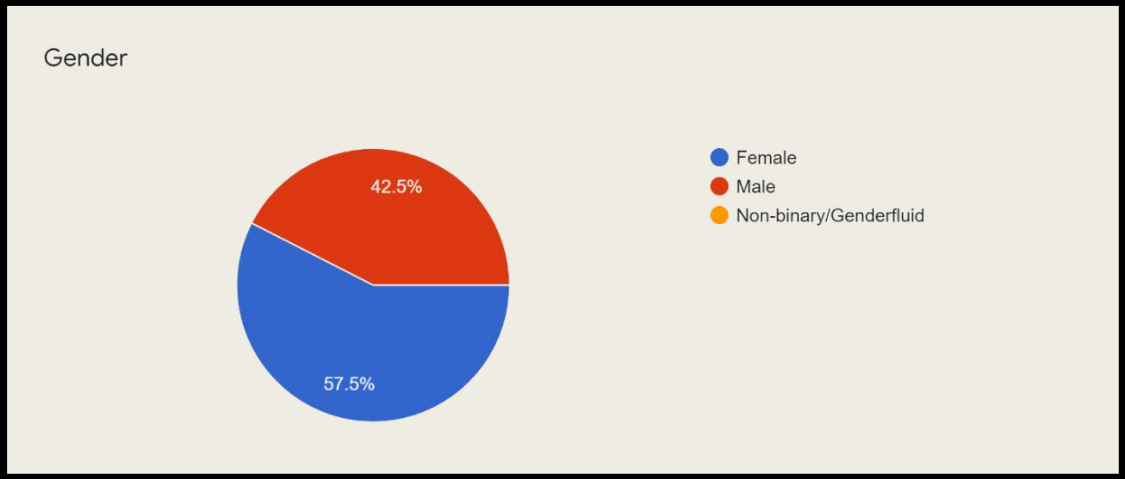
Intervention and Methodology

- **Intervention #2:** Generate a “MyPhrase” with basic sun safety information to give to patients with their after-visit instructions
- South End Clinic’s EHR, NextGen, allows users to create and save a “MyPhrase” that can be used to quickly add information to after-visit notes
- Information for the handout was acquired from the CDC and EPA, which provides detailed information on action steps for skin cancer prevention⁶

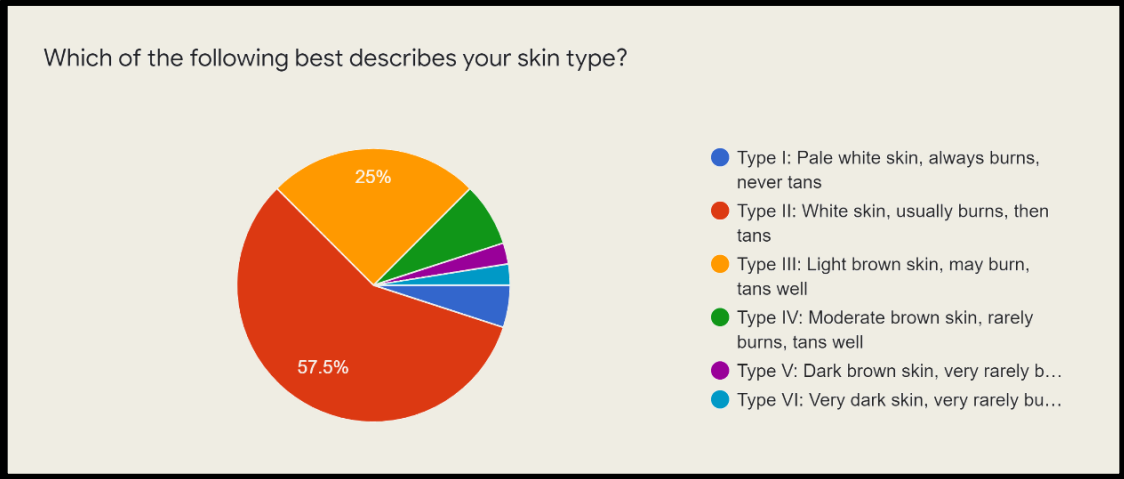
After-Visit Information

- **Avoid Burning.** Overexposure to the sun is the most preventable risk factor for skin cancer.
- **Avoid Sun Tanning and Tanning Beds.** UV light from tanning beds and the sun causes skin cancer and wrinkling.
- **Use Sunscreen.** Generously apply a broad-spectrum sunscreen with an SPF of 15 or higher. Reapply at least every two hours, and after swimming or sweating.
- **Cover Up.** Wear protective clothing, such as a long-sleeved shirt, pants, a wide-brimmed hat, and sunglasses with 99-100% UVA/UVB protection, when possible.
- **Seek Shade.** Seek shade when the sun’s UV rays are most intense between 10 a.m. and 4 p.m.
- **Watch for the UV Index.** Pay attention to the UV Index when planning outdoor activities to prevent overexposure to the sun.

