

DNP Project

Early Screening and Detection of Melanoma in Primary Care

by

Danielle Nicastro, DNP, MSN, RN

A DNP Project submitted to the faculty of  
Wilmington University in partial fulfillment  
of the requirements for the degree of  
Doctor of Nursing Practice

Wilmington University

December 2015

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Danielle Nicastro, DNP, MSN, RN

I certify that I have read this doctoral project and that in my opinion it meets the academic and professional standards required by Wilmington University as doctoral project for the degree of Doctor of Nursing Practice.

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## Acknowledgments

The creation of this health promotion program on early screening and detection of melanoma in primary care was inspired by a woman who knew me all of my life. She knew my capabilities before I did and she always encouraged me to do everything to the best of my ability. She taught me that the mind is a beautiful work of art and that its creations should never be wasted. She taught me that education is something that no one can ever take away from you and that it can be used to help other people. She is the woman I lost to melanoma in 1998, my beloved mother. But before she passed I made her one promise: if I ever pursued a doctoral degree that it would be on melanoma. Thank you mom for inspiring me to design this health promotion project and be the woman I am today. I could have never done this without you and your spirit, every step of the way.

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Table 1.

Descriptive Statistics

Groups	N	Mean	Std. Deviation
Primary Care	63	13.67	6.07
Dermatology	11	10.91	7.45

Table 2.

T Test for Equality of Means

	Levine's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of Difference	
	F	Sig.	t	df	Sig (2 tailed)	Mean Difference	Std. Error Difference	Lower	Higher
Equal Variances Assumed	1.51	.22	1.33	72	.183	2.758	2.053	-1.334	6.849
Equal Variances not assumed									



Table 3.

Paired Samples Statistics for Primary Group Only

	Mean	N	Std. Deviation	Std. Error
PreScore	12.81	63	5.08	.640
PostScore	26.48	63	3.27	.412

Table 4.

Paired Samples Test for Primary Group Only

	Paired Differences					t	df
	Mean	Std. Dev	Std. Error Mean	95% Confidence Interval of the Difference			
				Lower	Upper		
PreScore-Post Score	-13.67	6.07	.77	-15.20	-12.14	-17.87	62

Table 5.

Paired Samples Statistics for Dermatology Group Only

	Mean	N	Std. Deviation	Std. Error Mean
PreScore	10.82	11	4.24	1.28
PostScore	21.73	11	5.14	1.55

Table 6.

Paired Samples Test for Dermatology Group Only

	Paired Differences					t	df
	Mean	Std. Dev	Std. Error Mean	95% Confidence Interval of the Difference			
				Lower	Upper		
PreScore-Post Score	-10.91	7.45	2.25	-15.91	-5.91	-4.86	10

Table 7.

Paired Sample Statistics of Comparison of Both Groups

	Mean	N	Std. Deviation	Std. Error Mean
PreScore	12.51	74	4.99	.58
PostScore	25.77	74	3.95	.46

Table 8.

Paired Samples Test of Comparison of Both Groups

	Paired Differences					t	df
	Mean	Std. Dev	Std. Error Mean	95% Confidence Interval of the Difference			
				Lower	Upper		
PreScore-Post Score	-13.23	6.32	.37	-14.72	-11.79	-18.06	73

## **Abstract**

Melanoma is the deadliest type of skin cancer internationally. Early screening and detection of melanoma can improve overall patient health outcomes. Preventative patient education is also vital to prevent future skin cancers, such as melanoma from evolving. The majority of patients in the United States seek care from primary care practitioners. Primary care practitioners will play a vital role in early screening and detection of melanoma due to the increased incidences of melanoma and the predicted shortage of dermatologists in the future. In order to determine if primary care practitioners can improve patient health outcomes, a study was conducted using surveys to identify knowledge deficits in patients at risk. Full body skin examinations were performed on samples of patients in the primary care setting and in the dermatology settings. Preventative patient education was provided in both primary care and dermatological care settings. All patients were followed for three months to monitor self-care initiatives. The results showed that primary care practitioners can improve patient outcomes of melanoma through early screening, detection and preventative education. These outcomes can be enhanced by the development of clinical practice guidelines in the primary care setting for early screening and detection of melanoma in the future.

## Chapter One: Introduction

Melanocytes are cells found in the skin that produce pigment and may form suspicious pigmented lesions (American Cancer Society, 2014). When excessive sun exposure occurs, the DNA of these melanocytes may become altered and produce mutations leaving patients vulnerable to developing melanoma. Melanoma can occur anywhere on the body not just on the skin, such as mucosal and ocular melanoma. Melanoma is one of the deadliest types of skin cancer because it can quickly spread to other organs (American Cancer Society, 2014). According to the Skin Cancer Foundation there are four types of melanoma (2015):

Superficial spreading melanoma, lentigo maligna and acral lentiginous melanoma most commonly spread across the epidermis first before penetrating deeper dermal layers. Superficial spreading melanoma is the most common type of melanoma and occurs in 70% of cases. This type of melanoma can appear as a previously benign mole and are most commonly found on the trunk, upper back and legs. Lentigo maligna can appear as slightly elevated nevi. Acral lentiginous melanoma is most commonly found under the nails, on the soles of the feet or palms of the hands. Acral lentiginous melanoma tends to spread more quickly than any other superficial spreading melanomas. Nodular melanoma is the fourth type of melanoma and is usually more invasive at the time of diagnosis. Nodular melanoma is the most aggressive type of melanoma. It is most frequently noted on the trunk, legs, arms, and scalp. It is found in 10-15% of melanoma cases.

Early screening and detection initiatives are needed to improve health outcomes of patients at risk for melanoma because early diagnosis can significantly improve

patients' survival rates. Thus, patient outcomes are dependent on early detection of melanoma (Tyagi, Miller, and Cockburn, 2012).

### **Statement of Problem**

Patients often think melanoma erupts as a new mole. However, there is question whether melanoma is from a single nevus or a melanoma marker risk. The presence of nevi is associated with higher risk of melanoma. The annual risk of transformation of melanoma from single nevi is only 1/200,000 (Goodson & Grossman, 2009). Despite the low incidence of transformation of melanoma from single nevi, the incidences of melanoma have continued to increase in the United States and globally over the past decade. According to the Center for Disease Control and Prevention (2014):

The incidence of melanoma has increased from 7.9 per 100,000 people in 1975 to 22.7 per 100,000 people in 2011. Rates for new melanoma cases have increased 1.8% per year over the past decade. Thus, melanoma represents 4.6% of all new cancers in the United States.

The increasing trends in melanoma have been debated whether there is a melanoma epidemic or if rising incidences are a result of screening and diagnosing techniques. According to the National Center for Health Statistics (2010) patients visit their primary care physician 213,770 times versus the 39,698 patients who visit their dermatologist annually. Primary care providers are often the sole health providers of many Americans. With the institution of managed care, many Americans with insurance are forced to choose a primary care provider to manage their overall care and refer them to specialists as health problem arise to decrease healthcare costs. As

a result, many Americans do not seek dermatological care unless they are having a problem and are referred by their primary care provider. There are also Americans without health insurance coverage that relies on clinics for the majority of their care. Many clinics consist of primary care providers and often do not provide dermatological services. The growing incidences of skin cancer are driving the demand for increased dermatological services upward. However, a current shortage of dermatologists is expected to persist in the foreseeable future (Harris Williams and Company, 2013). Thus, the responsibility of early screening and detection of melanoma is predicted to fall onto primary care practitioners. Failure to perform full body skin examinations in primary care can lead to over one third of melanomas being missed or not detected early (Aldridge, Naysmith, OOI, Murray, & Rees, 2013).

Primary care practitioners often express barriers to performing skin cancer screenings such as lack of dermatology education, lack of confidence and lack of time (Friedlander, 2008). One in ten skin lesions suspected of malignancy are malignant (Rychetnik et al., 2012). There are self-modules that provide additional training for primary care providers and other clinicians; however, they are not mandated. There are currently no guidelines for early screening and detection of melanoma in primary care due to the lack of well documented skin examinations. Thus, general practitioners should be trained in diagnosing suspected pigmented skin lesions to prevent unnecessary costly excisions and referrals to specialized care (Koelink, Killen, Groenhof, Van der Meer, & Van der Heide, 2014). Nurse practitioners can also play an important role in skin cancer screening and cost effective ways to

improve the quality of these services to the general population (Bradley, 2010). Implementing guidelines for full body skin examinations would allow routine early screening and detection in the primary care settings. Implementing these guidelines will also allow primary care providers to educate patients about safe sun behaviors and self-skin examinations. Thus, guidelines in primary care may improve patient outcomes, especially in targeted and vulnerable populations. The implementation of guidelines for primary care practitioners would also improve coordination of care with dermatologists for high risk patients.

