

THE BUSY NURSE'S GUIDE TO MELANOMA RECOGNITION

by

Julie Jacobs Flesch

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

Master

of

Nursing

MONTANA STATE UNIVERSITY  
Bozeman, Montana

November 2011

©COPYRIGHT

by

Julie Jacobs Flesch

2011

All Rights Reserved

APPROVAL

of a thesis submitted by

Julie Jacobs Flesch

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citation, bibliographic style, and consistency and is ready for submission to The Graduate School.

Christina Sieloff

Approved for the College of Nursing

Helen Melland

Approved for The Graduate School

Dr. Carl A. Fox

STATEMENT OF PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a master's degree at Montana State University, I agree that the Library shall make it available to borrowers under rules of the Library.

If I have indicated my intention to copyright this thesis by including a copyright notice page, copying is allowable only for scholarly purposes, consistent with "fair use" as prescribed in the U.S. Copyright Law. Requests for permission for extended quotation from or reproduction of this thesis in whole or in parts may be granted only by the copyright holder.

Julie Jacobs Flesch

November 2011

## ACKNOWLEDGEMENTS

I would like to thank Dr. Christian Sieloff for helping guide me through this process with patience and understanding. It was a long and sometimes painful journey for both of us! Thank you also to my committee members, Deanna Babb, APRN, and Jeff Goldes, MD. Their enthusiasm for this project was encouraging.

First, I thank God for his forgiveness and grace and his promise for my life. A huge hug and thank you to my son Conor, he has been so patient over these past three years. God couldn't have blessed me with a greater gift than him. God also blessed me with the best mom/Grammy I ever could have wished for. She has been with me through every step of this project. A loving thank you goes also to Buel, who supported me unfailingly; putting up with my tears and frustrations and mood swings!!! Robert and Mara, you guys are the greatest friends ever!! A special thank you must go to Kris (Paul) who has always supported my dreams. Monica and Stevie, you guys are the best cousins! Lastly, thanks to Bob and Patti Flesch for their support and encouragement.

## TABLE OF CONTENTS

1. RESEARCH PROBLEM.....	1
Statement of the Problem.....	1
Research Question .....	2
Purpose.....	3
Background and Significance .....	3
Malignant Melanoma .....	3
Incidence .....	4
Theoretical Framework.....	10
Definitions.....	13
Assumptions.....	13
Limitations .....	15
2. LITERATURE SEARCH.....	16
Generalized Search Effort.....	16
Focused Search Effort.....	20
Evaluation of Literature .....	22
Melanoma/Nurse Skin Cancer Screening .....	22
Berwick, Bolognia, Heer, & Fine, 1991 .....	22
Maguire-Eisen & Frost, 1994 .....	23
Katris, Donovan, & Gray, 1998.....	24
Geller, 2002.....	26
Mahon, 2003 .....	27
Christos, Oliveria, Masse, McCormick, & Halpern, 2004.....	28
Oivanen, Kojo, Pylkkanen, Holli, Auvinen, 2008 .....	30
Phelan & Heneghan, 2008 .....	31
Vickers, 2009 .....	32
Watkins, 201 .....	33
Melanoma/Nurse Practitioner Skin Cancer Screening .....	34
Oliveria, Nehal, Christos, Sharma, Tromberg, & Halpern, 2001 .....	34
Oliveria, Altman, Christos, & Halpern, 2002 .....	35
Chinni, Schwartz, Keilman, & Johnson, 2003.....	37
Melanoma/Pender Health Promotion Model .....	38
Torrens & Swan, 2009 .....	38
Literature Gap.....	40
3. METHODS .....	41
Melanoma Introduction/Project Conception.....	41
Population and Sample .....	41
Rights of Human Subjects/Consent Process .....	43

## TABLE OF CONTENTS CONTINUED

Pamphlet Design .....	43
Study Design.....	45
Procedures for Data Collection.....	47
Statistical Analysis.....	48
<b>4. PRESENTATION AND ANALYSIS OF DATA .....</b>	<b>49</b>
Demographic Data .....	50
Reliability and Validity of the Pre/Posttest Questionnaire .....	54
Analysis of Pre/Posttest Questionnaire.....	54
Mean .....	54
T-test and Significance Level .....	55
Qualitative Data .....	56
Summary .....	57
<b>5. DISCUSSION .....</b>	<b>58</b>
Summary of the Study .....	58
Discussion of the Findings.....	59
Limitations .....	61
Sample Size.....	61
Literature Search Time Frame .....	62
Demographic Data .....	62
Questionnaire/Likert Scale.....	62
Social Response Bias .....	63
Prior Sample Bias .....	64
Implications for Practice .....	64
Implications for Education.....	65
Recommendations for Further Research.....	66
Conclusions.....	66
<b>REFERENCES CITED.....</b>	<b>67</b>
<b>APPENDICES .....</b>	<b>74</b>
APPENDIX A: Human Rights Exemption Letter from MSU .....	75
APPENDIX B: Subject Consent Form for Participation in Human Research at Montana State University .....	77
APPENDIX C: Melanoma Pamphlet Evaluation Questionnaire Pretest/Posttest .....	79
APPENDIX D: Melanoma Recognition Pamphlet .....	82

## LIST OF TABLES

Table	Page
1. Search Results .....	19
2. Scoring System .....	46
3. Number of Completed Questionnaires Returned .....	50
4. Demographic Data of Participants .....	51
5. A) Number of Responses for each Declarative Statement Pretest.....	52
B) Number of Responses for each Declarative Statement Posttest .....	53
6. Mean for Questionnaire and Individual Statements from Pre/Posttest.....	55
7. Paired Samples/T-test/Significance/Confidence Values.....	56
8. Cronbach's Alpha with Items Deleted.....	60

## CHAPTER 1

## RESEARCH PROBLEM

Statement of the Problem

Although melanoma affects only a small percentage of those diagnosed with skin cancer, it is responsible for the largest number of skin cancer deaths. More than 65,000 new cases of melanoma were estimated to be diagnosed in the United States in 2010, with approximately 8,700 of those people dying from the disease (American Cancer Society (ACS), 2010). In one rural western state, the incidence more than doubled from an average of 163 cases per year between 1990 and 1995 to 342 cases per year between 2000 and 2005 (Montana Department of Public Health & Human Services (MDPHHS), 2007).

Melanoma is the sixth most common cancer in American men and the seventh most common cancer in American women. The median age at diagnosis is between 45 and 55 years old (ACS, 2010). Unlike many other common cancers though, melanoma does not strike a specific age group or demographic. It is one of the more common cancers in young adults (ACS, 2010). Compounding the problem is the fact that there has been limited progress in melanoma education and prevention efforts over the past few decades (Valachis, et al., 2009). Also contributing to the problem is the fact that the public has not changed their general sun protection practices, nor have they increased their rate of self-skin examination (ACS, 2010).

Malignant melanoma is the most deadly of all skin cancers. The yearly incidence rate has increased 2000% since the 1930s, and is projected to continue to increase well into the future (Olivieria, 2002). There is no known cure for advanced stage or metastatic melanoma skin cancer. Accurate and timely diagnosis is vitally important, as early-stage disease is almost 100% curable by simple surgical wide-excision. Therefore, early detection improves survival (Valachis, et al., 2009).

Valachis et al. stated, “one of the most important early detection strategies is full body skin examination (FBSE) which is painless, rapid, and easy to perform” (2009, p. 32). Full body skin exam does not require any technological skill nor does it require any special equipment (Valachis, 2009).

### Research Question

With more than ten years as an emergency department (ED) nurse, this author felt that educating nurses, especially ED nurses, to recognize melanoma would be a way to possibly increase earlier melanoma diagnoses. From this thought process came the idea to create an educational pamphlet and then test the research question guiding this project: “will nurses (RN) demonstrate increased knowledge regarding the screening for melanoma, after reviewing “The Busy Nurse’s Guide to Melanoma Recognition” educational pamphlet?

Emergency department nurses are uniquely positioned to conduct skin examinations on many patients every day they work, as they are often the first to undress patients into examination gowns, as well as perform assessment tasks such as

auscultating heart and lung sounds, auscultating bowel sounds, palpating the abdomen, and assessing the lower extremities for edema. In addition, ED nurses see a myriad of injuries to the skin and bones that requires visual assessment. By performing a routine skin examination on patients, ED nurses can significantly affect a reduction in the detection of advanced stage melanoma and, thus, increase survival rates.

### Purpose

The purpose of this project was to educate nurses through the creation of an educational pamphlet pertaining to the recognition of melanoma skin cancer. This pamphlet was designed with the busy emergency department nurse in mind. However, the fact that this pamphlet was concise and easy to use makes it applicable to many other areas of nursing and health care, as well as non-healthcare fields such as massage therapy, aesthetics, and beauticians.

### Background and Significance

#### Malignant Melanoma

Skin cancer is the most common form of cancer diagnosed in the United States with more than one million new cases being diagnosed each year (Kantor, 2009). There are two broad classifications of skin cancer: melanoma and non-melanoma. Melanoma skin cancer is the less common form but tends to be more aggressive and deadly, due to its tendency to metastasize to other parts of the body (Kantor, 2009). When diagnosed and treated early, the five-year survival rate for localized melanoma is 96%. However,

the five-year survival rate drops to 12% when melanoma is diagnosed after it has spread to other parts of the body (Centers for Disease Control and Prevention, 2002).

Malignant melanoma is a cancer of the skin that has a high metastasis rate, and is most often associated with moles. Melanoma originates within the melanocytes, the skin coloring cells that produce melanin. If not detected early, melanocytic mutation and uncontrolled growth of cancerous cells can eventually lead to the cancer spreading to other parts of the body through the lymph system or the bloodstream. When the disease is discovered at an advanced stage, death is usually imminent (Torrens & Swan, 2009).

Ultraviolet radiation (UV) has been proven the most significant risk factor for developing melanoma. A frequently cited study by Armstrong and Kricger (1993) estimated that 65 percent of melanomas occurring worldwide in 1985 were caused by sun exposure. Genetics, such as fair complexion or family history is the second most important risk factor (American Cancer Society, 2010). Most frequently, melanoma skin cancer develops on sun-exposed areas of the body (the upper back, legs, arms, head, neck, and the torso), although melanoma can occur anywhere on the body (American Academy of Dermatology, 2010).

### Incidence

In 1930, an individual had a 1 in 1,500 lifetime risk of developing malignant melanoma. By the year 2000, the estimated risk had risen to 1 in 75 (Oliviero, 2002), and by 2009, the risk had risen to 1 in 50 (Melanoma Research Foundation, 2009). The incidence rate for melanoma has more than doubled since the 1970s, establishing it as a significant public health issue now and well into the future (Centers for Disease Control

and Prevention, 2002). Valachis (2009), et al. labeled melanoma “an epidemic disease” (p. 32).

Even though melanoma accounts for less than 5% of all skin cancers, the financial burden associated with treating melanoma is large. When one considers the fact that malignant melanoma survivors have a higher risk of developing a second primary malignancy, the costs of treatment can be even greater than original estimates (Spanogle, Clarke, Aroner, & Swetter, 2010). Ninety percent of the estimated \$563 million attributed to treating newly diagnosed melanomas in 1997 was utilized by less than 20% of all melanoma patients with greater than stage III disease at the time of diagnosis (Tsao, Rogers, & Sober, 1998). Finally, Bickers, et al. stated that, of the 22 most financially burdensome skin diseases, melanoma ranks number two (2006).

A similar study published in 1999 by Alexandrescu estimated the overall costs of melanoma at various clinical stages. This contrasted to Tsao, Rogers, and Sober’s (1998) study that estimated the costs to treat only newly diagnosed melanomas. This more recent study supported the findings of Tsao, Rogers and Sober’s earlier study, that treatment costs for melanoma are large, and increase as the size of the melanoma increases. Alexandrescu’s estimates ranged from \$4,468.48 for melanoma diagnosed at the in-situ stage, to \$159,808 for melanoma diagnosed at stage IV (2009). This study gave further support to the importance of early melanoma diagnosis:

There is a significant cost decrement when melanoma is diagnosed at an earlier stage, with T4b (advanced stage) lesions being approximately 2200 percent more expensive to diagnose and treat than an in-situ (very early stage) melanoma and 1000 percent more expensive than a stage T1a (stage 1) tumor (p.1).

In concluding the study, Alexandrescu stated that the high costs associated with advanced-stage melanoma “warrant an increased emphasis on developing effective strategies for its early diagnosis and treatment” (p. 1).

When working with patients with melanoma, the most important factor to consider is early diagnosis. The earlier the diagnosis, the smaller the size of the tumor, the greater the chance of long-term survival and the less financial burden associated with treatment. The thickness of the melanoma tumor at time of diagnosis is the most important predictor of long-term survival rates. Increasing tumor thickness markedly decreases survival rates. Early detection of melanoma is extremely important as survival rates can exceed 95% if melanomas are diagnosed and treated early (Skin Cancer Foundation, 2009).

Early stage melanoma is often curable with simple surgical excision (Valachis, et al., 2009). Surgical excision with wide margins is the mainstay of treatment for the early stages of the disease, in fact, “the standard therapy for definitive surgical treatment of localized primary cutaneous melanoma is wide excision” (Haigh & Urbach, 2004).

