IMPROVING MELANOMA PATIENT KNOWLEDGE AND FOLLOW-UP

ADHERENCE AT A SOUTHWEST URBAN DERMATOLOGY CLINIC

by

Sara Elizabeth Romine

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As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Sara Elizabeth Romine, titled Improving Melanoma Patient Knowledge and Follow-Up Adherence at a Southwest Urban Dermatology Clinic and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

Christy L Pacheco
_____ Date: **Apr 20, 2020**
Christy L. Pacheco, DNP, FNP-BC

_____ Date: **Apr 20, 2020**
S. Renee Gregg, DNP, FNP-C

_____ Date: **Apr 20, 2020**
Amena Marie Deluca-Ezwebti, MD, FAAD

Final approval and acceptance of this DNP project is contingent upon the candidate's submission of the final copies of the DNP project to the Graduate College.

I hereby certify that I have read this DNP project prepared under my direction and recommend that it be accepted as fulfilling the DNP project requirement.

Christy L Pacheco
_____ Date: **Apr 20, 2020**
Christy L. Pacheco, DNP, FNP-BC
DNP Project Committee Chair
College of Nursing

TABLE OF CONTENTS

TABLE OF CONTENTS – *Continued*

TABLE OF CONTENTS – *Continued*

LIST OF FIGURES

LIST OF TABLES

ABSTRACT

Background: Melanoma is the most dangerous type of skin cancer and especially prevalent in the southwest urban city of Phoenix, Arizona. There is a need for improving melanoma patient education about the melanoma diagnosis and evidence-based follow up recommendations. Following evidence-based recommendations for following up with a provider is the most effective way to identify and treat any possible new melanoma lesions or recurrences.

Purpose: The purpose of this quality improvement project was to facilitate patient education and to improve patient knowledge regarding melanoma, including follow-up recommendations, to determine preferences for follow-up reminders, and to assess patient satisfaction with this educational intervention.

Methods: A pre-test/post-test comparison study was performed over a three-week period at a local dermatology clinic, Camelback Dermatology and Skin Surgery. Convenience sampling of patients in this clinic that had a melanoma diagnosis within the past three years produced a sample of 27 participants. The intervention consisted of a pre-appointment survey. Upon completion, they were given a one-page, double-sided pamphlet that provided evidence-based information about melanoma, follow up recommendations, how to protect yourself from the sun, and how to perform a self-skin exam. After the patient saw the provider, they were given the post-appointment survey, which tested change in knowledge, satisfaction with the education, and assessed preference for follow up reminder methods. Data from these surveys were analyzed using descriptive statistics and summarization of free-text responses.

Results: There were 27 patients who participated in the study, all of which fully completed all pre- and post-tests. The sample was 56% female and the average age was 59 years

old. The most common time frame of most recent melanoma diagnosis was a diagnosis in the past 1-2 years. Knowledge scores improved from an average 4.70 points out of 7 on the pre-test to an average 6.48 points out of 7 on the post-test. A paired t-test showed that the improvement in knowledge from pre-test to post test was both statistically and clinically significant. Patient satisfaction with the education was on average scored higher than a '4,' or somewhat agree, out of a possible '5.' For follow up reminder methods, patients preferred text message most, with a telephone call second, and a mailed post card last.

Conclusion: At this southwest urban dermatology clinic, patients were given an educational pamphlet and a pre-test and post-test showing a statistical and clinical significant improvement in melanoma patient knowledge. This educational tool was well received and found to improve patient knowledge and will be provided routinely in all new melanoma patient visits. This clinic should consider changing their reminder method to text messages and track appointment attendance rates.

INTRODUCTION

Malignant melanoma (MM) is a type of skin cancer that affects melanocytes in the skin and is more dangerous than any other type of skin cancer because of the high likelihood of metastasis (American Cancer Society [ACS], 2016b). MM diagnoses are increasing and the estimated number of diagnoses in 2019 will increase by 7.7% (ACS, 2018). Many patients do not follow-up with their provider for a full-skin exam after excision, which can increase their risk for poorer outcomes if recurrence is not detected. This document outlines a quality improvement project at a dermatology clinic that utilizes an educational intervention, specifically, a patient education tool to help improve patient knowledge of melanoma and follow-up recommendations. This quality improvement project was developed with this dermatology clinic, whose providers originally expressed the issue of lack of MM patients following up post-excision with their provider for a full-skin examination as evidence-based recommendations. It is unclear if this is lack of patient knowledge or if the way patients are reminded of appointments needs improvement. The principal investigator (PI) provided a patient education tool to be used by providers during the patient visit to facilitate patient education. A survey was administered to evaluate improvement of patients' MM knowledge, satisfaction with the intervention, and patient preferences for future contact regarding melanoma full skin examination (MMFSE) follow-up reminders. These findings will be reported to the dermatology clinic to help determine MMFSE follow-up reminder preferences. This project has an opportunity to impact statistics of large or metastatic melanoma.

Background Knowledge

Patients diagnosed with MM are at an increased risk for developing a second primary melanoma and carry a risk of MM recurrence. It is estimated that in 2019, there will be 192,310 melanomas diagnosed in the U.S. and that 7,230 people will die from MM (American Cancer Foundation, 2018). Annual incidence rates are highest in non-Hispanic whites, at 26 people per 100,000 (American Cancer Foundation, 2018). Annual treatment costs of MM patients range from $44.9 million for Medicare patients with existing melanomas and $932.5 million in newly diagnosed MM cases in patients of all ages (Guy, Ekwueme, Tangka, & Richardson, 2012).

After treatment of MM, patients carry risk for recurrence of MM. This risk is increased if the primary MM treated was thicker. Patients with low-risk tumors, or thin tumors, have a less than 20% chance of recurrence; intermediate-risk patients carry a 20-50% risk; high-risk patients have a greater than 50% risk of recurrence (Vidal-Sicart, Rubello, & Pons, 2011). Patients diagnosed with one MM have a risk of developing a second primary MM, or a MM at a different location than the first MM. There is a cumulative risk for patients diagnosed with their first primary MM to have an 8% risk of being diagnosed with a second primary MM (Lallas et al., 2019).

Patient knowledge regarding MM, its diagnosis, and risk of recurrence and multiple primary MM is important to minimize future risk of MMs going undetected, untreated, and possibly fatal (Breitbart, 2012). MM patients' knowledge regarding their diagnosis and the importance of provider monitoring is limited and there is a need for improving information exchange with patients (Damude, Hoekstra-Weebers, van Leeuwen, & Hoekstra, 2017). Early detection of MM is the best way to prevent future MMs from growing undetected and causing

harm or death to the patient (Breitbart, 2012). This project provides an important opportunity to create a large impact on these statistics. Improving patient understanding of the seriousness of a MM diagnosis to patients and the importance of attending scheduled MM follow-ups aims to improve early detection and patient outcomes.

What is Melanoma?

MM is the most dangerous type of skin cancer and begins in melanocytes, cells that produce melanin which makes the skin darker (ACS, 2016b). Melanocytes protect deeper layers of the skin from harmful damage from ultraviolet (UV) rays (ACS, 2016b). Because MM affects melanocytes, these tumors are usually darker in color (ACS, 2016b). MM can occur on any area of the body with skin but are most common on the trunk, legs, and face (ACS, 2016b). Although it is not as common as basal cell or squamous cell carcinoma, it is more dangerous because of the higher risk of metastasis to other areas of the body (ACS, 2016b). Primary MM tumors are staged according to thickness of the lesion in millimeters (mm). Primary tumor staging is defined as 'T' with a qualifying stage number after.

According to the American Joint Committee on Cancer, primary tumors are staged from 'T'*is* (*in situ*), or stage T0 lesions to stage T4 lesions. (Gershenwald et al., 2017a). Staging in situ lesions according to thickness is not applicable because the MM is located in only the epidermis. Stage T1 primary MM is tumor thickness less than or equal to 1.0 mm (Gershenwald et al., 2017a). Stage T2 primary MM tumors are greater than 1.0-2.0 mm; Stage T3 primary mm is greater than 2.0-4.0 mm; Stage T4 primary mm is greater than 4.0 in thickness (Gershenwald et al., 2017a). Stages T2 through T4 are further broken down into "a" and "b" categories, with "a" representing MM without ulceration and with "b" representing MM with ulceration

(Gershenwald et al., 2017a). Primary tumor staging and clinical staging with MM are not synonymous. Clinical staging groups are broken into multiple groups, or T-groups, and can be seen in Figure 1.

