Evaluation of an Educational Session for Newly Diagnosed Melanoma Patients in The Ohio State University Wexner Medical Center Surgical Oncology Melanoma Clinic:

A Quality Improvement Project

DNP Final Project

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Nursing Practice in the Graduate School of The Ohio State University

By

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Chapter One: Introduction

Problem

Melanoma is a form of skin cancer that begins in the pigmented cells of the skin called melanocytes (Beam, Belansky, & Levy, 2009). It is the most serious form of skin cancer and can form on any surface of the body that contain melanocytes including the eyes, mucosal membranes such as nasal passages, oral and pharyngeal passages, and vaginal and anal mucosa (Beam et al., 2009). The incidence of melanoma in the United States (U.S.) continues to increase (Simard, Ward, Siegel, & Jemal, 2012; Jemal et al., 2011). Currently, more than 75,000 Americans are diagnosed annually with melanoma and more than 9,000 of that number will die as a result of this cancer (Seigel, Naishadham, & Jemal, 2012). In 2013 alone, 76,690 new cases of melanoma were reported in the U.S. (National Cancer Institute [NCI], 2013; Skin Cancer Foundation [SCF], 2013). It is estimated that one in 35 males and one in 54 females will be diagnosed with the disease during their lifetime (American Cancer Society [ACS], 2014).

The diagnosis of melanoma is associated with increased anxiety, depression, fatigue and sleep disturbances that can in turn negatively affect treatment outcomes (Al-Shakhli, Harcourt, & Kenealy, 2006). Increased psychological stress and anxiety can lead to delays in melanoma treatment, decreased adherence to medical regimens, decreased quality of life, increased medical costs and reduced engagement in post-treatment skin cancer screening and preventive behaviors (Kasparian, McLoone, & Butow, 2009). The anxiety experienced by melanoma patients is often due in part to a lack of accurate information about their disease and thus a fear of the unknown or misconceptions. Unfortunately, melanoma patients often seek information about treatment, staging, and prognosis from various internet sources, which can compound their anxiety because the information may be inaccurate or they may misinterpret the information (Bichakjian et al.,
Therefore, it is important to provide scientifically-based evidence about melanoma to patients during visits to their healthcare providers. Studies have shown that when patients are more informed about their melanoma diagnosis, they are more likely to engage in treatment decision-making, experience less anxiety, are more confident in performing skin self-examinations and are more likely to adopt sun protective behaviors such as sunscreen application (Orringer et al., 2005; Allen, 2013; Armstrong, Idriss, & Kim, 2011; Glazebrook, Garrud, Avery, Coupland, & Williams, 2006; Morris & Elwood, 1996; Bellamy, 2005). Thus, when healthcare providers translate and disseminate evidence-based information about melanoma, and how to help prevent recurrence, health outcomes are more likely to improve. Additionally, it is important that healthcare providers present the information using evidence-based methods that are conducive to learning (Torrens & Swan, 2009).

Information about melanoma can be delivered through numerous formats that vary in their degree of personalization, including printed pamphlets/booklets, interactive electronic programs, community campaigns, and personal interactive sessions with the healthcare provider. All of these approaches are associated with positive patient behavioral changes regarding skin cancer prevention (Morris & Elwood, 1996; Aronson, Plass, & Bania, 2012; Falk & Magnusson, 2011; Sefton, Glazebrook, Garrud, & Zaki, 2000; Glazebrook et al., 2006; Hay, 2009). However, currently in the Surgical Oncology Melanoma Clinic at OSUWMC, patients who have been newly diagnosed with melanoma receive information about their disease in a variety of ways. There is no standardized educational method or pamphlet being utilized in the ambulatory clinic setting. Thus, it was determined by the nurse practitioner (NP) and physician providers in the clinic that there was a need to evaluate existing patient educational strategies to assist the
clinicians in choosing a standardized, effective, evidence-based process for educating newly
diagnosed melanoma patients about their disease.

**Purpose**

The purpose of this Doctor of Nursing Practice (DNP) project was to use a quality
improvement approach to evaluate a one-to-one education session about melanoma delivered to
newly diagnosed melanoma patients by a NP (a DNP candidate) employed in the OSUWMC
Surgical Oncology Melanoma Clinic using one of the booklets currently available in the clinic,
The National Comprehensive Cancer Network (NCCN) Guidelines for Patients with Melanoma
(Appendix A). During the session, the NP focused on reviewing disease stage, treatment
methods, personal risk factors, sun-protective behavior and preventive strategies. There were
two primary objectives of this DNP quality improvement project:

1. Evaluate the efficacy of the proposed educational session by measuring participants’
melanoma knowledge scores before and after the session using a standardized melanoma
knowledge tool.

2. Evaluate the practicality of using the proposed educational method in the clinic setting
by: (a) measuring the time it took to complete the session, and, (b) assessing patient
satisfaction regarding the usefulness of the session.

**Significance of Project to Nursing & DNP Essentials**

The American Association of Colleges of Nursing (AACN) established eight essentials of
doctoral education for advanced practice nursing (AACN, 2006). This project addressed
Essentials I, III and IV.

Essential I emphasizes the importance of integrating nursing science with knowledge from
ethics, the biophysical, psychosocial, analytical and organizational sciences as the basis for the
highest level of nursing practice. Science-based theories and concepts should enhance, explain, alleviate and improve the delivery of healthcare as it applies to that practitioner’s specific area of practice. Essential I also recommends evaluating the outcomes of the practice interventions after application and, if appropriate, developing and assessing new practice approaches based on the nursing theories or theories from other disciplines. The current project addressed Essential I by utilizing aspects of two theories during the design process; the Health Belief Model (DiClemente et al., 2013; Kinzie, 2005) and Six Sigma (Lanabeer, Dellifraine, Heineke, & Abbass, 2009). The application of these theories will be addressed in more detail in Chapter Two of this paper.

Translating research into clinical practice through the use of analytical methods for evidence-based practice is the basis for DNP Essential III. Designing, directing and evaluating quality improvement methodologies to promote safe, timely, effective, efficient, equitable and patient-centered care for newly diagnosed melanoma patients were the key concepts of this project. Patient education regarding their specific diagnosis, risks, and prevention and treatment strategies were targeted to improve the delivery of care at the OSUWMC Surgical Oncology Melanoma Clinic. Utilizing information technology and research methodology, we were able to collect appropriate data to generate evidence for nursing practice. Initially, practice data were reviewed to ascertain possible delivery models of education in the healthcare and other professional settings. This analysis led to the design of the evidence-based intervention for this project: a one-to-one educational session with the NP utilizing a web-based evidence-based educational tool (NCCN booklet). The outcomes were evaluated and the results indicated a positive impact on patient knowledge acquisition and satisfaction with the program. Further analysis demonstrated additional outcomes that need to be assessed such as patient anxiety and knowledge retention. As a result of this project, clinical practice at the OSUWMC Surgical
Oncology Melanoma Clinic will be revised to include a one-to-one educational session between the NP and every newly diagnosed melanoma patient utilizing the NCCN booklet.

Essential VI highlights the importance of inter-professional collaboration to improve patient and population health outcomes. This Essential recommends employing effective communication and collaborative skill in the development and implementation of practice models, peer review, practice guidelines, health policy, standards of care, and/or other scholarly projects. “It leads inter-professional teams in the analysis of complex practice and organizational issues and employs consultative and leadership skills with intra-professional and inter-professional teams to create change in health care and complex healthcare delivery systems” (AACN, 2006, p. 15). This project was designed and implemented by a NP (a DNP student) employed at the OSUWMC Surgical Oncology Melanoma Clinic who first observed that melanoma education in this clinic was inconsistent; i.e., clinicians were using various educational materials and various methods to deliver the materials. After reviewing existing educational materials with clinical colleagues (e.g. NPs, physicians, nurses), the NP determined that one evidence-based educational booklet available in the clinic, the NCCN Guidelines for Patients with Melanoma, would be evaluated during the educational session designed for this project.