## **Background**

The Center for Disease Control and Prevention [CDC] and the National Cancer Institute have been compiling the growing statistics on the incidences of melanoma. The Surveillance, epidemiology and end results [SEER] program reports the prevalence of melanoma in 2011 as 960,231 (National Cancer Institute, 2014). Based on the data from 2009 to 2011, there is approximately 2% chance of developing melanoma during a person's lifetime (Center for Disease Control and Prevention, 2014). The death rate has stabilized due to improved treatment regimens for melanoma, but not due to early screening and detection of melanoma. According to the Center of Disease Control and Prevention (2014) the United States has estimated, in 2014, 76,100 new cases of invasive melanoma in the United States and an estimated mortality rate of 9,710 per 100,000 people.

The population at risk is difficult to identify. According to the American Academy of Dermatology (2014) melanoma can occur in anyone regardless of age,



gender or ethnic background. The American Cancer Society (2014) report the lifetime risk for getting melanoma is about 1 in 50 for Whites, 1 in 1,000 for blacks and 1 in 200 for Hispanics. The population age that is most affected by melanoma varies depending on the age of diagnosis or rate of growth. The National Cancer Institute states (2014):

The number of age adjusted new cases of melanoma between 2006 and 2010 was 21.1 per 100,000 men and women per year. The age adjusted mortality rate for melanoma in men of all ages and races has risen from approximately 2.6% in 1975 to just over 4% in 2010. Comparatively, in women of all ages and races the age adjusted mortality rate rose from 1.6 in 1975 to 1.8 in 1987 and decreased to 1.7 in 2010.

Caucasians and men over the age of 50 are at higher risk of developing melanoma than the general population (American Academy of Dermatology, 2014). The leading cancer sites in 2030 in men are predicted to be prostate, lung and melanoma (Koh and Geller, 2011). The risk in men is believed to be due to physiological age related changes on the skin. According to the Wisconsin Women's Health Foundation (2012) the incidence of people under the age of thirty with melanoma are increasing faster than any other group and melanoma has increased by 50% in women under the age of thirty since 1980. Thus, melanoma has become the second most common cancer in ages 15-29 and the incidences in teenager are increasing (American Academy of Dermatology, 2014). The causative factors in young women are

believed to be associated with the lack of indoor tanning regulation laws for minors (Grewal, Haas, Pletcher, & Resneck, 2013).

Melanoma is not specific to geographical location. The CDC (2011) states more than 45,000 cases of melanoma have occurred in forty-five states and the District of Columbia between 2004 and 2006. When looking at the overall location of melanoma across the United States from 2002 and 2006 the locations are diversely distributed. According to the CDC (2011):

The highest risk areas with melanoma of 20.1-22.1 per 100,000 people are Washington, Oregon, Idaho, Utah and Vermont. The areas that are at second highest risk at 10.5-22% are Colorado, Kansas, Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New Jersey, Delaware, Maryland, Kentucky, District of Columbia, South Carolina and Georgia.

Increased public education and awareness efforts are responsible for the increasing demand for skin cancer screening in the general population. Thus, primary care providers and dermatologists will need to effectively coordinate early screening and detection of melanoma for all patients, as well as specialized interventions for patients diagnosed with melanoma. The coordination of services between primary care practitioners and dermatologists has sparked a debatable discussion. Most primary care providers lack adequate training when performing full body skin examinations which makes them feel uncomfortable detecting skin cancers (Shelby, 2014). With the growing transformation of preventative measures in healthcare, full body skin examinations will become an integral part of preventative care. Digital

tools, such as a full body skin examination tool, along with education and training on how to integrate skin examinations into routine examinations are needed to improve early screening and detection of melanoma in the general population. The training can provide primary care clinicians with the ability to perform an accurate full body skin examination, assess evolving suspicious pigmented lesions and coordinate care with dermatologists according to their findings.

In 2000, the Institute of Medicine issued a statement strongly recommending physicians to be aware of the signs and symptoms of melanoma especially in older men. Until recently, there were limited statistics regarding melanoma across the United States since the 2006-2011 report from the CDC. The U.S. Preventative Services Task Force did not endorse population based screening for skin cancer due to lacking randomized trials (Goulart et al., 2011). The United States Preventative Services Task Force [USPSTF] last reviewed melanoma and non-melanoma skin cancers screening evidence in 2009. The USPSTF proposed that there was insufficient evidence to implement guidelines for routine screening for skin cancer using a full body skin examination in primary care for early detection of melanoma and non-melanoma skin cancers (USPSTF, 2009). This report identified gaps in inadequate examinations by primary care providers during routine care and lack of evidence that links screening to improved health outcomes. According to the USPSTF (2009) the suggestion for practice was to remain alert to skin lesions with malignant features when performing physical exams such as asymmetry, border

irregularity, color, variability, and diameter >6mm. It also recommended that any suspicious lesions be biopsied.

More recent studies have suggested that self-screening and educational programs should be integrated with a skilled skin examination into routine examinations in primary care. It is suggested that early screening and detection in primary care could reduce the incidences of advanced melanoma, especially in vulnerable groups (Koh and Geller, 2011). Since the incidence of melanoma is continuing to rise, skin cancer prevention goals have become the top priority of the USPSTF. As a result, skin cancer prevention goals have been added as a national goal on the Healthy People 2020. One of the objectives of Healthy People 2020 is to reduce the melanoma cancer rate. According to Healthy People 2020 cancer objectives (2014):

The target is to decrease overall melanoma rates by 2.4% per 100,000 populations about a 10% decrease. In order to complete this task, behaviors related to harmful sun exposure, ultraviolet [UV] radiation and sunburn need to be changed, specifically in adolescents. The target is to decrease melanoma by 10% or a target rate of 33.8% overall for the total population and reduce the risk of melanoma from 9.3% in 2009 by 11.2%.

### **Scope of Project**

The scope of the project is to develop a timeline to establish a health promotion project that measures whether primary care practitioners can improve the health outcomes of patients through early screening, detection of melanoma and

preventative teaching. These findings will show improved patient outcomes by improving clinician skin examinations and documentation in primary care and support the need for clinical guidelines in primary care for skin examinations to detect skin cancer.

**Purpose.**

The purpose of the project is to improve health outcomes of patients by identifying a knowledge deficit regarding melanoma and its risks, provide full body skin examinations to screen and detect melanoma early, provide preventative teaching to help reduce the risk of melanoma and provide supportive documentation that can support the need for the development of clinical guidelines in primary care for early screening and detection of melanoma.

**Chapter 2: Analyses/Framework**

**Theoretical Framework**

Dorothea Orem's self-care theory of nursing plays an integral part in changing the overall health outcomes of patients for melanoma by teaching self-care responsibilities to patients who have a knowledge deficit regarding melanoma and its modifiable risk factors. Orem's theory is comprised of three interrelated theories: theory of self-care deficit, theory of self-care and theory of nursing systems (Hartweg, 1991). In order to institute a change in practice, a self-care deficit must be identified among the health population. Dorothea Orem's self-care deficit theory can be used to identify a need in the population to promote healthy behaviors. According to

Hartweg (1991) a self-care deficit is defined as a relationship between what the population needs in order for them to take care of themselves and the actions that need to be instituted for self-care to occur. The research of the growing incidences of melanoma, as well as patient inquiry in a health population can support the need for actions to be instituted to decrease future occurrences of melanoma. The knowledge deficit in the health population can institute actions to promote better health outcomes, within a primary care setting, where the population with the self-care deficit frequently visits. Primary care clinicians can perform annual full body skin examinations on their patients and institute preventative teaching regarding sun protective behaviors and self-skin exams. The Self-Care theory conceptualizes that patients can improve their health by incorporating self-care initiatives as an important component of primary care prevention. Thus, the identification of a knowledge deficit is necessary to promote self-care preventative behaviors. Self-care initiatives will empower patient to take charge of their own health by changing modifiable risk factors associated with melanoma. In Dorothea Orem's self-care of nursing systems, primary care practitioners can institute full body skin examinations and preventative patient teaching regarding sun protective behaviors and self-skin examinations to help lower the incidences of melanoma and improve the survival rates of patients diagnosed with melanoma through early detection and coordination of advanced dermatological care. These actions can support the need for guidelines in primary care regarding full body skin examinations to detect skin cancer early and effectively

coordinating treatment to specialized dermatological care for patient diagnosed with melanoma in the future (See Appendix A).

### **Clinical Question**

Can the implementation of screening and detection of melanoma and preventative teaching in primary care improve patient outcomes for melanoma in the next three months compared to screening and detection of melanoma and preventative teaching only in dermatology?