T CATEGORY	THICKNESS	ULCERATION STATUS
TX: Primary tumor thickness cannot be assessed (eg, diagnosis by curettage)	Not applicable	Not applicable
T0: No evidence of primary tumor (eg, unknown primary or completely regressed melanoma)	Not applicable	Not applicable
Tis (melanoma in situ)	Not applicable	Not applicable
T1	$\leq$1.0 mm	Unknown or unspecified
T1a	<0.8 mm	Without ulceration
T1b	<0.8 mm	With ulceration
	0.8-1.0 mm	With or without ulceration
T2	>1.0-2.0 mm	Unknown or unspecified
T2a	>1.0-2.0 mm	Without ulceration
T2b	>1.0-2.0 mm	With ulceration
T3	>2.0-4.0 mm	Unknown or unspecified
T3a	>2.0-4.0 mm	Without ulceration
T3b	>2.0-4.0 mm	With ulceration
T4	>4.0 mm	Unknown or unspecified
T4a	>4.0 mm	Without ulceration
T4b	>4.0 mm	With ulceration

FIGURE 1. Primary MM tumor (T) category and thickness (Gershenwald et al., 2017b)

Evidence-Based Recommendations

According to the American Cancer Society (2016a) and the National Comprehensive Cancer Network [NCCN] (2019) state MM full skin examinations (MMFSEs) performed by the patient's provider are recommended depending on MM staging. According to the NCCN (2019), stage T0 patients are recommended to follow-up with their provider for a MMFSE annually for life. Patients with stages T1, T2a, T2b and T3a MM are recommended to follow-up for a MMFSE with examination of lymph nodes every 6-12 months for five years and annually thereafter (NCCN, 2019). Patients with stage T3b, T4a, and T4b MM are recommended to follow-up for a MMFSE with examination of lymph nodes every 3-6 months

for two years, then every 3-12 months for three years, and annually thereafter (NCCN, 2019).

Common follow-up recommendations given to MM patients of all stages is as follows: at least

annual MMFSE for life, educating the patient in how to perform a self-skin exam and a lymph

node exam (NCCN, 2019). Regular follow up for full skin exams with a provider is

recommended because it is the most important way to detect new MM lesions or MM

recurrence (Swetter et al., 2018). (Table 1)

TABLE 1. *AJCC T staging and clinical staging with National Comprehensive Cancer Network guidelines* (Gershenwald et al., 2017a; NCCN, 2019)

T Stages	Clinical Stage	Recommendations for Follow Up
T0	0 *in situ*	Annual skin exam for life
T1a	1A	Exam focusing on nodes and skin every 6-12 months for 5 years then annually thereafter
T1b, T2a	1B	Exam focusing on nodes and skin every 6-12 months for 5 years then annually thereafter
T2b, T3a	IIA	Exam focusing on nodes and skin every 6-12 months for 5 years then annually thereafter
T3b, T4a	IIB	Exam focusing on nodes and skin every 3-6 months for 2 years, then every 3-12 months for 3 years, then annually thereafter
T4b	IIC	Exam focusing on nodes and skin every 3-6 months for 2 years, then every 3-12 months for 3 years, then annually thereafter

The NCCN (2019) also states that follow-up schedules may vary per patient situation

depending on risk of recurrence, previous primary melanoma diagnosis, family history of

MM, and patient history of atypical moles, or dysplastic nevi, and patient or provider concern.

Because there are many recommendations from different authorities, providers ultimately

make the decision of whose guidelines to base their practices on. At Camelback Dermatology

and Skin Surgery, providers base their practices on guidelines from the American Academy of

Dermatology and the NCCN.

Local Problem

Rates of New Melanoma Cases and Melanoma Deaths

MM incidence rates have been increasing in the U.S. and rates are recorded by individual state registries (Harris et al., 2015). The Arizona Cancer Registry manages cancer data in Arizona and functions by accurate provider reporting of cancer cases. The American Cancer Society compares national and statewide incidence rates and reported that in 2005-2007, incidence rates for MM cases in Arizona were 30% lower for men and 21% lower for women compared to national levels (Harris et al., 2015). This decline in incidence rates was due to underreporting and not actual improvement in incidence rates. To combat this issue, the Arizona Melanoma Task Force was formed to estimate the level of underreporting and identify barriers of accurate reporting (Harris et al., 2015). There is still underreporting of MM cases, which is important to keep in mind when reviewing MM incidence rates reported for Arizona.

In Arizona from 2012 to 2016, there were 8,513 new cases of melanoma (MM), with an incidence rate of 22 people out of every 100,000 people (Centers for Disease Control and Prevention [CDC], 2019). In those same years in Maricopa county, there were 5,004 new cases of MM with an incidence of 23 out of 100,000 (CDC, 2019). In Arizona from 2012 to 2016, 1,084 people died from MM, an incidence rate of 3 people per 100,000 (CDC, 2019). In Maricopa county in those same years, 593 persons died from MM which is the same incidence rate as Arizona at 3 out of 100,000 (CDC, 2019). Males are more likely to have MM with an incidence rate of 29.3 people per 100,000 than females at 15.9 people per 100,000 (CDC, 2019). The most at-risk race is White with an incidence rate of 22.1 people per 100,000 compared to

American Indian/Alaska native at 5.1 people per 100,000, Hispanic at 4.8 per 100,000 and Black at 1.8 per 100,000 (CDC, 2019).

Implementation Site

Camelback Dermatology and Skin Surgery (CDSS) is a dermatology clinic in Phoenix, AZ in Maricopa County. This clinic has five dermatology board-certified providers: one doctor of medicine (MD), one doctor of osteopathy (DO), two physician's assistants (PA), and one nurse practitioner (NP). CDSS sees patients in the local Phoenix area, but also has patients drive from other counties for treatment. This clinic mostly sees general dermatology patients, meaning that practitioners see patients for dermatological issues, full skin examinations, biopsies, excisions of lesions, and other dermatological procedures. This clinic also handles melanoma (MM) excisions and treatment of non-MM skin cancers. In 2018, CDSS diagnosed 70 biopsy-proven MM lesions, 59 of which they treated (S. Singleton, personal communication, October 7, 2019). Patients diagnosed but not treated at CDSS either chose to be treated elsewhere, were referred elsewhere, or were contacted in attempt to form a plan of care but refused service. These patients were sent a letter to inform them of their diagnosis and the necessity to have the lesion treated in hopes that they would schedule treatment with any dermatologist.

According to providers and other stakeholders, there is an issue with MM patients not attending their regular, longitudinal full skin examinations after their MM is treated. Providers have observed that once patients have their MM treated, it appears that they are not as concerned the farther away from treatment they get, resulting in lack of attendance for continued, recommended follow-up full skin examinations. Providers are particularly concerned about the risk of metastases, recurrences, and delayed diagnosis. This concern is based on the risk of MM

and statistics. These providers are concerned that there is a knowledge gap in patient understanding of the severity of a primary MM diagnosis and importance of regular follow-up. Providers expressed the need to provide patients with more detailed education about the diagnosis of MM and what their MM full skin examination schedule will be going forward. Clinic staff would also like to know patient preference for follow-up reminders to update clinic policy and procedures to promote patient follow up.

The desired goal is to have patients be educated regarding their diagnosis and the importance of follow-up examinations to promote early identification and timely management of any disease progression. This education will enable patients to make informed decisions regarding their health care and will promote adherence to their MM follow up schedule. It is important for patients to understand the risks of MM and the importance of post-melanoma excision follow-ups, or melanoma full skin examinations (MMFSE) at Camelback Dermatology and Skin Surgery (CDSS). MMFSEs are in place for patients after MM treatment for surveillance and to detect any future MMs early and to manage any future recurrences. This educational intervention focused on promoting understanding of and adherence to follow-up recommendations (Appendix H). Stakeholders include the providers, clinic staff, and patients of this practice.

Purpose

The purpose of this quality improvement project was to facilitate patient education and to improve patient knowledge regarding melanoma (MM), including follow-up recommendations, to determine preferences for follow-up reminders, and to assess patient satisfaction with this educational intervention.

Project Questions

(1) For patients diagnosed with primary melanoma in the past three years who receive care at Camelback Dermatology and Skin Surgery, will a patient education tool improve patient knowledge regarding the importance and recommendations for post-excision melanoma full skin examinations as well as self-skin examinations?

(2) What method do patients prefer for follow-up melanoma full skin examination reminders?