Melanoma is a cancer of the skin, the largest organ of the human body. This fact makes detection reliant upon visualization of the skin. “One of the most important early detection strategies is full body skin examination (FBSE), which is painless, rapid, easy to perform, and does not require technological skill” (Valachis, et al., 2009, p. 32). The visible nature of the disease means that there is a certain amount of reliance upon people to know what to look for and to look for it regularly. However, statistics show that, frequently, melanoma is discovered secondarily. A 2009 study by Kantor and Kantor

found that greater than 56% of melanomas detected at a private dermatology practice in Florida were not part of the patients' presenting complaint. A 2006 study by Rodriguez, et al. found that only 20% of participants in the study had FBSE performed by their primary care provider.

Nurses, especially emergency department nurses, are uniquely situated to perform skin checks on patients. Many care providers require that patients undress into some form of hospital-type gown for a thorough examination. Nurses in emergency departments and office practices see bare skin in abundance each day they work. Therefore, they have an opportunity to significantly influence melanoma diagnosis through early identification. These nurses would not typically have the time or opportunity to perform a FBSE on every patient. However, they do frequently visualize the most common sites of melanoma formation in men (on the trunk above the waist) and women (on the extremities) (Olivieria, 2002).

Most importantly, these nurses can play an important role in the discovery of early stage melanoma, possibly decreasing melanoma deaths. Although there is no recent conclusive evidence from randomized trials that skin cancer screening is effective in reducing mortality from this disease (Rodriguez, Fangchao, Federman, Rouhani, Chimento, & Multach, 2007), many researchers have hypothesized this very result. Janda, et al. wrote about FBSE: "screenings for melanoma by whole-body skin examination should in theory improve early detection and survival" (2004, p. 11). Valachis et al. (2009) described melanoma skin examination as one of the most important early detection strategies.

Perhaps of most importance to the topic of screening usefulness is this statement from a 2007 study by Gellar, Swetter, Brooks, Demierre, and Yaroach:

With the recent, abrupt cessation of the population-based, randomized screening trial in Queensland (Australia), randomized studies of large cohorts with many years of follow-up, as required to rigorously demonstrate that early detection of melanoma is desirable, may never be funded. Thus, there is the possibility that we will never have the evidence required to conclude that screening effectively reduces melanoma mortality (Geller, Swetter, Brooks, Demierre, and Yaroach, 2007).

Despite the present lack of conclusive evidence, this author agrees with Valachis, et al. (2009) in their statement that “the high curability of melanoma in the early stage and the non-invasive screening procedure with full body skin examination argues for the potential utility of melanoma screening” (2009, p. 33).

A lack of recognized guidelines and recommendations for skin examination stems from the lack of reliable research on the topic. There are many differing opinions and recommendations from many different organizations concerning the efficacy of skin cancer and melanoma screening skin examination. The American Academy of Dermatology (2010), The American Cancer Society (2010), and the National Institutes of Health Consensus Conference on Early Melanoma (1992) all favor population-based, as well as high-risk groups, screening. Counter-productive to these recommendations for screening, the U.S. Preventive Services Task Force (USPSTF) issued the following statement in 2009:

The current evidence is insufficient to assess the balance of benefits and harms of using whole-body skin examination by a primary care clinician or patient skin self-examination for the early detection of cutaneous melanoma, basal cell cancer, or squamous cell skin cancer in the adult general population (U. S. Preventive Services Task Force, 2009).

This position statement was published after the USPSTF reviewed evidence published since 2001 on studies for screening effectiveness, the stage of detection by screening, and the accuracy of whole-body examination by primary care clinicians and self-examination by patients.

The current state of FBSE does reflect the indecision of recognized expert organizations. Research shows that melanoma education and screening are “severely underutilized” (Geller, 2007, p. 555) and “uncommon” (Rodriguez, 2007, p. 776). “While skin screening by primary care providers may be an effective tool in reducing advanced stage melanoma, in practice, the rates of screening are low” (Geller, 2007, p. 566). It has been suggested that the absence of standard screening protocols for skin examinations has made routine screening a difficult goal to achieve.

It has been proposed that the task of skin examination be placed upon primary care providers, in addition to dermatologists. “Since large numbers of the population visit physicians at regular intervals, primary care physicians may play an essential role in screening procedures for skin malignancies” (Valachis, et al., 2009, p. 39). Indeed, this becomes a viable option as a large percentage of the population enter the healthcare system at the primary care level (Chinni, Schwartz, Keilman, and Johnson, 2003). Certainly, primary care providers carry a responsibility to thoroughly evaluate their patients, however, to task only them with more duties seems unreasonable. Especially when one considers that the pool of primary care providers has been shrinking since the 1960s (American Academy of Family Physicians (AAFP), 2009), and there is projected

to be “major shortages in primary care providers, especially for the adult population” (AAFP, 2009).

Nurses employed in emergency departments and provider offices can profoundly impact the area of melanoma screening. Phelan and Heneghan (2008) stated that non-physician health care providers are in an optimal place to provide cancer prevention and screening services. This is corroborated by a 1997 study of Texas nurses that found greater than half of the nurses in the study believed that skin cancer detection was part of their job. More than 60%, however, felt that the lack of recognized guidelines and the low priority of skin examinations by providers were significant barriers to performing skin examination (Christos, Oliveria, Masse, McCormick, and Halpern, 2004).

Although not conclusively proven, there is much information in the literature that suggests that skin examination can decrease the mortality of melanoma (Koh, Geller, Miller, Lew, 1994; Janda, Youl, Lowe, et al., 2004; Kantor & Kantor, 2009). Any information that can potentially mitigate this toll merits consideration, especially when associated with as minimal cost and inconvenience as skin screening does (Kantor, 2009). A concise melanoma recognition pamphlet tailored to the busy ED nurse could lessen the number of diagnoses of advanced stage melanoma and decrease the financial burden of melanoma diagnosis and treatment, as well as the loss of human life.

### Theoretical Framework

The theoretical framework guiding this body of work is Nola J. Pender’s “Health Promotion Model.” This model was chosen because it pertains to people taking an active

role in health, whether it be theirs or someone else's. Nurses performing quick skin examinations in conjunction with other assessment tasks embodies one of the nursing profession's most important foundations, which is caring for persons as a whole, not just separate systems. The focus of Pender's Health Promotion Model is to increase the level of self-actualization and well-being in individuals or groups (Pender, 2006).

Nola Pender originally presented the Health Promotion Model in 1982, utilizing her background in nursing, human development, experimental psychology, and education as the foundations. It has been revised several times since its inception (Sakraida, 2006) but has always kept personal attainment of health at its core. Pender's definition of health included a disease component, but it is not the model's principal component (McCullagh, 2009). "A health-promoting lifestyle encompasses far more than preventing disease and is characterized by behaviors that lead to optimal well-being, self-actualization, and personal fulfillment" (Blaccioniere & Oleckno, 1999, p. 11).

The Health Promotion Model (HPM) encompasses behaviors for enhancing health across the life-span (Sakraida, 2006). The major assumptions of the Health Promotion model are as follows:

- Persons seek to create conditions of living through which they can express their unique human health potential.
- Persons have the capacity for reflective self-awareness, including assessment of their own competencies.
- Persons value growth in directions viewed as positive and attempt to achieve personally acceptable balance between change and stability.

- Individuals seek to actively regulate their own behavior.
- Persons commit to engaging in behaviors in which they anticipate deriving personally valued benefits.
- Families, peers, and health care providers are important sources of interpersonal influence that can increase or decrease commitment to and engagement in health-promoting behavior.
- Self-initiated reconfiguration of person-environment interactive patterns is essential to behavioral change. (Pender, 1996, p. 54-55.).

Pender's Health Promotion Model is an attempt to interpret the multi-dimensional nature of people interacting with the environment as they pursue health and utilizes a positive approach-oriented focus to increase the motivation and desire of people to increase personal well-being and realize human potential (Sakraida, 2006). The model incorporates personal factors such as biological (age, gender, body mass index, strength, agility), psychological (self-esteem, self-motivation, perceived health status), and socio-cultural (race ethnicity, acculturation, education, socioeconomic status) to attain the endpoint of positive health outcomes (Sakraida, 2006).

Pender's ideas about attaining positive health through multiple self-initiated or other person influenced behaviors fits well with the hypothesis of this study and with the nursing profession itself, which is caring for patients as whole persons. The function of nurses was been described as healers by Dossey, et al. (2005)

### Definitions

Nurses are 1) licensed health-care professionals who practice independently or are supervised by a physician or surgeon who is skilled in promoting and maintaining health; 2) persons who care for the sick or inform (Merriam Webster, 2005, p. 566).

Malignant melanoma is a form of “skin cancer that begins in the melanocytes of the skin. Melanoma occurs when the melanocytes become malignant, grow, and invade other tissues. Malignant cells have the ability to grow, divide, and invade other cells through lymph or blood flow” (Torrens & Swan, 2009, p. 115 ). For the purposes of this project, invasive melanoma is inferred when melanoma is written.

The meaning of recognition as it applies to melanoma is “any process of examining the skin to detect cancer” (Koh, Gellar, Miller, et al., 1994, p. 675). Recognition implies a past knowledge or experience with something (Merriam-Webster, 2010). Reviewing the melanoma recognition pamphlet could provide the knowledge necessary to identify suspicious moles or lesions.

### Assumptions

The following assumptions from Pender’s Health Promotion Model address what is at the heart of this project: nurses helping people to achieve better health. These assumptions were thought to be the most pertinent to the current project.

- 1) “Individuals seek to actively regulate their own behavior” (Pender, 1996. As cited in Tomey & Alligood, 2006, p. 459). . Nurses embracing the importance of performing skin examinations during their daily care tasks exemplifies this

concept. It would be a conscious choice for nurses to perform skin examinations on their patients in unison with other assessment tasks, thus, determining their own behavior.

- 2) “Health professionals constitute a part of the interpersonal environment, which exerts influence on persons throughout their life spans” (Pender, 1996. As cited in Tomey & Alligood, 2006, p. 459). When persons visit the emergency department or health provider’s office, they are including the nurses they interact with in their lives, into their personal environment. Based upon this author’s ten years of ED experience, these patients often relate personal details of their lives and health status.
- 3) “Self-initiated reconfiguration of person-environment interactive patterns is essential to behavior change” (Pender, 1996. As cited in Tomey & Alligood, 2006, p. 459). Nurses can embrace skin health and model sun-safe behaviors to their patients. A nurse who is tan or speaks about sun-bathing or tanning-booth use while performing skin examinations would not influence patients to be aware of their own sun behavior and skin health. The importance of melanoma screening may not be conveyed by effectively if nurses do not embrace the concept themselves.

The author assumed that emergency department nurses, office nurses, and other nurses from different specialties will believe that knowing about melanoma in order to provide skin examinations is important. This is why the author feels that Pender’s view of health could guide the direction of this project so seamlessly. It is the experience of this

author that providing a high level of care based upon a solid knowledge base, is important to nurses. The author also assumed that the general public, as patients, would be pleased with skin examination and a nurse's ability to possibly detect melanoma.

### Limitations

The efficacy of skin exam has not been conclusively proven. Some expert organizations such as the American Cancer Society (2010) and the Skin Cancer Foundation (2010) recommend regular skin examination. However, some neither recommend nor disprove it (USPSTF,2009). Few studies were found that specifically addressed nurses performing skin exam. There were also few studies (Oliveria, Altman, Christos, et al., 2002; Oliveria, Nehal, Christos, et al., 2001; Chinni, Schwartz, Keilman, et al., 2003) that researched advanced practice nurses performing skin examinations. This author will read pertinent articles and has make an argument for the efficacy of skin examination by nurses, based on the literature that is available. More research on this subject is needed and this project will hopefully help fill missing research gaps.

There was also the limitation of time available to complete this project due to the length of this chosen Master's program. It would be impossible to obtain all the resources available on this subject, much less read it thoroughly and disseminate the information in the timeframe available for this project.

## CHAPTER 2

## LITERATURE SEARCH

The process of this literature review began with a cursory search in CINAHL (Cumulative Index to Nursing and Allied Literature), Medline, Cochrane Library, and Health and Wellness Resource Center. This cursory search was performed to determine which specific phrases and search terms yielded the most pertinent citations. The search terms "melanoma", "nurse skin cancer screening," and Pender health promotion model" were found to return the highest number of research studies and journal articles that could be relevant to this project. The search was further narrowed by utilizing the search terms together to focus on literature from the health sciences that focused on melanoma recognition, and, finally, on melanoma recognition aided by nurse skin cancer screening. However, it should be noted that no results were found in any of the above databases when all three terms (melanoma, nurse skin cancer screening, and Pender health promotion model) were used together.

Generalized Search Effort

To maintain a high level of validity, only primary sources from peer reviewed journals were used for the literature search. All searches were performed using English language as search criteria, yet studies were not limited to any specific geographic location, as other countries such as Australia have experienced a greater incidence of melanoma than the United States.