### **Literature Review**

Most of the literature on melanoma focuses on prevention initiatives and treatment regimens for melanoma. The literature states that most patients identify an abnormal looking pigmented skin lesion (aka 'mole') and seek care from a primary care provider or dermatologist. In order to screen and detect melanoma early, primary care providers should perform routine full body skin examinations. Thinner Breslow depth in suspicious pigmented lesions can increase survival; thus it is vital that primary care providers are comfortable with evaluating suspicious pigmented lesions and referring patients for treatment as necessary (Shenenberger, 2012). However, many primary care providers perform a very limited or no skin examinations on a routine basis due to a lack of training and knowledge in skin cancer screening and detection. Primary care providers do not currently have guidelines regarding early screening and detection of melanoma. This makes it difficult to effectively manage patients who have suspicious pigmented lesions. In order to improve the early

screening and detection of melanoma during routine visits, primary care providers need to effectively provide supportive documentation of full body skin examinations and consistently coordinate patient care based on the results of their skin examination. Nurse practitioners can play an important role in reducing morbidity of melanoma through competent skin assessments and encouraging patients to take self- initiatives towards healthy lifestyles through preventative teaching such as sun protective behaviors and avoiding indoor tanning (Furfaro, Bernaix, Schmidt, & Clement, 2008). The literature shows that there is a growing need in primary care to screen and detect melanoma early in order to prevent advanced disease and probable morbidity. In Ireland, studies have shown no difference between diagnostic procedures and completeness of biopsies between dermatologists and primary care providers (Buckley and McMonagle, 2014). A health promotion project that support early screening and detection of melanoma in primary care will show that primary care providers can screen and detect skin cancer early and improve patient outcomes within the next three months through routine full body skin examinations and patient teaching regarding sun protective behaviors and self-skin examinations.

### **Project Goals/Objectives**

#### **Project Goals.**

The goal of this project will:

Goal 1.1: Initiate early screening and detection of melanoma into the primary care setting.



Goal 1.2: Improve supportive documentation of clinician full body skin examinations in primary care.

Goal 1.3: Increase patient awareness and improve self-care initiatives to reduce the risk of melanoma.

Goal 1.4: Improve effective coordination of care between primary care and dermatology for high risk patients.

Goal 1.5: Support the need for clinical guidelines in primary care to improve health outcomes of melanoma in the future.

### **Objectives.**

The objectives of this project are:

Objective 1.1: Screen patients in primary care for knowledge deficits regarding melanoma, its modifiable and non-modifiable risk factors via a melanoma assessment survey.

Objective 1.2: Primary care practitioner will perform a routine full body skin examinations and documentation of all findings.

Objective 1.3: Preventative patient education regarding self-skin exams and sun protective behaviors will be provided to all patients.

Objective 1.4: Primary care providers will effectively coordinate care to dermatology for all high risk populations.

Objective 1.5: Patients will be followed up at three months to reassess their knowledge of melanoma and its modifiable risk factors via a post melanoma assessment survey.

Objective 1.6: Support the need for clinical care guidelines in primary care for early screening and detection of melanoma to improve patient outcomes in the future.

### **Chapter 3: Methodology**

#### **Subjects**

##### **Population Age.**

Although patients of all ages are at risk for melanoma and the highest incidence is in the elderly, young adults between the ages of 15-29 years old are the fastest growing age group for getting melanoma. The sample size included patients of all age groups beginning at age fifteen. In the state of New Jersey, the legal age of an adult is eighteen years of age (National District Attorney Association, 2013).

Thus, any patient younger than eighteen would require consent from a parent or legal guardian to participate in the study. The sample size was inclusive of seven-four patients starting at age fifteen and older. Sixty three of the participants were from a primary care setting and eleven were from a dermatology setting. The number of participants are numerically larger in primary care than in dermatology since the average primary care practice can care for 1300-1900 patients annually (Altschuler, Bodenheimer, & Grumbach, 2012).

##### **Both genders.**

Both genders were evaluated since the incidence of melanoma is higher in men compared with women, yet the mortality rate of melanoma is higher in females. According to the Skin Cancer Foundation (2014):

Up until the age 49, there were significantly more women who develop melanoma than men. Women account for 1 in 206 incidences of melanoma and men account for 1 in 284 of melanoma incidences. After age 50, more men developed melanoma than women.

### **Project Setting.**

Since the majority of patients were seen by a primary care provider as opposed to a dermatologist for routine assessments, a primary care office was the primary setting to perform the early screening and detection of melanoma project. The function of the setting assessed patients for risk factors and poor lifestyle behaviors that could increase melanoma risk, performed full body skin examinations during routine office visits and counseled patients on sun protective behaviors and self-skin examinations. Patients were given the opportunity to consent for treatment, digital photography and authorization for release of medical information if further evaluation was required by a dermatologist. Patients, who were minors, had their legal guardian or parent sign consent for treatment, digital photography and authorization for release of medical information if further evaluation was required by a dermatologist. The geographical location for the implementation of this project was performed in New Jersey. The screening and detection of melanoma project was compared to participants in a dermatology setting in New Jersey.

### **Tools.**

The MELANOMA ASSESSMENT SURVEY was designed through an electronic survey software program [Survey Monkey] to assess patients' knowledge of melanoma, risk factors and risk based on lifestyle behaviors (See Appendix B).

The MELANOMA ASSESSMENT SURVEY consisted of twenty-six questions: six questions assessed melanoma knowledge; eleven questions assessed personal risk (non-modifiable risk factors), and nine questions assessed risk based on lifestyle behaviors (modifiable risk factors). The MELANOMA ASSESSMENT SURVEY was used as the pre and the post survey. Due to the geographical area, there were no portable electronic devices available or Wi-Fi to electronically complete the MELANOMA ASSESSMENT SURVEY. Thus, the MELANOMA ASSESSMENT SURVEY was administered on paper. The MELANOMA ASSESSMENT SURVEY was completed prior to the clinician's full body skin examination. The MELANOMA ASSESSMENT SURVEY was used to identify a knowledge deficit, to determine a patient's risk for melanoma and to be used as an educational assessment for preventative education on melanoma. The MELANOMA ASSESSMENT SURVEY was given to four primary care nurse practitioners in New Jersey and two dermatology nurse practitioners/physicians, one in New Jersey and one in Pennsylvania, to review for content review. There were no changes made to the survey, based on expert feedback, since all practitioners agreed that the survey adequately assessed the risk of knowledge deficit, non-modifiable risk factors and modifiable risk factors based on lifestyle behaviors. The MELANOMA ASSESSMENT SURVEY was repeated within three months after the initial visit to determine if patients had improved their knowledge of melanoma and had taken self-initiatives to lower their risk of melanoma. It also provided information that primary

care practitioners could reinforce at subsequent visits regarding sun protective behaviors and self-skin examinations for continued education.

Upon routine examination, the primary care provider performed a full body skin examination on each patient using the FULL BODY SKIN EXAMINATION TOOL. The FULL BODY SKIN EXAMINATION TOOL was designed to assist primary care clinicians while performing routine full body skin examinations (See Appendix C). The FULL BODY SKIN EXAMINATION TOOL was designed for use within the electronic health record as part of patients' assessments to facilitate easy use for primary care practitioners. Due to the geographical location of the outpatient clinic, there were no electronic applications or Wi-Fi availability to merge the FULL BODY SKIN EXAMINATION TOOL with so it was performed on paper. The FULL BODY SKIN EXAMINATION TOOL prompted the health care provider to include all necessary documentation to perform full body skin examinations. The FULL BODY SKIN EXAMINATION TOOL included a systematic head to toe documentation spreadsheet with check boxes that stated options such as "*no suspicious pigmented lesions noted*" or "*suspicious pigmented lesions observed.*" If suspicious pigmented lesions were documented by the provider, the tool allowed the provider to mark the anatomical site on the body diagram. All suspicious pigmented lesions were marked with a surgical body marker and photographed when found. All photographs were uploaded from the digital camera into a secured medical database for future comparison of abnormal evolving pigmented lesions. This database allowed primary care providers to view any suspicious pigmented lesions photos with

subsequent full body skin examinations in future visits. The full body skin examination tool also provided check boxes that allowed primary care providers to document any treatment or referrals for further evaluation that were implemented. The FULL BODY SKIN EXAMINATION TOOL provided a progress note area for primary care practitioners to document their detail findings of any suspicious pigmented lesions. The FULL BODY SKIN EXAMINATION TOOL was given to five primary care nurse practitioners in New Jersey and two dermatology nurse practitioners/physicians, one in New Jersey and one in Pennsylvania, to review for content review. The FULL BODY SKIN EXAMINATION TOOL was revised based on expert feedback. The FULL BODY SKIN EXAMINATION TOOL was shortened in length from four pages to a one double sided paper to ease the use and documentation time for primary care practitioners. The FULL BODY SKIN EXAMINATION TOOL was also modified by removing text boxes for each examination area and revised into a progress note at the end of the exam tool. The diagram size on the examination tool was reduced to ease documentation while performing the exam, instead of having the diagram on a separate sheet of paper. The terminology of pigmented lesion/nevi was modified to only pigmented lesion to decrease confusion when performing the exam. The ABCDE's of melanoma were added to the FULL BODY SKIN EXAMINATION TOOL to assist primary care practitioners in distinguishing the difference between the appearances of a normal nevi as opposed to a suspicious looking pigmented lesion until primary care practitioners could undergo formal training regarding full body skin examinations.