Theoretical Framework

The Health Belief Model, or HBM, is a conceptual framework that has been widely used since the early 1950s to guide health behavior change (Champion & Skinner, 2008; Rosenstock, 1974). In HBM, people place value on a behavior and based on the expected outcome. This determines the person's likelihood for performing that behavior. The HBM has four constructs: perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. These constructs influence the relationship between a patient's health risk and their behavior towards this risk (Jones et al., 2015; Laranjo, 2016). This model was utilized in answering the first project question. It will be utilized in the intervention to learn patient perception of risks associated with MM diagnosis. Using the HBM in the intervention can show whether patients understand the benefits of adhering to their provider's follow-up recommendations (University of Twente, 2018). The HBM has four main constructs that shape it and help determine a person's willingness to perform the intended action (Figure 2).
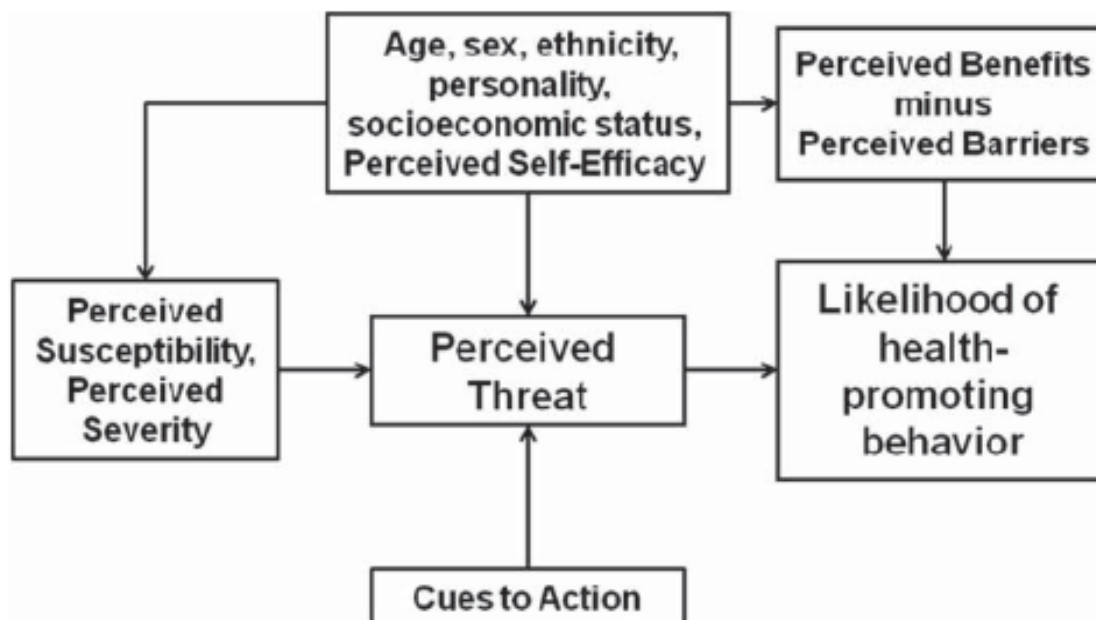
FIGURE 2. Schematic representation of the health belief model (Saunders, Frederick, Silverman, & Papesh, 2013)

Perceived Susceptibility

The first construct is perceived susceptibility, or the likelihood of a person developing a disease or condition (Champion & Skinner, 2008; Rosenstock, 1974). Within context of this project, perceived susceptibility would mean that a MM patient believes that it is possible that they will develop another melanoma. They could come to this conclusion from their personal history, familial history, communication with others, as well as media sources. Perceived susceptibility is a strong predictor of preventative health behavior (Jones et al., 2015).

Perceived Severity

The second construct is perceived severity, or patients' perceptions of the seriousness of the disease or condition in question (Champion & Skinner, 2008; Rosenstock, 1974). The disease or condition has consequences on their health and even their personal life. When patients are newly diagnosed with MM, they observe the impact this diagnosis has on themselves and their

family. These observations guide their perceived severity of being diagnosed with a second primary MM and the risk of not having it identified or treated early.

Perceived Benefits

The third construct is perceived benefits, or how persons think they may benefit from engaging in the health-related behavior (Champion & Skinner, 2008; Rosenstock, 1974). This is important because even persons with strong beliefs about their personal susceptibility and severity may not exhibit the behavior if they do not believe the benefits of the behavior exist (Champion & Skinner, 2008). If persons do not think that the behavior will lower their risk, then they will be less likely to engage in a risk-reducing behavior. In the context of this project, MM patients' perceive benefit from attending recommended MM follow-ups. Their perceived benefit from this is either knowledge that they do not have a second primary MM or recurrence, or that if they are diagnosed with a second primary MM that it was caught early and can be treated earlier.

Perceived Barriers

The last construct is perceived barriers, or the negative aspects of the health-related behavior (Champion & Skinner, 2008; Rosenstock, 1974). This could mean that the behavior is time consuming, expensive, unpleasant, or has negative side effects (Champion & Skinner, 2008). In MM patients, several barriers may come to patients' minds. Barriers may include increased number of co-pays, having to travel to the clinic more often, fear of possibly being diagnosed with MM again, or other barriers. The HBM looks at how a patient weighs the perceived threat of the disease or condition and the net benefit that engaging in the health-related

behavior will bring to them (University of Twente, 2018). Perceived barriers are the strongest predictor of health behavior (Jones et al., 2015).

The HBM is a self-efficacy theory that demonstrates why people are moved to make decisions for their personal health (University of Twente, 2018). People are motivated to perform a behavior by cues that are based on the four constructs of this model. Self-efficacy posits that a person's belief in a behavior directly correlates with engagement of the behavior. If a MM patient is going to attend their follow-up visits, they must feel threatened by their MM diagnosis, understand the severity of it, know the follow-up will bring them a benefit, and overcome the barriers that prevent them from attending the follow-up. This helps providers understand where their roles need to change in patient-provider exchange. The HBM will be used to guide this quality improvement project in the hopes that patients are making well-informed decisions that positively affect their health.

Synthesis of Evidence

A literature search was conducted to answer the following research questions: do MM patients understand the importance of following up with their provider, what modalities of education do patients prefer, are patients learning about their diagnosis and about skin self-examinations (SSE) from their provider and, are MM patients following up with their providers for recommended exams. The goal of this literature search was to determine if patient education has a positive effect on MM patients, their knowledge of their diagnosis, and if they are more willing to attend their scheduled follow up visits to providers (Appendix F).

A literature search was performed utilizing PubMed. Initially, the key term "melanoma full skin examination" was used but yielded no results. This term was noted to be specific to

CDSS. Subsequently, the key terms used were "patient education," "melanoma," and "follow up." Inclusion criteria was limited to within the past five years and human subjects. This search yielded 23 articles. Articles that were focused on non-MM cancer were excluded. Ten remaining studies were evaluated: two behavioral randomized clinical trials and eight questionnaire or survey-based observational studies. The overall themes that these studies explored were SSE efficiency, patient knowledge of MM, preferred source of educational information, if follow-up care is effective, and the effect of diagnosis on the patient (Appendix F).

Skin Self-examination Efficacy

Patients diagnosed with MM are educated in how to perform a SSE looking for lesions of concern. Patients are taught how to identify these lesions using two different tools, the ABCDEs and the ugly duckling (UD) sign. Most dermatologists utilize this teaching in MM follow-ups and all providers at CDSS utilize this teaching in MMFSEs. The ABCDEs educate patients to look for lesions that have asymmetry, border irregularity, color variation, diameter over six millimeters, and evolution (Abbasi et al., 2004; Friedman, Rigel, & Kopf, 1985). The ABCDEs help patients determine if a lesion may or may not be concerning. The UD sign helps patients identify lesions that are not like the others and is complementary to the ABCDEs (Daniel Jensen & Elewski, 2015). Using the ABCDEs and UD sign are part of MM patient education that occurs in MMFSEs and influences the patient's efficacy in performing SSEs.

Patient SSE efficacy educates providers at how well they are conveying the importance of and how to perform an SSE. Research has shown that SSE efficacy improves after patients have been educated on how to perform an SSE (Coups, Manne, Stapleton, Tatum, & Goydos, 2016; Czajkowska, Hall, Sewitch, Wang, & Körner, 2017; Robinson et al., 2016). SSE efficacy

has been observed to improve long-term, especially with educational material that patients can take home (Czajkowska et al., 2017). When patients and their partners are both given education on SSEs, they are more likely to identify MMs than when only patients are given education (Robinson et al., 2016). Although patients may be motivated to perform SSEs, without education, SSE rates and efficacy remain low (Coups et al., 2016).

Patient Knowledge of Malignant Melanoma

Patients' knowledge of their diagnoses corresponds to their awareness of the seriousness of MM and the importance of attending scheduled follow-ups (Damude et al., 2017; Garg et al., 2017; Ilyas, Costello, Zhang, & Sharma, 2017). However, it has been found that diagnostic information is not provided consistently (Damude et al., 2017). After being shown how to identify MM, patients were more knowledgeable of how to identify suspicious lesions (Ilyas et al., 2017). Because educated patients are more likely to detect MMs, they are more likely to attend recommended MMFSEs or make appointments to have these lesions examined (Damude et al., 2017; Robinson et al., 2016).

