Improving Provider Understanding of Skin Cancer Risks in Skin of Color Patients: A Quality Improvement Project

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Problem Description

Individuals who are exposed to excessive ultraviolet radiation (UV) without adequate protection can develop a host of healthcare complications ranging from pigmentation changes to life threatening malignancies (Merin et al., 2022). One of the most common complications due to UV exposure is skin cancer. Melanoma, basal cell carcinoma (BCC), and squamous cell carcinoma (SCC) skin cancers are amongst the most common cancers in the United States with approximately 6 million annual cases resulting in 8.9 billion dollars to treat (Aggarwal et al., 2021; Kao et al., 2023). Skin of color (SOC) refers to individuals identifying with African, Asian, Native American, Middle Eastern, and Hispanic racial and ethnic groups (Davis et al., 2021; Tsai & Chien, 2022). Skin cancer and other skin disorders caused by UV damage are often thought to primarily effect White patients and only minimally effects SOC patients. Skin cancer mortality and morbidity rates in the United States have improved overall, but minority patients have not seen decreased rates compared to White patients (Hogue & Harvey, 2019; Shao & Feng, 2022; Munjal & Ferguson, 2023). While SOC patients account for only about 11% of all skin cancer cases in the United States, they disproportionately experience higher rates of morbidity and mortality compared to White patients (Shao & Feng, 2022; Hogue & Harvey, 2019).

Skin cancer disparities are seen at the state and national level. Specific data on skin cancer rates for Oregon SOC population is limited because few counties have cases submitted to the Surveillance, Epidemiology, and End Results (SEER) and National Program of Cancer Registries (NPCR) databases. Another problem is that melanoma is the only cancer that is collected by these databases (Hogue & Harvey, 2019; Shao & Feng, 2022). Additionally, the available data is limited to melanoma incidence rates for Hispanic and American Indian/Native Alaskan patients only. Within these groups, melanoma incidence rate is 6.5 cases per 100,000 and 12.5 cases per 100,000, respectively compared to 4.5 and 8.4 cases per 100,000, nationally (State Cancer Profiles, 2022a; State Cancer Profiles, 2022b). This indicates that these populations are experiencing a higher disparity in outcomes at the state level.

There are many reasons why disparities among SOC patients exist. For example, when skin cancer is detected and diagnosed, it tends to present at a more advanced stage compared to White patients. Research shows that skin cancer has a higher rate of metastasis, presents with different morphologies, and is also more likely to present in non-sun exposed areas (Hogue & Harvey, 2019; Shao & Feng, 2022; Taylor et al., 2022). Other factors cited in the literature include a lack of education on SOC-specific risk factors and lesion presentation, misconceptions about risk within the SOC population higher costs of products targeted SOC patients, and reduced access to care for SOC patients (Shao & Feng, 2022; Song et al., 2021; Taylor et al., 2022; Tsai & Chien, 2022).

Available Knowledge

Two PubMed searches were conducted for this project using studies that were published within the past five years. The first search used the terms Disparities AND Racial OR POC OR Skin of Color AND Skin Cancer which yielded 90 results in which 7 articles were selected. The second search used the terms Interventions AND Skin of Color AND Skin Cancer which yielded 173 results, and 6 articles were selected. When evaluating the literature regarding the causes of disparities amongst SOC patients, several key themes appear. The literature highlights the need for provider and patient education regarding risks, skin lesion presentations, and prevention of skin cancer (Davis et al., 2021; Hogue & Harvey, 2019; Narla et al., 2023; Shao & Feng, 2022; Taylor et al., 2022; Tsai & Chien, 2022). Emphasis is placed on primary (e.g. sun protective behaviors) and secondary skin cancer prevention methods (e.g. skin cancer screenings).

There are many misconceptions regarding risks for skin cancers within the SOC population. Patients often falsely believe that melanin, which blocks UV radiation and is found in higher concentration in SOC patients, is enough to prevent skin cancers from occurring (Hogue & Harvey, 2019; Sangha A, 2022; Taylor et al., 2021; Tsai & Chien, 2022). When SOC patients were surveyed, up to 65%

believed they had no risk of developing skin cancer (Hogue & Harvey, 2019). In the same paper by Hogue & Harvey (2019) it was found that 35% of SOC patients that had experienced sunburns in the past perceived no risk of developing skin cancer. Due to this misconception, SOC patients are less inclined to seek care for questionable skin lesions (Shao & Feng, 2022). SOC patients also reported practicing fewer sun-protective behaviors such as wearing sunscreen, seeking shade, wearing UV protective clothing, and performing self-skin checks (Munjal & Ferguson, 2023; Shao & Feng, 2022; Taylor et al., 2021).

The role that providers play in patient wellbeing makes their biases more significant. Provider bias is similar to SOC patient bias in that there is perceived negligible risk of developing skin cancer due to higher melanin production (Shao & Feng, 2022). Subsequently, providers spend less time educating SOC patients about the importance of preventive measures, self-skin checks, and how to recognize potential cancerous lesions. However, the data suggests that SOC patients are receptive and benefit from skin care education (Hogue & Harvey, 2019; Shao & Feng, 2022). Healthcare providers perform less preventative skin examinations on SOC patients compared to White patients and are less likely to assess non-sun-exposed areas for lesions where malignancy most often occurs in SOC patients (Hogue & Harvey, 2019; Munjal & Ferguson, 2023; Ongoro et al., 2023; Shao & Feng, 2022; Tsai & Chien, 2022). Furthermore, Ongoro et al. (2023) found that providers are less likely to recognize and biopsy potential malignant lesions in SOC patients.