The non applicable option checkbox was added on the genitalia examination per expert primary care providers request for females since gynecologists typically perform a skin examination of the genitalia at annual visits. Training on how to perform full body skin examinations and identify suspicious pigmented lesions were available for the primary care practitioner using self-taught online modules with a certificate of completion through the web site “skin sight” if they chose to use it to increase their knowledge of suspicious looking lesions (INFORMED, 2013). Primary care provider were instructed to refer all suspicious pigmented lesions to a dermatologist for further evaluation until further training could be provided regarding skin biopsies in the future.

Preventative patient teaching and brochures were given on melanoma, self-skin exams and sun protective behaviors to all patients after the full body skin examination was performed by the primary care practitioner. The brochures were predesigned by the Skin Cancer Foundation (See Appendix D). Referrals to dermatologists were given as necessary; however, there were no referrals necessary during the implementation of this project. All patients in the study were sent a MELANOMA ASSESSMENT POST SURVEY after three months to evaluate if their knowledge of melanoma had improved and to determine if any participants changed their high risk lifestyle behaviors to lower their risk for melanoma in the future. If patients were considered low risk, meaning they have not received any biopsies during this study, they were followed by their primary care practitioner on an annual basis thereafter, unless suspicious pigmented lesions develop. The results of the melanoma

assessment pre and post surveys in the primary care setting were compared to pre and post surveys in the dermatology setting after the same project was implemented in both settings to see if there was any difference between the two settings. One of the goals of the MELANOMA ASSESSMENT SURVEYS, the FULL BODY SKIN EXAMINATION TOOL and the preventative teaching was to show that early screening and detection of melanoma preventative programs can be implemented into primary care to screen for high risk patients early and educate them on self initiatives that can lower their risks for melanoma in the future.

### **Intervention and Data Collection**

#### **Analysis.**

This project had received IRB approval from Wilmington University to begin implementation and data collection of the early screening and detection of melanoma in primary care DNP project prior to its implementation. There were seventy-four participants who gave written consent to participate in the project. All minors who participated in the study were given written consent by their significant caregiver. All participants were screened with a MELANOMA ASSESSMENT SURVEY for knowledge deficit of melanoma, risk factors and risk based on lifestyle behaviors. All participants received a full body skin exam by their provider using the FULL BODY SKIN EXAMINATION TOOL. After the full body skin exam was performed, participants were educated on melanoma, self-skin exams, the ABCDEs of melanoma and sun protective behaviors. All participants were given written brochures from the Skin Cancer Foundation on melanoma, self-skin exams, the



ABCDEs of melanoma and sun protective behaviors for future information references. After three months a second MELANOMA ASSESSMENT SURVEY was sent out via mail with a self-addressed stamped envelope to determine if participants had improved their knowledge of melanoma and changed any lifestyle behaviors that increased their risk of melanoma. A total of seventy-four participants, sixty-three from primary care and eleven from dermatology, completed the MELANOMA ASSESSMENT POST SURVEY and returned it via mail. The initial MELANOMA ASSESSMENT SURVEY showed a significant knowledge deficit about melanoma in the general population and increased risk based on lifestyle behaviors. The MELANOMA ASSESSMENT POST SURVEY, showed a significant improvement in participants' knowledge about melanoma and changes made to lower their risk based on lifestyle behaviors. The FULL BODY SKIN EXAMINATION TOOL made it easier for primary care providers to document full body skin examination in primary care.

#### **Consents.**

All patients were explained the purpose of the study, the risks and benefits of the study. Participants received an explanation of the MELANOMA ASSESSMENT SURVEY, the full body skin examination procedure and digital photography as applicable for suspicious pigmented lesions. Patients understood that their primary care practitioner would perform the exam and provide patient teaching about melanoma and lifestyle behaviors that could reduce their risk of melanoma. The patient also understood that they would receive a MELANOMA ASSESSMENT

POST SURVEY in three months to reassess their knowledge and risk of melanoma. A consent form was given to the patient to sign to participate in the study and allow the primary care practitioner to provide digital photography for any suspicious pigmented lesions during the examination, while excluding any identifiable features and maintaining patient confidentiality. The consent authorized the release of medical information to a dermatologist if the patient required further medical evaluation and/treatment (See Appendix E). Fifty-eight adults over the age of eighteen and five minors in the primary care group participated in the early screening and detection of melanoma DNP project. Eleven adults over the age of eighteen participated in the dermatology group; there were no minors in this group. For patients under the age of eighteen, who were participating in the study, consent for minor medical treatment were obtained by a parent or legal guardian who had custody of the child (See Appendix E).

### **Outcome results.**

The MELANOMA ASSESSMENT PRESURVEY results were compared in both the primary care and dermatology groups. The primary care group pre-survey group contained sixty-three participants (N=63). The primary group had a mean of 13.67 with a standard deviation of 6.07. In the comparison, the dermatology pre-survey group contained a numerically smaller group of eleven participants (N=11). The dermatology group had a mean of 10.91 with a standard deviation of 7.45. (Table 1). The mean difference between the two groups was 2.76. To determine if the implementation of screening and detection of melanoma and preventative

teaching in primary care could improve patient health outcomes of melanoma compared to screening and detection of melanoma in dermatology, an independent t test was performed. The homogeneity of variances was tested through the Levine Test of Equality. The F test was 1.51 with a significance of 0.22. This suggests that all variances of the pre and post test were of equal variance. The t test showed a t value of 1.34, and a p value of 0.18 (Table 2). Thus, given that that p value is greater than 0.05, the t test shows there is a significant difference between the two group's variances. Paired samples of only the primary care group and only the dermatology group were examined. The paired samples statistics for the primary care group only revealed a pre-assessment mean of 12.81 and post-assessment mean of 26.48 (Table 3). The paired sample test showed a mean difference of -13.67. The t value was -17.86 and the p value  $<.001$  (Table 4). The paired samples statistics for the dermatology group only revealed a pre-assessment mean of 10.82 and a post-assessment mean of 21.73 (Table 5). The paired sample test showed a mean difference of -10.90. The t value was -4.86 and the p values was 0.001 (Table 6). When comparing both group pre-assessments to post-assessments, the paired samples statistics showed a pre-assessment mean of 12.51 and a post-assessment mean of 25.77 (Table 7). The paired samples test showed a mean difference of -13.26 and a t value of -18.06 (Table 8). Thus, the primary care and dermatology groups both showed positive improvements in patient health outcomes, but the primary care group was slightly higher.

## Chapter 4: Discussion

### **Context.**

The t test proves that the null hypothesis shows positive patient health outcomes by implementing an early screening and detection of melanoma program into primary care, instead of just in the dermatology setting alone. The implementation of this project suggests that the likelihood of achieving positive patient outcomes in primary care can be successful in other primary care settings.

### **Implementation in relation to literature.**

The literature suggests that a greater number of patients are seen in the primary care setting as opposed to dermatology. It also suggests that most insurances do cover routine primary care visits, unless there is a problem warranting a specialist for further evaluation. The literature also states that were a number of patient who do not have insurance, and those who go to the clinic are often not provided with dermatological care. The clinic setting where this project was implemented did not have on site dermatological services. If a patient required dermatological services, they would have to travel over sixty miles to another clinic to receive dermatological services which were very limited. The literature suggests that there may be a future shortage in dermatologists which may also impact the ability for patients to receive dermatological services in an adequate amount of time, especially if someone has a suspicious lesion. The literature also suggests that in order to decrease the cost of health care the Institute of Medicine has suggested a shift in healthcare to preventable

care and education. In order for patients to receive early screening and detection of melanoma, primary care providers will require mandated education in skin cancer identification. This will allow primary care providers to screen and detect skin cancers, such as melanoma early and coordinate dermatological services for patients with melanoma who require more specialized evaluation and treatment.

### **Outcomes in relation to literature.**

An early screening and detection of melanoma program was implemented into primary care to see if primary care providers could improve patient's knowledge of melanoma and decrease their risk of melanoma through early education of sun protective behaviors. This project showed a statistically significant improvement in a patient's knowledge of melanoma. As a result of educating patients about melanoma, there was also an improvement in their high risk behaviors that placed them at risk for melanoma.