**Project Objectives**

The primary objective of this DNP project was to evaluate a NP-led educational session with newly diagnosed melanoma patients using one of the evidence-based educational tools (booklet) currently available in the clinic by determining changes in patient melanoma knowledge scores pre- and post-educational session. A secondary objective was to evaluate the practicality of
using this educational intervention in the clinic setting by measuring time per session and participant satisfaction.
Chapter Two: Review of Literature

Melanoma is the sixth most common cause of fatal malignancies in the US; it comprises four percent of all cancer related deaths (Losina, 2007; Riker, Zea, & Trinh, 2010). Melanoma is the second most common cancer in women between the ages of 20 – 29 (Jemal, 2008; SCF, 2013). Furthermore, from 1970 to 2009, the incidence of melanoma increased by 800% among young women and 400% among young men (SCF, 2013)

According to Riker (2010), North America ranked fourth in melanoma incidence worldwide in 2008 with a marked increase in incidence rates in non-Hispanic whites of 28.9 per 100,000 males and 18.7 per 100,000 females from 2002 to 2006 (Riker et al., 2010). This incidence rate increase of melanoma cases has also been noted throughout Europe with the highest rates being reported in Switzerland, Norway, Sweden and Denmark and is indeed a global health problem (Riker et al., 2010).

The annual direct cost of patient care in the U.S. related to melanoma in 2008 was estimated at 2.36 billion dollars, a 2.8 fold increase since 1997 (Styperek & Kimball, 2012). Stage I and II melanoma treatment cost comprised 10 to 17 percent of those total costs, respectively, whereas Stage III and IV melanomas comprised 15 to 57 percent respectively. Eighty percent of the total annual direct cost of treating melanoma is incurred within the first year of diagnosis. These costs are related to physician services, surgeries, imaging and laboratory studies as well as adjuvant therapies (Styperek & Kimball, 2012). With earlier detection and intervention, morbidity and mortality as well as annual direct cost of care can be dramatically decreased. Therefore, it is essential that the public and healthcare providers be knowledgeable about the risk factors, prevention, skin self-examination (SSE), sign/symptoms and appropriate treatment modalities for

There are several risk factors associated with the development of melanoma and/or other skin cancers. These risk factors include a history of a prior melanoma, fair complexion (fair or red hair, blue eyes, light colored skin), family history of melanoma, multiple clinically atypical moles or dysplastic nevi, a history of increased sun exposure and ultraviolet (UV) radiation exposure, older age, immune suppression and rare inherited genetic mutations such as xeroderma pigmentosum (Riker et al., 2010; Herr, Holtel, & Hall, 2008). People who fall into higher risk phenotype skin categories (see Fitzpatrick Scale - Figure 2) need to be hyper-vigilant in protecting their skin and avoiding exposure to extrinsic factors such as UV radiation (US Environmental Protection Agency [EPA], 2015). Some risk factors cannot be changed, such as genetic mutations, however, through UV exposure reduction, SSE, dermatologic surveillance and sun-protection behavior changes, many risk factors can be modified leading to risk reduction and/or early detection of melanoma occurrence. Allen (2013) states:

Early detection of melanoma can significantly reduce both morbidity and mortality. The risk of dying from the disease, in fact, is directly related to the depth of the cancer, which is directly related to the amount of time it has been growing unnoticed. Hence, earlier detection leads to thinner cancers and saves lives (p. 1).

Therefore, educating people about the benefits of early detection may lead to earlier evaluations and lesion removals if malignancy is suspected.

Melanoma is mostly seen in the non-Hispanic white population, however, it can occur in any skin pigment type. Latinos, as they acculturate to U.S. customs, have started to experience increases in the incidence of melanoma, which may be due to their decreased use of sun-
protective behaviors and their increased acceptance of sun tanning (Andreeva et al., 2009). Latinos tend to present with more advanced tumors with poorer prognoses possibly because they have less awareness about risk factors or symptoms, are more likely to lack health insurance, have decreased health literacy, are not targeted for melanoma screening efforts and may delay seeking medical treatment (Friedman et al., 1994; Cormier et al., 2006). Moreover, melanoma in African Americans, Asians, Filipinos, Indonesians and native Hawaiians develop more often on non-exposed skin with less pigment with up to 60-75% of cases noted on the palms of the hands, the soles of their feet, mucous membranes and nail beds (Gloster & Neal, 2006). Unfortunately, these melanomas tend to present at later stages with poorer five year survival outcomes (SCF, 2013).

Socio-economic status (SES) also plays a large part in melanoma development. This skin cancer has been predominantly associated with non-Hispanic whites of higher SES and higher education, and with white collar professions more than blue collar professions (Idorn & Wulf, 2014). Studies have shown the higher SES behaviors increase UV radiation exposure through vacationing in sunny areas (increased high intensity sun exposures), living in areas that are close to water and beaches (increased recreational exposures), and increased use of artificial UV radiation (tanning beds) (Idorn & Wulf, 2014). However, a higher SES is also associated with increased surveillance opportunities that lead to earlier detection, earlier diagnosis and better five year survival rates compared to lower SES (ACS, 2014). Lower SES populations tend to have less access to and coverage for healthcare, have fewer shaded areas, lack financial resources to purchase sunscreen and sun-protective clothing and less access to healthcare information regarding sun-protective behaviors (Haynes, Pearce, & Barnett, 2008). Additionally, blue collar workers often have higher rates of occupational UV radiation exposure which increases their risk
of developing melanoma and other skin cancers such as squamous cell and basal cell cancers (Clarke, Moy, Swetter, Zadnick, & Cockburn, 2010).

The central reason for deliberate UV exposure is the perceived positive effect exposure has on skin appearance such as general appearance enhancement, reduction of acne, enhancement of body shape, and media/peer and familial influences (Dadlani & Orlow, 2008). Females are more likely to use indoor tanning salons than males. Males, on the other hand, engage in outdoor tanning behaviors at unsafe levels that increase their risks of skin cancer. Interestingly, males who were more confident of themselves and females who were less confident in themselves were found to be more likely to engage in unsafe sunbathing practices (Dadlani & Orlow, 2008). Thus, both males and females are at risk for inappropriate tanning behaviors that have cumulative negative effects (Cafri et al., 2008).

The sun-protective behaviors recommended by the ACS include using sunscreen (SPF 30 or higher), wearing protective clothing (long sleeves, wide brimmed hats and wrap-around sunglasses), staying in the shade, avoiding sun exposure during the midday hours of 10 a.m. to 3 p.m. when the UV rays from the sun are the most intense, annual skin examination and avoidance of artificial ultraviolet radiation (tanning beds) (ACS, 2014; American Academy of Dermatology [AAD], 2014). Despite the overwhelming amount of evidence available to the public regarding sun-safe behaviors reducing the risks of skin cancer development, the response to carry out these behaviors has been underwhelming especially among young females (Dadlani & Orlow, 2008).

In 2008, the Institute of Medicine (IOM) published a “10-Point Plan for More Comprehensive Cancer Care” (Adler & Page, 2008). The report specifically stressed the importance of a more focused attempt to educate the public regarding melanoma prevention through SSE and sun-
EVALUATION OF AN EDUCATIONAL SESSION FOR NEWLY

12

protective behaviors. Implementing strategies to enhance patients’ knowledge about melanoma symptoms, such as teaching the “ABCDEs” (Figure 1) of SSE, and the benefits of ultraviolet light protection, is likely to improve patient survival (Nieweg & Kroon, 2006; Fracken & Hoekstra, 2009). For example, a large randomized controlled study (N=1199) demonstrated a 63% decrease in mortality from primary and secondary melanoma in patients performing SSE compared to those who did not perform SSE (Berwick, Big, Fine, Roush, & Barnhill, 1996). Furthermore, Glazebrook et al. (2006) looked at utilizing computer interactive, multi-media sources to influence patient behavior, improve melanoma knowledge and decrease the incidence of secondary melanomas with promising results.

As social technology becomes more prevalent and pervasive in everyday life, there is an ever present influence of social media across all SES levels. Internet access is readily available on cell phones, personal computers and hand held media devices. There is evidence that providing accurate information about melanoma to patients leads to better patient outcomes and that public campaigns alerting people to early signs of melanoma are beneficial (Aneja et al., 2012; Glazebrook, Garrud, Avery, Coupland, & Williams, 2006; Armstrong, Idriss, & Kim, 2011; Robinson et al., 2004). However, although many skin cancer information pamphlets/booklets have been developed and distributed, they vary significantly in quality, accuracy and readability (Nicholls, Hankins, Hooley, & Smith, 2009). For example, Nicholls (2009) conducted a study that assessed the quality of patient information pamphlets containing skin cancer facts and sun-protective behaviors used in some general practices and community pharmacies in the United Kingdom. Results from this study demonstrated that one-third of the pamphlets were published greater than five years prior, none met the accepted level of readability (all were more advanced than recommended) and 17% had one or more major inaccuracy related to sun-protective
behavior. Mass media has no benefit if it does not meet the requirements of minimal health literacy.