Sustained efforts to improve SOC patient outcomes have primarily focused on improving education. Studies have shown that when presented with educational materials, SOC patients have improved health outcomes. Educational materials and training include the importance of early detection, questionable lesion presentation, and performing self-skin exams. These concepts help improve SOC patients' health literacy and self-efficacy on the subject (Castillo Valladares et al., 2020; Shaikh et al., 2023; Tsai & Chien, 2023). Providing training modules and educational resources on skin

cancer risks as well as skin lesion presentation and location, improves provider ability to recognize and treat skin cancer within the SOC population (Slaught et al., 2022; Yousuf & Yu, 2021).

Rationale

Currently, at this organization, there is no standardized educational plan for patients of color regarding skin cancer risks and preventive measures. Studies have shown that education would benefit this patient population by providing primary preventive care (Chung et al., 2015; Garcia et al., 2020; Lenczowski et al., 2018; Tsai et al., 2018). This primary prevention would help reduce the disproportionate mortality and morbidity rates.

The Institute for Healthcare Improvement (IHI) Model for Improvement provides a model that has been used by other institutions to enact, measure, and improve change (Harrison et al., 2021; Institute for Healthcare Improvement, n.d.). As a framework, this model uses the Plan-Do-Study-Act (PDSA) cycle to test changes in an institution and determine the validity of the improvement of these changes. By setting aims, establishing measures, selecting changes, and testing changes, institutions can modify and improve changes before applying the reformed changes to a broader system (Institute for Healthcare Improvement, n.d.) This project used this method to help determine the effectiveness of an in-person teaching modality for patients.

Specific Aims

This quality improvement project aims to evaluate and improve provider and patient understanding of the SOC patients' risks and preventative strategies for skin cancer and improve their understanding regarding these topics at this organization in Southern Oregon over the next year.

Context

The location for this project was an organization whose core mission includes serving the SOC population. This organization is a major independent medical group that provides behavioral health, dental, school based, specialty, and primary care services for 30,000 patients in the Rogue Valley. This organization has 12 different locations including a mobile health team that provides healthcare outreach to migrants and unhoused patients.

The organization aims to serve a diverse patient population which includes SOC patients. In 2022, 23% of their patient population identified as Person of Color and 33% identified as Latino. 5,312 of their patients also preferred to converse in a language other than English. 87% of the clinic's patient population is under the age of 65 and 64% of the population is under the federal poverty level.

At this facility, the medical assistant rooms the patients, asks pertinent health-related questions, takes vitals, and gathers information to inform the provider about the patient's concerns. After this, the provider then sees the patient and addresses any patient concerns prior to addressing any health maintenance alerts prompted by the electronic health system. Of note, annual skin cancer screening, or referral to dermatology for this screening, is not an automated health maintenance alert. Therefore, the necessity of an annual skin exam is left to the provider's discretion. Due to the time constraints, the potential need for an interpreter, and delayed appointments, providers are pressed to decide what to focus on during their and the patient's time. The perceived lack of risk often leads to SOC patients not being assessed for skin changes they have noticed. These factors all suggest that there is a need to evaluate the current knowledge and educational needs surrounding skin cancer risk in SOC patients. A cause-and-effect diagram for this issue is included in **Appendix A** for reference.

Interventions

A virtual educational seminar was created and presented to both the primary care and specialty provider staff at their monthly staff meeting. The presentation educated providers on common

misconceptions about SOC patients' skin cancer risks, the epidemiology of skin cancer in this population, risks factors, lesion presentations, and interventions for follow-up care. A dot phrase, which is a template utilized to quickly add information to patients after visit summaries, was created. This patient education dot phrase skin cancer risks as well as interventions in both Spanish and English. The dot phrase was shared with clinic providers at a monthly meeting during an educational presentation. The educational presentation was given at the January 2025 provider meeting, which has historically had higher provider attendance. A recording of the presentation material was made available to providers who could not attend the meeting. A full timeline for the project is included in **Appendix B**. The presentation materials and educational tool are included in **Appendix E**.

Study of the Interventions

A 10-question multiple-choice pre-test and post-test were conducted using Qualtrics to evaluate the effectiveness of the educational presentation. The pre-test conducted before the presentation assessed providers' knowledge of SOC patients' skin cancer risks, cancerous lesion presentation attitudes towards skin checks, and comfort with educating patients. An identical post-test was given after the presentation, allowing for direct quantifiable comparisons to evaluate the significance of the intervention. A five-point Likert scale was to assess the provider's confidence question. A percentage correct for individual knowledge questions and an overall percentage correct was used to evaluate the insight gained by the participants. The pre-and post-test questions can be referenced in **Appendix C.**

Measures

The primary outcome of this project is for healthcare professionals to recognize the need for provider-led skin checks on SOC patients, provider-led education on the importance of skin checks, and increased awareness of skin cancer outcomes for SOC patients. A secondary outcome was to create

provider education tools that could be used system-wide to help educate SOC patients on skin cancer risks and skin cancer prevention.

Data Analysis

The pre-and post-test was analyzed using the paired Welch's t-test for the initial question assessing provider comfort and personal knowledge on the topic of skin cancer in SOC patients. Participants answered the question*, "How comfortable are you with the subject of skin cancer in Skin of Color patients?"*, by choosing between five possible answers. The paired Welch's t-test compares the pre- and post-intervention answers and produces a P-value based on the assumption that the variables between the two sets of data are unequal. A P-value of less than 0.05 for the question was considered statistically significant and implied that the educational intervention was effective. If a P-value was less than 0.10 this would be considered marginally significant or trending towards significance and thus indicate the need for further educational intervention. Any positive change in the percentage correct for individual questions and the overall score would be considered significant, indicating that the educational intervention was effective.