### **Academic engagement implications/recommendations.**

A change in practice was instituted through the implementation of this health promotion project in the primary care setting by recognizing that a self-care knowledge deficit was identified regarding melanoma in the general population. Primary care providers were able to support the need for action by improving patient's general knowledge of melanoma while performing a full body skin examination screening on patients with consistent documentation in the primary care setting. Primary care providers also implemented the preventative healthcare

measures in this project through patient education about melanoma, how to detect warning signs of melanoma and how to lower one's risk of melanoma by modifying high risk lifestyle behaviors. Primary care providers were able to improve patient's knowledge of melanoma and institute self care behaviors in their patients to modify lifestyle behaviors that could lower their risk of melanoma in the future. As a result, it is evident that patients took self-care initiatives to improve their health by using self-skin exams and sun protective behaviors. The institution of annual full body skin examinations and preventative patient teaching in primary care can support the need for guidelines for primary care providers regarding the screening and detection of melanoma to improve the screening process in the future and improve the coordination of treatment to specialized dermatological care for patients at risk for melanoma or who are diagnosed at the time of screening to improve survival rates of melanoma in the future. In order to ensure the early detection of melanoma is identified in the primary care setting, it is recommended that primary care providers receive mandated continuing education on full body skin examination and skin cancer.

### **Conclusions.**

The implementation of an early screening and detection of melanoma program can be successfully instituted into primary care if guidelines are available regarding mandated continuing education and guidelines on how to screen patients and successfully coordinate care with dermatologists for further expert evaluation. The outcomes of early screening and detection of melanoma programs in primary care can

improve patient's health outcomes by lowering their incidence of melanoma through education and self-care initiatives that lower their risk of melanoma and/detect melanoma early enough to ensure treatments that can improve their survival rate outcomes if they are diagnosed with melanoma through the coordination of specialized dermatological care.

## **Chapter 5: Summary**

Over the past decade there has been a steady increase of the incidence of melanoma which has sparked debatable discussions regarding how to lower the incidences of melanoma. The current recommendation from the USPSTF in 2009 is for primary care providers to remain alert to skin lesions with malignant features during examinations. The American Academy of Dermatology continues to suggest annual full body skin examinations to be performed by a dermatologist. In the meantime, the incidence of melanoma has reached a record high in 2014 of 76,100 people. The literature identifies a statistically higher number of patients who seek care from a primary care provider than a dermatologist. The literature suggests that not all primary care providers perform or document that they perform full body skin examination due to a lack of education, time or confidence in performing the procedure. The literature suggests that the type of insurance a patient has may determine if they are able to seek care from a dermatologist for routine services. The literature also suggests that there are many Americans who do not have health insurance and seek care from clinics who do not provide on-site dermatological

services. The literature implies that preventative care is the best way to promote healthy lifestyles and decrease healthcare costs.

By implementing an early screening and detection of melanoma promotion program into primary care, primary care providers can screen more patients on an annual basis and detect lesions with suspicious looking features earlier, with mandated continuing education and guidelines on full body skin examinations. Primary care providers will be able to improve the coordination of care with specialized dermatological care for evaluation and treatment for patients at risk for melanoma or have suspicious looking lesions. Primary care providers can also provide patient with education regarding melanoma, self-skin exams and sun protective behaviors that can lower the risk of melanoma in the future. The early screening and detection of melanoma in primary care project was implemented in a primary care setting and showed a significant improvement in the patient health outcomes of the participants who participated in the study. The projects suggests that by implementing an early screening and detection of melanoma health promotion strategy into primary care, it can lower the incidences of melanoma through self initiatives of lifestyle modification.



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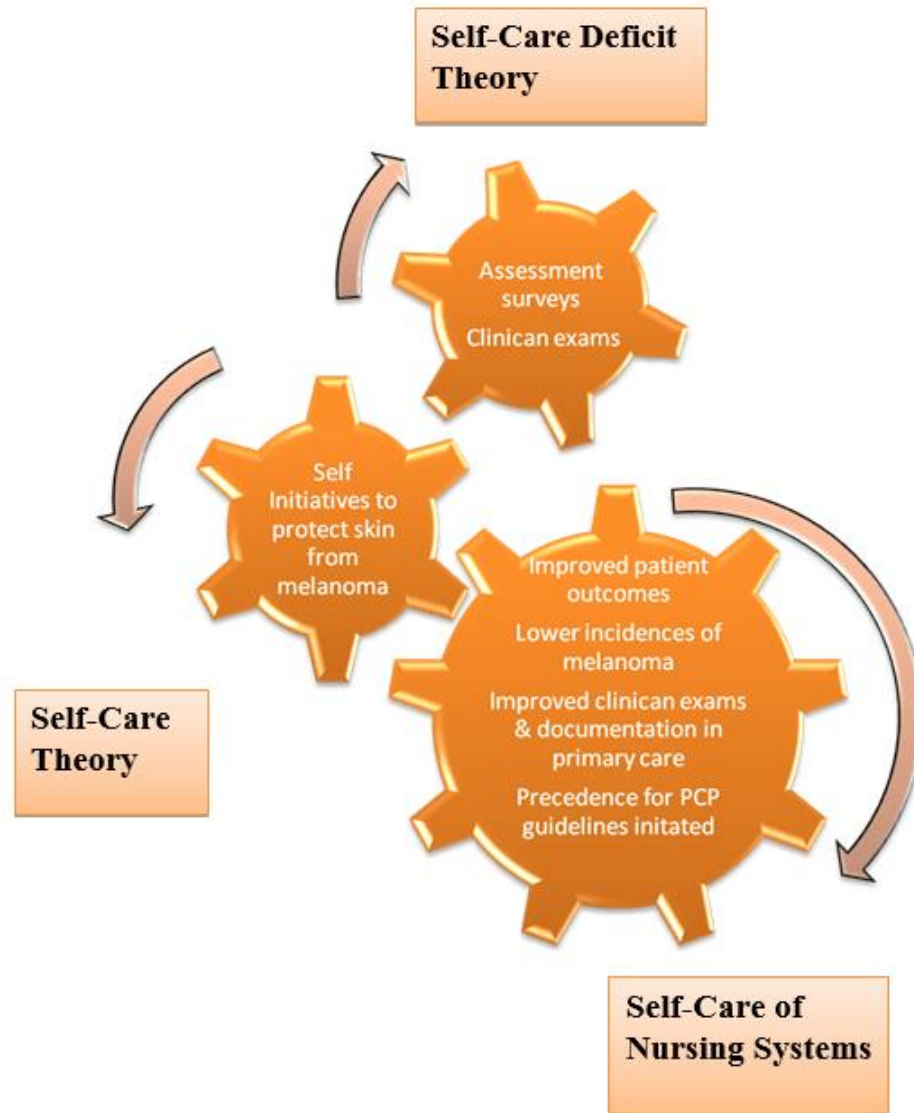
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## Appendices/Figures

### Appendix A. Theoretical Model for Early Screening and Detection of Melanoma in Primary Care Using Dorothea Orem's Self-Care Interrelated Theory



## Appendix B. Melanoma Assessment Survey: Knowledge, risk and behavioral lifestyle

### Personal Risk (Riesgo personal)

These questions are to assess an individual's risk for developing melanoma. (Estás preguntas son evaluar el riesgo de un individuo para el desarrollo de melanoma.)

1. What is your preferred language? (?Cuál es su idioma preferido?)
  - English (Inglés)
  - Spanish (Español)
2. What is your biological gender (?Cuál es su sexo biológico?)
  - Female (Femenino)
  - Male (Masculino)
3. What is your age? (?Cuántos años tienes?)
  - 15-25 years old (15-25 años)
  - 26-36 years old (26-36 años)
  - 37-47 years old (37-47 años)
  - 48 or above years old (48 o más años de edad)
4. The continental United States is divided into three distinct areas: Northern, Central & Southern. (Le parte continental de los Estados Unidos esta divide en tres zonas: Norte, Central y Sur.)

The Northern Portion contains the states of: Washington, Oregon, Montana, North Dakota, South Dakota, Minnesota, Wisconsin, Michigan, Iowa, Illinois, Indiana, Ohio, Maryland, Pennsylvania, New York, New Jersey, Vermont, Rhode Island, Connecticut, Massachusetts, New Hampshire, and Maine. (La porción norte contiene los estados de: Washington, Oregon, Montana, Dakota del Norte, Dakota del Sur, Minnesota, Wisconsin, Michigan, Iowa, Illinois, Indiana, Ohio, Maryland, Pennsylvania, New York, New Jersey, Vermont, Rhode Island, Connecticut, Massachusetts, New Hampshire, and Maine.)

Indiana, Ohio, Maryland, Pennsylvania, Nuevo York, Nuevo Jersey, Vermont, Rhode Island, Connecticut, Massachusetts, Nuevo Hampshire y Maine.)