Mass media exposure is more prevalent in younger and more highly educated populations. According to Hay et al. (Hay, Coups, Ford, & DiBonaventura, 2009), 80% of all American Internet users accessed health information via this method and skin cancer is one of the most researched healthcare topics on the Internet. They also found that younger people were more receptive to mass media healthcare information than those over the age of 60, but were less knowledgeable about skin cancer such as causes, prevention strategies, signs and symptoms and survivability (Hay et al., 2009). Another study conducted by Bichakjian and colleagues (Bichakjian et al., 2002) evaluated 74 web sites about melanoma and reported that 14% of the sites lacked complete basic information on melanoma and contained significant inaccuracies related to proper sunscreen use. Considering inaccurate or incomplete melanoma information can ultimately influence healthcare decisions made by those utilizing these resources. Thus, it is so important that precise, current, evidence-based information about melanoma be presented to healthcare consumers.

Healthcare providers play a significant role in directing resources by supplying information on accurate, comprehensive websites that are routinely updated with the newest scientific recommendations. Healthcare providers can also reinforce healthy sun-protective behaviors, demonstrate appropriate SSE techniques, and provide comprehensive, readable handouts that are readily accessible to demonstrate the ABCDEs of melanoma during patient visits. Importantly, repeated melanoma-focused messaging by healthcare providers to patients has been associated with improved skin surveillance, sun-protective behaviors, self-efficacy when performing SSE, and increased knowledge about risks of sunbathing (Lin et al., 2011; Manne & Levin, 2006).
Theoretical Framework

The Six Sigma quality improvement approach was used in the design of this project, which focused on evaluating a NP-led educational session for newly diagnosed melanoma patients in the OSUWMC Surgical Oncology Melanoma Clinic. The Six Sigma quality approach was first introduced in the 1980s by Motorola to reduce variation and standardize outcomes in key processes of business. It includes five steps: define the customer and the problem, measure and collect data, analyze the causes of the defects found, improve and make changes to the process and control and monitor the process for unexpected changes (Ransom, Joshi, Nash, & Ransom, 2008).

Over the past several years, this model has been adapted for use in healthcare to further understand the elements that influence the process of care delivery (Lanabeer, DelliFraine, Heineke, & Abbass, 2009). The principles of Six Sigma, notably using analytics to improve processes and maximize efficiency, are closely aligned with the DNP essentials as well as the goals of evidenced-based practice, which promote improvement of clinical outcomes using scientific methods. As such, Six Sigma was utilized as the theoretical framework for this quality improvement project. The following is the application of the five steps of Six Sigma to this project:

Step One: Define the population and the problem. The target population for this project was comprised of patients referred to the OSUWMC Surgical Oncology Melanoma Clinic with newly diagnosed melanomas. The problem identified was the lack of a standard process to deliver evidence-based education to patients regarding their specific melanoma diagnosis, personal risk factors, SSE techniques, and ways to prevent melanoma recurrence.
Step Two: Measure and collect data. Melanoma information (diagnosis, surgical plan of care, etc.) was being disseminated to patients at their initial visit by clinicians but no standard booklet or delivery method was being used. The NCCN Guidelines for Patients with Melanoma Booklet was given to patients if it was available. If it was not available, an alternative educational pamphlet was given to patients. No clinician reviewed any of the pamphlets with patients during their clinic visits.

Clinic providers agreed it was important to standardize the educational process to help alleviate patient fears and anxiety. Clinicians also felt it was important to emphasize known risk behaviors such as sunbathing, tanning bed usage and protective behaviors such as sunscreen application and SSE during the session. Finally, clinicians agreed that the information should be reviewed with each new patient and customized to fit the patient’s specific clinical diagnosis and situation. The quality goal was set at 100% compliance.

Step Three: Analyze the problem identified. According to the Health Belief Model (see Appendix A), health behavior can be shaped by four constructs; an individual’s perceived susceptibility (personal risk factors for developing a melanoma, i.e. skin type), perceived severity of the condition (appropriate staging and treatment of the actual melanoma), perceived barriers (addressing education related to SSE and sun-protective behaviors), and perceived benefits (overall survival, decreased skin damage, early intervention and decreased healthcare costs) (Current Nursing, 2013). Therefore, based on the evaluation of the problem identified, it was decided that this project should first test an educational session using the NCCN Guidelines for Patients with Melanoma booklet and carefully consider each participant’s specific diagnosis, circumstances and needs when reviewing the information with the participant.
Step Four: Improve and make changes. The clinic staff meet on a weekly basis on Fridays to discuss quality issues in relation to project implementation, identified barriers and celebrated the successes of the program. Additionally, if the educational session using the NCCN Guidelines for Patient with Melanoma booklet is adopted for standard use by clinicians at The OSUWMC Surgical Oncology Melanoma clinic, it will be made easily accessible for all clinic staff to utilize. The NP will be designated as the primary educator for all newly diagnosed melanoma patients. The computerized program of the NCCN Patient Guidelines will be downloaded onto each computer located in the examination rooms for patient education.

Step Five: Control and monitor. The project addressed this step by presenting a short survey to each patient after they completed the session asking them to provide feedback about the session. These data were used to evaluate patient satisfaction. Additionally, if the educational session is adopted as standard of practice, bi-annual patient satisfaction surveys will be conducted utilizing the Patient Response Questionnaire utilized during the project and results analyzed to identify issues related to accessibility of the program, the consistency of delivering the educational material and any improvement suggestions.

In addition to the Six Sigma principles, the Health Belief Model (Appendix B) was utilized because it emphasizes that patients who understand the overall health benefits of a behavior change (decreased risk of developing a secondary melanoma, early detection and prevention) may overcome the actions that the patient perceives as barriers (putting on sun screen, performing SSE, minimizing sun exposure, etc.) (DiClemente et al., 2013). As such, patients who are knowledgeable about their disease staging, diagnosis and treatment plans are more likely to participate in their plan of care. If clinicians educate patients on potential risks and complications, patients may use that knowledge to alter risky behavior(s) and utilize protective
health instincts. This model is the theoretical basis to engage and reinforce learning in individuals while giving direct feedback and assistance to overcome barriers associated with potential risky sun-exposure behavior.
Chapter Three: Methods

Project Design

This quality improvement project used a quasi-experimental pre-test post-test design to evaluate an educational session in which information contained within the NCCN Guidelines for Patients with Melanoma booklet was reviewed with newly diagnosed melanoma patients. The project was approved prior to implementation by the Quality Patient Safety Committee and was determined by the OSU Institutional Review Board to be Exempt from IRB review.

Setting:

The OSUWMC Surgical Oncology Melanoma Clinic located on the 4th floor of Martha Morehouse Tower.

Sample:

All adult men and women, age 18 years and older diagnosed with their first melanoma and being evaluated as a new patient at The OSUWMC Surgical Oncology Melanoma Clinic were potential participants. Individuals who have been diagnosed with melanoma for the first time are less likely to have received detailed information about melanoma from their primary care provider (Al-Shakhli et al., 2006). Minors, age less than 18 years, were excluded due to issues with legal consent. Non-English speaking individuals were excluded because the Melanoma Knowledge Questionnaire (MKQ) (Appendix C) is only available in English.

Sample size for this project was determined by the number of patients consenting and able to participate in the project during the time period the DNP student was collecting data at the Surgical Oncology Melanoma Clinic (3-4 days/week for approximately 16 weeks, N=24 enrolled). Approximately eight to ten newly diagnosed melanoma patients are seen each week in this clinic.
Recruitment:

All patients presenting for their initial visit at The OSUWMC Surgical Oncology Melanoma Clinic received an envelope from the front desk personnel containing the printed Informational Flyer (Appendix D), developed by the DNP student, notifying them of the opportunity to participate in the project. The flyer explained that if the patient would like more information about the project they were to return to the front desk personnel who then contacted the DNP student via the clinic office phone. Thus, each patient presented with the information self-identified as a potential project participant. The DNP student escorted each interested patient to a private examination room and discussed the project in detail and allowed time for questions prior to initiating clinic check in.

Verbal consent was obtained from patients choosing to participate in the project by the DNP student using a scripted verbal explanation (Appendix E). (Verbal consent was preferred so that no documents containing the patient’s name were generated.) Patients were informed that they could choose to participate in the project or decline participation. Participants were also informed that they could withdraw from the project at any time during the session. Participants were allowed to keep the Informational Flyer that contained the contact information for the DNP student and the Office of Responsible Research. Patients opting not to participate in the project received one of the educational pamphlets available at the Surgical Oncology Melanoma Clinic.