Ethical Considerations

The medical director, supervisors, and primary care staff were notified via email of the educational presentation one month prior to the scheduled staff meeting. Staff were encouraged to attend in person or via Zoom. Participation in the surveys and questionnaire was voluntary and completely anonymous. There were efforts to ensure inclusive and clinically accepted language regarding ethnicity. Substantial efforts were made to ensure that Spanish and English patient information was at a 5th-grade reading level. Providers attending the meeting were encouraged to ask questions and provide real-time feedback. After submitting this project to the OHSU Investigational Review Board **(Study 00027523)**, it was determined that the proposed activity was not research involving human subjects, and thus IRB review and approval was not required **(Appendix F)**.

Results

A total of 48 providers attended the meeting. Out of these, 28 completed the pre-test, representing 58% of those present, while 30 completed the post-test, or 63% of attendees. The first question employed a five-point Likert scale ranking system ranging from “not at all” to “extremely” to assess participants' comfort with the subject matter. We analyzed this question using a Welch’s T-test with a two-tailed distribution to compare the means of the pre-test and post-test results. **Table 1** and **Figure 1** displays the test results for both the pre-test and post-test responses in **Appendix D**. The mean and standard deviation for the pre-test were calculated as 3.4 and 0.88, respectively, while the post-test mean and standard deviation were 3.0 and 0.64. The p-value obtained from this comparison was 0.059.

The correct and incorrect responses from the pre-test and post-test were compared to evaluate the nine knowledge-based questions. The results from both tests can be seen in **Figure 2** in **Appendix D**. The pre-test yielded a total percentage correct of 87%, while the post-test yielded a total percentage correct of 93%. The percentage improvement was 6%, and all but two questions demonstrated improvement in the number of correct answers.

Discussion

Summary

This quality improvement project employed a PDSA cycle comprised of a pre-test, an educational intervention, an educational tool, and a post-test to evaluate the effectiveness of the intervention. The project's objective was to assess providers' foundational knowledge and comfort level regarding disparities in skin cancer outcomes among SOC patients, as indicated by the pre-test results and changes in knowledge and comfort after a presentation, measured by the post-test. This took place at the January 2025 provider's monthly provider meeting.

Among the 28 respondents to the pre-test, a plurality reported feeling little to no comfort with the topic, whereas a minority indicated they felt very or extremely comfortable. Notably, only one knowledge-based question was answered 100% correctly, concluding that conducting the educational intervention during the monthly provider meeting was suitable. After the intervention, changes in comfort level and general knowledge were evaluated using a post-test featuring the same questions. Out of the providers present 30 completed the post-test. To assess the significance of the intervention, a Welch's T-test was conducted to evaluate any statistical differences in the comfort levels of the providers, while the knowledge-based questions were analyzed based on the overall percentage of correct answers. The educational intervention was provided to the participants in the form of a dot-phrase that could be utilized to educate patients on skin cancer risks and prevention through their after-visit summary. Presentation materials were included in the monthly minutes for providers to review.

Interpretation

The results of Welch's T-test, which compared responses to the comfortability question before and after the intervention, yielded a P value of 0.059, indicating marginal significance. These findings revealed a shift away from extremes in responses post-intervention, with more providers leaning towards a moderate to high level of comfort. Notably, all of the 11% of providers who initially answered "Not at all," reported feeling more comfortable with the subject afterward. Conversely, the 4% of providers who indicated "extremely" confident in the pretest demonstrated a decline in confidence in the post-test. This change may reflect an increased awareness of their own knowledge gaps, prompting a reassessment of their initial responses. In any case, the p-value obtained does show a trend towards significance.

The overall enhancement in knowledge-based responses suggests that the intervention effectively improved providers' understanding of the subject matter. However, it is important to note

that one particular question exhibited a 19% decline in correct answers following the intervention. This may have resulted from poor wording, which likely caused confusion among respondents. Additionally, the time constraints imposed on providers during the post-test could have further contributed to this issue. While a 6% increase in overall correct scores may seem modest, it does indicate progress. The selected site for this intervention serves a large SOC patient population and is dedicated to providing quality care to this community as part of its core mission. It is reasonable to speculate that implementing this intervention at a site without a foundational commitment to serving the SOC population would yield a more pronounced impact.

Limitations

Several factors may have limited the effectiveness of this intervention. It was conducted as a one-time educational presentation, which could impact the results in various ways. For instance, having only a single session might restrict participants' exposure and retention, hindering their ability to fully absorb or apply the educational presentation. In the absence of reinforcement, any observed effects may be temporary, complicating the assessment of the intervention's long-term impact. In this instance, only 48 providers attended the meeting, with approximately 60% actively participating in the pre- and post-surveys. Not all attendees accessed the meeting via their own computers; shared computers may have limited their engagement with the presentation. Additionally, this intervention was one of multiple educational presentations delivered at the meeting, which may have resulted in learner fatigue. Given that the meeting comprised only part of the providers' clinical day, their attention to the educational intervention, and willingness to participate in the assessment, might have been affected.

Another challenge was the short duration of the intervention. Due to time constraints imposed by the provider’s meeting agenda, the intervention was limited to 15 minutes. This restriction limited the time available for educational presentation, pre- and post-test administration, and facilitating

discussions. Consequently, this time limitation may have hampered the depth of engagement, comprehension, and retention among participants. The brief session may not have permitted meaningful interaction, clarification of key points, or adequate reflection on the material presented. Furthermore, the measurement challenges associated with a small sample size constrain the number of data points, making it difficult to ascertain whether the observed effects are significant or coincidental.