Preferred Source of Educational Information

There are many ways to educate patients about their diagnosis and about how to perform an SSE, including handouts, brochures, and multimedia videos (Damude et al., 2017; Finney Rutten et al., 2015; Janda et al., 2014). Damude and colleagues (2017) found that patients tended to prefer receiving information in the following order: directly from their providers, then from multimedia videos and (least preferred) from brochures. Finney Rutten and colleagues (2015) also found that patients were more likely to ask for information from their providers than to search for that information on their own.

On the other hand, Damude and colleagues (2017) also found that patients may prefer multiple sources of information, which gave them the ability to learn from different sources, potentially increasing their gained knowledge. Both Damude and colleagues (2017) and Janda and colleagues (2014) concluded that multiple sources of information appeared to correspond to increased knowledge. Patients that receive multiple educational material formats are more likely to attend follow-up visits with their providers, giving their providers more opportunities to detect, diagnose, and treat MM in these patients (Janda et al., 2014).

Effective Follow-up Care

MM follow-up care is designed to detect new lesions or recurrences of previous lesions at a treatable stage (Mitchell, Street, Neuhaus, & Bessen, 2014). Effective follow-up care is consistent and utilizes evidence-based interventions (Mitchell et al. 2014). Follow-up care that utilizes full-skin exams reduces the incidence of thick MM and MM-related mortality (Janda et al. 2014). Many patients do not believe that their follow-up care is effectively helping them learn about their diagnosis, showing that there is a gap in practice (Mitchell et al., 2014). Many patients are receiving little to no information to take home with them or are given no support websites or sun-safe education (Mitchell et al., 2014). This shows a large need for change in practice. Patients want more information from their providers and may even want interprofessional coordination to help organize care of their MM (Mitchell et al., 2014).

Effect of Melanoma Diagnosis on the Patient

Given the mortality and morbidity rates associated with MM, being diagnosed with MM can be intimidating and frightening to patients. Patients need education and support with this diagnosis. Many patients are not receiving information directly from their provider and even

more are not receiving written information on their diagnosis (Livingstone et al., 2015). This lack of education can be a barrier to appropriate knowledge and appreciation of potential risks, lack of appropriate follow-up, and potentially significantly affect health outcomes.

<div align="center">Strengths</div>

The literature showed a wide variety of factors that impact a patient's likelihood for attending MM follow-ups, SSE self-efficacy, and knowledge of MM. It also highlights that there is a need for providers to be educating their patients more thoroughly and with multiple types of information sources. Many patients believe that their MM follow-ups are not effectively helping them and that they need more support (Mitchell et al., 2014). The literature does show that with education, patients are more likely to attend their scheduled follow-ups, perform SSEs, and know more about their diagnosis (Czajkowska et al., 2017; Robinson et al., 2016; Coups et al., 2016; Damude et al., 2017; Ilyas et al., 2017; Garg et al., 2017). The main strength of the literature is that a deficit in knowledge and practice has been identified, which is easily managed through education. Education is highly influential on a patient's knowledge and practices and that multiple educational formats are better than just one type. Therefore, this project will focus on supplementing provider verbal education with a written patient education tool.

<div align="center">Weaknesses, Gaps and Limitations</div>

The main weakness of the evidence is the strength of the evidence. Two of the 10 studies that were evaluated were randomized controlled trials, which are level one designs and are high in strength (Sackett, 1989). The other eight studies were questionnaire or survey-based observational studies, which qualify as qualitative studies and are level five designs. These

provide lower strength evidence (Sackett, 1989). One other weakness is that there is a lack of research on the effect of the MM diagnosis on patients.

This review of the literature explored what occurs in a MM follow-up and how patients are being educated. There is a patient knowledge deficit and a need for education from multiple sources. These findings provide rationale for this project to help increase patient knowledge and increase patient follow-up adherence (Appendix F).

METHODS

Design

The purpose of this quality improvement project was to use a customized patient education tool to improve patient knowledge regarding post-excision melanoma (MM) follow-up, including full skin examinations and to determine patient preferences for MM full skin examination reminders at a dermatology clinic. Longer-term goals of this project are to improve patient follow-up adherence for surveillance and early detection of possible future lesions to improve health outcomes. This project used a one-page pamphlet that focuses on the importance of follow-up and is incorporated into routine patient education provided at the MMFSE. Two quantitative surveys, one pre-appointment (Appendix C) and one post-appointment (Appendix D), were used to evaluate patient knowledge and effectiveness of the initiative. These surveys were also used to determine preferences for MMFSE reminders, which will be used to influence the type of reminders the clinic will send out to all MM patients.

Setting

The setting for this project is Camelback Dermatology and Skin Surgery (CDSS), a dermatology clinic in Phoenix, Arizona. This clinic serves a more economically advantaged area

but also serves patients from surrounding areas, including rural areas such as Gila county and Navajo county. On average, 120 patients are seen daily; a majority of these being for general dermatology or surgery-related visits. CDSS provides a wide range of services such as, but not limited to full skin examinations, biopsies, destructions, excisions, Mohs Micrographic Surgery, injectables, and other aesthetic services. There are five dermatology board-certified providers including two physicians, two PAs, and one NP.

Participants

All newly diagnosed melanoma MM patients at CDSS that presented during time of data collection and met the eligibility criteria were invited to participate in this study. Criteria for patient participation included: must be 18 years of age or older, must have a recent diagnosis of MM, must be post-MM excision but not the same visit as their MM excision, and must speak English. Having a recent diagnosis of MM is defined as the patient having been diagnosed within the past three years. Studies have shown that most recurrences occur in the second and third years after initial MM diagnosis (Berrocal et al., 2015). Patient participants were recruited on the day of their melanoma full skin exam (MMFSE) appointments. The target number of participants was 30 with a minimum of 10 patients or three weeks of data collection, whichever came first. In order to have a 'd' value of 0.8, or a large effect size with a paired t-test, the sample size required would be 26.14 participants. In order to have a d value of 0.5, or a medium effect side with a paired t-test, the sample size required would be 12.260 participants.

Intervention

The intervention for this quality improvement initiative was a paper-based patient educational tool contributing to the providers' routine oral education provided during these

visits. This tool is a one page, double sided, three-fold pamphlet that provides evidence-based information and statistics on the diagnosis of melanoma (MM) and was used by providers during routine patient counseling at MMFSE appointments. Routine patient counseling includes education about the importance of following up for MMFSEs, timeline recommendations for MMFSE based on where the patient is in their diagnosis, and how to perform a SSE utilizing the ABCDEs and UD.

Information for this educational tool was developed for this practice based on materials from the American Cancer Society, Centers for Disease Control and Prevention, American Academy of Dermatology, and the National Cancer Society. Content for this tool is no higher than at 5th grade reading level. Reading level was assessed utilizing an online text readability consensus calculator (Readable.com), which calculated the average grade level of text based on seven readability formulas. This educational tool details facts about MM, incidence and mortality rates of MM, and MMFSE follow-up recommendations based on their MM history. The pamphlet also contains graphics supplementing the information. This tool has space for the provider to write additional information regarding (MMFSE) scheduling and other instructions pertinent to individual patients.

Literature supports educational interventions with MM patients and shows that when patients are educated, they are more likely to attend their scheduled follow-ups, perform SSEs, and know more about their diagnosis (Czajkowska et al., 2017; Robinson et al., 2016; Coups et al., 2016; Damude et al., 2017; Ilyas et al., 2017; Garg et al., 2017). The main reason that patients were given two forms of education, oral and written, is that literature supports this approach. Patients prefer more than one source of information and when they are given more

than one source, they are more likely to attend follow-ups with their provider (Damude et al., 2017; Janda et al., 2014). Although patients may prefer media as an educational tool, due to the project budget, media was not be used as the method at this time. However, data gathered from surveys will be used to modify the intervention in the future.

<div align="center">**Data Collection**</div>

This intervention took place in MM follow-up visits at Camelback Dermatology and Skin Surgery. This intervention involved pre- and post-appointment surveys, patient education taking place during the patient's MMFSE appointment. Before a provider saw patients, they were given a pre-appointment survey (Appendix C) assessing knowledge as well as demographics. Then the patient was given a MM diagnosis-specific pamphlet educating them about their diagnosis, risks, as well as has a section where recommendations for their next follow-up will be. After their visit with the provider, the patient was given a post-appointment survey (Appendix D), which utilized quantitative questions and a section for other comments about the education tool. This survey helped to determine if the education was helpful, if they learned anything new, what is missing from education, and what they would like to hear more about. The survey also asked the patient how they would most like to be contacted regarding MM-follow up appointment reminders.

