Family Medicine Clerkship Student Projects   Family Medicine Community

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Benign vs. Malignant: Improving Prevention and Detection of Cancerous vs. Non-Cancerous Skin Lesions Through Inclusive Patient Education

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_Simran Kalsi MS _May-June 2022 _Thomas Chittenden Community Health Center _Williston VT _Mentor: Adriane Trout MD _In collaboration with Sam Afshari BS _UVMMC Family Medicine Hinesburg

BENIGN VS. MALIGNANT

Improving Prevention and Detection of Cancerous vs. Non-Cancerous Skin Lesions Through Inclusive Patient Education
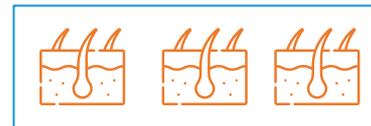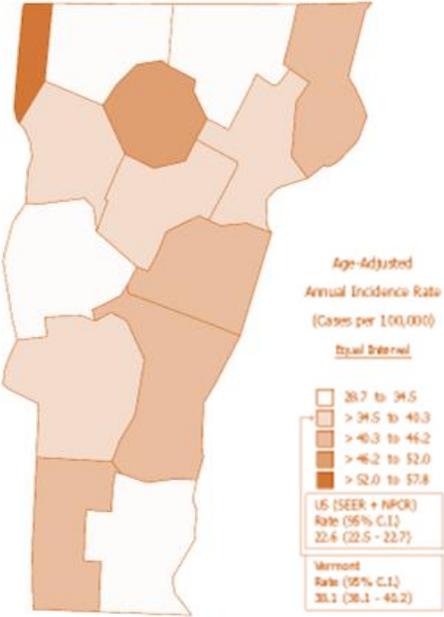
Problem Identification

Fig 1. NCI State Cancer Profiles - Incidence Rates* for Vermont by County, Melanoma of the Skin 2014-2018, All Races/Ethnicities, All Sexes, All Ages
* cases per 100,000 population per year

AHEC Content Area: Medical Practice Improvement

1. **Vermont has the 2nd highest rate of melanoma in the United States**[1] (see Fig 1, left, for breakdown by county), likely due to a range of proposed factors: an aging, largely white, population; active outdoor lifestyles; intense bursts of sun exposure seasonally; inadequate Winter sun protection.
2. The COVID-19 pandemic and associated shutdowns caused significant **delays in healthcare** resulting in increased incidence and severity of skin cancer from 2020 to 2021 with tumors requiring more complicated methods of reconstruction. [2]
3. The Community Health Needs Assessment, conducted by the University of Vermont Medical Center (UVMMC), identified **preventative care, education and access to timely cancer screenings** as top areas for disease prevention and reduction of state cancer rates. [3]
4. **Primary care providers (PCPs) are an essential first line of defense in detecting suspicious skin lesions** through a simple naked-eye exam. [4]

A patient-directed educational intervention may **improve public knowledge about when a skin lesion is likely to be malignant rather than benign and should be evaluated by their PCP** for diagnosis and management. This should lead to expedited treatment and improved outcomes, with specialty care as needed.

Public Health Costs

$8.1BN

Annual skin cancer treatment costs in the US.

$4.8BN for non-melanoma skin cancer (NMSC) and $3.3BN for melanoma. [5]

20.4

Years of potential life an individual in the US loses as a result of melanoma mortality.

Compared with 16.6 years for all other malignant cancers. [6]

$342M

Projected savings in treatment costs with preventative measures.

Measures include public education for sun protection, prohibiting indoor tanning, increasing shade in public spaces. [7,8]

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"Promoting skin cancer awareness is a priority for VTAAC"

How important is it to promote skin cancer awareness in VT?

- Vermont has one of the highest skin cancer rates in the country even when accounting for a predominantly white and aging population.
- VTAAC has previously partnered with IMPACT Melanoma to successfully place sunscreen dispensers with educational information about skin cancer at state and local parks. [9] Other efforts include periodic surveys on sunscreen use.

What are the challenges to promoting skin cancer awareness in VT?

- It's difficult for Vermonters to naturally practice sun safety year-round given that the climate is not typically associated with significant sun exposure and skin cancer.
- There's a lack of sufficient evidence in strategies used to promote behavior i.e., Grade I USPSTF guidelines on skin checks.
- Additional challenges include barriers to accessing specialty care and funding/staffing for initiatives like VTAAC.