Data collection utilizing anonymous tests presented several limitations. The inability to track individual participants made it impossible to determine if the same providers completed both the pre-test and post-test. This lack of continuity complicated data analysis. Furthermore, participation varied between the two assessments, with a greater number of providers completing the post-test compared to the pre-test. This discrepancy introduced potential inconsistencies, complicating the evaluation of the true significance of the results.

Conclusions

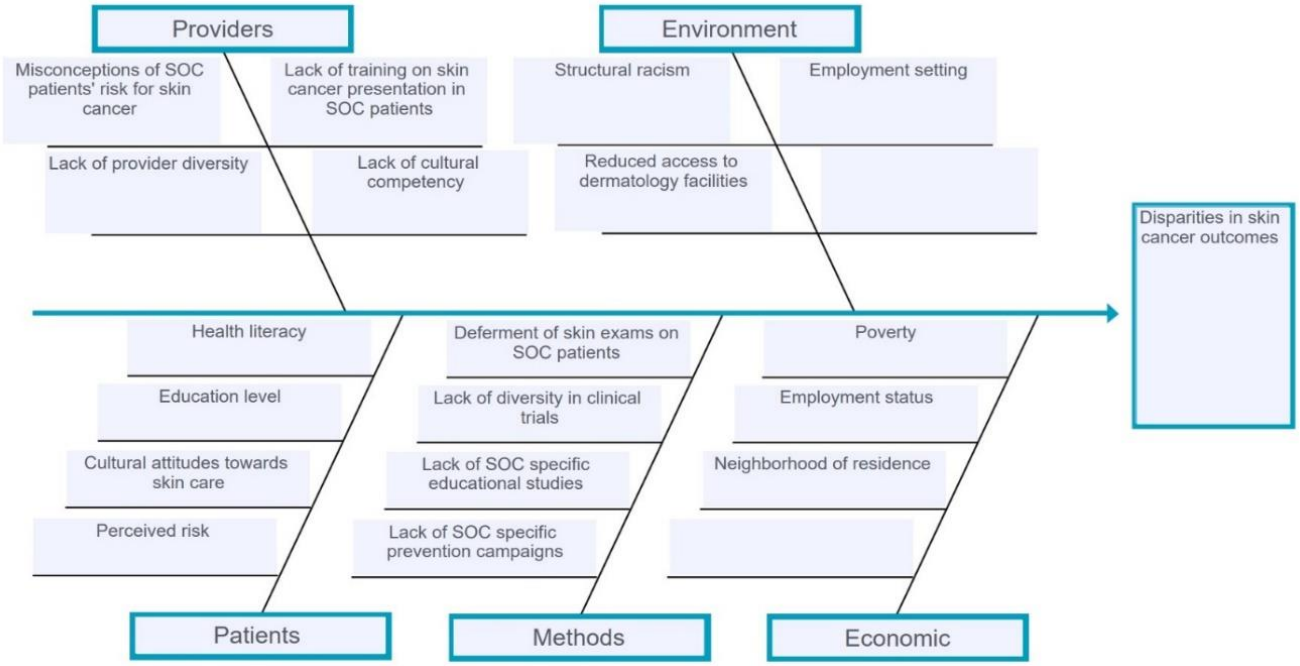
Skin of color patients face disparities in skin cancer outcomes when compared to their non-SOC counterparts, largely due to gaps in provider knowledge and education. An educational intervention aimed at addressing this issue was conducted during a January 2025 provider meeting, and the effectiveness of the intervention was evaluated. The intervention included pre- and post-tests to assess provider knowledge and confidence changes regarding the topic. Results indicated an overall increase in knowledge, and a Welch's T-test was performed to evaluate improvements in provider comfort levels. While the analysis suggested a trend toward significance, the findings did not reveal a strong significant change. Nevertheless, this intervention emphasizes the importance of educational initiatives in reducing disparities and highlights the need for further evidence-based research in this area.

Future Directions

Expanding provider participation and strengthening patient education is essential to enhance this educational intervention. Engaging providers from various organizations would increase the sample size, thereby improving the ability to evaluate the significance of the educational intervention. Additionally, extending the duration of the educational intervention could be advantageous, as it would allow for more comprehensive education and discussion. Prioritizing community outreach is also crucial, as research indicates that it can help mitigate disparities in health outcomes for this patient population. The hosting organization has facilities available for patient education and classes, which could serve as venues for delivering this educational intervention. Before implementation, it is important to conduct further research to assess the community's perceived need for such an intervention, ensuring that it is both relevant and effective.

Appendices

Appendix A. Cause-and-Effect Diagram for Disparities in Skin Cancer Outcomes



Appendix B. Project Timeline

DNP Project: Disparities in Skin Cancer Outcomes for Skin of Color Patients 2024-2025	Jun'24	Jul'24	Aug'24	Sep'24	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25
Finalize project design and approach (703A)	X									
Complete IRB determination or approval (703A)		X								
PDSA Cycle 1 (703B)								X		
Final data analysis (703B)								X	X	
Write sections 13-17 of final paper (703B)								X	X	
Prepare for project dissemination (703B)									X	X