Pre-Appointment Survey

The pre-appointment survey included quantitative questions in paper format (Appendix C). This survey has several demographic and health history questions asking gender, age, and how long ago they were diagnosed with MM. Knowledge questions regarding the diagnosis of MM and timing and importance of MMFSE follow-up are included in multiple-choice format. This survey also includes a patient perspective question, which aims to determine patient opinion

of MMFSE importance. This survey was expected to take about five minutes to complete. There was no identifiable patient information collected. Each survey has a survey code, which consisted of the patient recording the last four digits of their cell phone number or landline if they did not have a cell phone. This tool was developed in collaboration with CDSS providers to assess for patient knowledge and MMFSE reminder preference (Appendix A).

Post-Appointment Survey

The post-appointment survey had the same knowledge and patient perspective questions from the pre-appointment survey and a comment section in a paper format (Appendix D). The patient perspective questions assessed for patient awareness of self-care. The perspective questions were created with the HBM in mind. Participants responded to the same questions regarding melanoma and MMFSE that were on the pretest. Additionally, there were questions on the effectiveness of the education provided, barriers to follow up, and patient preference of follow-up reminder, which were ordered from most preferred to least preferred. Education effectiveness questions assessed if the patient learned anything new about MM or SSEs, if they found the education and tool helpful, comfort in performing SSEs, and likelihood of attending their next MMFSE in the recommended time frame. These effectiveness educations were scored on a 5-point Likert-scale. The comment section allowed the participant to provide additional comments or feedback. The final question asked the participant how they preferred to be reminded of their next MMFSE appointment. The post-appointment survey utilized the coding system as seen in the pre-appointment survey. This survey was estimated to take approximately 10-15 minutes for participants to complete. This survey was created in collaboration with providers at CDSS.

Data Collection Procedures

All adult patients, who presented for MMFSE that are post-excision and within three years of MM diagnosis, were referred by the front desk to this PI to be invited to participate in this project. Prospective participants were accompanied to their exam room by the PI who reviewed the disclosure, including the purpose of the project, what it entails, risks, benefits, and completely voluntary nature (Appendix B). For those who consented to participate, participants were then provided a pre-appointment survey (Appendix C), which was completed prior to being seen by their provider. After completing the pre-appointment survey, the patient was given the patient education pamphlet by this PI and waited to be seen by the provider. The provider then entered the exam room, performed a MMFSE, and provided the patient oral education. When the provider was in the room, the patient education tool was used as a supplementary tool to the provider's routine oral education. After the provider left the room, this PI gave the patient the post-appointment survey (Appendix D). Completed surveys were placed in a manila envelope at check-out.

Data Analysis

Microsoft Office Excel was used for data management and analysis. This document was encrypted, and password protected. Immediately after data was entered into Excel, the paper surveys were shredded. Quantitative questions were analyzed with quantitative statistical analysis comparing answers among all patients (Polit & Beck, 2017). Descriptive statistics were used to analyze the quantitative questions. The proportion of correct knowledge questions were compared between the pre-appointment and post-appointment surveys using paired t-tests. Knowledge questions were scored correct or incorrect based on evidence-based

recommendations and facts from literature. Comments were summarized and were separately analyzed. The goal of this project was to have the answers to the Likert-scale questions be as close to "4- Somewhat agree" or higher. Free text responses were summarized.

<div align="center">**Ethical Considerations**</div>

The University of Arizona Institutional Review Board (IRB) (Appendix E) reviewed this project and site permission was obtained (Appendices A). Participants were given respect, beneficence, and justice over the course of the study. Patients were given a choice in participation and could withdraw participation at any time without penalty. There were no potential conflicts of interest in this project.

Respect for Persons

This project involved patients 18 years and older diagnosed with melanoma. It does not focus on vulnerable populations. There was no identifiable data collection performed. Data gathered from surveys was kept anonymous and only aggregate data will be shared back to the clinic. Participation was voluntary and participants could withdraw at any time without penalty or negative impact to their care at the clinic.

Beneficence

This project was designed to maximize patient benefit, minimize harm, and improve patient knowledge of MM and MM screening. One possible risks of this project was patient anxiety after learning more about their diagnosis. This risk should be minimized by utilization of informative and supportive language during the intervention. The benefits of this project are improved patient knowledge of their diagnosis, resources to learn more, skills that allow them to perform their own self-skin examinations, improved knowledge transfer from provider to patient,

and improved knowledge at follow-up appointments, which may permit early identification of recurrence and potential improvement in their outcomes.

Justice

All patients who met the inclusion criteria during the data collection time period were invited to participate. All participants received the same educational pamphlet and were given the same surveys.

RESULTS

The results of this study were analyzed using Microsoft Excel. Experimentally relevant sociodemographic findings of age, gender, and MM diagnosis time frame were analyzed. Additionally, patient follow-up reminder preferences were analyzed in order from most preferred to least preferred. Effectiveness of the education according to patients was scored from '1' to '5' in Likert-scale ordering. Free text responses were summarized. Finally, patient knowledge was analyzed, and a paired t-test was used to determine whether the effect of the educational pamphlet was statistically and clinically significant.

Sociodemographic Findings

The sample taken from the CDSS patient population was made up of 27 people of varying age, gender, and MM diagnosis time frame. According to data from this quality improvement project, 56% of the sample taken was female (Figure 3).
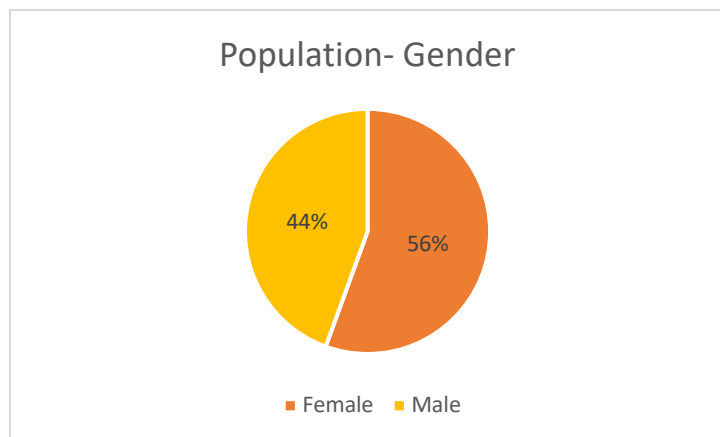
FIGURE 3. Population – Gender.

The average patient sample age was 59 years old, with a range from 28 years to 82 years old. The most common patient age, or mode, was 67 years old (Figure 4).
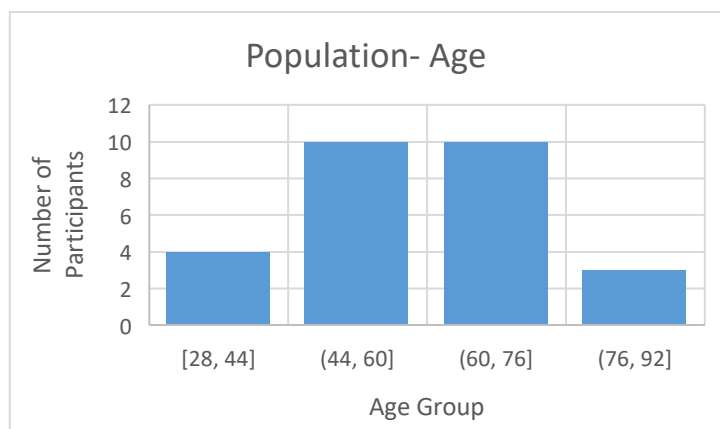
FIGURE 4. Population – Age.

Diagnosis time frame choices available to patients were as follows: less than 3 months, 3-6 months, 6 months to 1 year, 1-2 years, and 2-3 years. The most common MM diagnosis time frame that this patient sample appeared during was having a recent MM diagnosis within the past 1-2 years (Figure 5).
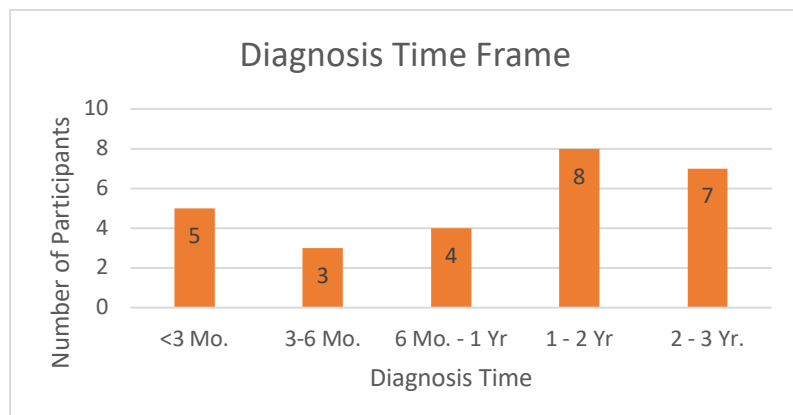
FIGURE 5. Diagnosis time frame.