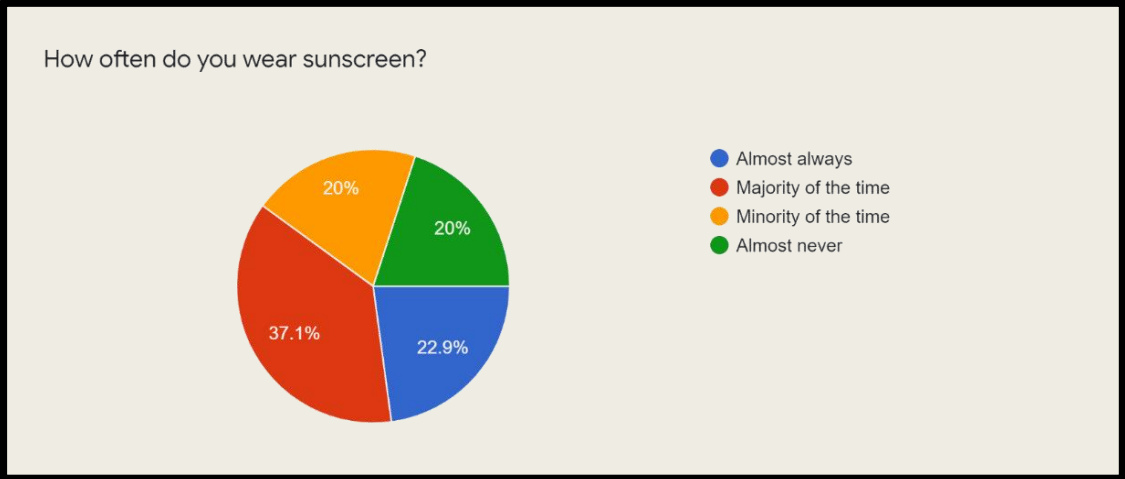
Survey Data



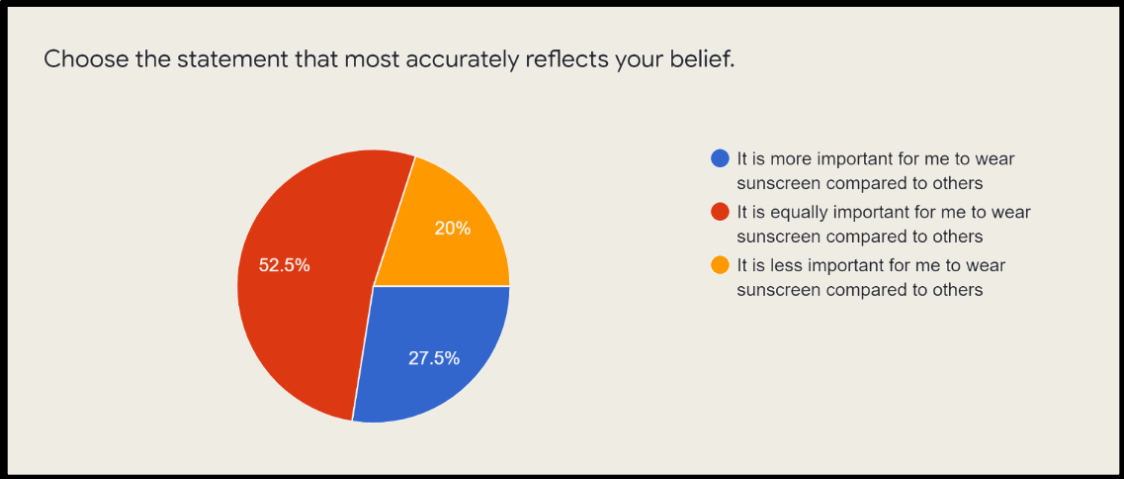
[Figure 4]. Gender distribution of survey participants at the South End Clinic



[Figure 5]. Self-reported Fitzpatrick skin type of survey participants at the South End Clinic