Polit & Beck (2008) stated that literature searches should be delimited in terms of a time frame for published research. To reflect the timeliest state of the literature, “the literature review must be comprehensive and thorough, and must incorporate up-to-date references” (p. 108). The time frame for this literature search was limited to the past twenty years: 1991-2010. This time period was selected after several searches were performed with differing limitations in years. The first reference found in the literature that focused specifically on nurses performing skin examinations was published in 1985 (Faulkner), with little research being published between 1985 and 1991. In addition, since the subject of this current project has been little studied, and the research material has not changed significantly due to aging and technology, the twenty year timeframe was decided. Twenty years was also an optimal number of years in terms of using other studies referenced in the studies found within this literature search. When ten and fifteen year limitations were used, several pertinent studies from reference lists were not applicable due to publication dates. There were four studies (Berwick, Bologna, & Heer, 1991; McCormick, Masse, & Cummings, et al., 1999; Katris, Donovan, & Gray, 1998; Tsao, Rogers, & Sober, 1998) that could not have been utilized with a narrower limitation in the searched years. These studies were deemed important as they specifically addressed nurses performing skin cancer screening examinations and gave a perspective on how the role of the nurse in skin cancer screening has progressed within the past 20 years.

The work by Berwick, Bologna, Heer, & Fine (1991) was published at a time when

The nurse's role in skin cancer prevention, screening, and early detection was currently at a crossroads, in much the same way as the nursing profession itself is. ...it is clear that the nurse is now in a unique position to make contributions to the prevention and early diagnosis of skin cancer (p. 64).

Along similar lines, the study conducted by Katris, Donovan, and Gray (1996) found that "nurses can provide a reliable and cost-effective pre-screening intervention with minimal training" (p. 383), further supporting nursing's role in skin cancer screening activities. The McCormick, Masse, & Cummings, et al. (1999) study found that

System-barriers could impose substantial barriers to implementation in health care practice (of nurse skin cancer screening and education) ...Knowledgeable nurses must educate their colleagues, their supervisors, and the public about the priority of skin cancer screening and develop strategies for creating organizational change to increase the likelihood that screening will occur (p. 283).

Lastly, the Tsao, Rogers, & Sober (1998) study was a landmark study on the total annual direct costs of treating newly diagnosed melanomas. This study was encountered multiple times during this author's literature research, often cited, but never duplicated.

Adding the other search terms ("nurse skin cancer screening" and "Pender health promotion model") drastically decreased the number of citations found. It was immediately apparent that the topic of nurses performing skin cancer screening to detect melanoma was a little studied concept, needing more research. The search term "melanoma" in Medline yielded 51,163 citations, decreasing to just six when the term "nurse skin cancer screening" was included in the search. The results from all other databases produced similar results (refer to Table 1):

Each search was performed in each database using all the search terms and multiple combinations of search terms until no new citations were returned.

Table 1. Search Results

Search Term	Medline	Cochrane Library	CINAHL
Number of Citations Returned			
Melanoma	51163	1417	2515
Pender health promotion model	73	1	326
Nurse skin cancer screening	19	3	2
Melanoma/Pender health promotion model	0	0	2
Melanoma/nurse skin cancer screening	6	2	1
Pender health promotion/nurse skin cancer screening	0	0	0
Melanoma/Pender health promotion model/Nurse skin cancer screening	0	0	0

In addition to the studies found with the formal literature search, twenty-seven additional citations were found within the reference sections of pertinent studies and articles to review for possible useful citations for this project. All were reviewed, with one study (Chinni, Schwartz, & Keilman, 2003) fitting the specific criteria for this literature review.

The following is a list of the citations found with the literature search but not used for this project:

- 1) Nettina, S.M. (1997). Skin cancer screening and self-examination.
- 2) Resnick, B. (2000). Hosting a wellness day: promoting health in the old-old.
- 3) Oliveria, S., Dusza, S. W., Phelan, D., et al. (2004). Patient adherence to skin self-examination: effect of nurse intervention with photographs.
- 4) Lowey, S, E. (2006). Spinal cord compression: an oncologic emergency associated with metastatic cancer, evaluation, and management for the home health clinician.
- 5) Weinrich, S. P., Priest, J., Reynolds, W., et al. (2007). Body mass index and intake of selected foods in African American men.
- 6) Lachiewiez, A. M, Berwick, M, Wiggins, C., et al. (2008). Survival differences between patients with scalp or neck melanoma and those with melanoma of other sites in the Surveillance, Epidemiology, and End Results (SEER) program.
- 7) Gaetano, D. E., Hodge, B., Clark, A., et al. (2008). Preventing skin cancer among a farming population: implementing evidence-based interventions.
- 8) Oliveria, S. A., Christos, P. J., Halpera, A. C., et al. (1999). Evaluation of factors associated with skin self-examination.
- 9) Oliveria, S. A., Dusza, S. W., Phelan, D., et al. (2004). Patient adherence to skin self-examination effect of nurse intervention with photographs.
- 10) Shuliak-Wils, L, Navah, L. (2000). A community intervention plan to prevent skin cancer in male golfers.
- 11) McCormick, L. K., Masse, L. C., & Cummings, S. S. (1999). Evaluation of a skin cancer prevention module for nurses: Change in knowledge, self-efficacy, and attitudes.

#### Focused Search Effort

After these initial search efforts, based upon the lack of new citations produced from the Health and Wellness Resource Center, it was decided that CINAHL, Medline (including PubMed), and the Cochrane Library would be the databases used for this project. To further narrow this search effort, searches were performed in all databases with combinations of the three search terms "melanoma", "nurse skin cancer screening",

and "Pender health promotion model". Using Medline the terms "melanoma" and "Pender health promotion model" did not yield any citations, nor did "Pender health promotion model" and "nurse skin cancer screening". Using CINAHL, "melanoma" and "nurse skin cancer screening" returned one citation. "Melanoma" and "Pender health promotion model" returned two citations. The Cochrane Library database yielded two citations with the search terms "melanoma" and "nurse skin cancer screening". No citations were identified from the search using the terms "melanoma" and "Pender health promotion model". No results were found in any of the databases when the search terms "nurse skin cancer screening" and "Pender health promotion model" were used. In addition, no results were found when all three search terms were used together.

After all citations produced from the narrowed searches (melanoma/Pender health promotion model and melanoma/nurse skin cancer screening) were perused for duplicates, twenty citations remained. Out of these, only thirteen were found to be relevant for this project (Berwick, Bologna, Heer, & Fine, 1991; Maguire-Eisen & Frost, 1994; Katris, Donovan, & Gray, 1998; Geller, 2002; Christos, Oliveria, Masse, McCormick, & Halpern, 2004; Mahon, 2003; Oivanen, Kojo, Pylkkanen, Holli, & Auvinen, 2008; Phelan & Heneghan, 2008; Vickers, 2009; Watkins, 2010; Oliveria, Nehal, Christos, Sharma, Tromberg, & Halpern, 2001; Oliveria, Altman, Christos, & Halpern, 2002; Torrens & Swan, 2009). Studies that were not included were excluded for the following reasons: 1) the focus was outside that of this project, or, 2) they addressed nurses educating about skin self-examination, rather than actually performing skin cancer screening.

### Evaluation of Literature

This literature search focused on three specific terms: melanoma, nurse skin cancer screening, and Pender health promotion model. "Melanoma" by itself revealed too many citations to be explored by this researcher. However, as the search was narrowed and the focus made more specific to fit this project, the volume of information shrank to a manageable quantity.

Three themes emerged from the focused search effort: 1) melanoma/nurse skin cancer screening, 2) melanoma/nurse practitioner skin cancer screening, and 3) melanoma/Pender health promotion model. Since there were no studies covering the exact research focus of this project (nurse skin examination for detection of melanoma utilizing Pender's health promotion model), the analysis of literature was performed using the themes previously mentioned. These three subtopics were retrieved the most frequently using combinations of all search terms.

#### Melanoma/Nurse Skin Cancer Screening

##### Berwick, Bolonia, Heer, & Fine (1991)

This work addressed the role of the nurse in skin cancer and melanoma prevention, screening, and early detection. The authors stated that nurses are in a unique position to contribute to the prevention and early diagnosis of skin cancer and melanoma. "Nurses have myriad interfaces with the public and many opportunities to examine patients. They are often the first health professionals to examine patients and see their

skin” (p. 65). Furthermore, nurses see people from all classes of the population in diverse settings, and have the opportunity screen and educate in each situation (p. 65).

A strength of this work is the authors’ support of nurses’ ability to effectively screen through comparison of nurses’ rates of successful screening in other medical areas, such as gastroenterology and gynecology. The information is presented in a logical order and the authors used citations to support the information they presented.

A weakness of this study is its publication date of 1991. Another limitation is that the authors do not specifically say what role nurses can occupy in the screening of melanoma. They conclude with an open ended, either-or statement, “At this point the nurses; role will depend on the particular setting in which they find themselves” (Berwick, Bologna, Heer, & Fine, 1991, p. 70). This study contained much information about nurses in an educational role, as opposed to an active screening role.

#### Maguire-Eisen & Frost (1994)

This study evaluated nurses’ frequency of skin cancer and melanoma assessment, their ability to recognize cutaneous malignant melanoma (CMM), knowledge of risk factors and preventive measures, and barriers to skin cancer assessment. The authors concluded that programs to educate nurses in skin cancer detection are needed. Furthermore, they found “even though skin cancer assessment was within their (nurses) scope of practice, frequencies of performance were low” (p. 457). Time limitations and inadequate knowledge were barriers reported that inversely correlated with frequency of skin cancer assessment (Maguire-Eisen & Frost, 1994).

A strength of this study is its pertinence to the focus of this project as it specifically addressed nurses performing skin screenings and their efficacy. It was written by two advanced practice RNs who perform skin cancer screenings (Maguire-Eisen & Frost, 1994).

A limitation of this study is that it only addressed screening performed by dermatology and oncology nurses. This could limit the generalizability of this study for ED nurses or RNs in general. In addition, the authors did not have any definite conclusions other than to conclude that there needs to be more education (Maguire-Eisen & Frost, 1994).

Katris, Donovan, & Gray (1998)

The performances of nurses were compared to plastic surgeons participating in a skin cancer screening program in Australia. The study was designed after Australian health authorities called for studies to investigate the viability of using providers other than physicians (nurses, pharmacists, and physiotherapists) in opportunistic screening for skin cancer and melanoma (Katris, et al., 1998).

There were several strengths to this observational study. A strong point was the study design itself. Polit & Beck (2008) stated “observational methods are quite versatile and can be used to gather a variety of information, including information about ...”Skill attainment and performance” (p. 370) The research question “can nurses screen for cancer as effectively as physicians?” was appropriately addressed by this study method. An additional strength of this study was the amount of data that was collected from five screening clinics during 1995-1996. However, it was unknown from this study whether

the nurses being evaluated were aware of their status in this study. Hence, the larger number of people screened in different settings at different times could increase the objectivity and lessen potential researcher obtrusiveness (Katris, et al., 1998).

The authors stated “the two registered nurses participating in this project were volunteers. Thus, they were interested in the early detection of skin cancer and intrinsically motivated to perform well” (Katris, Donovan, & Gray, 1998, p. 383).

However, as previously mentioned, it is unknown whether the nurses were aware of their status in this study so researcher obtrusiveness cannot be excluded as a weakness of the study. Also, the external generalizability “warrants further investigation” (Katris, Donovan, & Gray, 1998, p. 383), as the performances of only two nurses were studied. Finally, the screening clinics were performed in Western Australia, limiting the studies’ generalizability to other geographical regions of Australia and other countries of the world. Large-scale studies are warranted to provide evidence of the effectiveness nurse skin cancer and melanoma screening capabilities.

Of significant importance to this current project is the study design, as the nurses were "not required to diagnose skin cancer but to not miss significant lesions that required further examination" (Katris, et al., 1998, p. 382). "The results of this study are clear. Nurses working within a formal skin cancer screening program can provide a reliable and cost effective pre-screening intervention with minimal training" (p. 383). Moreover, the commonwealth (Australia and New Zealand) called for "demonstration projects utilizing nurses to detect lesions in opportunistic settings as part of their overall duties while interacting with patients" (Katris, et al., 1998, p. 383). Lastly, the authors

concluded that nursing professionals could clearly play an important role in the early detection of skin cancer (Katris, et al., 1998).

Geller (2002)

This literature review examined the major studies in melanoma research from 1981-2001, emphasized the need to screen unscreened populations, and made suggestions for reducing melanoma mortality. This review was published at a time when screening was neither recommended nor discouraged by the U. S. Preventive Services Task Force, nor was it reimbursed by Medicare. Also happening concurrently was the beginning of a population-based, community screening program just underway in Queensland, Australia.

A strength of this review was its comprehensive coverage of the state of the literature at the time of publication. Adding to the depth of this review was the author's analysis of the literature using specific subheadings (rationale for melanoma screening, defining criteria for successful control programs, screening recommendations for melanoma, identification of high-risk populations, current venues in melanoma screening and education, and new strategies (Geller, 2002).

Since this was a literature review, no new material or hypotheses were presented. The date of this review rendered it less useful than more recent works. A major study that had just been started in Queensland, Australia at the time of this review, has since been disbanded due to financial constraints. In addition, recommendations resulting from two national conferences (National Conference to Develop a National Skin Cancer Conference, 1995; The National Institutes of Health Consensus Conference on the

Diagnosis and Treatment of Early Melanoma, 1992) have never been reexamined since they were included in this review (Geller, 2002).