Appendix C. Pre-and Post- Test Questions

1. How comfortable are you with the subject of skin cancer in Skin of Color patients?
    a. Extremely
    b. Very
    c. Some what
    d. Little
    e. Not at all
2. Skin cancer rates have continued to increase in the USA
    a. **True**
    b. False
3. Skin-of-color patients experience higher rates of morbidity and mortality compared to non-skin-of-color patients.
    a. **True**
    b. False
4. Melanin is completely protective against UV radiation and skin cancer
    a. True
    b. **False**
5. Melanoma lesions are often found on non-sun exposed areas in Skin of Color patient
    a. **True**
    b. False
6. Basal cell carcinoma (BCC) lesions are not predominantly found on sun-exposed areas in Skin of Color patients.
    a. True
    b. **False**
7. Squamous Cell Carcinoma (SCC) is not found in areas of chronic inflammation and scarring.
    a. True
    b. **False**
8. When found, Squamous Cell Carcinoma (SCC) presents at a more advanced stage in Skin of Color patients than in non-Skin of Color patients.
    a. **True**
    b. False
9. Basal cell carcinoma (BCC) lesions are often pigmented in SOC patients and are often mistaken for seborrhoeic keratoses.
    a. **True**
    b. False
10. The Alphabet of Nail Melanoma is a mnemonic that providers can use to help differentiate subungual melanoma from benign melanonychia.
    a. **True**
    b. False

Table 1. Results of Comfortability Question

Pre-Test	**Post-Test**
Q1	Q1
1. How comfortable are you with the subject of skin cancer in Skin of Color patients?	1. How comfortable are you with the subject of skin cancer in Skin of Color patients?
1	4
3	2
4	3
2	3
4	3
3	3
5	3
3	3
3	4
3	2
4	3
3	4
4	3
3	3
3	3
4	3
4	2
3	3
4	3
3	3
3	2
3	4
3	3
3	3
5	2
4	2
3	4
5	3
	4
	3
Pre-mean (std)	**Post-mean (std)**
3.4 (0.88)	**3 (0.64)**
Welch's T.Test	**P=0.059**
1= Extremely, 2= very, 3= Somewhat, 4= Little, 5=Not at all	

Figure 1. Bar Graph of Pre-and Post-test Question 1

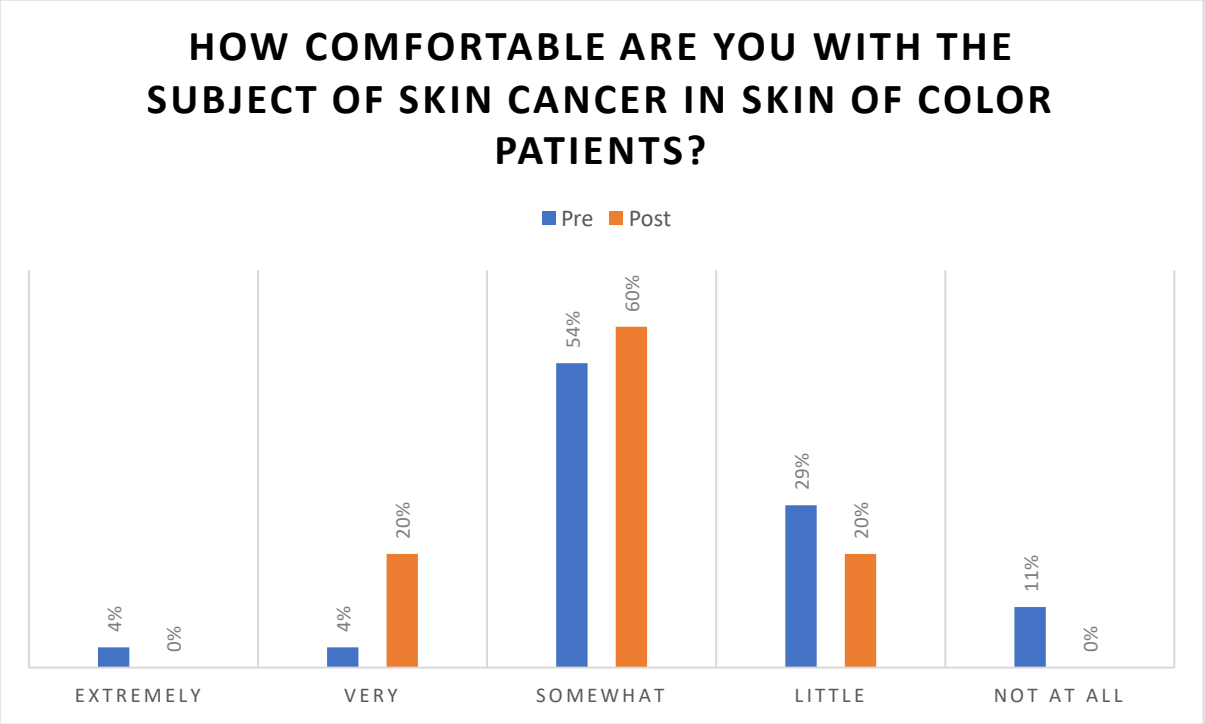
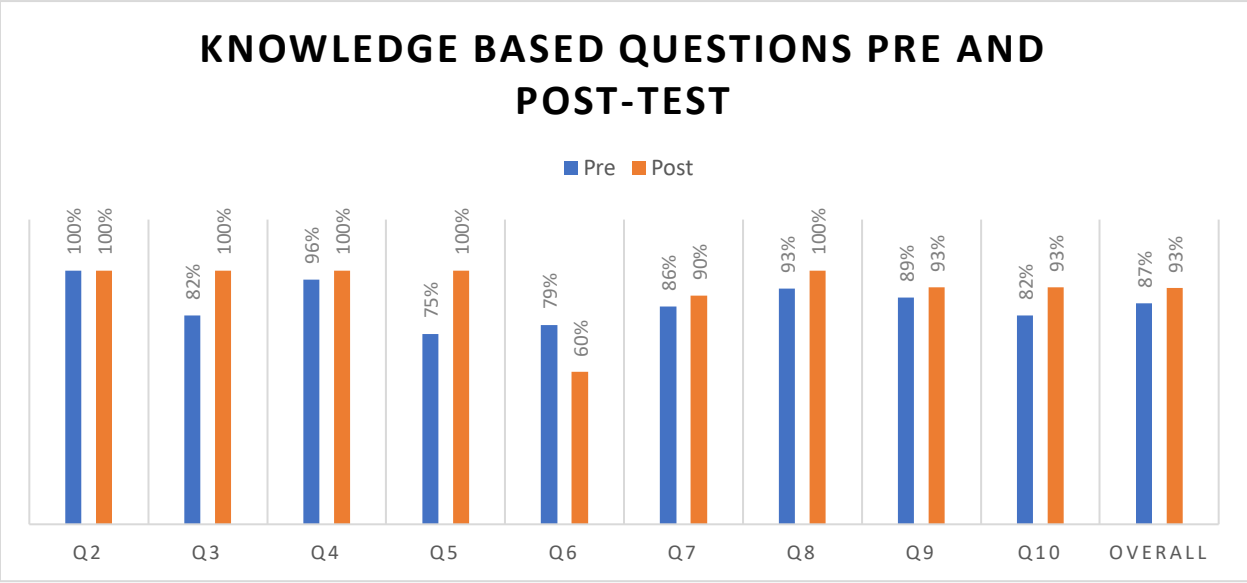