What impact has the COVID-19 pandemic had on skin cancer rate?

- The pandemic has exacerbated delays in care and emphasized the barriers to seeing a dermatologist.
- According to 2019-2020 data, in-situ melanoma was diagnosed less, and stage III-IV melanoma was diagnosed more post-lockdown at two Northeastern facilities. [10]

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"We see larger/more advanced skin lesions due to patients waiting for care"

Which factors do you think contribute to VT having one of the highest rates of melanoma in the country?
- An older, largely white population with lots of intermittent sun exposure. There are also other unknown factors.

What impact has the COVID-19 pandemic had on incidence and/or severity of skin cancer in your clinic?
- We are seeing larger/more advanced skin lesions in our clinic – particularly due to the pandemic and patients waiting for care.

What do you think are the solutions to reducing skin cancer in VT?
- Primary prevention through better education.
- Follow the framework of education programs that have been enacted in Australia which start education about prevention earlier in childhood.[11]

HOW TO SPOT SKIN CANCER

WHAT TO LOOK FOR AND WHEN TO SEE YOUR DOCTOR

1 in 5 Americans develop skin cancer in their lifetime, and **as a Vermonter, your risk is statistically higher than the national average**, especially if you have: fair skin that burns easily, red or fair hair, a history of sunburns, many freckles or moles, or a family history of skin cancer.

If caught early, skin cancer is **highly treatable** but **prevention** through sun protection is key!

The ABCDEs of Melanoma

Melanoma is the most dangerous type of skin cancer. Follow the "ugly duckling" rule and talk to your doctor if a spot looks very different than the rest of your moles or has any of these signs:

A — ASYMMETRY
One half of the spot is not like the other.

B — BORDER
The spot has irregular or poorly defined edges.

C — COLOR
The spot has varying colors (tan, brown, black, white, red, blue).

D — DIAMETER
Melanoma is usually 6mm or larger (the size of a pencil eraser), but can be smaller.

E — EVOLVING
The spot is changing in size, shape, or color.

Other Types of Skin Cancer and Pre-Cancerous Spots

BASAL CELL CARCINOMA
Shiny, pearly, skin-colored, dome-shaped cancers - may bleed or look like a pimple

SQUAMOUS CELL CARCINOMA (SCC)
Cancerous scaly patch or sore that won't go away - may itch or bleed.

ACTINIC KERATOSIS
Rough and scaly pre-cancerous patches with 5% risk of developing into SCC.

Common NON-CANCEROUS Spots

Acne — Skin tags — Seborrheic keratosis

Cherry angioma — Freckle – solar lentigines — Mole

SKIN CANCER PREVENTION TIPS

1. **Seek shade**, especially from 10am-2pm.
2. Wear **sun-protective clothing**.
3. Apply a **broad-spectrum, water-resistant, SPF30+ sunscreen** to all skin not covered by clothing and **reapply every 2 hours**.
4. Use **extra caution near snow, water, and sand** which can reflect and intensify UV light from the sun.
5. **BONUS:** Place the UV detection sticker below to your skin and it will turn purple when you need to reapply sunscreen!

UV DETECTION SKIN STICKER

For More Info — SCAN ME

CREATED BY SIMRAN KALSI, CLASS OF 2024, LARNER COLLEGE OF MEDICINE
ADAPTED FROM THE AMERICAN ACADEMY OF DERMATOLOGY
IMAGES: VISUALDX, AAD, GETTY IMAGES, PEXELS

Intervention & Methodology 1

I created a bookmark using Canva graphic design software, highlighting:

- Risk factors and relevance to Vermonters
- 3cm ruler to measure lesions with a marker for 6mm
- ABCDEs of melanoma and the "ugly duckling rule" for self-exam
- Characteristics of non-melanoma skin cancer/precancerous actinic keratoses
- Common benign lesions
- Emphasis throughout on showing skin lesions on a variety of skin tones
- Preventative advice
- QR code links to the AAD public information site for further reading
- UV detection sticker – shown to increase likelihood of sunscreen re-application[12] (see below for functionality)

APPLY SUNSCREEN — EXPOSE TO DIRECT SUNLIGHT

PARTIALLY PROTECTED — APPLY MORE SUNSCREEN

FULLY PROTECTED CLEAR — SUNSCREEN IS WORKING

Bookmarks were distributed at Thomas Chittenden Health Center and UVMMC Family Medicine Hinesburg with future plans to share at local libraries, bookstores, book fairs, and schools in Chittenden County.