Methods:

After verbal consent was obtained, the DNP student collected socio-demographic data (age, sex, race, education level, employment status, occupation, insurance coverage, income level and marital status) from each participant via interview and recorded the data on the Socio-demographic Data Collection Form (Appendix F). The DNP student then administered the MKQ
that measured melanoma knowledge levels (scores). After the participants completed the MKQ, the DNP student initiated the one-to-one educational session and explained the melanoma diagnosis, staging, and detection/prevention strategies using the NCCN Guidelines for Patients with Melanoma booklet. The session was tailored to reflect each participant’s specific pathologic diagnosis and staging as well as their existing knowledge level. Participants completed the MKQ again after the session was completed. The DNP student recorded the time required to complete the education session on the Socio-demographic Data Collection Form. Participants were also asked to complete a brief Patient Response Questionnaire (PRQ) (Appendix G) about the quality and usefulness of the booklet and educational session.

At the end of the session, the Socio-demographic Data Collection Form was stapled to the participants’ MKQ score sheets and placed in a manila envelope that was kept in a locked file drawer in the DNP student’s office. Only general demographic information (age, gender, race, and years of education, employment history and annual income), MKQ scores and time required for educational session administration were recorded. The entire project protocol occurred prior to the participant seeing their physician or receiving any educational materials available at the clinic.

Data collection was completed within a 12 week timespan and the data analysis and interpretation of the findings were completed within an additional three week timespan. When all data were collected from 24 participants, the data were entered into the Microsoft Access database which was encrypted and password protected and assigned a unique subject number by the database for data management. No personally identifiable information was collected or recorded. Socio-demographic and MKQ data was used for data analysis.
Instruments:

Educational Tool: The NCCN Guidelines for Patients with Melanoma booklet is published by the NCCN and is available for public use online at www.NCCN.org/patients. The NCCN is a non-profit network of 25 of the U.S.’s leading cancer centers. The written information contained in this booklet is based on the best practice guidelines for cancer care and aligns with the written guidelines provided to doctors who treat melanoma. This booklet is available on the NCCN website for on-line viewing and printing. The booklet is divided into six parts. Part One, “About Melanoma”, explains about the growth and spread of melanoma on the skin and through the lympho-vascular systems, risk factors, detection (ABCDEs of melanoma) and melanoma prevention strategies. Part Two, “Tests for Melanoma”, describes different types of testing procedures to diagnose and treat, procedures and exams that detect for melanoma metastasis and an explanation of the specific elements of the pathology report. Part Three, “Melanoma Staging”, outlines the staging process of the melanoma tumor. It explains that melanoma is often staged twice; the first staging focuses on the specific aspects of the primary melanoma tumor, the second staging incorporates the pathology from the definitive surgical resection of the primary tumor and lymph nodes. It describes the extent to which melanoma has spread throughout the body. Part Four, “Overview of Melanoma Treatments”, describes the available treatment options and treatment side effects for melanoma that range from local therapies such as surgery and radiation to systemic therapies including immunotherapy, targeted therapy, chemotherapy and vaccines. Surgical resection is considered first line therapy for most melanoma diagnoses. Eighty percent of melanoma patients will have no nodal involvement at initial presentation and will not require systemic therapy (McNeil, 2013). Surgical therapy is the primary focus of this particular clinic; therefore, only potential surgical treatment modalities were reviewed with study
participants. Part Five, “Treatment Guide”, outlines which treatments and tests are recommended for each staging level by the NCCN experts for melanoma doctors. This section was not reviewed during the educational session as it reiterated information already covered in previous sections. In all, the educational booklet contains 101 pages; of that total, only the first 35 pages were used for this quality improvement project. Each participant was given a print version of this booklet for the educational session.

Knowledge levels were measured using the 23 item MKQ (Orringer et al., 2005). This tool was developed by physicians at the Michigan Multi-Disciplinary Melanoma Clinic based on the basic education provided to every patient with newly diagnosed melanoma seen in their clinic.

Extensive pretesting of the instrument was done to establish whether the content of the MKQ reflected the content of the video in an unpublished pilot study. The MKQ tool was reported as reliable and valid (Orringer et al., 2005). The NP attempted to obtain reliability and validity measures from the primary researcher; however, these data were no longer available as the study had been conducted greater than 10 years ago. The MKQs used for the current study were color coded to distinguish between the MKQ given to participants before the educational session and the one given after the session.

The content covered by questions contained in the MKQ was also content that two NPs and three surgical oncologists at The OSUWMC Surgical Oncology Melanoma Clinic considered essential to impart to patients. These clinicians have had extensive clinical experience in treating melanoma and other cancers. Additionally, each NP ranked the information contained in the NCCN Guidelines for Patients with Melanoma booklet from the most important to the least important. The results of this exercise indicated they were in agreement and the information they ranked as important was also covered by questions contained within the MKQ. Therefore, the
MKQ was chosen as the tool to measure knowledge gained from the NCCN Guidelines for Patients with Melanoma booklet.

**Patient Satisfaction**

Patient satisfaction was measured by asking participants to complete the Participant Response Questionnaire (Appendix G). The questionnaire contained two questions pertaining to the helpfulness of the session and participants’ willingness to recommend it to others. Participants answered the questions using a 5 point Likert scale with one being “not at all” and five being “absolutely”. Participants were also asked to provide feedback by answering three open-ended questions that asked what they felt was most helpful and least helpful about the session, and if they had any other recommendations/suggestions for improving the session.

**Data Analysis Plan:**

Descriptive statistics (e.g. means, percentages) were used to characterize the socio-demographic characteristics of the sample. Mean scores on the MKQ completed before the education session were compared to the mean scores on the MKQ completed after the educational session using the T-test for paired observations. Participants’ opinions about the educational session (helpfulness, recommendations for additions or deletions, whether they would recommend the program to a friend or family member) were summarized using frequencies and percentages by rating categories. Mean time (minutes) to complete the educational session was reported.
Chapter Four: Findings

Results

Patient Characteristics

There were a total of 24 participants, ages 27 – 87 years of age, enrolled in this quality improvement project. Statistical analysis was conducted on the data from the 23 participants who successfully completed the program. The average age of the group was 59.3 years ($SD = 16.3$) (Table 1). There were 16 males and 7 females and all participants identified themselves as Caucasian (100%). Educational levels ranged from “some high school” to “post college degree”. The average education level was “some college” ($M = 7.0$, $SD = 2.2$). The majority of participants (78%) had at least some college education or higher (Table 1). Sixty-one percent of the participants were employed and 39% were retired. The majority of participants were married (73.9%). One participant (ID = 9), was excluded from data analysis due to his inability to complete the study. Five potential subjects declined participation secondary to limited time availability. There were no observable patterns noted between socio-demographic data and the pre and post MKQ scores.
Table 1. Socio-demographic data (n=23)

<table>
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<tr>
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<th>Number in Sample (%)</th>
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<tbody>
<tr>
<td><strong>Age, mean years (SD)</strong></td>
<td>58.3 (SD=16.3)</td>
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<tr>
<td><strong>Age, range, years</strong></td>
<td>27 – 87</td>
</tr>
<tr>
<td><strong>Male</strong></td>
<td>16</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>7</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>23 (100%)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>Some high school</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>High school graduate</td>
<td>3 (13%)</td>
</tr>
<tr>
<td>Technical school</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Some college</td>
<td>7 (30%)</td>
</tr>
<tr>
<td>College graduate</td>
<td>8 (34.9%)</td>
</tr>
<tr>
<td>Some post college</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Post college degree</td>
<td>2 (8.7%)</td>
</tr>
<tr>
<td><strong>Work Status</strong></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>14 (60.9%)</td>
</tr>
<tr>
<td>Retired</td>
<td>9 (39.1%)</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>5 (21.7%)</td>
</tr>
<tr>
<td>Married</td>
<td>17 (73.9%)</td>
</tr>
<tr>
<td>Divorced</td>
<td>1 (4.3%)</td>
</tr>
</tbody>
</table>

SD = standard deviation

Pre, Post and Change Scores for MKQ:

The number of questions answered correctly on the MKQ before the educational session was compared to the number answered correctly after the session using a t-test for paired observations. The average number of questions answered correctly before the session was 12.6 (SD = 12.6) and the average number answered correctly post session was 16.3 (SD = 2.6). Thus, on average, the number of questions correctly answered after the educational session increased by 3.7 (SD = 3.5) (Table 2). This change was statistically significant (p < 0.001). The 95% confidence interval for the true difference in means was 2.18 to 5.21 (Cohen’s D = 1.05)
Table 2. Overall results of the knowledge test.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>STD</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-program questionnaire average</td>
<td>12.6</td>
<td>3.9</td>
<td>14.0</td>
<td>4.0</td>
<td>18.0</td>
</tr>
<tr>
<td>Post-program questionnaire average</td>
<td>16.3</td>
<td>2.6</td>
<td>17.0</td>
<td>11.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Change</td>
<td>3.7</td>
<td>3.5</td>
<td>3.0</td>
<td>-4.0</td>
<td>12.0</td>
</tr>
</tbody>
</table>

$n=23$. Participant with ID=9 excluded.