The Central portion includes: Northern California, Idaho, Utah, Wyoming, Nebraska, Kansas, Oklahoma, Arkansas, Missouri, Tennessee, Kentucky, West Virginia, Virginia, Delaware, North Carolina, and South Carolina. (Le parte Central incluye: Norte de California, Idaho, Utah, Wyoming, Nebraska, Kansas, Oklahoma, Arkansas, Missouri, Tennessee, Kentucky, West Virginia, Virginia, Delaware, Carolina del Norte y Carolina del Sur.)

The Southern portion includes: Southern California, Nevada, Arizona, New Mexico, Colorado, Texas, Louisiana, Mississippi, Alabama, Georgia, and Florida. (La porción meridional incluye: El Sur de California, Nevada, Arizona, Nuevo Mexico, Colorado, Texas, Louisiana, Mississippi, Alabama, Georgia y Florida.)

What geographical location do you live in? (?Qué ubicacion geografica vive usted en?)

- Northern part of the United States (Parte Norte de los Estados Unidos)
- Central part of the United States (Parte Central del sur de los Estados Unidos)
- Southern part of the United States (Parte del sur de los Estados Unidos)

5. What happens to your skin in the sun? (?Qué le pasa a su piel en el sol?)

- Never tans (Nunca broncea)
- Tans with difficulty (Broncea con dificultad)
- Tans easily (Broncea facilmente)
- Tans always (Broncea siempre)

6. Does your skin freckle? (?Tiene pecas?)

- Yes (Sí)
- No (No)



7. How many moles do you have? (?Cuántos lunares tienes?)
- None (Ninguno)
  - Less than 20 (Menos de 20)
  - More than 20 (Más de 20)
8. Do you have moles with irregular edges and color? (? Tienes lunares con bordes irregulares y color?)
- Yes (Sí)
  - No (Nó)
9. What is your natural hair color? (?Cuál es tu color de pelo natural?)
- Black (Negro)
  - Brown (Marron)
  - Red (Rojó)
  - Blonde (Rubio)
10. What is your ethic origin? (?Cuál es tu origen etnico?)
- White Caucasian (Blanco caucasico)
  - Africa American (African American)
  - Hispanic, Latino (Hispaños, Latino)
  - Hispanic, non-Latino (Hispañno, no Latino)
  - Asian (Asia)
  - Other: please specify (Otros: porfavor especifique)

11. How many times have you had a bad sunburn? (?Cúantas veces has tenido una mala quemadura del sol?)

- Never (Nunca)
- Once or twice (una o dos veces)
- Three or more times (tres or mas veces)

### **Melanoma Knowledge (Conocimiento del melanoma)**

**These questions assess an individual's knowledge of melanoma. (Estás preguntas evaluar los conocimientos de un individuo de melanoma.)**

12. Have you ever heard of melanoma? (?Ha oido hablar alguna vez del melanoma?)

- Yes (Sí)
- No (Nó)
- I am not sure (No estoy seguro)

13. Which of the following 11 factors increase melanoma risk? Check all that apply. (?Cúal de los siguientes 11 factores, aumenta el riesgo de melanoma? Marque todas las que correspondan.)

- Having lots of moles (Tener muchos lunares)
- A family history of melanoma (Una historia familiar de melanoma)
- A particular diet (Una dieta especial)
- Fair complexion (Tez blanca)
- Alcohol (Alcohol)
- Prolonged sun exposure and/sunburn (Prolongada esposición al sol y/quemadura)
- Smoking (Fumar)
- Blue eyes or green eyes (Ojos azules/verdes)
- Brown eyes (Ojos marrones)

- Red/blond/fair hair (Pelo rojío, rubio/feria)
- Dark hair (Pelo oscuro)
14. What are the most common sites of melanoma in men and women? Check all that apply. (?Cúales son los sitios mas communes de melanoma en hombres y mujeres? Marque todos que corresponden.)
- Face (Cara)
- Back (Espalda)
- Front of torso (Parte delantera del torso)
- Legs (Piernas)
- Arms (Brazo)
- Genitalia (Organos genitals)
15. How likely are you to seek care from your primary care practitioner with a skin lesion in the next six months? (?En los proximos seis meses uested tiene una lesion en la piel, cuál es la probabilidad de que usted busque atención medica?)
- Definitely (Definitivamente)
- Maybe (Tal vez)
- Not likely ( No es probable)
- Other: please specify (Otros: porfavor especifique)
16. Have you seen your primary care practitioner for a skin examination in the last year? (?En el ultimo año, has visto a su medico de atención primaria para una examinación del la piel?)
- Yes (Sí)
- No (Nó)
- Other: Please specify (Otros: porfavor especifique)

17. Melanoma is: Check all that apply. (El melanoma es: Compruebe que todas son validas)

- Completely preventable (Totalmente evitables)
- Heals without treatment (Cura sin tratamiento)
- Curable if treated early (Puede curar si se trata a tiempo)
- Fatal if left untreated (Fatal si no es tratada)

### **Lifestyle Behaviors (los habitos de vida)**

**These questions assess an individual's risk for melanoma based on lifestyle behaviors. (Estás preguntas son evaluar el riesgo de un individuo para el desarrollo de melanoma basado en los habitos de vida?)**

18. Do you try to get a sun tan indoors, outdoors or both? (?Trata de broncear del sol dentro, al aire libre o a ambos?)

- Indoors (Dentro)
- Outdoors (Al aire libre)
- Both (Ambros)
- Neither ( Ninguno)

19. If you tan indoors, how often do you use a sun bed or sun lamp? (Si usted broncea en interiors con que frecuencia realmente usan una cam del sol o lampara del sol?)

- Never (Nunca)
- 1-3 times per year (1-3 veces pro año)
- Once a month (Una vez al mes)
- Once a week (Una vez por semana)
- Other: Please specify (Otros: porfavor especifique)

20. What do you use to protect your skin while tanning indoors? Check all that apply. (?Qué usa proteger su piel mientras bronce en interiors? Compruebe todo que se aplican.)

- Suntan lotion-SPF<30 (Loción bronceadora- SPF <30)

Suntan lotion-SPF >30 (Loción bronceadora-SPF >30)

Protective eyewear (Anteojos protectores)

I don't use anything (No utilize nada)

I don't tan indoors (Yo no broncearse en interiores)

Other: please specify (Otros: porfavor especifique)

21. What do you use to protect your skin while tanning indoors? Check all that apply. (?Qué utilizas para proteger su piel cuando estas al aire libre y no quiere broncearse? Marque todos que aplican.)

Suntan lotion-SPF <30 (Loción bronceadora-SPF<30)

Suntan lotion-SPF>30 (Loción bronceadora-SPF>30)

Protective eyewear (Anteojos protectores)

Protective clothing (Ropa de protección)

I don't use anything (No tomo ninguna medida extra de protección)

I don't tan outdoors (No me bronceo aire libre)

Other: please specify (Otros: porfavor especifique)

22. What do you use to protect your skin when outdoors when you are not tanning? (Qué utilizas para proteger su piel cuando estas al aire libre y no quiere broncearse?)

Suntan lotion-SPF <30 (Loción bronceadora-SPF<30)

Suntan lotion-SPF>30 (Loción bronceadora-SPF>30)

Lip balm with SPF (Balsamo de labios con SPF)

Protective eyewear (Anteojos protección)

Protective clothing (Ropa de protección)

I don't take any extra protective measures (No tomo ninguna medida extra de protección)

I never go outdoors (Nunca voy al aire libre)

Other: please specify (Otros: porfavor especifique)

23. Do you perform self-skin exams? (Realizar examenes de la piel del uno mismo?)

Yes (Sí)

No (Nó)

24. How often do you perform self-skin exams? (Con que frecuencia hace su examenes de piel?)

Never (Nunca)

Rarely (Casi nunca)

Occasionally (Ocasionalmente)

Daily (Todos los días)

Weekly (Una ves a la semana)

Monthly (Una ves al mes)

Yearly (Una ves al año)

Other: Please specify (Otros: porfavor especifique)

25. What do you do when you notice a new mole? (Qué hace usted cuando nota un lunar nuevo?)

Ignore it (lo ignore)

Ask a partner or friend to look at it (Le pregunto a una amigo que lo revise)

Visit your primary care practitioner (Visito el doctor)

Other: Please specify (Otros: porfavor especifique)

26. How quickly should a new mole be checked? (?Cuanto tiempo debes espera para revisar un lunar nuevo?)

Never (Nunca)

Eventually (Con el tiempo)

- < 3 months (<3 meses)
- < 2 months (<2 meses)
- <1 month (<1 meses)
- Not sure (No estoy seguro)