Intervention & Methodology 2

I collaborated with Sam Afshari during his Family Medicine Rotation at UVMMC Family Medicine Hinesburg. We worked together to distribute educational tools about dermatological conditions emphasizing presentation in all skin tones to patients/general public and healthcare practitioners in a two-pronged approach covering both malignancies and common rashes.

Sam created a slide deck directed towards healthcare providers to improve identification of common rashes on skin of color, specifically in darker skin tones. Slides utilized a "quiz" format to increase engagement. Each slide included demographic characteristics of the condition, clinical presentation findings, diagnostics, and treatment options.

The slide deck titled "Improving Identification of Dermatological Conditions in Skin of Color" was distributed to healthcare practitioners at UVMMC Family Medicine Hinesburg and Thomas Chittenden Health Center.

Qualitative results based on feedback from 4 healthcare providers showed that the slide deck was useful and a good reminder to healthcare providers to be able to identify the variety of presentations of skin conditions. Future directions include sharing this project as a verbal presentation to practitioners, residents, and medical students.

Results & Response

Feedback for the bookmark was collected from 2 patients who chose to remain anonymous and 4 healthcare practitioners at Thomas Chittenden Health Center and UVMMC Family Medicine Hinesburg (Adrienne Jarvis MD, Elizabeth Landell MD, Michael Sirois MD, Olivia Barton, LPN) . Qualitative responses are categorized according to the following themes:

General Appearance

+ "Professional, clear format"
+ "Well-illustrated, simple layout"
- "Readability with the small font size may be a concern for some viewers"

Highlighting Benign vs. Malignant Lesions

+ "Showing examples of benign spots is important"
+ "I like the images showing many skin tones"
- "Some images may be too small to see accurately"

Utility

- "I would recommend having a reference in Epic to use for the patient's after-visit summary"
+ "This would be a useful tool to give to my patients at their annual physical appointments"
- "It might be more useful to patients who have never had skin cancer before, unlike myself"

Relevance to Vermonters

+ "I was surprised to know that VT has such high rates of skin cancer"
+ "A reminder about sun protection in snowy conditions is very helpful"
+ "This would be great to see at local libraries and book fairs"

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Evaluation of Efficacy

To evaluate efficacy of the educational bookmark intervention, I propose the following method:

1. A pre-exposure survey collecting information about participants' skin type, prior exposures to skin cancer, and sunscreen use.
2. Viewing the bookmark.
3. A post-survey to assess participants' ability to determine if a lesion is benign or malignant based on an image and accompanying description of the lesion.

Note: surveys should be translated into multiple languages and in varying font sizes for accessibility.

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Limitations & Future Directions

This intervention may be limited by:
- Keeping practitioners informed that this resource exists and encouraging its use regularly *(could be aided by companion smart text in the EMR).*
- Distribution of the intervention to healthcare providers and patients who are already aware of skin cancer as a concern *(may be more useful to the wider community who may not see their PCP regularly for skin checks and/or to a younger population).*
- Timing constraints preventing evaluation of efficacy and further iterations of the bookmark based on feedback received.

Next steps…
1. To improve **accuracy**: edit images based on physician feedback i.e., select different images for seborrheic keratosis, basal cell carcinoma, and benign nevus/mole to better highlight characteristic features.
2. To improve **accessibility**: develop multiple font size options; translate into at least 1-2 additional languages; edit language to tailor to multiple age groups/reading levels.
3. To improve **outreach**: distribute widely to libraries/book fairs, schools, and community clinics; partner with organizations like VTAAC.
4. To evaluate **efficacy**: create a research protocol for evaluating the intervention through a population survey with IRB approval.

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Interview Consent Form

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.

Consented

Name: Sharon Mallory, Vermonters Taking Action Against Cancer (VTAAC) / VT Department of Health

Name: Steven Partilo MD, Four Seasons Dermatology

Did NOT Consent

Name: NA