Figure 3 plots pre-program MKQ scores against post-program scores for the 23 participants. The diagonal breakeven line illustrates where scores would fall if no participant showed an improvement. All points above the line indicate improvement. Of the 23 participants, 20 showed improvements in their MKQ scores post session, two showed no change, and one actually decreased. It is possible that this patient was distracted when taking the post-MKQ test and did not read the questions closely.

Figure 3: MKQ change results
**MKQ Question Analysis**

The aggregate results summarizing the distribution of participants’ total correct score across 20 of the 23 questions was analyzed pre and post MKQ to evaluate for change differences (Table 3). Three questions were not included in the aggregates (items 1, 5, and 23) because they addressed content which was not covered by the educational program. Questions 6, 12, 13, 16 and 17 had the highest mean positive change when comparing pre and post scores. Interestingly, question four demonstrated a negative change following the educational session.

Table 3 presents question analysis results. Questions were scored 0 for incorrect and 1 for correct. The pre and post means are the averages of these 0/1 scores across participants. The means provide the proportion of participants who answered the question correctly. For example, for Question 6, 13% of respondents had correct responses pre-program while 48% had correct responses post program. Question 2 was correctly answered by all participants both before and after the program.

Question Two demonstrated strong overall participant knowledge both pre (100% correct) and post (100%). It asked about possible locations of melanoma occurrence. Question Four also had a perfect pre-MKQ score (100%) but was answered incorrectly by one participant post – MKQ (-4%). Question 15, regarding evidence of lymph node metastasis, was answered correctly by all 23 participants post-MKQ.

Question Six focusing on the overall lifetime risk of melanoma occurrence and demonstrated the lowest correct pre- and post-MKQ scores (13% and 48%, respectively). However, it demonstrated one of the greatest overall improvements (35%) on analysis.

There were two specific questions that were phrased using negative formatting, questions 13 and 14. Both questions scored low pre- and post – MKQ. Question 13 pre-MKQ was correctly
answered by 35% of the participants while post – MKQ were answered correctly by 65% of the participants, an over – all increase of 30%. Participants answered Question 14 correctly 39% of the time pre-MKQ and 57% post-MKQ, an improvement of 18%. Regardless of the scores, participants demonstrated a positive improvement in post – MKQ scoring. This information is important in performing SSE and learning about early detection. Question 16 addressed information regarding melanoma metastasis and lymph node involvement. Comparison of pre and post MKQ scores resulted in an overall improvement of 35%.

Table 3. Item-level results from the knowledge questionnaire.

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre</th>
<th>STD</th>
<th>Post</th>
<th>STD</th>
<th>Change</th>
<th>STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>1.00</td>
<td>0.0</td>
<td>1.00</td>
<td>0.0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>03</td>
<td>0.87</td>
<td>0.3</td>
<td>0.87</td>
<td>0.3</td>
<td>0.00</td>
<td>0.3</td>
</tr>
<tr>
<td>04</td>
<td>1.00</td>
<td>0.0</td>
<td>0.96</td>
<td>0.2</td>
<td>-0.04</td>
<td>0.2</td>
</tr>
<tr>
<td>06</td>
<td>0.13</td>
<td>0.3</td>
<td>0.48</td>
<td>0.5</td>
<td>0.35</td>
<td>0.5</td>
</tr>
<tr>
<td>07</td>
<td>0.39</td>
<td>0.5</td>
<td>0.57</td>
<td>0.5</td>
<td>0.17</td>
<td>0.6</td>
</tr>
<tr>
<td>08</td>
<td>0.78</td>
<td>0.4</td>
<td>0.91</td>
<td>0.3</td>
<td>0.13</td>
<td>0.5</td>
</tr>
<tr>
<td>09</td>
<td>0.57</td>
<td>0.5</td>
<td>0.74</td>
<td>0.4</td>
<td>0.17</td>
<td>0.4</td>
</tr>
<tr>
<td>10</td>
<td>0.78</td>
<td>0.4</td>
<td>0.91</td>
<td>0.3</td>
<td>0.13</td>
<td>0.5</td>
</tr>
<tr>
<td>11</td>
<td>0.65</td>
<td>0.5</td>
<td>0.83</td>
<td>0.4</td>
<td>0.17</td>
<td>0.6</td>
</tr>
<tr>
<td>12</td>
<td>0.48</td>
<td>0.5</td>
<td>0.91</td>
<td>0.3</td>
<td>0.43</td>
<td>0.5</td>
</tr>
<tr>
<td>13</td>
<td>0.35</td>
<td>0.5</td>
<td>0.65</td>
<td>0.5</td>
<td>0.30</td>
<td>0.6</td>
</tr>
<tr>
<td>14</td>
<td>0.39</td>
<td>0.5</td>
<td>0.57</td>
<td>0.5</td>
<td>0.17</td>
<td>0.6</td>
</tr>
<tr>
<td>15</td>
<td>0.91</td>
<td>0.3</td>
<td>1.00</td>
<td>0.0</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>16</td>
<td>0.39</td>
<td>0.5</td>
<td>0.74</td>
<td>0.4</td>
<td>0.35</td>
<td>0.6</td>
</tr>
<tr>
<td>17</td>
<td>0.43</td>
<td>0.5</td>
<td>0.78</td>
<td>0.4</td>
<td>0.35</td>
<td>0.6</td>
</tr>
<tr>
<td>18</td>
<td>0.78</td>
<td>0.4</td>
<td>0.91</td>
<td>0.3</td>
<td>0.13</td>
<td>0.3</td>
</tr>
<tr>
<td>19</td>
<td>0.78</td>
<td>0.4</td>
<td>0.96</td>
<td>0.2</td>
<td>0.17</td>
<td>0.4</td>
</tr>
<tr>
<td>20</td>
<td>0.78</td>
<td>0.4</td>
<td>0.96</td>
<td>0.2</td>
<td>0.17</td>
<td>0.4</td>
</tr>
<tr>
<td>21</td>
<td>0.65</td>
<td>0.5</td>
<td>0.87</td>
<td>0.3</td>
<td>0.22</td>
<td>0.5</td>
</tr>
<tr>
<td>22</td>
<td>0.43</td>
<td>0.5</td>
<td>0.65</td>
<td>0.5</td>
<td>0.22</td>
<td>0.7</td>
</tr>
</tbody>
</table>

n=23. Participant with ID=9 excluded.
Time to Complete and Patient Response

The time required to complete the educational sessions ranged from 13 minutes to 25 minutes; the average was 17.9 minutes ($SD = 3.0$).

Participants were asked to rate the program on two specific items; the helpfulness of the program (PRQ1) and willingness to recommend (PRQ2). A five point Likert scale was used with 1 being “Not at all” and 5 being “Absolutely”. PRQ1 ratings ranged from 4 to 5 ($M = 4.9$, $SD = 0.3$), PRQ2 ratings ranged from 4 to 5 ($M = 4.9$; $SD = 0.3$) indicating high patient satisfaction with the program (Table 4).

Participants were asked to rate the program on two specific items; the helpfulness of the program (PRQ1) and willingness to recommend (PRQ2). Analysis of these questions indicated high patient satisfaction. Additionally, participants were also asked to provide feedback about what they found most helpful (PRQ3), least helpful (PRQ4) and recommendations for improvement (PRQ5). PRQ3 responses fell into three categories; 1) tailored information regarding what to expect (“learning the facts about melanoma and how my melanoma will be treated, including my pathology report”), 2) general information about melanoma (“Visual pictures, easy text and grouping of each area of concern nicely placed”, “differences between level and staging, different types of melanoma”), and 3) personal interaction (“talking with knowledgeable professional”). In terms of participant suggestions for improvements, one participant thought that offering a video containing the same content would be helpful for patients who wanted to review the information again in a different format. Another participant suggested the clinic provide recommendations for websites containing additional accurate information about melanoma, and one thought it would be helpful to “read the entire book”.
Of note, additional websites are located in the back of the booklet, but were not reviewed with participants during this particular educational session. One participant jokingly suggested allowing time to study prior to taking the second examination and another stated he found the booklet to be very useful even after his surgical intervention because it helped him find out what to expect with his next course of therapy.