Knowledge Findings

Patient knowledge was assessed in both the pre- and post-appointment surveys. Change in knowledge was observed by comparing pre- and post-appointment survey scores, which were scored out of a possible seven points (Figure 6). The pre-appointment survey had an average score of 4.70 points correct and the average score on the post-appointment survey was 6.48 points correct.
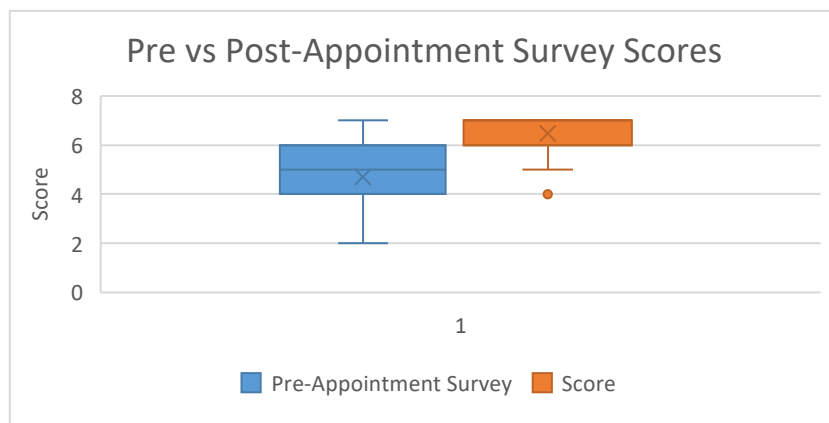
FIGURE 6. Pre- vs post-appointment survey scores.

The first question on the surveys asked what the most dangerous type of skin cancer is, which 100% of participants answered correctly with "melanoma." The largest improvement in

knowledge was in the fourth question asking about how to protect yourself from the sun. Knowledge of this increased by 54.6% from the pre survey to the post survey. Other notable improvements were in the number one risk factor question, which had a 42.6% improvement (Figure 7).
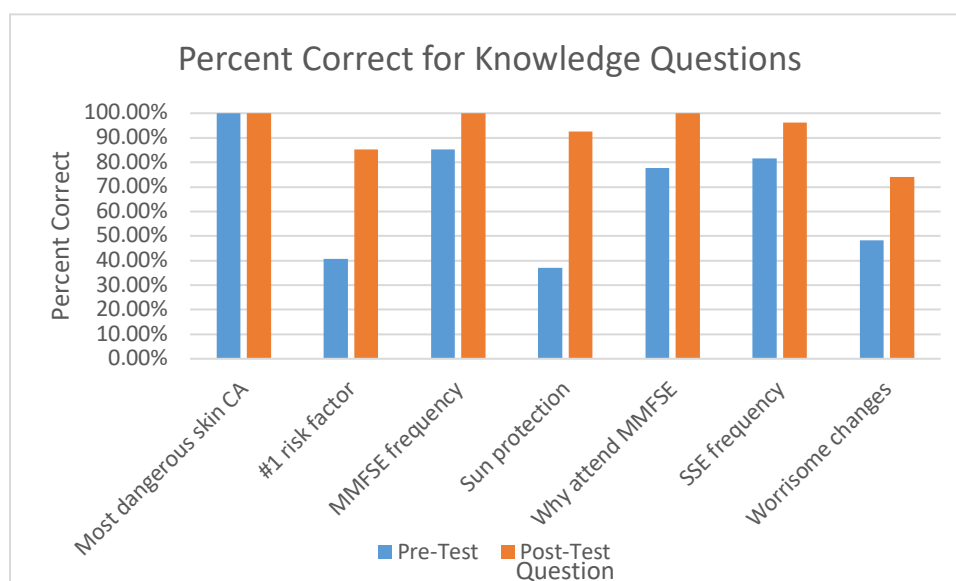
FIGURE 7. Percent correct for knowledge questions.

A majority of patients answered these questions wrong in the pre-survey: number one risk factor, sun protection, and worrisome changes to look for while performing a SSE. The question that had the lowest percent correct, 74.1%, in the post-survey was question seven, regarding what worrisome changes to look for while performing a SSE.

A paired t-test was performed to examine the difference in score from the pre-appointment survey to the post-appointment survey. This paired t-test included data from the four patients who had a perfect score on the pre-appointment survey, meaning they had no improvement from pre- to post-appointment survey. The results from the paired t-test show, that with a 95% confidence interval, patients will score between 1.28 to 2.28 points better on the post

survey than on the pre-survey. Patients are estimated to improve by an average of 1.70 points from the pre-survey to the post-survey. This data is statistically significant because the p-value is lower than 5%. The p-value from this paired t-test was $p<0.0001$. This data is also clinically significant with a reliable change index (RCI) of 6.05. Patient knowledge increased from pre- to post-survey, which is shown in data from the paired t-test. This patient education tool is not only statistically significant, but also clinically significant.

Satisfaction Findings

Patient satisfaction was assessed using Likert-scale questions and scored from '5' to '1,' with '5' being 'strongly agree' and '1' being 'strongly disagree.' Average scores were taken for each question. All questions scored higher than '4,' or 'somewhat agree' (Figure 8).
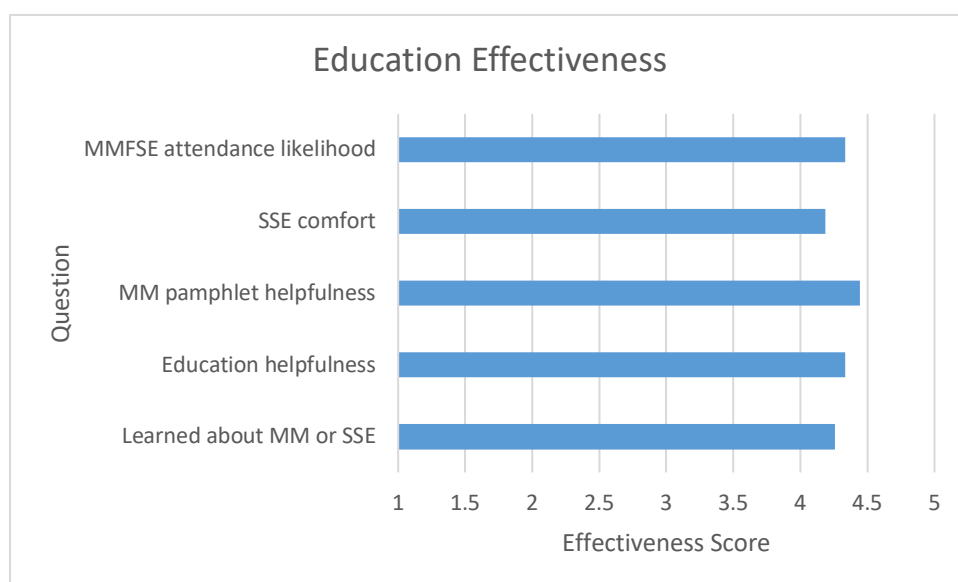
FIGURE 8. Education effectiveness.

Seven out of 27 patients left a free text response. Five out of these seven responses were supportive of the educational intervention. Patients stated, "This pamphlet is great! I am excited to show it to my husband and mom! Thanks!" and "This is a great way to educate patients on the

importance of skin checks at home." Patients also said that the pamphlet had "important info and reminders" and that it was "very helpful!" Two of the free text responses stated confusion with either wording in the pamphlet or wording in the survey. One patient stated, "I didn't understand 1-2a and 2bc in the guidelines." Another patient stated that they were confused about "wording of question for number one risk factor. Maybe add your previous personal history with melanoma?" Overall responses were positive and supportive of the pamphlet's effectiveness.