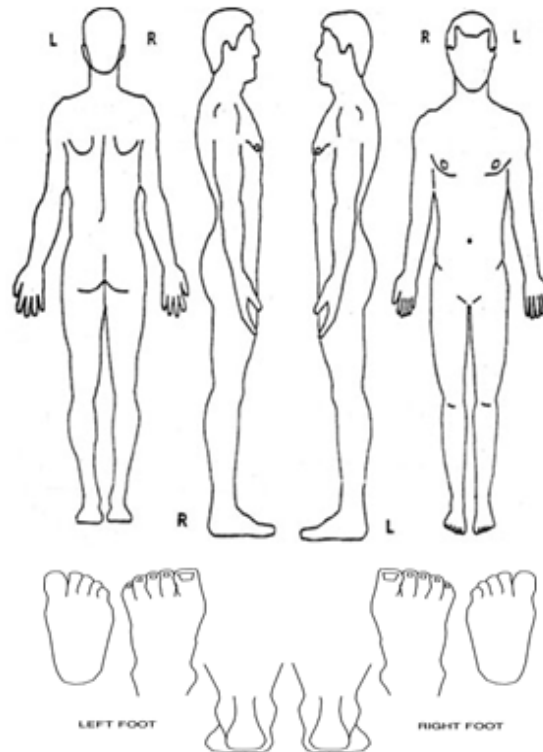
27. In three months we will be contacting you to perform a post survey online. Once you complete the survey, you will receive a thank you a gift card for your participation. Please put your name, address, phone number and email address, if applicable below. If you do not have a computer, you can access one at the local library. (In tres meses esaremos en contacto con usted para realizar una encuesta post en linea. Una vez que complete la encuesta, usted recibira una tarjeta de agradecimiento regalo para su participacion. Por favor ponga su nombre direccion numero de telefono y direccion de correo electronico si se aplica a continuacion. Si usted no tiene una computadora puede acceder a uno en la biblioteca local).

## Appendix C. Total Body Examination

### Full Body Skin Exam Tool

1. Scalp
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
2. Face
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
3. Conjunctivae
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
4. Lips
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
5. Oral Mucosa
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
6. Ears
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
7. Neck
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
8. Chest and Breasts
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
9. Abdomen
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
10. Arms
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
11. Fingernails, palms and underarms
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
12. Back
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
13. Buttocks
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
14. Legs
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
15. Feet, toes and toenails
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted
16. Genitalia
  - No suspicious pigmented lesions
  - Suspicious pigmented lesions noted

Mark suspected pigmented lesions on the following body diagram.







## Appendix D. Preventative Education Materials

 **SKIN CANCER:**  
**IF YOU CAN SPOT IT,**  
**YOU CAN STOP IT.**

Skin cancer is the uncontrolled growth of abnormal skin cells, most often caused by DNA damage from the sun's ultraviolet radiation. It can lead to disfigurement and even death. But if treated early, it is almost always curable. Coupled with a yearly skin exam by a doctor, self-examination of your skin once a month is the best way to detect the early warning signs of basal cell carcinoma, squamous cell carcinoma, and melanoma, the main types of skin cancer. Look for a new growth or any skin change.

**What You'll Need:** a bright light; a full-length mirror; a hand mirror; two chairs or stools; a blow-dryer.

-  **1** Examine head and face, using one or both mirrors. Use blow-dryer to inspect scalp.
-  **2** Check hands, including nails. In a full-length mirror, examine elbows, arms, underarms.
-  **3** Focus on neck, chest, torso. Women: Check under breasts.
-  **4** With back to mirror, use hand mirror to inspect back of neck, shoulders, under arms, back, buttocks, legs.
-  **5** Sitting down, check legs and feet, including soles, heels, and nails. Use hand mirror to examine genitals.

Melanoma, the deadliest form of skin cancer, is especially hard to stop once it has spread (metastasized) to other parts of the body. One person dies from melanoma in the US every hour. But it can be readily treated in its earliest stages. See the other side to learn its warning signs.

SkinCancer.org



## CÁNCER DE PIEL: SE PUEDE CURAR CUANDO ES DETECTADO A TIEMPO

El cáncer de piel puede causar desfiguraciones e incluso la muerte, sin embargo cuando es tratado a tiempo, casi siempre es curable.

Para detectar un cáncer de piel a tiempo es útil tener en cuenta algunas recomendaciones:

- Acudir cada año al médico para que le realice un examen completo de la piel.
- Realizar el auto-examen de piel cada mes, con el fin de detectar la presencia de nuevos lunares, cambios en los existentes, o nuevas lesiones que no cicatricen en más de 30 días. Esta es la mejor manera de detectar a tiempo los diferentes tipos de cáncer de piel como el carcinoma basocelular, carcinoma escamocelular y el melanoma.

### Elementos necesarios para realizar el auto-examen de piel:

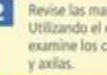
Buena iluminación, espejo de cuerpo entero, espejo de mano, 2 sillas y un secador de cabello.

1



Examine la cara y las orejas usando uno o ambos espejos. Después, inspeccione completamente el cuero cabelludo utilizando el secador de pelo, para lo cual puede pedir ayuda a otra persona.

2



Revise las manos, incluyendo las uñas. Utilizando el espejo de cuerpo entero, examine los codos, antebrazos, brazos y axilas.

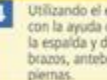


3



Examine el cuello, pecho y abdomen. Las mujeres deberán revisarse por debajo de los senos.

4



Utilizando el espejo de cuerpo entero y con la ayuda del espejo de mano, examine la espalda y detrás del cuello, hombros, brazos, antebrazos, glúteos, muslos y piernas.



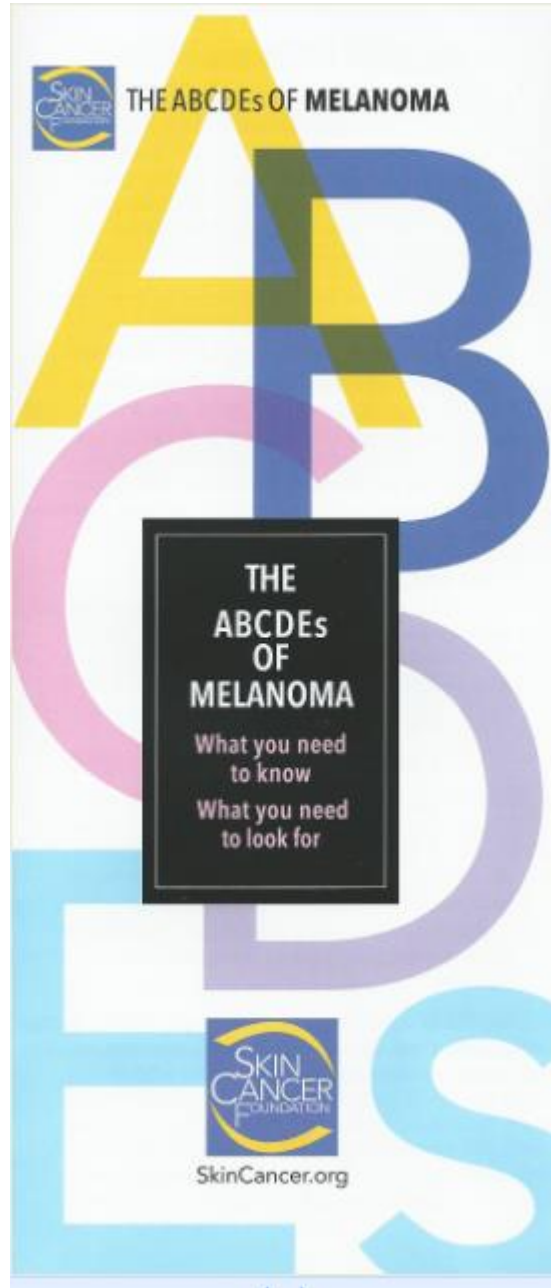
5



Siéntese y revise las piernas y los pies, incluyendo las plantas, talones, dedos, entre los dedos y uñas. Con un espejo de mano examine el área genital.

El melanoma es la forma más mortal de cáncer de piel. Es muy difícil de curar o detener una vez se ha esparcido a otras partes del cuerpo. Sin embargo, si se detecta a tiempo puede ser tratado fácilmente. Vea las señales de peligro al reverso.

[www.SkinCancer.org](http://www.SkinCancer.org)



## THE ABCDES OF MELANOMA

### EARLY WARNING: DANGER AHEAD

Melanoma is the most dangerous form of skin cancer. If it spreads (metastasizes) to the internal organs, it can be life-threatening. But in its early stages, it is almost 100 percent curable. Fortunately, melanoma rarely strikes without warning. There are almost always signs that danger is lurking. Watch for them, because when melanoma is found early, it is almost always curable.

### YOUR SKIN TELLS THE STORY

Moles, brown spots and growths on the skin are usually harmless—usually, but not always. Anyone who has more than 100 moles or any atypical moles is at greater risk for melanoma. The first signs can appear in one or more existing moles, or in a completely new lesion. That's why it's so important to get to know your skin very well. Examine the skin all over your body once a month and have a physician check you over once a year.