Table 4: Distribution of variables Time, PRQ1, and PRQ2 (Patient Response Questionnaire)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>STD</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>17.9</td>
<td>3.0</td>
<td>18.0</td>
<td>13.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Program helpful</td>
<td>4.9</td>
<td>0.3</td>
<td>5.0</td>
<td>4.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Would recommend</td>
<td>4.9</td>
<td>0.3</td>
<td>5.0</td>
<td>4.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

n=23. Participant with ID=9 excluded.

Discussion

This quality improvement project’s data demonstrates that the NP-led educational session for newly diagnosed melanoma patients had a positive impact on their knowledge of melanoma. On average, the number of questions answered correctly on the MKQ after the session was significantly greater than the number of questions answered correctly before the session. This finding is consistent with numerous other studies reporting the positive effects of provider delivered education on patient knowledge (Armstrong et al., 2011; Bellamy, 2005; Bichakjian et al., 2002; Falk & Magnusson, 2011; Glazebrook et al., 2006; Morris & Elwood, 1996).

Patients who are knowledgeable about the signs and symptoms of melanoma are more likely to detect suspicious lesions at an earlier stage and seek treatment that is curative (Allen, 2013). Improved understanding about disease staging, prognosis and treatment needs will often decrease anxiety and fear surrounding the diagnosis of melanoma which can negatively affect outcomes (Al-Shakhli et al., 2006). Educating patients on their personal risk factors, sun-protection
behaviors and SSE empowers them to partner with their healthcare provider in health maintenance efforts, thus supporting the IOM’s “10-Point Plan for More Comprehensive Cancer Care” (Adler & Page, 2008). The educational sessions were conducted on each participant’s entry to the clinic to control for extraneous variables (e.g. physician education, nurse interaction/education, other educational material.). On average, the sessions lasted less than 25 minutes in length. The analysis indicated slight improved time efficiency as the project progressed. This may be due in part to the NP becoming more familiar with the booklet and educational delivery methods. While one may propose that less time would be spent per person in the future, actual educational times were driven by the specific needs and questions of each participant, a personalized approach. It was also interesting to note that participants with higher education levels required slightly more time per session. This may be because they asked more questions during the time the NCCN booklet was reviewed with them.

Interestingly, the questions on the MKQ that scored the lowest both pre and post MKQ education session (questions 6 and 7) were those related to melanoma incidence rates and the probability of recurrence of melanoma. While these facts are somewhat important to know, the actual numbers fluctuate annually based on population studies and are not expected to impact the prognosis, treatment or outcomes of melanoma. Therefore this information was not stressed significantly during the education session. One question that scored unexpectedly low on the post –MKQ (question 13) was related to identifying abnormal mole characteristics. One hypothesis to this result is that this MKQ question was worded in a negative fashion and may have been to the reader. However, this information is considered extremely important in conducting SSE and will be more diligently covered during future educational sessions by the NP.
The timing of the educational session should be considered in the future implementation of this program to prevent interruptions or delays in providers’ schedules. Moreover, patients may retain more information if the educational session were administered after their appointment with the surgeon as they may have additional questions. At times, the current project’s intervention helped to occupy patients while they waited to see the surgeon (especially helpful when there were appointment delays). Of note, the NP was able to gather individualized clinical information from each patient to include in their medical history that assisted in developing each individual plan of care, therefore serving a dual purpose. It is possible that this led to increased provider efficiency. The measurement of this impact extended beyond the parameters of this project.

Another important project finding is that the data revealed that patients were very satisfied with the educational session. Participants stated they would highly recommend the program to others and that they appreciated learning about the specifics of their diagnosis, and the types of treatments they could potentially receive.

Conclusions

The project results suggest that when newly diagnosed melanoma patients are provided evidence-based information about their disease in a NP led educational session, their knowledge about diagnosis, treatment and prevention increases significantly. Participant satisfaction with the contents of the program and positive change in knowledge scores demonstrates benefits of providing this program to patients presenting with a melanoma diagnosis. Additional projects evaluating effects of similar nurse led educational sessions on anxiety, long term behavioral change and knowledge retention as well as the appropriate sequencing of the session during the clinic visit are needed.
Chapter Five

Study Summary

This quality project had two main objectives. The first objective was to evaluate the effectiveness and efficiency of an NP led educational session for newly diagnosed melanoma patients by measuring pre- and post- session knowledge scores using the MKQ. The NCCN Guidelines for Patients Melanoma was the educational document chosen to deliver melanoma education. The secondary objective was to evaluate the practicality of using this educational intervention in the clinic setting by measuring time per session.

Results demonstrated statistically significant improvement in the MKQ scores following the educational session. The average time to complete the education was 17.9 minutes. Moreover, patient satisfaction scores and comments were high and extremely positive. The collective findings suggest the NCCN Guidelines for Patients with Melanoma booklet and delivery method could be considered as the standard educational method for use with newly diagnosed melanoma patients seen at the OSUWMC Surgical Oncology Melanoma Clinic. Additionally, there were numerous indications of decreased anxiety in the participants during and following the educational session. For example, it was noted that as the session progressed, many participants began establishing more eye contact with the NP, there were visible signs that their bodies began to relax, their respirations slowed, they became less tearful and sometimes even laughed.

This project demonstrated that patient knowledge can be positively influenced by using a personalized, evidence-based patient education booklet focusing on prevention, detection, diagnosis, staging and treatment of this disease. Providing this education empowers the person to identify their personal risk factors, educates them on appropriate SSE techniques to identify abnormal skin lesions, encourages them to utilize sun protective behaviors and helps them
identify their perceived barriers to performing these behaviors on a routine basis. It also informs them about their current diagnosis and allows them to participate in selecting the appropriate treatment strategies needed to care for their existing melanoma, thus supporting the Health Belief Model theory.

As a result of this project and sharing the findings with the healthcare providers in the clinic, it was decided the NCCN Guidelines for Patients Melanoma electronic booklet will be uploaded on to computers located in patient examination rooms. This will allow for patient education sessions to take place regardless of the availability of the actual booklets. The Patient Information section on the After Visit Summary will contain the booklet web link so that patients can access the information contained in the booklet at home for their personal use. Additionally, the clinic providers decided that all new patients arriving at the OSUWMC Surgical Oncology Melanoma Clinic will receive a one-to-one education session with the NP focusing on their specific melanoma diagnosis, staging treatment and prevention strategies. The sequencing of this session will be discussed with the provider and delivered according to clinic allowances.

Limitations

This project had several limitations. The small sample size limits the generalizability of the findings to other populations as well as the ability to evaluate for differences in knowledge change between participants based on education, age and sex. The MKQ was not specifically designed to reflect the content of the NCCN Guidelines for Patients with Melanoma. The educational session was not administered uniformly to all patients; it was actually tailored to address each participant’s diagnosis and their specific questions, which again, limits the generalizability of the findings to other patient populations.
Additionally, the post-MKQs was administered immediately following the education session. Thus, it is difficult to ascertain if or how long the knowledge will be retained. Given the uniformity of the Patient Response Questionnaire responses and the small sample size, we must continue to evaluate the patient satisfaction and elicit feedback related to the session from the participants to capture any possible negative response.

Sequencing of the educational session during the clinic visit needs to be evaluated. While it was important to establish the effectiveness of the NCCN Guidelines for Patients with melanoma as a teaching tool in this project, participants gain additional knowledge from the provider as the appointment progresses. This knowledge was not measured during this project, so true knowledge gained was not measured.

All participants were Caucasian, therefore the effectiveness of this program will need to be evaluated in other ethnic populations.