Figure 2. Percentages Correct for Knowledge Based Questions



Appendix E. Presentation and Educational Tool

Disparities in Skin Cancer Outcomes for SOC Patients

Donald Durett, RN, MLS(ASCP)

Skin of Color

Skin of color (SOC):
Individuals of particular racial and ethnic groups who share similar characteristics and disorders

- Share reaction patterns to those disorders
  - Increased constitutive pigmentation, propensity toward reactive pigment alteration, and higher skin phototype

Who:
African, Pacific Island, Native American, Asian, Alaskan Native, or Hispanic or Latino ancestry and patients with multiethnic ancestry

Fitzpatrick's skin type classifications

The Fitzpatrick Skin Phototype scale (FST):
A classification system that categorizes human skin based on its response to ultraviolet (UV) radiation, particularly in terms of tanning and burning

- Developed by Dr. Thomas B. Fitzpatrick and is widely used in dermatology to assess skin cancer risk, guide phototherapy, and predict responses to laser treatments

Generally ranges from:

- IV to VI in Black Patients
- II to V in Asian Patients
- I to V in Hispanic Patients

Subjective: Has proven to be valuable as a diagnostic and therapeutic evaluation tool
More objective: Colorimetry and spectrophotometry but $$$ and requires training

Fitzpatrick Skin Type Scale (FST)

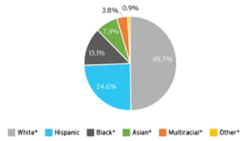
SOC Population in the US and Oregon

SOC population: *38.4% of US population*

- Estimated >50% in the US by 2045

Oregon SOC population: *~27.2% as of 2023*

- Black or African American, 2.4%
- American Indian and Alaska Native, 1.9%
- Asian, 2%
- Native Hawaiian/Other Pacific Islander, 0.5%
- Two or More Races, 4.4%
- Hispanic or Latino, 14.9%



Estimated Population of the US by Race by 2045

Skin Cancer and SOC Patients

Most common form of cancer in the United States

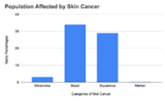
- 5.8-6.1 Million cases of skin cancer are diagnosed annually
- ~197,700 new cases of melanoma yearly in the US
- ~4.3 million cases of BCC annually in US
- ~1.8 million new cases of squamous cell per year

Skin cancer rates continue to increase

- Mortality rates overall have decreased but this has not been seen across all groups (e.g. SOC patients)

SOC patient comprise 7-11% of all skin cancer cases in the US

- Hispanic 4-5%
- Asian 2-4%
- Black 1-2%



Difference in Outcomes for SOC patients

SOC patients experience increased mortality and morbidity than non-POC patients

Melanoma:

Diagnosed at a more advanced/late stage vs Non-Hispanic Whites (12.6%)

- 52% Non-Hispanic Black patients
- 28.6% of Non-Hispanic Asian or Pacific Islander
- 26% Hispanic patients
- 18.6% of Non-Hispanic American Indian/Alaskan Native

Higher rates of lymph node and metastasis

- 22% of Non-Hispanic Black patients have local lymph node involvement and 14% distant lymph nodes and other organs

Decreased survival rate vs non-Hispanic White patients (90%)

- Non-Hispanic Black patients have a 5-year survival rate is 66%
- Hispanic men have a 5 year survival rate of 76.6 % and Hispanic women, 88.3%
- Asian patients have a 27% higher mortality rate than non-Hispanic White patients

Difference in Outcomes for SOC patients

Basal cell carcinoma (BCC):

Limited data exist: Mixed evidence of larger Mohs defect due to increased lesion size and multiple lesions present in Hispanic patients.

Squamous Cell Carcinoma (SCC):

Hispanic and Black patients: Develop SCC tumors in anatomic locations associated with more advanced disease at initial presentation
Black patients: 20-30% of SCCs develop in areas of chronic inflammation or scars which have higher rates of metastasis
Hispanic and Black males: Higher mortality than non-Hispanic White patients
Native Hawaiian and Other Pacific Islanders: Present with more advanced disease and have worse survival compared to Non-Hispanic White patients

Why The Difference?