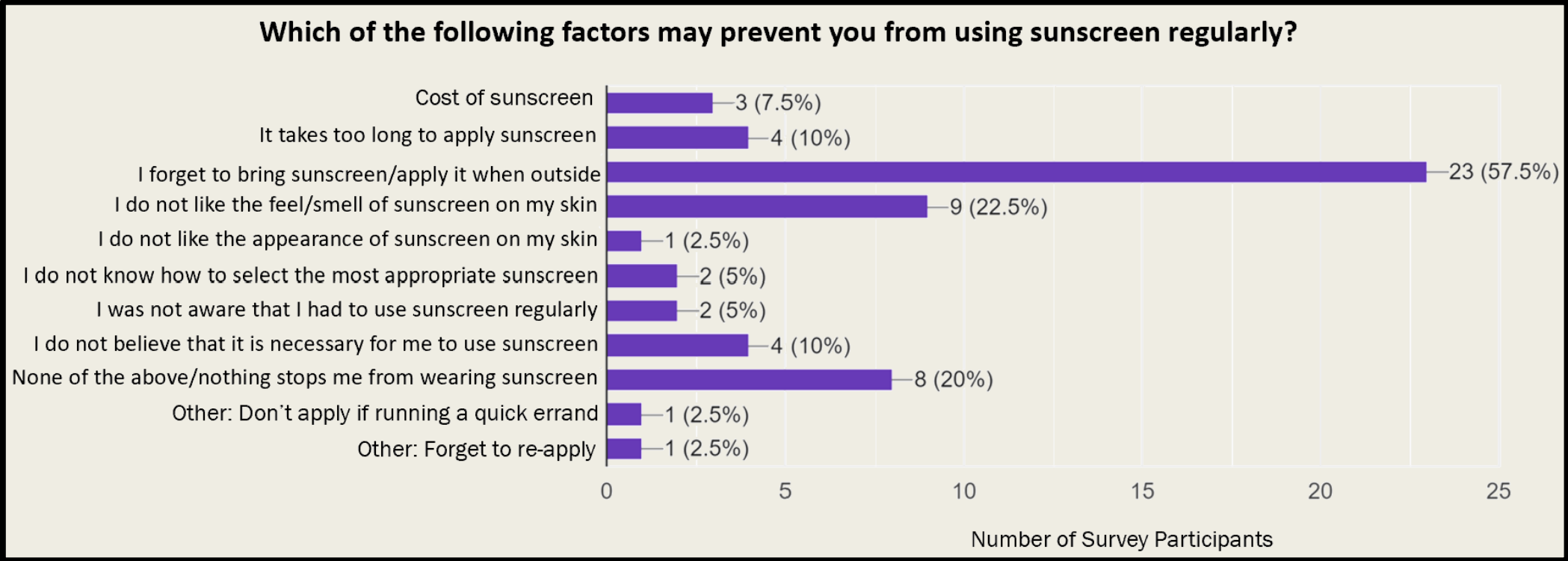


[Figure 6]. Frequency of sunscreen use in survey participants at the South End Clinic



[Figure 7]. Belief of need to use sunscreen among survey participants at the South End Clinic

Survey Data



[Figure 8]. Factors that are most likely to prevent patients at the South End Clinic from using sunscreen regularly

Survey Results and Interpretation

- 40 patients who completed the survey
 - 23 females, 17 males
 - 23 participants Fitzpatrick type II, 10 participants type III, 7 participants type I/IV-VI
 - About half of survey participants wear sunscreen almost always or majority of the time
 - About half of survey participants believe it is equally important to wear sunscreen
- As seen in Figure 8, the most common barriers to sunscreen use were forgetting to bring and/or apply sunscreen, and not liking the feel and/or smell of sunscreen
 - *These findings are supported by an ImpactMelanoma sunscreen survey done in 2018 that found that forgetting to apply sunscreen was the greatest barrier to Vermonters⁵*
 - *The findings also approximate those of Weig et al, who found that the greatest barrier to sunscreen use was disliking the feel or appearance of sunscreen¹*

Intervention Limitations

- Evaluating the effectiveness of the MyPhrase sun safety information given to patients in the after-visit handout requires feedback survey
- The amount of sun education that was incorporated into the MyPhrase was limited, since long blocks of texts can discourage reading altogether
- Tailoring sun safety handout information that is specific to the South Burlington community was complicated by the dearth of information on barriers to sun safety practices specific to Vermonters
- Vermont demographic limits intervention generalizability



Recommendations for Future Projects

- Assess whether patients found the MyPhrase after-visit information on sun safety to be beneficial or not
- Gather more in-depth information on sun safety practices of Vermonters
 - *Sun safety depending on season*
 - *Where sunscreen is applied (whole body vs. exposed areas vs. face only/no face)*
 - *Administer true/false “quiz,” as seen in Weig et al, to gauge sunscreen education*
 - *Investigate ideas fueling patient beliefs surrounding need to use sunscreen or not*
 - *Look for an association between perceived need of sunscreen and Fitzpatrick skin type*
- Involvement of ancillary health centers in sun safety education
 - *Coordinate with neighboring Long Trail Physical Therapy office to incorporate in-office sun safety brochures and monitor patients for obvious skin lesions*

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