Of importance to the current project is the author's statement that "screening and early detection programs could save many lives otherwise lost to melanoma" (Geller, 2002, p. 629). Furthermore, "screenings can take place in a variety of settings: within the physician examination at his or her office, at health fairs, at workplaces, or in mass efforts where persons select themselves to attend" (Geller, 2002, p. 629). Also of relevance to the current project is the author's discussion of self-described barriers to nurses performing skin cancer and melanoma screening.

#### Mahon (2003)

This literature review examined skin cancer public health initiatives, as well as prevention, early detection, and public health issues related to skin cancer and melanoma. The author's main premise was that "nurses can influence the public to practice primary, secondary, and tertiary prevention strategies for skin cancer" (Mahon, 2003, p. 52). A key concept of this review was the author's assertion that dermatologists have the greatest expertise in recognizing melanoma. However, their practice is often limited to those persons at high risk for developing melanoma. "Many melanomas do not occur in individuals with a family history, dysplastic nevi, or fair skin, so if early detection efforts are limited to this population, there will be a limited impact on the overall public health problem" (Mahon, 2003, p. 58).

Strength of this review was the author's review of the literature as it related to skin cancer prevention, early detection, and public education issues using primary

sources. Also, the use of major headings to further subdivide and discuss the information (the need for public policy, healthy people 2010 guidelines, primary prevention, secondary prevention, tertiary prevention, and conclusion) was a strong point of the review (Mahon, 2003).

There were several weaknesses in this review. The author did not indicate for what time period she was including literature, nor does her literature pool seem scholarly as “review articles, research reports, web sites, and government reports” were used (Mahon, 2003, p. 52). The author begins this work with the statement that “oncology nurses can significantly impact morbidity and mortality associated with non-melanoma and melanoma skin cancer” (Mahon, 2003, p.52), yet no other mention of oncology nurses is noted in the review. In addition, the discussion does not focus specifically on skin cancer prevention as it relates to oncology nurses (Mahon, 2003).

The author’s discussion of Healthy People 2010 (2007) goals in relation to reducing the mortality rate for melanoma over the next ten years was of particular importance to the current project. The author stated that better approaches were needed to recognize high risk persons, and to prevent and detect melanoma. “Melanoma meets the criteria for a disease amenable to screening because it is a serious disease that is increasingly common, has an asymptomatic period, an available screening tool exists, and it can be detected and treated early” (Mahon, 2003, p. 58).

Christos, Oliveria, Masse, McCormick, & Halpern (2004)

This descriptive study asserted that visual skin examination in the outpatient setting can result in early skin cancer and melanoma detection. "As front line health care

providers, nurses can provide education on sun protection, instruction on skin self-examination, risk factor assessment, screening, and evaluation" (Christos, et al., 2004, p. 51). A survey associated with this study found that 84% of a population of Texas nurses considered skin cancer examination to be within their scope of practice. Many of the nurses surveyed believed they had the opportunity for the detection of skin cancer and melanoma in their practices, but barriers existed (lack of education, employer and public disinterest). The authors concluded by saying, "more than 85% of nurses recognized a benefit of skin cancer prevention and detection to their patients and a benefit of knowledge and skills in cancer services to their nursing occupation" (Christos, et al., 2004, p. 55).

Strengths of this study were the large sample population size (1,180) of randomly chosen public health and oncology nurses employed in Texas. Almost half of the 40% response rate was from nurses in other practice settings such as public schools or the college setting, making these results more applicable to the current project (Christos, et al., 2004).

A drawback of this study is the sample bias of surveying Texas nurses only. In addition, the fact that the initial target population was restricted to public health and oncology nurses weakens the generalizability of this study to nurses in other areas such as general practice and the emergency department. The authors stated that there is the possibility of a significant sampling bias due to the 40% response rate. Also of note was the fact that, although the researchers intended to survey a specific population of nurses, their response rate from just that population was only 56% (Christos, et al., 2004).

Information from this article most pertinent to the current project was the authors' theory that "skin cancer screening by nurses represents an opportunity to increase such services to the public" (Christos, 2004, p. 56). Also, the authors' believed that "efforts in prevention of skin cancer mortality by nurses will remain anchored in the implicit potential of increased screening and early detection" (Christos, 2004, p. 56). Additionally, 97% of respondents believed that a reduction in the incidence of skin cancer was possible through their screening efforts.

Oivanen, Kojo, Pylkkanen, Holli, & Auvinen (2008)

When comparing the results of a campaign (intense screenings in a central location, typically held several times per year in some areas), and routine skin cancer and melanoma screening, no optimal method was found. Nurses were utilized in this study to screen participants' skin and make referrals for suspicious lesions. "The results indicated that activity of this sort (skin cancer and melanoma screening) can be conducted by experienced nurses" (Oivanen, et al., 2008, p. 163).

A strength of this retrospective evaluation was its access to a large amount of skin cancer incidence data for almost 10,000 patients and campaign attenders in Finland (Oivanen, et al., 2008). Also, the researchers' findings about specificity and sensitivity correlated with previous findings, further supporting this, and previous studies.

A weakness of this study was the researchers' inability to determine if the population attending campaign screenings were representative of the general population, or if they were persons with family or personal history of skin cancer or risk factors. Additionally, the researchers only had access to recommendations for referral, not the

actual number of skin lesions removed, limiting the interpretation of performance analysis (Oivanen, et al., 2008).

Of particular use to the current project is the researchers' (Oivanen et al., 2008) corroboration of Mahon's (2003) estimation that a thorough skin examination by a trained clinician can be accomplished in approximately seven minutes. In addition, these researchers supported previous findings (De Rooij, et al., 1996) that during screening for malignant melanoma, a total body examination, as opposed to partial examinations, did not increase the detection rate (DeRooij, Rampen, Schouten, & Neumann, 1996). The study strengthened this researcher's hypothesis that nurses can efficiently perform quick examinations of exposed skin to detect melanoma.

#### Phelan & Heneghan (2008)

This survey found that non-physician providers (nurse practitioners, physician assistants, registered nurses) are in an "optimal position to provide cancer prevention, detection, and screening services" (Phelan & Heneghan, 2008, p. 357). The researchers further stated that nurses can play a significant role in primary and secondary skin cancer prevention and "can become leaders in skin cancer detection and education" (Phelan & Heneghan, 2008, p. 364). They concluded that rising health care costs dictate more efficient, high quality screening efforts be utilized, and that nurses are "pivotal" (Phelan & Heneghan, 2008, p. 363) in detecting skin cancers.

A strong point of this study was that it specifically addressed nurses performing skin screening activities to decrease morbidity and mortality from melanoma. The most useful information for this project is these authors' statement that nurses can be

significant frontline resources in early melanoma detection. A convenience sample of 140 nurses was utilized for this study (Phelan & Heneghan, 2008).

A weakness of this study was that it was performed at the Dermatology Nurses' Association national convention in Arlington, Virginia. Perhaps this location created a study bias, as the majority of respondents were local nurses. In addition, this study focused on the skin examination efforts of dermatology nurses specifically, not nurses in general (Phelan & Heneghan, 2008).

#### Vickers (2009)

Polit & Beck (2008) stated that clinical practice guidelines “give practice recommendations and prescriptions for evidence-based decision making” (p. 34). In addition, these guidelines “define a minimum set of services and actions appropriate for certain clinical conditions, yet are flexible in their application to patients who fall outside the scope of the guideline” (Polit & Beck, 2008, p. 34). This review of evidence-based practice guidelines for skin cancer and melanoma screening revealed there are currently no recommendations from the U. S. Preventive Services Task Force (USPSTF) for or against routine screening for skin cancer, due to inadequate evidence. However, “clinicians are encouraged to be alert for possible melanotic lesions in the context of physical examinations performed for other reasons” (Vickers, 2009, p. 16). The author (Vickers, 2009) called for additional research to be performed in the future to determine whether routine screenings help decrease melanoma rates.

A strength of this review was the author’s presentation of recognized steps in the evidence-based guideline process (systematic reviews, evaluation measures, research

studies, professional organizations). Another strength was the author's use of current guidelines to discuss evidence-based practice guidelines for skin cancer and melanoma screening (Vickers, 2009).

Although the appropriate steps were followed for developing evidence-based practice guidelines, the author (Vickers, 2009) did not conclude this review with any solid recommendations for skin cancer and melanoma screening. Perhaps, as the USPSTF (2009) has found, there was no solid evidence upon which to base recommendations so the author's best conclusion was "dermatology nurses must look at the evidence, combined with clinical expertise, when deciding what is best for patients in regards to skin cancer and melanoma screening. "Clinical experience shows that early detection and diagnosis of skin cancer saves lives" (Vickers, 2009, p. 17).

An essential point to the current project is the author's statement that sources other than clinical practice guidelines must be evaluated when one is determining the best practice of care for themselves and patients. This becomes most important in light of the fact that "research evidence is inadequate to recommend for or against routine skin cancer screening in the general population" (Vickers, 2009, p. 17).

#### Watkins (2010)

This review stated that "community nurses are in daily contact with patients, and, in the course of their day's work, have every opportunity of recognizing those patients who ... (have) actual sun damage" (Watkins, 2010, p.6). In addition, the author stated that nurses are in a position to inspect patients' skin, especially hard to inspect areas such as the back and skin that patients cannot easily visualize. By doing this, the hope is to

"achieve earlier diagnosis and reduce the risk of later, more serious consequences" (Watkins, 2010, p. 11).

A strength of this review is the author's systematic presentation of actinic keratosis and other sun related lesions, specifically melanoma. It included large, colorful pictures to better educate the reader (Watkins, 2010).

Although this review contained helpful information, it was cursory in nature, occupying only four pages total, three of which contained large pictures, and the bibliography list at the end. Additionally, the bibliography contained questionable, references from the internet (Net Doctor). This article was generally informative about several types of sun damage (actinic keratosis, basal cell carcinoma, squamous cell carcinoma, and malignant melanoma) but was not specific to melanoma detection. It touched only briefly on each disease, management options, and prevention recommendations. The most useful aspect of this article was the author's position that nurses can affect early melanoma diagnosis in their day-to-day work routines (Watkins, 2010).

#### Melanoma/Nurse Practitioner Skin Cancer Screening

Oliveria, Nehal, Christos, Sharma, Tromberg, & Halpern (2001)

A study that examined the greater use of nurse practitioners for skin cancer screening concluded that nurse practitioners can identify and triage suspicious lesions. "A role for the nurse practitioner in primary and secondary cancer prevention has been

proposed, and nurse practitioners have reported knowledge, skills, and interest in cancer prevention, education, and early detection" (Oliveria, et al., 2001, p. 216).

The study was pertinent to this project as it further corroborated the theory that nurses and nurse practitioners can effectively perform skin examinations to detect melanoma. However, there were limitations to this study, the foremost being a convenience sample of only five nurse practitioners, limiting the generalizability of this study. The results need to be replicated in a larger sample. Also, the nurse practitioners in the convenience sample received formal training in recognizing skin cancer and melanoma, not merely given a pamphlet on melanoma detection, the primary focus of the current project. Finally, the generalizability of the patient population may be minimal as the population for this study was a "self-selected group who presented at a dermatology clinic" (Oliveria, et al., 2001, p. 216).

Although this study was limited by a small convenience sample (five nurse practitioners), the results suggesting that nurse practitioners can "accurately identify and triage melanoma and non-melanoma skin cancer with good sensitivity and excellent specificity" (p. 216) has importance to the current project. A larger sample population could have increased the validity of the results.

Oliveria, Altman, Christos, & Halpern (2002)

These researchers investigated the use of non-physician health care providers screening for skin cancer and melanoma in the primary care setting. This study surveyed physicians from across the country to determine use of non-physician providers and their willingness to use non-physician care providers to perform skin cancer screening in

comparison to other cancer screening examinations (Oliveria, et al., 2002). They found that nurse practitioners, physician assistants, and nurses "are in an optimal position to provide skin cancer prevention, detection, and screening services" (Oliveria, et al., 2002, p. 374). Early diagnosis of melanoma provides the greatest chance of long-term survival (Oliveria, et al., 2002) and, given the fact that skin cancer is visible on the surface of the skin, direct visualization by nurse practitioners can impact the secondary prevention of melanoma (Oliveria, et al., 2002).

A strength of this study was the large sample population size of 1,300 primary care physicians from across the United States. Also, the researchers' finding that these study results were similar to a 1989 survey of physicians' attitudes and practices in cancer detection ("1989 Survey", 1990). In additional support of the current project is the statement "studies (Kottke & Trapp, 1998; Schroy, Wiggins, Winawer, Diaz, & Lightdale, 1988; Mandelblatt, Freeman, & Winczewski, 1996; Trapp, Kottke, Vierkant, et al, 1996; Maule, 1994; Schoenfeld, Lipscomb, Crook, et al., 1999) suggest that non-physician health care providers can be trained to successfully screen and detect early skin cancer" (Oliveria, et al., 2002, p. 378).

The final response rate of 30% could raise the possibility of significant sampling bias "if responders and non-responders differ regarding variables under study" (Oliveria, et al., p. 378). In addition, names with incomplete mailing addresses were excluded from the database, possibly further biasing the study results. However, the authors reported that results from their first mailing were similar to their second mailing, as well as to a

previous study (“1989 Survey”, 1990) that specifically addressed error from nonresponse issues (Oliveria, et al., 2002).