Preference Findings

Preference for follow up appointment reminders was another question on the post-appointment survey. Choices for reminder types were text message, phone call, or mailed post card. The sample chose their preferences by numbering each choice from '1' to '3,' with '1' being 'the most preferred' and '3' being 'the least preferred.' The sample showed a clear preference for text message as the most preferred, phone calls as the second most preferred, and a mailed post card being the least preferred method of reminder (Figure 9).
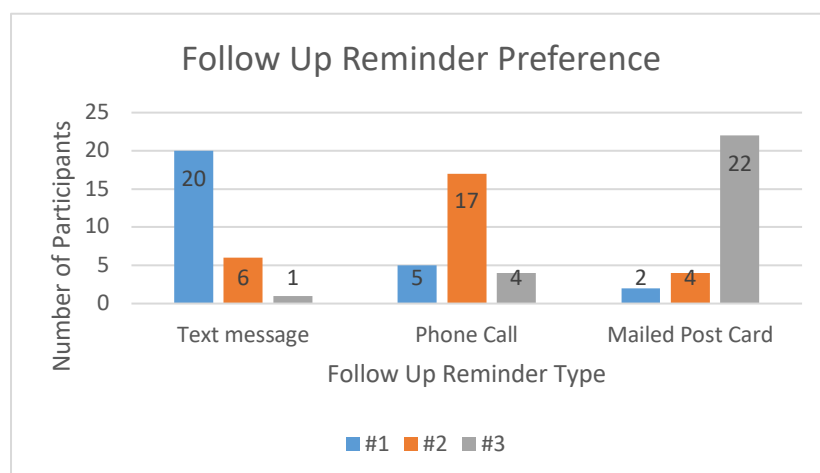
FIGURE 9. Follow-up reminder preference.

DISCUSSION

This quality improvement project aimed to improve MM patient knowledge regarding follow-ups for melanoma full skin examinations (MMFSEs) and self-skin examinations (SSEs) and to understand what method of follow-up reminders patients prefer at the CDSS dermatology clinic. This project had a pre-test/post-test design to evaluate an educational pamphlet utilized by the provider during the course of the MMFSE appointment. Patients seen for MMFSEs at CDSS are typically educated by just the provider.

However, this project implemented a second form of education, the pamphlet, which focused on educating MM patients about the MM diagnosis and risks, evidence-based follow up recommendations, how to protect yourself from the sun, and what worrisome changes to look for while performing a SSE. Patients who are given multiple sources of information are more likely to improve in knowledge and prefer this method than just one source of education (Damude et al., 2017; Janda et al., 2014).

Key findings of this study were that this educational tool significantly increased patient knowledge on number one risk factor of developing a MM, how to protect themselves from the sun, why MMFSEs are important, how often they should be performing SSEs, and worrisome changes to look for, as well as was received positively by patients. This study also identified preferred methods of follow-up reminders, which can be used to improve the recommended longitudinal follow up needed to improve mortality and morbidity of MM patients.

Sociodemographic Data

According to CDSS practice data and provider knowledge, the proportion of female to male patients is representative of the population of patients diagnosed in the past three years.

Males are at a higher risk of developing MM than females (CDC, 2019). There is a higher proportion of female patients to males represented in the MM patient population. According to Blackwell and Villarroel (2016), men are less likely to seek out medical care than women. Although men are more likely to have MM, slightly more females were seen than males due to this factor. According to CDSS data and provider input, the age range and average age of this sample is representative of their population of patients diagnosed with MM in the past three years.

Overall, the diagnosis time frame fits with the population of patients diagnosed with MM in the past three years, according to providers and CDSS data. Twelve out of 27 patients that were in the study were diagnosed with MM in the past year. Given that, these patients should be coming back every three months, according to recommendations (American Cancer Society, 2016; NCCN, 2019). One would expect a higher proportion of these patients coming in. In addition, because most recurrences have been shown to occur two to three years after the diagnosis, this changes the number of patients eligible for the study (Berrocal et al., 2015). These inclusion criteria did not include patients diagnosed in a time frame longer than three years ago.

Most patients that do present for follow up at CDSS are not represented by this sample because of the stringent three-year diagnosis time frame inclusion criteria. Data from CDSS suggests that anywhere from half to two thirds of the patient population they see for MMFSEs have had a diagnosis in the past three years (S. Singleton, personal communication, February 28, 2020). The sociodemographic data found in this study is representative of the CDSS patient population and has consistencies with who is representative of the population in literature.

Nationally, more males than females are diagnosed with melanoma and the most common age at diagnosis is 80-84 years of age. Gender in this study is representative of the national population, but the study's primary age group was younger than national data shows (CDC, 2019). One limitation of this study was that patients were not asked how often they had been following up for MMFSEs.

Knowledge

Another goal of this project was to have patients improve their knowledge from pre-survey to post-survey. This patient education tool was found to significantly improve patient knowledge on number one risk factor of developing a MM, ways to protect themselves from the sun, worrisome changes to look for when performing a SSE, how often to perform a SSE why they should attend MMFSEs, and how often they should be attending MMFSEs. This tool was tailored to this practice and was formulated with input from providers and from the literature. It was designed to be utilized in conjunction with routine patient education by the provider during the patient's follow-up visit. Both the pamphlet and surveys were developed with input from CDSS providers and includes information regularly provided to patients in verbal education. Information in the pamphlet was adapted from information provided by the American Academy of Dermatology, the SCS, the CDC, the National Cancer Institute, and the NCCN to ensure that it was evidence-based and consistent with current recommendations.

Patient education is important because it influences patient knowledge, detection of MMs, and MMFSE attendance (Damude et al., 2017; Robinson et al., 2016). Patients have also been found to have a greater increase in knowledge when two types of education are used

(Damude et al., 2017). Therefore, the pamphlet was designed to supplement the traditional method of education, oral education, so in each of these visits two types of education are utilized.

This educational pamphlet facilitated a significant change in knowledge from the pre-survey to the post-survey. There was an improvement found in every question except question one, which asked about what the most dangerous type of skin cancer is. There was no change in this question because all patients answered this question correctly on the pretest.

The largest knowledge improvement was found with the fourth question asking about how to protect yourself from the sun. Scores for this question improved by 54.6%. The question that had the lowest percent correct after the educational intervention in the post-appointment survey was the question asking about what worrisome changes to look for while preforming a SSE, with a 26.9% improvement from the pre-survey to the post-survey. This question was a 'select all that apply' type question, which made it more difficult for patients to score this question as correct. In the future, this information will be used to shape the pamphlet content in order to help patients increase their knowledge further. In analyzing the data, one question that came up was whether improved knowledge has an impact on adherence to future MMFSE appointments. There may be other factors beyond knowledge that impact adherence such as change of insurance or the patient moving.

Satisfaction

One goal of this project was to have patient satisfaction with the pamphlet be rated greater than or equal to four for each of the five education effectiveness questions. All of these Likert-scale questions were given at least a '4,' which met the project's goal. Patient satisfaction was overall positive and five of the seven free-text responses were positive. Patients stated that

they would share this information with their family, that it was very helpful, informational, and was a good reminder. Of the last two free text responses, one stated confusion with wording in the pamphlet and one stated confusion with the surveys. One patient was confused about the wording in the pamphlet's follow-up time guidelines provided by the NCCN. The patient that had confusion with the pamphlet stated, "I didn't understand 1-2a and 2bc in the guidelines."

These guidelines are given in terms of stage number, which are the categories that the patient was confused about or can be given in terms of millimeters of thickness (NCCN, 2019). Unfortunately, the pamphlet did not explain what these stage numbers mean, which caused confusion in at least one patient. One patient that was confused with wording of one question found in both surveys. This patient stated "wording of question for number one risk factor. Maybe add your previous personal history with melanoma?" This confusion is understandable because the question pertains to patients diagnosed with melanoma in the past. This question meant to ask what the number one risk factor is of developing another MM. The pamphlet will be amended to include more detailed information regarding MM staging, such as putting MM depth in each stage. Overall, besides these points of confusion, patients showed that this pamphlet was effective.

Preference

Patients clearly preferred a text message, with phone call coming in second, and mailed post card in last, as the method of reminder. This was a surprising finding because literature has found that this order is reversed in how effective each method is at getting patients to return for follow-ups (Porto-Ferreira et al., 2016). Although effectiveness and preference are not directly correlated, this was a surprising finding because of the age group being surveyed. The age

demographic ranged from 28 years to 82 years old and the average age was 59 years old. Because the study took place in an urban area, more people have internet access and cell phone service, making these methods of reminders more accessible. This information will be provided to CDSS staff in a PowerPoint presentation (Appendix H).

Strengths and Weaknesses

This project had several strengths that made it effective at educating patients about MM, follow up recommendations and how to perform SSEs. This tool was tailored to meet the needs of the practice. It was created utilizing education that providers regularly provide in MMFSEs, detailed information from peer-reviewed literature, and filled a gap in patient education. This practice did not have written information about all of these education points before this study. Another strength of this study is that the patients involved were representative of the population of patients diagnosed in the past three years with MM as evidenced by provider opinion and CDSS data, including patients with new diagnoses, as well as patients up to three years out.