### THE MELANOMA ALPHABET

The first five letters of the alphabet are a guide to the early warning signs of melanoma.

**A** stands for **ASYMMETRY**

**B** stands for **BORDER** irregularity











**C** for **COLOR** variations

**D** for **DIAMETER** greater than 1/4"

**E** for **EVOLVING** or changing

Learn these signs, and if you see any of them, schedule a visit to your doctor right away. But remember: These signs are not proof of melanoma. They only mean that you should be on your guard.

The photographs on the opposite pages compare **benign** (harmless) moles and **malignant** ones (melanomas), according to the melanoma alphabet.

	BENIGN	MALIGNANT	
<b>A</b> <b>ASYMMETRY</b> This benign mole is not asymmetrical. If you draw a line through the middle, the two sides will match, meaning it is <b>symmetrical</b> .			If you draw a line through this mole, the two halves will not match, meaning it is <b>asymmetrical</b> , a warning sign for melanoma.
<b>B</b> <b>BORDER</b> A benign mole has <b>smooth, even borders</b> , unlike the one on the opposite page.			The <b>borders</b> of an early melanoma tend to be uneven. The edges may be scalloped or notched.
<b>C</b> <b>COLOR</b> Most benign moles are all <b>one color</b> —often a single shade of brown.			Having a variety of <b>colors</b> is another warning signal. A number of different shades of brown, tan or black could appear. A melanoma may also become red, white or blue.
<b>D</b> <b>DIAMETER</b> Benign moles usually have a <b>smaller diameter</b> than malignant ones.			Melanomas usually are larger in <b>diameter</b> than the size of the eraser on your pencil (1/4 inch or 6mm), but they may sometimes be smaller when first detected.
<b>E</b> <b>EVOLVING</b> Common, benign moles <b>look the same</b> over time. Be on the alert when a mole starts to <b>evolve or change</b> in any way.			When a mole is <b>evolving</b> , see a doctor. Any change—in size, shape, color, elevation, or another trait, or any new symptom such as bleeding, itching or crusting—points to danger.

## MELANOMA: THE INSIDE STORY

### THE SUN'S RAYS, A TRIGGER

Melanoma may be triggered by intense, intermittent sun exposure—the kind that may leave you sunburned. That has always been true, so why has the number of cases more than tripled in the past 30 years? People are now engaging in more outdoor activities than in the past, often wearing less clothing. Worse yet, more than a million Americans visit tanning salons every day, and the ultraviolet A and B rays emitted by the lamps are both extremely harmful. Of melanoma cases in patients 18 to 29 years old who have ever tanned indoors, 76 percent are attributable to tanning bed use.

### THE HEAVY HAND OF HEREDITY

Heredity plays so large a part in melanoma that the term "melanoma family" has been coined. The risk is greatest if a close relative (mother, father, siblings or children) has had a melanoma.

### HOW TO CUT YOUR RISK

Half of all melanoma patients have unusual-looking atypical moles (also called dysplastic nevi), which can greatly resemble melanoma and can evolve into melanoma. Be sure not to skip a single skin examination if you are in a melanoma family, have atypical moles or have a history of melanoma. Children in melanoma families should be checked by a physician from age 10 on.

### WHAT ARE THE TREATMENTS?

Surgery is the main way to treat melanomas. The physician uses a scalpel to remove the entire growth and a safety margin of surrounding skin. The incision is closed, and the growth sent to the laboratory to verify that all cancerous cells have been removed.

Sometimes melanoma cells spread to the local lymph nodes, glands that release immune system fluids into the bloodstream. These nodes may be removed to keep them from sending melanoma cells to other parts of the body.

For advanced cancers, chemotherapy, radiation, targeted therapy (attacking specific defective genes or proteins that trigger melanomas) and immunotherapy (drugs that stimulate the immune system to fight melanoma) are used. These treatments may slow the disease and lengthen lives, sometimes essentially curing patients, but late-stage melanomas are hard to stop completely. Thus, recognizing the early warning signs is the key to saving lives.

## YOUR SMARTEST MOVE: PREVENTION

While skin cancers — even melanomas — can almost always be cured if found and treated early, it's better yet to avoid getting them in the first place. Here are some sun safety practices that really work:

- Seek the shade, especially between 10 AM and 4 PM.
- Do not burn.
- Avoid tanning and never use UV tanning beds.
- Cover up with clothing, including a broad-brimmed hat and UV-blocking sunglasses.
- Use a broad spectrum (UVA/UVB) sunscreen with an SPF of 15 or higher every day. For extended outdoor activity, use a water-resistant, broad spectrum sunscreen with an SPF of 30 or higher.
- Apply 1 ounce (2 tablespoons) of sunscreen to your entire body 30 minutes before going outside. Reapply every two hours or after swimming or excessive sweating.
- Keep newborns out of the sun. Sunscreens should be used on babies over the age of six months.
- Examine your skin head to toe every month.
- See your doctor every year for a professional skin exam.

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A publication of The Skin Cancer Foundation  
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[SkinCancer.org](http://SkinCancer.org)



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## Appendix E. Consents for Medical Treatment

### Consent for Treatment, Photography and authorization of medical release

I voluntarily give my consent to participate in the clinical study on early screening and detection of melanoma. The purpose of the study, its benefits and risks has been explained to me. I understand that I will be screened regarding my knowledge of melanoma, risk factors and risk related to lifestyle/behaviors during my visit. I understand that I will receive a full body skin examination by my primary care practitioners during my visit. I understand and agree that I may have digital photographs taken of any suspicious skin lesions that my primary care practitioner may feel requires further evaluation and/biopsy by a dermatologist. I understand I will be referred to a dermatologist if my skin exam requires further evaluation and treatment by a dermatologist. I understand that my digital photographs if taken will be used for evaluation and/treatment purposes and/ for educational purposes including, but not limited to medical journal publications and /lectures and/workshops only. I understand that my identity will be protected under the Health Insurance Portability and Accountability Act (HIPAA). I acknowledge that all recorded photographs and media obtained will be the sole property of my primary care practitioner. I understand and accept all written media that will be given to me on self-skin exams and sun safe behaviors in an attempt to prevent behaviors that increase my risk for melanoma and other skin cancers. I acknowledge and agree to follow up with my primary care practitioner in six months related to my skin health.

I acknowledge that I have read the above consent and agree to all of its objectives.

Patient Name (Print) X \_\_\_\_\_ Date \_\_\_\_\_

Patient Signature (or Parent if Minor) X \_\_\_\_\_ Date \_\_\_\_\_

Witness Signature X \_\_\_\_\_ Date \_\_\_\_\_

## Medical Treatment Authorization Form

### Minor

Full Legal Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_ Gender: \_\_\_\_\_  
Full Home Address: \_\_\_\_\_

### Information for Medical Treatment

Primary Care Practitioner: \_\_\_\_\_ Allergies: \_\_\_\_\_  
Please note all significant medical information and/conditions for which the child is currently receiving treatment:

\_\_\_\_\_  
\_\_\_\_\_

### Authorization and Consent for Parent(s) or Legal Guardian(s)

I, \_\_\_\_\_ have legal custody of the aforementioned minor, \_\_\_\_\_ . I grant authorization and give consent for the aforementioned minor to receive treatment, digital photography and authorize all release of medical information that may be needed in the clinical study on early screening and detection of melanoma. I understand the purpose of the study, and its benefits and risks have been explained to me. I understand that the aforementioned minor will be screened regarding their knowledge of melanoma, risk factors and risk related to lifestyle/behaviors during the visit. I understand that the aforementioned minor will receive a full body skin examination by the primary care practitioner during the visit. I understand and agree that digital photographs may be taken of any suspicious skin lesions that the primary care practitioner may feel requires further evaluation and/biopsy by a dermatologist. I understand that the aforementioned minor may be referred to a dermatologist if the skin exam requires further evaluation and treatment by a dermatologist. I understand that any digital photographs taken during the full body skin examination will be used for evaluation and/treatment purposes and/or educational purposes including, but not limited to medical journal publications and/lectures and /workshops only. I understand that the identity of the aforementioned minor will be protected under the Health Insurance Portability and Accountability Act (HIPAA). I acknowledge that all recorded photographs and media obtained will be the sole property of the primary care practitioner. I understand and accept all written media that will be given to the aforementioned minor on self-skin exams and sun safe behaviors that increase the risk for melanoma and other skin cancers. I understand that the aforementioned minor will need to follow up in six months related to their skin health.

- I acknowledge and agree to have the aforementioned minor participate in the clinical study.

Parent/Legal Guardian Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Witness Signature: \_\_\_\_\_ Date: \_\_\_\_\_