Of significance to this project is the authors’ (Oliveria, et al., 2002) premise that nurses and nurse practitioners can possibly increase the rate for general skin cancer screenings through expansion of their current role (Oliveria, et al., 2002). Increasing the rate of skin cancer screenings can potentially decrease the incidence of advanced stage melanoma diagnoses (Oliveria, et al, 2002).

Chinni, Schwartz, Keilman, & Johnson (2003)

This review described the role of the advanced practice nurse in early melanoma detection

Primary care providers (PCP), including APRNs, have a critical role in the diagnosis, education, and referral of persons with melanoma, as 85% of the population seek the care of a PCP every two years and non-dermatologists examine 70% or more of the population on a regular basis (p. 14).

Furthermore, there are “simply not enough dermatologists to routinely screen those who are at risk for developing melanoma” (Chinni, et al., 2003, p. 15).

A strength of this review lies in the authors’ systematic, thorough presentation of current information using primary sources. Although this study was published eight years ago, and the sources used were as much as thirty years old, showing that the authors (Chinni, et al., 2003) were thorough. However, this could also be considered a limitation as 30 year old information has questionable pertinence. The inclusion of color photographs of various melanotic lesions helped to clarify the written manuscript

The authors' use of descriptive words such as "huge" to describe potential cost savings associated with the use of nurse practitioners to screen for melanoma indicates possible partiality of the authors (Chinni, et al., 2003).

Of significance to the current study was the authors' conclusion that APRNs, in their role of direct clinical care, are in a unique position to detect melanoma and teach about early detection and prevention, resulting in a potential cost savings. Advanced practice nurses

have the potential for screening a large population for melanoma and educating them on the risk factors for and the signs and symptoms of melanoma. Many lives may be saved with huge cost savings to the healthcare system with early detection of this potentially fatal skin cancer" (p. 3).

Additionally, "by prioritizing the critical components of a brief assessment and physical examination, screening and education can be done efficiently and potentially save numerous lives (Chinni, et al., 2003, p. 18).

### Melanoma/Pender Health Promotion Model

#### Torrens & Swan, 2009

The only pertinent research article found that addressed both melanoma and Penders's Health Promotion Model examined contributing factors to melanoma etiology, reviewed current research literature, and explored facilitators and barriers to surveillance and sun-protective behaviors. The authors stated "health care professionals are in an optimal role to screen for and help increase awareness concerning melanoma" (Torrens & Swan, 2009, p. 116). In addition, they stated "Pender makes it clear that patients will act

in their own best interest, changing dangerous behaviors and increasing healthy practices if they have the knowledge, tools, and incentives to do so” (Torrens & Swan, 2009, p. 121).

The authors utilized Pender’s Health Promotion Model (HPM) to guide their literature review. They quoted Pender, Murdaugh, & Parsons (2002) in describing how the HPM “explores the complex interaction between biological, psychosocial, and sociological processes that influence health behaviors in individuals” (as cited in Torrens & Swan, 2009, p. 116). In addition, the authors discussed the different components of health behaviors (individual characteristics, gender, age, genetics, and behavior-specific cognitions) and how health promoting behaviors are influenced by situational and interpersonal factors. “According to Pender, communal health awareness is necessary for an individual to make a solid commitment to a health-promoting behavior” (Torrens & Swan, 2009, p. 121).

This review concluded with a discussion about decreasing morbidity and mortality from malignant melanoma through patient education. “Patients will act in their own best interest, changing dangerous behaviors and increasing healthy practices if they have the knowledge, tools, and incentives to do so”... [Thus], “practitioners need to educate patients on the benefits of sun avoidance and regular skin exams” (Torrens & Swan, 2009, p. 121).

### Literature Gap

The body of knowledge about melanoma is immense, but lacking specificity in the areas of direct costs of treatment and efficacy of skin exam, especially skin examinations performed by nurses. With a twenty year time period from which to review articles, less than ten were found with the primary literature review that pertained to the topic of the current project. Only one study was found that included Pender's Health Promotion Model in conjunction with nurses screening for skin cancer and melanoma (Torrens & Swan, 2009).

In relation to costs of melanoma diagnosis and treatment, there were only two scholarly studies found. One landmark costs study (Tsao, Rogers, and Sober, 1998) was greater than ten years old, has never been fully replicated, yet turned up repeatedly, in studies old and new.

Recommendations for skin cancer and melanoma screening through skin examination were also scarce, as its efficacy has not been absolutely proven. Only a handful of sources were found that addressed this issue (ACS, 2010; Skin Cancer Foundation, 2010; Vickers, 2009).

## CHAPTER 3

## METHODS

Melanoma Introduction/Project Conception

This chapter presents information about the methodology this researcher used to conceptualize and complete this project. This material is important to present in detail so that other researchers may replicate this project, if desired (Lunenborg & Irby, 2008). This chapter was divided into five different sections: (a) population and sample, (b) human subject rights and consent process, (c) design, (d) procedures for data collection, and (e) statistical analysis.

Population and Sample

Nurses working in emergency departments were chosen as the overall population for this project. Specifically, nurses working in two emergency departments were chosen as the target population and were the source of the convenience sample.

Polit & Beck (2008, p. 348) stated that there is no simple formula for determining the appropriate sample size in a quantitative study, but one “should use the largest sample possible”. They also stated that “practical constraints such as time, subject availability, and resources often limit the sample size of many nursing studies” (p. 349). With this information, as well as the author’s emergency nursing experience, it was determined that nurses working directly in two different emergency departments, or associated with them,

in two different cities, as well as nurses from each air medical transport team, would be the sample population for this project.

There were 46 full-time, part-time, traveling, and registry nurses, given the opportunity to participate in this project. Additionally, there were nine air transport team members and six other nurses associated with the ED but not working in direct patient care, who were given the opportunity to participate. This author collected questionnaire information from one ED over the period of a week. Data from the other ED was collected over one busy Saturday. Thirty-three nurses returned completed consent forms and questionnaires, a 54% return rate. A post-hoc power analysis was run to show a sample size that would have the most significance and generalizability. That analysis returned a sample of 126.

The most important component of a researcher's sampling procedures is representativeness, allowing the results from one project to be generalized to the population (Lunenburg & Irby, 2008). The convenience sampling technique was employed to select nurses from the emergency departments and flight programs from two different hospitals in different cities in a frontier Western state. Lunenburg and Irby stated that although random sampling techniques provide the most unbiased samples, quality information can still be achieved if a researcher's sample is drawn from more than one group (2008, p. 174).

Both emergency departments employ registered nurses. However, there are several degrees of education held by registered nurses: (1) bachelors of science in nursing (BSN), (2) bachelor of arts in nursing (BAN), (3) associate degree, and (4) diploma.

### Rights of Human Subjects/Consent Process

This study was exempt from full Institutional Review Board (IRB) (see appendix A) review as there were no identifying questions included in either the pre or the post questionnaire. In no way could study participants be identified from answering either questionnaire. The director of each emergency department gave approval to conduct the study after reassurance that participants could not be identified nor could they suffer any hardship as a result of participation. Before partaking in the survey, participants were given a consent form that made clear this participation was completely voluntary, there would be no compensation, long-term risks, or follow-up.

### Pamphlet Design

The goal of this project was to educate nurses about melanoma. A pamphlet was chosen as the best choice for this project due to ease of production, revision, presentation, and financial considerations. Pamphlets can come in many forms, are easy to store, can be used without special equipment, and can be tailored to specific audiences (Program for Appropriate Technology (PATH), 1996, p. 8) In further support of using an educational pamphlet, Houts, Bachrach, and Witmer's (1998) study found that patients remember only a portion of verbally presented healthcare information (29-72%) (p. 84). "Health professionals therefore frequently rely on informational pamphlets to enhance the understanding and recall of healthcare instructions" (Garcia, Chismark, Mosby, & Day, 2010, p.512). In financial terms, Little, et al, (2001) found that, in comparison to other

methods, written material is the simplest and most cost-effective method of educating people

Some key points to remember when designing a pamphlet are: 1) It is better to “show” than “tell”, 2) Limit text to key information and include lots of pictures, 3) Use text that is large enough to be read, 4) Include a variety of photos, drawings, charts, and text, and 5) the display should focus on the message-why is it important, what are you trying to accomplish, and who are you trying to convince (U. S. Environmental Protection Agency, 2006, p. 2)?

The target audience of this pamphlet was nurses, especially emergency department nurses. It was thought by the author that the design of the pamphlet should be such that it would be interesting, concise, easily read, and easily comprehensible, as well as sturdy, so that it could be used as a reference tool in the future. Kools, Ruiters, Van de Wiel, and Kok (2004) stated that “health education messages should be understood optimally so that there remains no uncertainty in the audience of how and why to comply with it behaviorally”. This being known, there were many aspects of the pamphlet design that needed consideration. The general design, readability, accuracy of information, clarity of information, and the general balance of the information, as well as the length of the pamphlet, were all points that needed evaluation.

In terms of format, various folds on different paper sizes were experimented with and, as the pamphlet design progressed on the computer, a Z fold pamphlet with three printed sides was chosen as the most efficient choice in regards to print size, text quantity, picture size, and ease of opening/readability. The use of any more than three

sides required turning the pamphlet around or over, seemingly counterproductive to the original goal of producing a succinct, easy to read pamphlet.

The pamphlet consisted of pictures as well as text. It was printed in color so as to best show melanoma lesions, many of which have color as a significant characteristic. The written text was cohesive with the pictures and coherent on the micro and macro levels (Kools, et al., 2004). Text coherence on the macro level entails the topics of the brochure flowing in a logical order, facilitated by headings. Text coherence at the micro level occurs within paragraphs when each sentence flows into the next (Whittingham, Ruiter, Castermans, Huiberts, & Kok, 2008).

In regards to this pamphlet being kept by study participants for future reference, a sturdier weight paper (32#) was chosen for printing, to decrease bends, folds, and general tearing that can occur with regular weight printer paper (25#). It could be used as a reference for nurses performing skin examination; the pamphlet could be brought into the patient's room and used as a guide, or as a means to clarify information, or to clarify a suspicious skin lesion.

### Study Design

A pre-and posttest questionnaire was designed to test the efficacy of a specially designed pamphlet for educating nurses about melanoma. The key concept that the pamphlet was intended to measure was knowledge gained by nurses after reviewing the melanoma recognition pamphlet. Each questionnaire consisted of the same seven statement, five point Likert scale. (see Appendix C) The only difference between the

questionnaires was the posttest questionnaire invited participants to give comments or thoughts about the questionnaire or the study in general.

The Likert scale statements were intended to determine participants' general knowledge about melanoma before reviewing the melanoma recognition pamphlet and after. The Likert scale consisted of five options to choose: Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, and Strongly disagree. A high score of five points was given to all "strongly agree" statements, while a low score of 1 was given to all "strongly disagree" statements (Table 2).

Table 2. Scoring System

Statement	Numerical Score
Strongly agree	5
Somewhat agree	4
Neither agree nor disagree	3
Somewhat disagree	2
Strongly disagree	1

The pre/post test questionnaires were scored depending upon the degree of participants' agreement with the seven statements. All statements were positive, there were no negative statements that would require a negative scoring procedure.

Participation in the study was solicited through word of mouth in each ED. Participants completed the consent form and questionnaires while at work.

### Procedures for Data Collection

After approval to conduct the study was obtained from the nurse manager from each emergency department, an educational pamphlet, *The Busy Nurse's Guide to Melanoma Recognition*, was distributed to nurses in emergency departments in two hospitals and two air medical transportation teams in one rural Western state. A pre- and posttest questionnaire was developed and distributed with the pamphlet. The aim was to understand the general level of melanoma knowledge among selected nurses and if this pamphlet helped increase the nurses' knowledge about melanoma recognition.

Solicitation for participation was through word of mouth. Before participating in the study, all participants signed a consent form that stated participation was voluntary and there would be no follow-up or financial compensation instructions for participation were printed on manila envelopes in which the materials were stored, and were also given verbally. A numerical sequence was clearly described for participants to participate

Data was collected over a period of one week in one ED and one day in the other. Participants were asked to complete a consent form (Appendix 1). Then they completed a pretest questionnaire (Appendix 2), read the pamphlet (Appendix 3), and then completed a posttest questionnaire (Appendix 2). Consent forms and questionnaires were kept separate. There was no identifying information on the questionnaires. After all data was gathered from the consent forms and the questionnaires, they were destroyed.

### Statistical Analysis

The Statistical Package for the Social Sciences® (SPSS, 2009) was used to compute statistical tests to identify the mean, mode, standard deviation, and conduct the t-tests, and Chronbach's alpha. Simple mathematical equations were used to determine the percentage of the total population, male/female percentage, as well as the percentage of participants according to age, and level of education.

The scores for each statement were totaled. The mean for each statement, as well as each pretest/posttest questionnaire as a whole was computed to determine the center of the distribution of scores.

Cronbach's alpha is the most common measure of the reliability of a scale. It was computed to be 0.598 for the questionnaire, which is lower than the generally least acceptable value of 0.7 (Field, 2009). A t-test was calculated to determine if the change in scores between the pre- and posttest items were significant using a significance value of 0.5.

Four participants included handwritten comments. These comments were treated as qualitative, informational data and were not analyzed.