Patient Misconceptions

Misconceptions:

- SOC patients perceive themselves as low to no risk for skin cancer
- Common but incorrect belief that melanin offers complete protection against skin cancer
  - Melanin does offer protection, FST5 Y to VI has the highest intrinsic sun protective factor (SPF) of 13.4
- Less sun protective behaviors (e.g. sunscreen use, UV protective clothing, time of day)
- Ill-informed of the risk of skin cancer therefore do not seek care for questionable lesions

Provider Education & Misconception

Similar to patient misconceptions

- Often skip ROS on integumentary, and fail to perform skin examinations
- Do not inform patients on the benefits of self skin examinations
- Lack of SOC education (e.g. SOC representation in educational materials)

Academic and Societal Factors

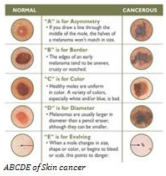
- Lack of SOC representation in clinical trials
- Little to no public health funding is spent on SOC patient and skin cancer awareness
- SOC patients often suffer from health inequities and low social determinants of health
- Tinted sunscreens are more expensive, and non-tinted are often seen as cosmetically unacceptable

Melanoma

Least common skin cancer seen in SOC patients
- *Highest* mortality rate

More commonly found on non-UV exposed areas
- *Acral regions:* Palms, soles, under nails, and mucosal surfaces
- *Black and Asian-Indian:* 60-75% are in acral regions
- *SOC patients:* 30-40% on plantar aspect of the foot
- *Increased Risk:* Burn scars, radiation, immunosuppression, and cutaneous trauma

UV radiation role is uncertain with mixed evidence
- *Increased age:* Increased lesions in UV exposed areas
- *Asian patients:* Limited evidence lower limb/hip is the most common site
- *Fun Fact:* Himba people in Africa use a traditional red ochre paste that has UV blocking properties and they experience lower skin cancer rates than other groups.



ABCDE of Skin cancer

Melanoma


Melanoma on the toe of a Black patient

CUBED acronym for melanoma

C	Colored lesions where any part is not skin color
U	Uncertain diagnosis—any lesion that does not have a definite diagnosis
B	Bleeding lesions on the foot or under the nail. This includes chronic granulation tissue.
E	Enlargement or deterioration of a lesion or ulcer despite therapy
D	Delay in healing of any lesion beyond 2 months

Melanoma

Acral melanoma in a skin of colour (SOC) patient

CUBED acronym for melanoma

C	Colored lesions where any part is not skin color
U	Uncertain diagnosis—any lesion that does not have a definite diagnosis
B	Bleeding lesions on the foot or under the nail. This includes chronic granulation tissue.
E	Enlargement or deterioration of a lesion or ulcer despite therapy
D	Delay in healing of any lesion beyond 2 months

Melanoma


Varying presentations of melanoma

The alphabet of nail melanoma

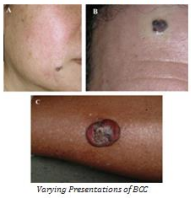
A	Age range 20 to 90 years: African American, Native American, or Asian
B	Band of brown or black pigment in nail or breadth of >3mm or border that is variegated
C	Change in nail band or lack of change in nail despite adequate treatment
D	Digit involved (nail melanoma is most common in the thumb, followed by big toe, then index finger. Pigmented band on a single digit is more suspicious .
E	Extension of brown or black pigment to the side or base of the nail
F	Family or personal history of melanoma or irregular moles

Basal cell carcinoma

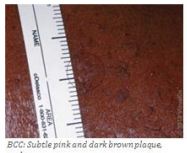
- Most common form of skin cancer in Asian and Hispanic
- 2nd most Black patients and Asian-Indians
- *Presentation:* Asymptomatic papule or nodule with translucency, and central ulceration.
  - Pearly or translucent rolled borders and telangiectasias (can be difficult to appreciate)
  - ~50% are pigmented
  - Can be misdiagnosed as seborrhoeic keratoses
- ~90% of cases occurring on the head and neck
  - UV light exposure highly correlated
    - Can occur anywhere including the trunk and anogenital region


BCC on nose of SOC patient

Basal cell carcinoma

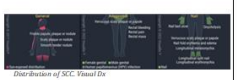


Varying Presentations of BCC


BCC: Subtle pink and dark brown plaque, scalp

Squamous Cell Carcinoma

- Most common skin cancer in Black and Asian-Indian populations
- 2nd most common skin cancer seen in Hispanic and Asian populations
- Presentation: Rapidly growing firm plaque or nodule with a crusted or scaly surface.
  - Often seen on the buttocks, anogenital, hips, legs, knees, and feet in SOC patients
  - High association with areas of chronic inflammation and scarring
  - Can occur in UV-exposed areas as well
    - Research on the association with UV radiation is limited and mixed
  - Other risks include: Albinism, human papillomavirus, epidermodysplasia verruciformis, and exposure to tar and arsenic