**Implications for Nursing Practice/DNP Essentials**

DNPs identify theoretical foundations on which to base the delivery of patient care. Essential I emphasizes the importance of integrating nursing science into everyday practice to enhance, explain and improve healthcare delivery. This project specifically utilized the theoretical foundations of the Health Belief Model by using an evidence-based educational booklet to enhance patient knowledge, thus empowering the participants to identify personal risk factors regarding melanoma, identify early changes in skin lesions, and participate in healthcare decisions and ultimately decreasing melanoma occurrence and increasing survival. Essential I also recommends evaluating outcomes of the practice intervention to evaluate for the impact after application. The data revealed that participants demonstrated a positive improvement in melanoma knowledge when the analysis compared their post MKQ scores to their pre MKQ
scores. Thus this project’s finding are aligned with the Health Belief Model which proposes that health behaviors can be influenced by educating patients on the risks that are specific to them; in this project, melanoma.

DNP Essential II and III were addressed during the design and implementation of this project. For example, the NP first identified a need to standardize the educational method used to teach newly diagnosed melanoma patients about this diagnosis in the OSUWMC Surgical Oncology Melanoma Clinic. She then elicited feedback from the OSUWMC Surgical Oncology Melanoma Clinic team regarding educational preferences and materials, and conducted an extensive literature review regarding educational techniques, measuring and analyzing project data, and employed the Six Sigma Quality approach to measure outcomes in the melanoma population. Moreover, this project utilized the NCCN Guidelines for Patients with Melanoma, an evidence-based educational booklet that is reviewed annually by melanoma experts and is available to the public via the internet.

Inter-professional collaboration was an essential aspect in the success of this program. The DNP identified and communicated the identified quality issue to the OSUWMC Surgical Oncology Melanoma Clinic team members which consisted of physicians, nurses, research assistants and medical assistants. The team agreed the project was important and decided about the sequencing of the educational session. Inter-professional collaboration is essential to providing seamless, continuous care to patients. It allows for improved patient outcomes, patient and staff satisfaction and opens avenues for additional areas for research and collaborative practice.

Finally, Essential VIII was important for the implementation of this project as it allowed the DNP to employ systems theory, theoretical frameworks, quality improvement, research
implementation and advanced physical and health assessment interviews while caring for the melanoma patient population. The utilization of some or all the DNP Essentials concurrently defines the essence of Essential VIII and advanced practice nursing.

Patient education is an integral part of nursing practice and it provides a unique opportunity for all nurses to positively impact health outcomes for diverse patient populations. However, DNs are uniquely qualified to facilitate this process as they assume leadership roles, serve as resources for patients and colleagues and identify quality issues surrounding patient education in hospitals, clinic and the community. Therefore, it is essential that DNs lead the effort in improving patient education by helping to identify the educational needs of diverse populations and serving as liaisons for patients, staff and healthcare professionals locally, nationally and internationally.
Figure 1: ABCDEs of Melanoma
Figure 2: Fitzpatrick Scale

The most commonly used scheme to classify a person’s skin type by their response to sun exposure in terms of the degree of burning and tanning was developed by Thomas B. Fitzpatrick*, MD, PhD. Examples are given below.


<table>
<thead>
<tr>
<th>Eye colour</th>
<th>Do you turn brown?</th>
<th>Score</th>
<th>Natural hair colour</th>
<th>How brown do you get?</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. Light colours</td>
<td>0. Never</td>
<td>0–6</td>
<td>0. Sandy red</td>
<td>7–13</td>
</tr>
<tr>
<td>1. Blue, gray or green</td>
<td>1. Seldom</td>
<td></td>
<td>1. Blond</td>
<td>Always burns easily,</td>
</tr>
<tr>
<td>2. Dark</td>
<td>2. Sometimes</td>
<td></td>
<td>2. Chestnut or dark blond</td>
<td>tans minimally</td>
</tr>
<tr>
<td>Natural hair colour</td>
<td></td>
<td></td>
<td></td>
<td>Burns moderately,</td>
</tr>
<tr>
<td>0. Sandy red</td>
<td></td>
<td></td>
<td></td>
<td>tans uniformly</td>
</tr>
<tr>
<td>1. Blond</td>
<td>0. Never</td>
<td>21–27</td>
<td>2. Beige or olive</td>
<td>Burns minimally,</td>
</tr>
<tr>
<td>2. Chestnut or dark blond</td>
<td>1. Light tan</td>
<td></td>
<td>3. Brown</td>
<td>always tans well</td>
</tr>
<tr>
<td>4. Black</td>
<td>3. Dark tan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your skin colour (unexposed areas)</td>
<td>4. Deep dark</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0. Reddish</td>
<td>0. Very sensitive</td>
<td>28–34</td>
<td></td>
<td>35+</td>
</tr>
<tr>
<td>1. Pale</td>
<td>1. Sensitive</td>
<td></td>
<td></td>
<td>Skin Type VI</td>
</tr>
<tr>
<td>2. Beige or olive</td>
<td>2. Sometimes</td>
<td></td>
<td></td>
<td>Never burns</td>
</tr>
<tr>
<td>4. Dark brown</td>
<td>4. Never have a problem</td>
<td></td>
<td></td>
<td>dark brown to black</td>
</tr>
<tr>
<td>Freckles (unexposed areas)</td>
<td></td>
<td></td>
<td></td>
<td>skin)</td>
</tr>
<tr>
<td>0. Many</td>
<td>0. Never</td>
<td>35+</td>
<td>1. Mild blisters, peeling</td>
<td>35+</td>
</tr>
<tr>
<td>1. Severe</td>
<td>1. Seldom</td>
<td></td>
<td>2. Burn, mild peeling</td>
<td>Never burns (deeply</td>
</tr>
<tr>
<td>2. Few</td>
<td>2. Sometimes</td>
<td></td>
<td>3. Rare</td>
<td>pigmented dark brown</td>
</tr>
<tr>
<td>3. Rare</td>
<td>3. Often</td>
<td></td>
<td>4. No burning</td>
<td>to black skin)</td>
</tr>
<tr>
<td>4. None</td>
<td>4. Always</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The information published here is not intended to take the place of medical advice. Please seek advice from a qualified health care professional.
Appendix A: NCCN Guidelines for Patients with Melanoma

Available at http://www.nccn.org/patients/guidelines/melanoma/index.html
Appendix B: Health Belief Model

![Diagram of Health Belief Model]

**Theoretical Propositions of the Health Belief Model**

- **Individual Perceptions**
  - Perceived susceptibility of disease X
  - Perceived seriousness (Severity) of disease X

- **Modifying factors**
  1. Demographic Variables (age, sex)
  2. Sociopsychological (personality, social class)

- **Likelihood of Action**
  - Perceived benefits of preventive action minus perceived barriers to preventive action

- **Cues to action**
  - Mass media campaigns
  - Advice from others
  - Illness of family member
  - Health visitor’s/physician’s explanation

- **Likelihood of taking recommended preventive health action**
Appendix C: Melanoma Knowledge Questionnaire

Melanoma Knowledge Questionnaire (Orringer et al., 2005)

We are trying to learn more about patients’ understanding on melanoma. Please help us by answering the following questions or completing the following statements. If you don’t know the answer, please check “don’t know” instead of guessing.
Check one box for each question.

1. WHAT ARE THE MOST COMMON LOCATIONS FOR MELANOMA IN WOMEN?
   - [ ] Face and arms
   - [ ] Back and legs
   - [ ] Face and legs
   - [ ] Back and arms
   - [ ] Don’t know

2. MELANOMA MAY GROW ON WHICH AREAS OF THE BODY?
   - [ ] Anywhere on the skin
   - [ ] Only in sun-exposed areas
   - [ ] Only where a mole has “gone bad”
   - [ ] Only in an area that has been sunburned
   - [ ] Don’t know

3. MELANOMA IS...
   - [ ] a less serious form of skin cancer
   - [ ] the most serious form of skin cancer
   - [ ] the most common form of skin cancer
   - [ ] a form of skin cancer seen only in older people in the United States
   - [ ] don’t know

4. FINDING A MELANOMA EARLY WILL LIKELY...
   - [ ] likely not matter because there is no cure for melanoma
   - [ ] not matter because early melanoma cannot be confirmed by doctors
   - [ ] increase the chance of being cured
   - [ ] increase the chance for later complications
   - [ ] Don’t know

5. THE NUMBER OF NEW CASES HAS BEEN...
   - [ ] decreasing because of the use of sunscreens
   - [ ] increasing nearly as fast as cases of colon cancer in the United States
   - [ ] decreasing because of the ABCD system of mole checking
   - [ ] increasing faster than any other type of cancer in the United States
   - [ ] don’t know