## CHAPTER 4

## PRESENTATION AND ANALYSIS OF DATA

This project focused on the development of a pamphlet that presented information about the scope of malignant melanoma in the United States. It was crafted around the fact that visual skin examination is the best means to find malignant melanoma (American Cancer Society, 2010; National Cancer Institute, 2010). Since most nurses, especially those in the emergency department, see patients' unclothed skin every day they work, by knowing the significance of this disease and learning ways to recognize it, nurses could possibly increase the cases of melanoma detected every year.

The purpose of this project was to answer the following research question: Will RNs demonstrate increased knowledge regarding screening for melanoma, after reading an educational pamphlet?

The objective of this chapter is to report an analysis of the data obtained from the pre and posttest questionnaires. Descriptive statistics were used to evaluate the scores from the questionnaires for reliability, generalizability, and strength of the tool.

Handwritten comments and suggestions were also solicited with each questionnaire. These comments were treated as additional information and provided suggestions for improvement if this pamphlet was printed again. However, no analysis was done on this qualitative-type data. The following chapter will present material about 1) demographic information, 2) analysis of the pre and posttest questionnaire, 3) qualitative data, and 4) a summary of the chapter.

Demographic Data

The pamphlet and questionnaires were made available to 31 full-time and part-time staff nurses in one emergency department, as well as to 15 full time staff nurses working a weekend shift in another emergency department in a rural Western state. In addition, it was made available to seven flight nurses at one air medical transport program, as well as to two flight nurses from another air medical transport team. Six other nurses working as support for one of the EDs yet not involved with direct patient care were also given the opportunity to participate.

Of a total of 61 potential nurse participants, 33 returned completed consent forms and questionnaires for a response rate of 54 percent. Table 3 details the number of returned questionnaires from each location.

Table 3. Number of Completed Questionnaires Returned

Questionnaire	Hospital 1 ED	Hospital 1 Flight Team	Hospital 2 Flight Team	Hospital 2 ED	Hospital 1
Pretest	14	5	2	3	9
Posttest	14	5	2	3	9
Total Possible	26	7	4	12	12

Table 4. Demographic Data of Participants

Demographic	Sample size (n)	Percentage (%)
<b>Gender</b>		
Male	13	39
Female	20	61
<b>Education level</b>		
RN	30	91
APRN	3	9
<b>Age</b>		
20-29	5	15
30-39	9	27
40-49	8	24
50-59	10	30
60-69	1	3

All nurses were RNs (BSN, ADN, BAN, Diploma) with three (9%) of those being advanced practice nurses (APRN). Females outnumbered males, with 20 female nurses (60%) and 13 male (40%) nurses participating. Ages varied widely, from nurses in their 20s up to nurses in their 60s. Table 4 details the breakdown between males and females, their levels of education (RN, APRN), and their age ranges. Tables 5A and B, show the number of total responses for each declarative statement from the pre- and posttest questionnaires.

Table 5. A) Number of Responses for Each Declarative Statement-Questionnaire Pretest

Declarative statement	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Totals
The incidence of melanoma skin cancer is increasing	25	6	2	0	0	33
Melanoma prevention efforts are important	30	3	0	0	0	33
I have knowledge to screen patients for melanoma	3	11	7	8	4	33
I would feel comfortable encouraging patients to have questionable lesions re-examined by their PCP/dermatologist	18	10	4	1	0	33
It would be easy to look at patients' skin during my workday	15	11	4	2	1	33
I know the ABCDE of melanoma screening	5	5	4	8	11	33
I can educate patients about the ABCDE of melanoma	3	6	3	10	11	33
Totals (231 possible)	99	52	24	29	27	

## B) Number of Responses for Each Declarative Statement-Questionnaire Posttest

Declarative statement	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Totals
The incidence of melanoma skin cancer is increasing	25	7	1	0	0	33
Melanoma prevention efforts are important	33	0	0	0	0	33
I have knowledge to screen patients for melanoma	25	0	0	0	0	33
I would feel comfortable encouraging patients to have questionable lesions re-examined by their PCP/dermatologist	30	3	0	0	0	33
It would be easy to look at patients' skin during my workday	24	4	1	4	0	33
I know the ABCDE of melanoma screening	29	2	0	1	1	33
I can educate patients about the ABCDE of melanoma	27	3	0	1	1	33
Totals (231 possible)	193	19	2	6	2	

### Reliability and Validity of the Pre/Posttest Questionnaire

The Statistical Package for the Social Sciences ®, GradPack 18 (Predictive Analytics SoftWare (SPSS), 2009) program was used to calculate Cronbach's alpha for the pre/posttest questionnaire (0.598). For the purpose of this research, the psychometric evaluation of the questionnaire's validity was not conducted.

### Analysis of the Pre-/Posttest Questionnaire

#### Mean

The mean was computed to show the central tendency of the scores from the questionnaires and is a computation of the mathematical average; the mean is the easiest statistic to compute but is affected by extremes in data and is not always suitable for skewed distributions for data, as is found with much social science data (Field, 2009). SPSS® GradPack 18 (PASW, 2009) was used to compute the mean of each declarative statement from the questionnaires.

The mean for each item was calculated in order to examine if participants showed an increase in knowledge from the pretest to the posttest. The mean of each item increased on the posttest, indicating that participants agreed more strongly with the statements on the posttest, after reading the melanoma recognition pamphlet, resulting in a higher total score and a higher mean (refer to Table 6).

The mean of the overall pretest questionnaire was 3.73. The mean for statements one, two, four, and five, individually on the pretest, were higher than the overall mean. The mean for statements three, six, and seven were lower than the overall mean.

The mean for the overall posttest questionnaire was 4.74. On the posttest, only statements two and four had a higher mean than the overall posttest mean. Statements one, three, five, six, and seven had a lower mean than the overall posttest.

### T-test and Significance Level

The scores from the questionnaire were analyzed using SPSS® GradPack 18 (PASW, 2009) to establish whether the changes in means from the pretest to the posttest were significant.

Table 6. Mean for Questionnaire and Individual Statements from Pre/Posttest

Pretest	State 1	State 2	State 3	State 4	State 5	State 6	State 7
Mean (3.73)	4.70	4.91	3.03	4.36	4.12	2.55	2.39
Posttest	State 1	State 2	State 3	State 4	State 5	State 6	State 7
Mean (4.74)	4.73	5	4.63	4.91	4.45	4.73	4.70

A t-test was calculated for each pre and posttest pair of items to analyze the differences between the means of the two groups (pretest and posttest) (refer to Table 7), using a significance value of 0.05. The differences in means for five statements pairs (3, 4, 5, 6, 7) were significant (refer to Table 7). It can be supported that a significant gain in knowledge occurred related to these content areas.

Table 7. Paired Samples/T-test/Significance/Confidence Values

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 IncidofMel – PostIncidence	-.03030	.63663	.11082	-.25604	.19544	-.273	32	.786
Pair 2 Melprevnt – Postmelprevent	-.09091	.29194	.05082	-.19443	.01261	- 1.789	32	.083
Pair 3 Knowlscreen – Pknowledge	- 1.60606	1.45644	.25353	-2.12249	- 1.08963	- 6.335	32	.000
Pair 4 Comfortable – Pcomfortable	-.54545	.79415	.13824	-.82705	-.26386	- 3.946	32	.000
Pair 5 Screenwordkday – Pworkdayski	-.33333	.73598	.12812	-.59430	-.07237	- 2.602	32	.014
Pair 6 ABCDE - PABCDE	- 2.18182	1.84483	.32114	-2.83597	- 1.52767	- 6.794	32	.000
Pair 7 EducateABCDE – PedABCDE	- 2.30303	1.74078	.30303	-2.92028	- 1.68578	- 7.600	32	.000

### Qualitative Data

Handwritten suggestions were treated as informational data only. Four participants contributed handwritten suggestions for the pamphlet, with all of them mentioning the same point (the increasing incidence of melanoma was not addressed in the pamphlet. The following are the written comments from the posttest questionnaires.

One of your questions asks about the incidence of melanoma increasing but your pamphlet does not address that, it addresses total numbers of melanoma cases in the last year.

I'm not sure if the pamphlet addresses whether the incidence is 'increasing', yet this is part of the survey. Perhaps address the incidence rate or change or scrub the question?

I learned quite a lot I did not know in paragraph 2. The ABCDE mnemonic is simple to use and understand. I thought it was presented well. Perhaps a statement of how fast melanoma is increasing would be appropriate. Nice job. Not too much information to get through and what is presented is interesting and useful.

The incidence of increasing melanoma skin cancer is not addressed, even though I do think it is increasing.

### Summary

The melanoma recognition pamphlet was designed for ease of use and made available to nurses in, and associated with, two emergency departments and two medical air transport teams regarding their general knowledge level about melanoma recognition, review the educational pamphlet, and then were asked to complete a posttest questionnaire. Statistical calculations were performed using the mean scores of the individual items and the overall pre and posttest questionnaires to determine whether there were significant differences. Additionally, Cronbach's alpha was computed to determine the strength of the questionnaire as a tool, as well as a t-test to determine if increases on the posttest could be the result of actual knowledge gained by participants.

## CHAPTER 5

## DISCUSSION

This chapter summarizes the project and discusses the findings. In addition, the project limitations, project conclusions, implications for future research, and nursing practice are also presented.

Summary of the Study

This project was designed to provide education to busy nurses focusing on melanoma recognition and examine whether they subsequently gained knowledge. This was done through the development of a pamphlet aimed at nurses, designed in a way that facilitated the pamphlet's ease of use and understanding. In order to test the effectiveness of the pamphlet, a pre- and posttest questionnaire was created and distributed to nurses working in one department in two different hospitals in two different cities in a frontier western state. Staff was given the pretest, read the melanoma recognition pamphlet, and then took the posttest. Solicitation was by word of mouth. Thirty three nurses returned completed questionnaires, for a return rate of 54%. A seven statement, five point Likert scale was designed for the pre- and posttest questionnaire. The ordinal data obtained from this process was mathematically analyzed for the degree of generalizability and significance, as well as support for guiding research question nurses would gain knowledge from reading the melanoma recognition pamphlet.

### Discussion of the Findings

The purpose of this study was to determine if participants would gain knowledge after reading a melanoma recognition educational pamphlet, specifically designed for this project. The pamphlet was designed to be concise, easy-to-read, and understandable, as well as convenient for future use. The change in knowledge after reading the pamphlet was rated based upon a pretest and posttest questionnaire. The results were analyzed to demonstrate whether participants gained knowledge from the pamphlet. The apparent increase in knowledge that was shown for this project is discussed below.

The scores on the pre- and posttest questionnaire were statistically analyzed for reliability and generalizability to the population. The Cronbach's alpha score for the questionnaire was 0.598. As this score gets nearer to one, the reliability of the scale increases. Table 8 shows a breakdown of Cronbach's alpha with the deletion of each statement from the pre and post questionnaires. The highest Cronbach's alpha score was 0.62, indicating that there could be limitations with the design of the questionnaire. Kline (1999, as cited in Field, 2009, p. 675) noted that, when dealing with psychological concepts, values below 0.7 can be expected because of the diversity of the concepts being measured. However, a score higher than 0.7 should be sought.

Table 8. Cronbach's Alpha with Items Deleted

	Pretest						
Statement	1	2	3	4	5	6	7
Cronbach's Alpha if item deleted	.610	.588	.590	.616	.515	.542	.548

	Posttest						
Statement	1	2	3	4	5	6	7
Cronbach's Alpha if item deleted	.608	.598	.569	.576	.487	.600	.575

T-tests were conducted on each pretest and posttest pair. The findings were significant for five of the seven statement pairs. Statements one and two were opinion questions about melanoma generally and not specifically addressed in the melanoma recognition pamphlet. There was no significant difference between these pre/posttest item scores. The results from statements three through seven were significant at the 0.05 level.

The mean was calculated for each pre- and posttest pair of statements, as well as the pretest questionnaire as a whole and the posttest questionnaire as a whole. The mean between the overall pretest and the overall posttest increased by one point, from 3.72 to 4.73. This result would be expected if participants agreed more strongly with statements on the posttest, suggesting that knowledge was gained.

### Limitations

Lunenburg and Irby (2008) described study limitations as “factors (uncontrollable by the researcher) that may have an effect on the interpretation of the findings or on the generalizability of the results” (p. 133). They can come from the methodology, the data, or the method of analysis (p. 133). The following limitations were recognized.

#### Sample Size

A sample is a “small collection of units from a population that is used to determine truths about that population” (Field, 2009, p. 793). It is hoped that the sample chosen will be representative of the larger population. Sample size problems can limit a study’s results (Lunenburg & Irby, 2008). Problems with sampling can include inadequate sample size, low consent rates, use of volunteers, and improper sampling techniques.

An appropriate sample size for this study was determined by power analysis to be approximately 126 subjects. However, only 61 (49.6% of the 126) subjects were invited to participate in this project, with 33 of those invited completing questionnaires, for a return rate of 54%, or 26.8% of the required sample size. Because of this smaller than suggested sample size, the results of this study could not be relied upon to be representative of the entire population. If this project were replicated and the results to be deemed reliable, a sample size that was mathematically determined would need to be obtained.