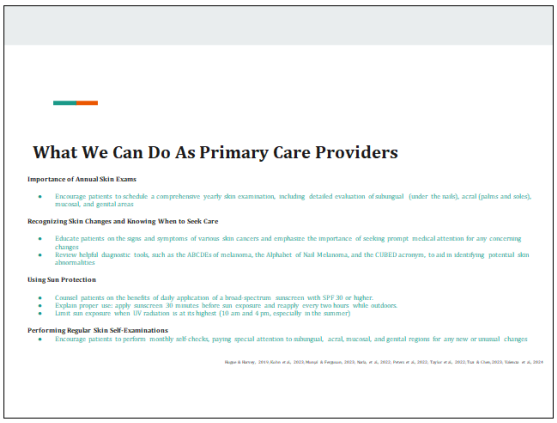

Distribution of SCC. Visual Dx

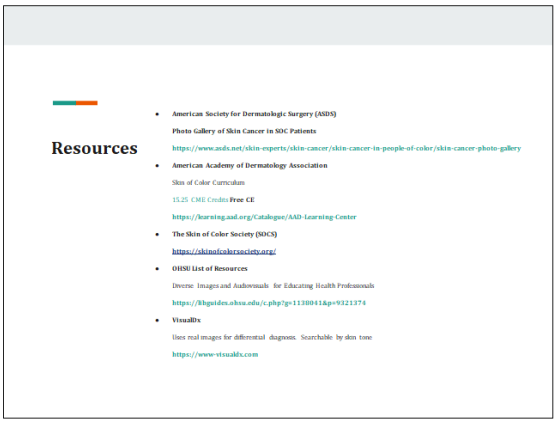
Squamous Cell Carcinoma

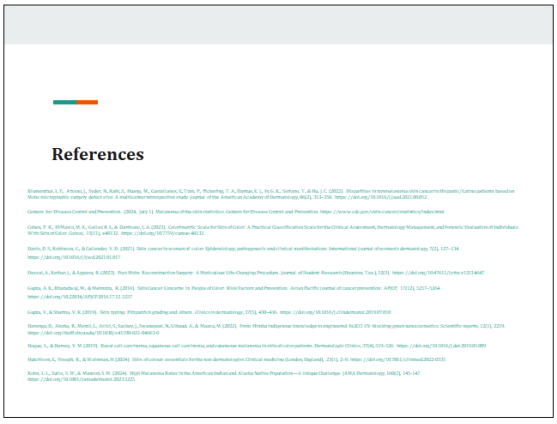

Squamous cell carcinoma, (scalp)

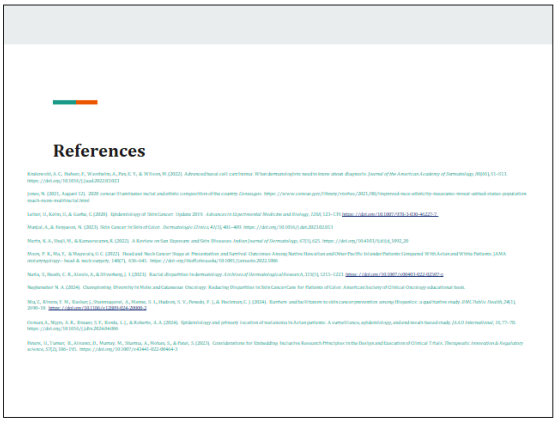

SSC: Gray scaly plaque


SSC: Scaly, pink, and plaque









Dot Phrase

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Annual Skin Checks:

It's important to have your skin checked by a doctor every year. They will look at your whole body, including under your nails, on your hands and feet, and around your mouth and private areas.

What to Look For:

Pay attention to any spots or moles on your skin that:

- Have uneven edges or different colors.
- Are bigger than the size of a pencil eraser.
- Change in size, shape, or feel.

- Look strange, bleed, or don't heal.

Protect Your Skin:

- Use sunscreen every day with SPF 30 or higher. Put it on 30 minutes before going outside and reapply every 2 hours.
- Wear clothes that protect your skin, like long sleeves, hats, and sunglasses.
- Stay out of the sun from 10 AM to 4 PM, especially during the summer.
- Check Your Skin at Home: Look at your skin once a month. Use a mirror and check everywhere, even under your nails, on your scalp, the bottoms of your feet, and private areas. If you see anything new or strange, tell your doctor.
-

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Exámenes anuales de la piel:

Es importante que un médico revise tu piel cada año. El médico revisara todo tu cuerpo, incluyendo las manos, debajo de las uñas, los pies, alrededor de la boca y las áreas privadas.

Qué buscar:

Presta atención a cualquier mancha o lunar en tu piel que:

- Tenga bordes desiguales o colores diferentes.
- Sea más grande que el borrador del lápiz.
- Cambie de tamaño, forma o textura.
- Se vea extraño, sangre o no sane.

Protege tu piel:

- Usa protector solar todos los días con un SPF de 30 o más. Póntelo 30 minutos antes de salir al sol y vuelve a aplicarlo cada 2 horas.
- Usa ropa que proteja tu piel, como mangas largas, sombreros y gafas de sol.
- Evita el sol entre las 10 AM y las 4 PM, especialmente durante el verano.

Revisa tu piel en casa:

Revisa tu piel una vez al mes. Usa un espejo y revisa todo tu cuepro, incluso debajo de las uñas, el cuero cabelludo, las plantas de los pies y las áreas privadas. Si ves algo nuevo o extraño, dile a tu médico.

Appendix F. IRB Review

NOT HUMAN RESEARCH

August 1, 2024

Dear Investigator:

On 8/1/2024, the IRB reviewed the following submission:

Title of Study:	Improving Provider and Patient Understanding of Skin Cancer Risks in Skin of Color Patients: A Quality Improvement Project.
Investigator:	Issa Sturm
IRB ID:	STUDY00027523
Funding:	None

The IRB determined that the proposed activity is not research involving human subjects. IRB review and approval is not required.

Certain changes to the research plan may affect this determination. Contact the IRB Office if your project changes and you have questions regarding the need for IRB oversight.

If this project involves the collection, use, or disclosure of Protected Health Information (PHI), you must comply with all applicable requirements under HIPAA. See the HIPAA and Research website and the Information Privacy and Security website for more information.

Sincerely,

The OHSU IRB Office

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