6. WHAT IS THE CHANCE A CHILD BORN TODAY IN THE UNITED STATES WILL GET MELANOMA DURING HIS/HER LIFETIME?
   - [ ] About 1 in 1500
   - [ ] About 1 in 50
   - [ ] About 1 in 500
   - [ ] About 1 in 5
   - [ ] Don’t know

7. WHAT IS THE LIFETIME CHANCE OF GETTING A SECOND MELANOMA AFTER HAVING HAD ONE MELANOMA?
   - [ ] 0%
   - [ ] About 25 to 30%
   - [ ] About 5 to 10%
   - [ ] Nearly 100%
   - [ ] Don’t know
8. WHO IS MORE LIKELY TO GET MELANOMA?
- People born before 1940
- People with 5 to 20 moles
- People with dark hair and dark skin
- People with red or blond hair, fair skin and blue eyes
- Don’t know

9. MELANOMA FORMS FROM SKIN CELLS THAT ARE…
- present only when a melanoma is formed
- present only in sun-exposed skin
- normally present in the skin producing pigment and allowing some people to tan
- normally found only in moles
- Don’t know

10. PATIENTS WITH MELANOMA NEED TO HAVE SKIN EXAMS…
- for three years after diagnosis
- for five years after diagnosis, but only if the melanoma was “deep”
- for the rest of their lives
- for the rest of their lives, unless the melanoma was “thin”
- Don’t know

11. BLOOD RELATIVES OF PATIENTS WITH MELANOMA ARE…
- more likely to get melanoma only if they have already had other forms of cancer
- more likely to get melanoma
- less likely to get melanoma because they are more careful about checking their skin
- not more likely to get melanoma because it is not a “genetic disease”
- Don’t know

12. A VERY ITCHY MOLE…
- may be a sign that a melanoma is growing there
- is fine, unless it is a new mole
- may be a sign that a melanoma is growing somewhere on the skin
- is fine, unless it bleeds
- Don’t know

13. THE “ABCDs” OF MOLES AND MELANOMA INCLUDE EVERYTHING BUT…
- asymmetrical moles
- large or growing moles
- raised moles
- moles with irregular margins
- Don’t know

14. WHICH STATEMENT IS FALSE?
- Every melanoma breaks all of the ABCD rules of mole checking
- Some melanomas bleed
- Most melanoma grow at a site where there was no mole
- A change in the size, shape, and/or color of a mole can be a sign of melanoma
- Don’t know

15. WHEN MELANOMA SPREADS, IT MOST COMMONLY SPREADS TO THE…
- bones
- lymph nodes
- lungs
- none of the above – melanoma is only found in the skin
- Don’t know

16. MELANOMA THAT HAS SPREAD TO A LYMPH NODE USUALLY APPEARS AS A:
- bleeding sore
- a mole under the arm or in the skin of the neck
- very itchy spot
- lump
- Don’t know
17. ABOUT HOW OFTEN SHOULD PATIENTS WITH MELANOMA EXAMINE THEIR SKIN?
   - Every day
   - One time per month
   - One time per week
   - One time per year
   - Don’t know

18. WHICH OF THE FOLLOWING IS MOST IMPORTANT IN HELPING DOCTORS TO PREDICT THE CHANCE A MELANOMA WILL SPREAD?
   - Its width
   - Its depth/thickness
   - Its color and shape
   - Its location on the skin
   - Don’t know

19. WHICH AREAS DO DOCTORS USUALLY EXAMINE WHEN THEY SEE PATIENTS WITH MELANOMA?
   - Only sun-exposed areas
   - Only the lymph nodes
   - Only the area with the melanoma
   - The entire surface and many lymph nodes
   - Don’t know

20. WHAT KIND OF TREATMENT DO MOST PATIENTS WITH MELANOMA HAVE FIRST?
   - Radiation treatments
   - Chemotherapy
   - Surgery
   - Interferon
   - Don’t know

21. ON THE DAY OF MY FIRST VISIT TO THE MELANOMA CLINIC, ALL OF THE FOLLOWING WILL HAPPEN EXCEPT…
   - learning about melanoma
   - getting a physical exam
   - getting a treatment plan
   - having surgery
   - Don’t know

22. WHICH STATEMENT IS TRUE?
   - Thin melanomas are less than 1 centimeter deep while thick melanomas are greater than 4 centimeters deep.
   - Thin melanomas are less than 5 centimeters deep while thick melanomas are greater than 9 centimeters deep.
   - Thin melanomas are less than 1 millimeter deep while thick melanomas are greater than 4 millimeter deep.
   - Thin melanomas are less than 5 millimeters deep while thick melanomas are greater than 9 millimeters deep.
   - Don’t know

23. MELANOMA IS THE MOST COMMON FORM OF CANCER IN…
   - men, 70 – 74 years old
   - women, 25 – 29 years old
   - women, 65 – 69 years old
   - men, 50 – 54 years old
   - Don’t know
Melanoma Education Quality Improvement Project

You are invited to take part in a quality improvement project that will help us evaluate an educational session for our patients who have been newly diagnosed with melanoma. This project will take approximately 30 - 45 minutes of your time. It will be completed before your appointment with your physician today. The project is totally voluntary. You will be asked to answer a few general questions about you and to complete a brief questionnaire about melanoma. After completing the questionnaire, you will receive a one-to-one educational session with me, a nurse practitioner, that focuses on your specific melanoma diagnosis and stage of melanoma, how to prevent another melanoma, and your personal risk factors. After the session, you will complete the questionnaire about melanoma again.

This project is part of my doctoral study in nursing. If you are interested in learning more about the project, please tell the front desk personnel now that you would like to see me, Lisa Binzel.

Thank you,

Lisa Binzel, MS, RNC, CNP, Nurse Practitioner, Surgical Oncology
The OSU Wexner Medical Center/James Cancer Hospital
Binzel.3@osu.edu  614-293-2708

* For any questions about your rights as a participant in this study or to discuss other study-related concerns or complaints, you may contact the Principle Investigator, Dr. Jodi McDaniel Associate Professor, The Ohio State University College of Nursing at 614-292-1345 or email: mcdaniel.561@osu.edu.

* For any questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.
Appendix E: DNP student Script

Script for DNP student requesting participant consent for participation in the Melanoma Knowledge project (In waiting room)

Hi, my name is Lisa Binzel. I am a nurse practitioner in the Surgical Oncology Melanoma Clinic. Are you interested in participating in a quality improvement project about melanoma knowledge? Let's go to another area where we can talk privately and I can give you more information.

(In private examination room)

This project is part of my doctoral study in the college of nursing. The goal of the project is to determine if a specific educational packet will have any influence on your knowledge associated with your new diagnosis of melanoma. Your participation in the project involves you completing a knowledge questionnaire, one will be given to you prior to us reviewing the educational information, and the second will be given to you after completing your educational session. This is anticipated to take about 30 – 45 minutes, depending on how many questions you may have. At the completion, I will give you a feedback form so that you can comment on how helpful the session was for you. I will also ask you a few more questions that will help us evaluate the results. This part will take about 2 more minutes. The information you provide will not be linked to you and the results will only be reported for groups. Participation in this project is voluntary. There is no direct benefit to you for participating, but your answers may benefit others because we will use the findings of this project to develop better methods to present melanoma information. There is no penalty for not participating in the project. If you do agree to participate, you can stop at any time, without penalty. There are no significant risks to you for participating in this project. Do you have any questions? Are you interested in participating in this project?
Appendix F

Data Collection Form- Socio-demographic data and time to complete education session (for use by DNP student)

<table>
<thead>
<tr>
<th>Socio-demographic Data</th>
<th>Verbal Consent Obtained: Y N</th>
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<tr>
<td>Age: ______</td>
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<tr>
<td>Sex: Male Female</td>
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<tr>
<td>Race: Caucasian Asian</td>
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<td></td>
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<tr>
<td></td>
<td>American Indian Indian</td>
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<td>Highest Education Level:</td>
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</table>

Time to complete educational session: __________________________
Appendix G

Patient Response Questionnaire

Using a scale of 1 to 5 with 1 being “Not at all” to 5 being “Absolutely”

1. Did you find this program helpful?
   ![Scale] 1 2 3 4 5

2. Would you recommend this program to a friend or family member?
   ![Scale] 1 2 3 4 5

3. What did you find most helpful?
   __________________________________________________________
   __________________________________________________________

4. What did you find least helpful?
   __________________________________________________________
   __________________________________________________________

5. Any other recommendations?
   __________________________________________________________
   __________________________________________________________
References


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EVALUATION OF AN EDUCATIONAL SESSION FOR NEWLY
51

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