### Literature Search Time Frame

This author has concluded that the time delimitation for the literature search of twenty years was too broad to truly capture the current state of the literature on this topic. Having never performed a research study or professional literature search, this author felt that the small number of current studies on the topic of nurses performing skin examinations to detect melanoma would make the project inadequate. In fact, using only current references, from within only the past five to ten years, would have added to the body of knowledge in a more scientific manner. The knowledge gained from reviewing collected references and writing this professional paper has shown this author that the current project would be a starting point for a future study on how the state of the literature has evolved.

### Demographic Data

The original project design did not ask participants about demographic data. Retrospectively, the author gained this information from the consent forms completed by the study participants. This allowed all demographic data to be obtained, except for each participant's level of education (BSN, ADN, BAN, and diploma). A separate section for demographic information should be included if this study were to be repeated.

### Questionnaire/Likert Scale

The questionnaire was designed by this author, who had no prior experience in designing a questionnaire. Polit & Beck (2008) described Cronbach's alpha as the most accepted measure of reliability for a scale. The Cronbach's alpha for this questionnaire

was 0.598, much less than the generally acceptable level of at least 0.7, however, Cronbach's alpha is influenced by several factors, one of which is simply the number of items on the Likert scale. Thus, as the number of items increases, the alpha will also increase. Two factors that could be fairly easy to implement are deleting weak questionnaire statements or increasing the number of statements on the questionnaire. However, a computation of the Cronbach's alpha with the deletion of one statement (Table 8) yielded an increased alpha of 0.62, still less than the 0.7 level.

The reliability of this questionnaire was shown to be low. The two statements with no significant variation were one and two. It was determined by this author that these two statements were not related to the questionnaire, but were general opinion questions. Removing these two questions and creating others that would directly test the effectiveness of the melanoma recognition pamphlet would, hopefully, increase the reliability of this questionnaire.

#### Social Response Bias

People have a tendency to want to present themselves favorably on questionnaires, a phenomenon known as socially desirable responding. This particular bias can confound research by creating false relationships or obscuring relationships between variables. (van de Mortel, 2008). The staff used as the sample population were all well known to each other. Even though there was no identifying information on participants' questionnaires, there may have been bias when answering the questionnaires as all were aware of the author's personal experience with melanoma. They may have

been concerned that their answers should support what they thought this author's expectation was, not their true thoughts.

As mentioned in the previous section, a larger sample size would be necessary to make the results more reliable. In addition to a larger sample size, the majority of the sample participants would need to be unfamiliar with the researcher so their responses could be more free of bias. SDR scales can be utilized to "detect, minimize, and correct for SDR in order to improve the validity of the questionnaire-based research" (van de Mortel, 2008, p. 40).

#### Prior Sample Bias

A portion of this author's sample had been the sample for a previous research study that also utilized a Likert scale. There may have been some preconceived notion that agreeing with the researcher would be more acceptable and would, perhaps, help the researcher's project. A larger, unfamiliar, previously un-sampled population would need to be chosen for a future replication of this project.

#### Implications for Practice

Even though the number of melanoma deaths per year has leveled out, it continues to rise at a rate faster than that of any of the six most common cancers in the United States. Melanoma is the most common cancer in young adults 25-29 years old, and the second most common cancer in young people 15-29 years old. One person still dies from melanoma every 62 minutes (The Skin Cancer Foundation, 2010). These statistics, along with the fact that visual skin screening is the best method for detecting

melanoma, places nurses, especially emergency department nurses, in pivotal positions to help detect melanoma. These nurses routinely see uncovered skin during their workdays, if they knew how to recognize melanoma, they could help increase the early recognition of melanoma, fostering the greater chances for survival.

Nurses typically do not have the time to perform a full skin screening exam on every patient, but they can very quickly visualize the most common sites for each sex to develop melanoma (for men, trunk, neck, head, back; for women, legs). The melanoma recognition pamphlet was designed to be easy and quick to read, as well as easy to understand, so it would not require a large amount of education to understand it or a large amount of time to study it.

#### Implications for Education

In regard to nursing education, a greater emphasis should be placed on skin cancer recognition during nursing school. Since nurses do view patients' skin on a regular basis, they have the opportunity to identify potential melanoma sites. Since melanoma has a high and increasing incidence rate, and high level of fatality, this is an area of importance to nursing students in all clinicals. Perhaps an educational program designed for nurse orientees who are learning to work in provider offices or the emergency department could be developed and implemented.

### Recommendations for Further Research

The goal of this project was to educate nurses about melanoma recognition. The results of this study did support that nurses gained knowledge as a result of reviewing the melanoma recognition pamphlet, however, there were limitations to this project. If this study were to be replicated, the identified limitations would need to be addressed and the study design changed to account for those limitations. A larger study, perhaps one conducted in multiple states, could show additional significant results. In addition, if the project were conducted longitudinally on a large scale, significant results could be seen in terms of increased early stage diagnosis, or decreases in melanoma deaths. The information from such projects could be analyzed to, perhaps, identify further gaps in education or possible negative attitudes on the part of nurses about taking on another task, such as routine skin examination after reading an educational pamphlet.

### Conclusions

This study demonstrated an increase in knowledge occurred for nurses who read the melanoma recognition pamphlet. Many positive verbal comments were given to this author over the course of this project. It is hoped that nurses will find this to be an important cause and help support it, as well as support future research on the subject.

REFERENCES CITED

- Alexandrescu, D. T. (2009). *Melanoma costs: a dynamic model comparing estimated overall costs of various clinical stages*. Retrieved from [http://dermatology.dclib.org/1511/originals/melanoma\\_costs/alexandrescu.html](http://dermatology.dclib.org/1511/originals/melanoma_costs/alexandrescu.html)
- American Academy of Dermatology. (2010). *Melanoma fact sheet*. Retrieved from [http://www.aad.org/media/background/factsheets/fact\\_melanoma.html](http://www.aad.org/media/background/factsheets/fact_melanoma.html)
- American Cancer Society. (2010). *Melanoma Basics Melanoma Statistics*. Retrieved from <http://www.melanomacenter.org/basics/statistics.html>
- American Cancer Society. (2010). *Melanoma Skin Cancer Overview*. Retrieved from: <http://www.cancer.org/acs/groups/cid/documents/webcontent/003063-pdf.pdf>
- 1989 Survery (1990). 1989 survery of physicians' attitues and practices in early cancer detection. *California Cancer Journal for Clinicians* , 77-101, 40.
- Armstrong, B. K., Kricger, A. (1993). How much melanoma is caused by sun exposure? *Melanoma Research*, 12, 395-401.
- Berwick, M., Bologna, J. L., Heer, C., & Fine, J. A. (1991). The role of the nurse in skin cancer prevention, screening, and early detection. *Seminars in Oncology Nursing* , 64-71.
- Bickers, D. R., Lim, H. W., Margolis, D., Weinstock, M. A., Goodman, C., Faulkner, E., et al. (2006). The burden of skin disease: 2004. A joint project of the American Dermatology Association and the Society for Investigative Dermatology. *The Journal of the American Academy of Dermatology* , 55, 490-500.
- Chinni, D. A., Schwartz, J. L., Keilman, L. J., & Johnson, T. M. (2003). *Early melanoma detection: what is the role of the Advanced Practice Nurse?* Retrieved from [http://www.ispub.com/journal/the\\_internet\\_journal\\_of\\_advanced\\_nursing\\_practice/volume\\_9\\_number\\_2\\_8/article/early\\_melanoma\\_detection\\_what\\_is\\_the\\_role\\_of\\_the\\_advanced\\_practice\\_nurse.html](http://www.ispub.com/journal/the_internet_journal_of_advanced_nursing_practice/volume_9_number_2_8/article/early_melanoma_detection_what_is_the_role_of_the_advanced_practice_nurse.html)
- Christos, P., Oliveria, S., Masse, L., McCormick, L., & Halpern, A. (2004). Skin cancer prevention and detection by nurses: Attitudes, perceptions, and barriers. *Journal of Cancer Education* , 19, 50-57.
- DeRooij, M. J., Rampen, F. H., Schouten, L. J., & Neumann, H. A. (1996). Total skin examination during screening for malignant melanoma does not increase the detection rate. *British Journal of Dermatology* , 135: 42-45.

- Department of Health and Human Services, (2010). Health People Initiative 2010.  
Retrieved from:  
<http://www.healthypeople.gov/2020/search.aspx?q=melanoma&start=0&filter=1>.
- Dossey, B. M., Selanders, L., Beck, D.M., & Attewell, A. (2005). *Florence Nightingale today: Healing leadership global action*. Silver Spring, MD. American Nurses Association.
- Environmental Protection Agency (EPA. National Pollutant Discharge Elimination System. (2006). Educational displays, pamphlets, booklets, and bill inserts.  
Retrieved from:  
<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=11&minmeasure=1>.
- Field, A. (2009). *Discovering Statistics Using SPSS*. Los Angeles: Sage.
- Force, The U.S. Preventive Task (2009). Screening for Skin Cancer: U. S. Preventive Task Force Recommendation Statement. *Annals of Internal Medicine*, 150, 188-193.
- Geller, A. C. (2002). Screening for melanoma. *Dermatologic Clinics* , 20, 629-640.
- Geller, A. C., Swetter, S. M., Brooks, K., Demierre, M. F., & Yaroeh, A. L. (2007). Screening, early detection, and trends for melanoma: current status (2000-2006) and future directions. *The Journal of the American Academy of Dermatology* , 57, 555-572.
- Goldsmith, L. A., Koh, H., Bewerse, B., Reilley, B., Wyatt, S., Bergfeld, W., et al. (1995). National Conference to Develop a National Skin Cancer Agenda. *Full proceedings from the national conference to develop a national skin cancer agenda* (pp. 748-756). Washington, D.C.: American Academy of Dermatology and Centers for Disease Control and Prevention.
- Haigh, P. L., & Urbach, D. R. (2004, January 16-18). Underuse of wide excision for primary cutaneous melanoma in the United States. *American Surgeon* , 70, 942-946.
- Houts, P. S., Bachrach, R., & Witmer, J. T. (1998). Using pictographs to enhance recall of spoken medical instructions. *Patient Education and Counseling*, 35, 83-88
- Janda, M., Youl, P. H., Lowe, J. B., Elwood, M., Ring, I. T., & Aitken, J. F. (2004). Attitudes and intentions in relation to skin checks for early signs of skin cancer. *Preventive Medicine* , 39, 11-18.

- Kantor, J. K. (2009). Routine dermatologist-performed full-body skin examination and early melanoma detection. *Archives of Dermatology* , 145, 873-876.
- Katris, P., Donovan, R. J., & Gray, B. N. (1998). Nurses screening for skin cancer: An observation study. *Australian and New Zealand Journal of Public Health* , 22, 381-383.
- Kools, M., Ruiter, R. A., van de Wiel, M. W., & Kok, G. (2004). Increasing readers' comprehension of health education brochures: a qualitative study into how professional writers make texts coherent. *Health Education & Behavior* , 39, 720-742. doi: 10.1177/1090198104263340.
- Kottke, T. E., & Trapp, M. A. (1998). The quality of Pap test specimens collected by nurses in a breast and cervical cancer screening clinic. *American Journal of Preventive Medicine* , 14, 196-200.
- Little, P., Roberts, L., Blowers, H., Garwood, J., Cantrell, T., Langridge, J., et al. (2001). Should we give detailed advice and information to patients with back pain: a randomised controlled factorial trial of a self-management booklet and doctor advice to take exercise for back pain. *Spine* , 26, 2065-2072.
- Lunenburg, F., & Irby, B. (2008). *Writing a Successful Thesis or Dissertation*. Thousand Oaks: Corwin press.
- Maguire-Eisen, M., & Frost, C. (1994). Knowledge of malignant melanoma and how it relates to clinical practice among nurse practitioners and dermatology and oncology nurses. *Cancer Nursing* , 6, 457-463.
- Mahon, S. M. (2003). Skin cancer prevention: education and public health issues. *Seminars in Oncology Nursing* , 19, 52-61.
- Mandelblatt, J., Freeman, H., & Winczewski, D. e. (1996). Implementation of a breast and cervical cancer screening program in a public hospital emergency department. *Annals of Emergency medicine* , 28, 493-493.
- Maule, W. F. (1994). Screening for colorectal cancer by nurse endoscopists. *New England Journal of Medicine* , 330, 183-187.
- McCormick, L. K., & Masse, L. C. (1999). Evaluation of a skin cancer prevention module for nurses: Change in knowledge, self-efficacy, and attitudes. *American Journal of Health Promotion* , 13, 282-289.

- McCullagh, M. C. (2009). Health Promotion. In S. J. Peterson, & T. S. Bredow, *Middle Range Theories Application to Nursing Research 2nd ed.* (pp. 290-301). Wolters Kluwer Health/ Lippincott Williams & Williams.
- Melanoma Research Foundation. (n.d.). *Melanoma detection and screening*. Retrieved from <http://www.melanoma.org/learn-more/melanoma-101/melanoma-facts>
- Merriam Webster. (2005). Merriam Webster's Medical Desk Dictionary. Springfield, MA: Merriam-Webster, Incorporated.  
Merriam-Webster. (2010). Retrieved from: <http://www.merriam-webster.com/dictionary/recognition>.
- National Cancer Institute. (2010). *What You Need to Know About Melanoma and Other Skin Cancers*. Retrieved from:  
<http://www.cancer.gov/cancertopics/wyntk/skin/page1/AllPages#15>
- National Cancer Institute (2006). Surveillance Epidemiology and End Results (SEER) Cancer Statistics 1975-2006. Retrieved from:  
[http://seer.cancer.gov/csr/1975\\_2005/results\\_merged/topic\\_topfifteen.pdf](http://seer.cancer.gov/csr/1975_2005/results_merged/topic_topfifteen.pdf)
- Montana Department of Public Health & Human Services. (2007, July). *Montana Cancer Control section*. Retrieved from <http://dphhs.mt.gov/PHSD/cancer-control/documents/QuarterlySurveillanceReportSKIN.pdf>
- Moore, M. M., Geller, A. C., Zhang, Z., Hayes, B., Bergstrom, K., Graves, J. E., et al. (2006). Skin cancer examination teaching in US medical education. *The Archives of Dermatology* , 439-444.
- Van de Mortel, T. F. (2008). Faking it: social desirability response bias in self-report research. *Australian Journal of Advanced Nursing*, 25, 40-48.
- National Institutes of Health. (1992). National Institutes of Health Consensus Development Conference January 27-29, 1992. *Journal of the American Medical Association* , 268, 1314-1319.
- Oivanen, T., Kojo, K., Pylkkanen, L., Holli, K., & Auvinen, A. (2008). Early detection of skin cancer as public health policy: Comparison of campaign and routine activity. *Preventive Medicine* , 46, 160-165.
- Oliveria, S. A., Altman, J., Christos, P., & Halpern, A. (2002). Use of nonphysician health care providers for skin cancer screening in the primary care setting. *Preventive Medicine* , 34, 374-3.

- Oliveria, S., Nehal, K., Christos, P., Sharma, N., Tromberg, J., & Halpern, A. (2001). Using nurse practitioners for skin cancer screening A pilot study. *American Journal of Preventive Medicine* , 21, 214-217.
- Olivieria, M. C. (2002). How to diagnose malignant melanoma. *Nurse Practitioner* , 27, 26-33.
- PASW Statistics GradPack 18. (SPSS Inc. 2009 release).
- Pender, N. J. (2006). Health Promotion in Nursing Practice. In A. M. Tomey, & M. R. Alligood, *Nursing Theorists and Their Work* (p. 459). St. Louis: Mosby Elsevier.
- Phelan, D. I., & Heneghan, M. (2006). A survey of skin cancer screening practices among dermatology nurses. *Dermatology Nursing* , 20, 357-364.
- Polit, D. F., & Beck, C. T. (2008). *Nursing Research Generating and Assessing Evidence for Nursing Practice 8th ed.* Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins.
- Program for Appropriate Technology (1996). Developing health and family planning print materials for low-literate audiences, A guide.
- Rigel, D. S., Friedman, R. J., & Kopf, A. W. (1996). The incidence of malignant melanoma in the United States: issues as we approach the 21st century. *Journal of the American Academy of Dermatology* , 34, 839-847.
- Rodriguez, G. L., Fangchao, M., Federman, D., Rouhani, P., Chimento, S., & Multach, M. (2007). Predictors of skin cancer screening practice and attitudes in primary care. *Journal of the American Academy of Dermatology* , 57, 775-781.
- Sakraida, T. J. (2006). Nola J. Pender Health Promotion Model. In A. M. Tomey, & M. R. Alligood, *Nursing Theorists and Their Work* (pp. 452-471). St. Louis: Mosby Elsevier.
- Schoenfeld, P., Lipscomb, S., Crook, J., Dominguez, J., Butler, J., Holmes, L., et al. (1999). Accuracy of polyp detection by gastroenterologists and nurse endoscopists during flexible sigmoidoscopy. *Gastroenterology* , 117, 312-318.
- Schroy, P. C., Wiggins, T., Winawer, S. J., Diaz, B., & Lightdale, C. J. (1988). Video endoscopy by nurse practitioners: a model for colorectal cancer screening. *Gastrointestinal Endoscopy* , 34, 390-394.
- The Skin Cancer Foundation (2010). Melanoma Skin Cancer Facts. Retrieved from: <http://www.skincancer.org/Skin-Cancer-Facts/>

- Seidler, A. M., Pennie, M. L., Culler, S. D., & Chen, S. C. (2010). Economic burden of melanoma in the elderly population: population-based analysis of the Surveillance, Epidemiology, and End Results (SEER)-Medicare data. *The Archives of Dermatology* , 146, 249-258.
- Society, American Cancer. (2010). *What are the key statistics about melanoma?*  
Retrieved from: <http://www.cancer.org/Cancer/SkinCancer-Melanoma/DetailedGuide/melanoma-skin-cancer-key-statistics>
- Spanogle, J. P., Clarke, C. A., Aroner, S., & Swetter, S. M. (2010). Risk of second primary malignancies following cutaneous melanoma diagnosis: a population-based study. *The Journal of the American Academy of Dermatology* , 62, 757-766.
- Torrens, R., & Swan, B. A. (2009). Promoting prevention and early recognition of malignant melanoma. *Dermatology Nursing* , 21, 115-122.
- Trapp, M. A., Kottke, T. E., Vierkant, R. A., Kaur, J., & Sellers. (1996). The ability of trained nurses to detect lumps in a test set of silicone breast models. *Cancer* , 86, 1750-1756. doi: 10.1002/(SICI)1097-0142(19991101)86:9<1750::AID-CNCR17>3.0.CO;2-I.
- Tsao, H. R., Rogers, G. S., & Sober, A. J.(1998). An estimate of the annual direct cost of treating cutaneous melanoma. *The Journal of the American Academy of Dermatology* , 38, 669-680.
- Valachis, A., Mauri, D., Karampoiki, V., Polyzos, N., Cortinovis, I., Koukourakis, G., et al. (2009). Time-trend of melanoma screening practice by primary care physicians: A meta-regression analysis. *Upsala Journal of Medical Sciences*, 114, 32-40.
- Vickers, A. (2009). Evidence-based practice guidelines for skin cancer screening. *Dermatology Nursing* , 2, 15-18. doi:10.1136/ebmh.2.4.102 .
- Watkins, J. (2010). Dermatology and the community nurse: actinic (solar) keratosis. *British Journal of Community Nursing* , 15, 6-11.
- White, L. N. (1985). Screening by nurse clinicians in cancer prevention and detection. *Current Problems in Cancer* , 9, 1-42.
- Whittingham, J. R., Ruiter, R. A., Castermans, D., Huiberts, A., & Kok, G. (2008). Designing effective health education materials: experimental pre-testing of a theory-based brochure to increase knowledge. *Health education research* , 23, 414-426. doi: 10.1093/her/cym018 .

APPENDICES

APPENDIX A

HUMAN RIGHTS EXEMPTION LETTER FROM MSU



**INSTITUTIONAL REVIEW BOARD**  
**For the Protection of Human Subjects**  
**FWA 00000165**

960 Technology Blvd. Room 127  
 Immunology & Infectious Diseases  
 Montana State University  
 Bozeman, MT 59718  
 Telephone: 406-994-6783  
 FAX: 406-994-4303  
 E-mail: cherylj@montana.edu

*Chair:* Mark Quinn  
 406-994-4707  
 mquinn@montana.edu  
*Administrator:*  
 Cheryl Johnson  
 406-994-4706 or 6783  
 cherylj@montana.edu

**MEMORANDUM**

**TO:** Julie Flesch

**FROM:** Mark Quinn, Ph.D. Chair *Mark Quinn Ch*  
 Institutional Review Board for the Protection of Human Subjects

**DATE:** May 10, 2011

**SUBJECT:** The Busy Nurses' Guide to Melanoma Recognition [JF051011-EX]

The above research, described in your submission of May 3, 2011, is exempt from the requirement of review by the Institutional Review Board in accordance with the Code of Federal Regulations, Part 46, section 101. The specific paragraph which applies to your research is:

- (b)(1) Research conducted in established or commonly accepted educational settings, involving normal educational practices such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
- (b)(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.
- (b)(3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if: (i) the human subjects are elected or appointed public officials or candidates for public office; or (ii) federal statute(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.
- (b)(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available, or if the information is recorded by the investigator in such a manner that the subjects cannot be identified, directly or through identifiers linked to the subjects.
- (b)(5) Research and demonstration projects, which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs.
- (b)(6) Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed, or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the FDA, or approved by the EPA, or the Food Safety and Inspection Service of the USDA.

Although review by the Institutional Review Board is not required for the above research, the Committee will be glad to review it. If you wish a review and committee approval, please submit 3 copies of the usual application form and it will be processed by expedited review.

APPENDIX B

SUBJECT CONSENT FORM FOR PARTICIPATION IN  
HUMAN RESEARCH AT MONTANA STATE UNIVERSITY

**The Busy Nurses Guide to Melanoma Recognition** (pamphlet)

You are being asked to participate in a research study of melanoma recognition by casual skin screening. This may help to decrease the rate of deaths from melanoma through early diagnosis. Melanoma skin cancer is almost completely curable when it is discovered and treated early.

**Participation is voluntary. You can choose to not answer any questions you do not want to answer/or you can stop at any time.** The time required to complete this task is based upon your answering the pre-test questionnaire, reading the pamphlet, completing the post-test questionnaire, and providing helpful feedback, approximately 10-15 minutes. This is a one-time task, there will be no long-term follow-up. The results are completely confidential. There are no foreseen risks to completing this task. This study will most likely be of no benefit to you. There is no cost to participate and no financial compensation for completing the task.

If you have any questions about this research or would like to add further comments or feedback, please contact Julie Flesch @ (406) 868-4547.

-----  
---

I have read the above and understand the discomforts, inconvenience, and risk of this study. I, \_\_\_\_\_, agree to participate in this research. I have received a copy of this consent form for my own records.

Signed \_\_\_\_\_

Investigator \_\_\_\_\_

Date \_\_\_\_\_

APPENDIX C

MELANOMA PAMPHLET EVALUATION QUESTIONNAIRE

PRETEST/POSTTEST

**Pretest**

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The incidence of melanoma skin cancer is increasing					
Melanoma prevention efforts are important					
I have knowledge to screen patients for melanoma					
I would feel comfortable encouraging patients to have questionable lesions re-examined by their PCP/dermatologist					
It would be easy to look at patients' skin during my workday					
I know the ABCDE criteria for melanoma screening					
I can educate patients about the ABCDE of melanoma					

**Post-test**

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The incidence of melanoma skin cancer is increasing					
Melanoma prevention efforts are important					
I have knowledge to screen patients for melanoma					
I would feel comfortable encouraging patients to have questionable lesions re-examined by their PCP/dermatologist					
It would be easy to look at patients' skin during my workday					
I know the ABCDE criteria for melanoma screening					
I can educate patients about the ABCDE of melanoma					

**Thank you** for taking the time to help me with this project. Please include any general thoughts or suggestions for improvement on the back of this questionnaire.

Julie J Flesch, RN, BSN, BSBA

APPENDIX D

MELANOMA RECOGNITION PAMPHLET

**MELANOMA RECOGNITION**



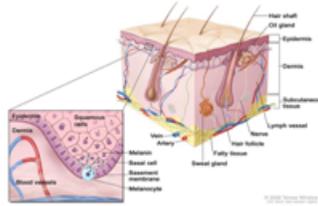
**THE BUSY NURSE'S GUIDE**

- What Is Melanoma?
- Who Gets Melanoma?
- How Is It Found?
- Why Is It Important For Nurses to Recognize It?

References:  
<http://www.cancer.org/Cancer/SkinCancer/Melanoma/Details/04/04/index>  
[www.cancer.org](http://www.cancer.org)  
<http://visualsonline.cancer.gov/search/action.cfm?awm=melanoma>  
 Credits: Julie Jacobs-Pfeiffer, RN, MSN, BSBA

Malignant melanoma is the most deadly of all skin cancers, killing almost 9,000 people in the United States in 2010, or 1 person every hour.

Melanoma occurs in the melanocytes, the pigment producing cells of the body. Although it is most often associated with moles, it can occur in areas not commonly associated with moles and not exposed to the sun, such as the soles of the feet, the vagina, or the rectum.



Melanoma is 10 times more common in whites than in African Americans. Men typically get melanoma on their trunk, neck or head; and women typically get it on their legs. It occurs in young people as well the elderly.

Visualization of the skin is the **best** method for finding melanoma. That's why nurses can play an important role in detecting melanoma. We see lots of naked skin every day!

Early detection is VITAL for survival. Melanoma often spreads quickly and is nearly always fatal with advanced disease.

An easy way to remember the important points for melanoma recognition is the **ABCDE** mnemonic:

**A**symmetry-the shape of one half of the mole does not match the other. Normal moles are typically symmetrically oval or round.



**B**order-the edges are often irregular, ragged, or blurred. The pigment can spread into the surrounding skin.



**C**olor-the color is often uneven and can be different shades of black, brown, tan, or sometimes pink.



**D**iameter-melanomas are typically larger than the head of a pencil eraser, about 1/4 of an inch, but they can be smaller.

**E**volution-normal moles stay the same size, shape, and color for many years. Melanomas typically change in size, color, or shape over a short period of time.

Quick follow-up with a primary care provider or dermatologist is **VERY** important if you recognize any abnormalities or are unsure about any lesions.