The major weakness of this study was that it was a convenience sample, which can have an influence on how the population is represented. Convenience sampling takes a small portion of the population that are available to participate and is vulnerable to selection bias. Because convenience sampling represents the views of a very specific group, these findings cannot be generalized for the entire population.

Conclusion

This quality improvement project demonstrated that a patient education tool was well received and significantly improved patient knowledge of melanoma full skin examinations (MMFSEs) and self-skin examinations (SSEs). It also showed that patients prefer text messages,

then a telephone call, and lastly a mailed postcard as a method of follow-up reminder. This project achieved this through a pre-appointment survey, educational pamphlet, and a post-appointment survey design.

This project was successful because it provided multiple sources of educational information, which has been shown to improve patient knowledge (Damude et al., 2017; Janda et al., 2014). This tool illustrates the impact that multiple types of education can have on patients. Nurse practitioners (NPs) understand that educating patients is important to improving health outcomes in the long-term. Nurse practitioners can effectively educate patients on the dangers associated with MM as well as necessary follow up procedures. This pamphlet has been proven to statistically improve patient knowledge of MM risks and recommendations, which is important for improving long-term health outcomes. Furthermore, this project is highly versatile and can be implemented by all providers and can impact a great number of practices and their patients.

<p align="center">Recommendations</p>

- This educational pamphlet should be provided routinely in all new MM patient visits. It should be printed out by the medical assistant before the visit and given to them after they are roomed. This tool has been shown to be very impactful on patient knowledge of MM. This pamphlet will be given to all patients at the time of their first MMFSE after their MM has been excised.

- The educational pamphlet should put more emphasis on what worrisome changes patients should be looking for when they are performing monthly SSEs by highlighting this section. This pertains to the question that patients had the most issues with answering

correctly on the pre- and post-surveys. This information will be highlighted because of its importance. The pamphlet will also be amended to indicate more information on MM staging by putting MM depth next to each stage.

- MM patients will be tracked by the office manager and the scheduling manager to make sure that all patients are following up in their respective recommended time frame. This will be set up utilizing a template in CDSS's practice management software and will be monitored weekly by the office manager and scheduling manager.

- Patients preferred text messages and telephone calls to mailed post cards. CDSS currently utilizes telephone calls as a method of reminding all patients of their appointments but should consider changing to text messages based on patient preference. CDSS should then track that the proportion of patients are keeping their appointments. If the proportion of patients is low, then patients will be reminded via telephone call.

<div align="center">

Dissemination

</div>

An executive summary of findings and evidence-based recommendations, including follow-up preferences will be shared with the clinic medical director (Appendix G). A PowerPoint presentation of these findings and recommendations will also be offered to clinic staff (Appendix H). Only aggregate data will be shared. The assessment for follow-up reminder preference will be used to inform CDSS office procedures and policy.

After dissemination of these findings and recommendations, it is likely that CDSS will utilize this educational pamphlet in daily practice. The use of this pamphlet is sustainable because of the ease of use, low cost in time and money, and is highly supported by patients. This pamphlet would be given to all newly diagnosed melanoma patients with other materials

commonly given to patients during these visits, such as post-surgery recommendations. The cost of producing these pamphlets is minimal and is financially sustainable. It does not take extra time away from visits with the provider and is sustainable in time cost. CDSS patients strongly supported the pamphlet and has been shown beneficial in improving patient knowledge. Stakeholders have shown support for implementing this educational pamphlet because of patient feedback and improved knowledge. The findings of this project have helped support the sustainability of use of this pamphlet and has the ability to improve patient knowledge at other dermatology clinics.

APPENDIX A:

CLINIC LETTER OF SUPPORT

Camelback
Dermatology
& SKIN SURGERY

November 11, 2019

University of Arizona
Human Subjects Protection Program
1618 E. Helen Street
P.O. Box 210409
Tucson, AZ 85721

Dear Human Subjects Protection Program Members:

This is to certify that Ms. Sara Romine, BSN, RN has permission from Camelback Dermatology and Skin Surgery to perform a quality improvement project titled: "Improving melanoma patient knowledge and follow-up adherence at a southwest urban dermatology clinic" in partial fulfillment of the requirements for the Doctor of Nursing Practice at the University of Arizona College of Nursing.

Ms. Romine has permission to work with clinic staff and patients to evaluate a patient education tool and assess patient follow-up preferences. This study will be physically conducted at Camelback Dermatology and Skin Surgery at 4512 N. 40th Street in Phoenix. Pending the University of Arizona's Institutional Review Board permission, Ms. Romine's activities will conclude in Spring of 2020.

I understand that Ms. Romine will be conducting this program evaluation following Institutional Review Board review from the University of Arizona.

Sincerely,

Stephanie Jutzi, MBA
Office Manager

"Partnering with Patients for a Lifetime of Healthy, Beautiful Skin"

APPENDIX B:

PARTICIPATION DISCLOSURE FORM

Melanoma Full Skin Examination Educational Effectiveness Survey

My name is Sara Romine, BSN, RN and I am a graduate student at the University of Arizona. I am in the Doctor of Nursing Practice program with a focus on becoming a Family Nurse Practitioner.

I am conducting a quality improvement project as part of my Doctoral decree. I have worked with clinic staff here at Camelback Dermatology and Skin Surgery to develop a patient education pamphlet to help patients better understand their melanoma diagnosis and the importance of follow-up after treatment.

I am inviting you to participate in this survey because you are a patient at Camelback Dermatology and Skin Surgery and have been diagnosed with melanoma.

If you participate, you will receive an educational pamphlet on melanoma during your appointment today. To see how useful this pamphlet is, you will be asked to complete short paper surveys before and after your appointment. You will also asked about preferences for how you want to be contacted for follow-up appointment reminders. Each survey will take about 5 minutes to complete. No identifiable information will be collected. Only group findings of this study will be shared, and individual answers will remain anonymous. After survey completion, this concludes your participation in this study.

Participation in this project is voluntary and you can withdraw from participation at any time without any negative impact on your care here. All answers will be kept anonymous. Surveys will be coded in order to compare pre and post- appointment surveys. This code will be the last four digits of your cell phone number or landline if you do not have a cell phone.

The benefits of this study are improving melanoma patient education and improving our educational tools and how you get follow-up reminders at Camelback Dermatology and Skin Surgery. We greatly value your opinion and appreciate feedback on how we can improve our melanoma education. There are minimal risks of participation in this study. Some patients may feel additional stress when thinking about their melanoma diagnosis. However, this educational pamphlet may empower you with additional knowledge of your diagnosis and proper follow-up.

The University of Arizona Institutional Review Board and Camelback Dermatology and Skin Surgery have reviewed this project to ensure your protection.

By receiving the educational pamphlet and/or completing the pre or post appointment survey, you are consenting to participate.

For any questions or concerns about this project, feel free to contact me at sromine@email.arizona.edu

Thank you so much for your time,

Sara Romine, BSN, RN, DNP/FNP candidate

APPENDIX C:

PATIENT PRE-APPOINTMENT SURVEY

Participant Pre-Appointment Survey

Patient Code (last 4 digits of cell phone number or landline):

Demographic Information:

What is your gender? (Please circle one)

Male   Female   Prefer not to answer   Other (list)

What is your age? _____years

When was your most recent melanoma diagnosis? (Please circle one)

< 3 months 3-6 months 6 months-1 year   1-2 years   2-3 years

Knowledge Questions:

What is the most dangerous type of skin cancer? (Please circle one)

Basal Cell Carcinoma   Squamous Cell Carcinoma   Melanoma

What is the number one risk factor for developing a melanoma? (Please circle one)

Previous history of Melanoma   Family history of Melanoma

Personal history of abnormal moles   Sun exposure

How often should you be coming in for Melanoma Full Skin Examinations?
Every: (Please circle one)

3 months 6 months   Yearly

What should you be doing to help protect your skin against future sun damage?
(Please circle all that apply)

Wear sunscreen Avoid the sun completely   Wear protective clothing
Avoid the sun during the hours of 10AM – 4PM

What is the reason for you to attend melanoma follow-ups? (Please circle all that apply)

To monitor current moles or spots for changes   To monitor for recurrences

To monitor for new moles or spots

How often should you perform a Self-Skin Examination?

    Monthly   Every 3 months   Yearly

What worrisome changes are you looking for in your skin when you are performing a Self-Skin Examination? (Please circle all that apply)

    Mole or freckle that is changing colors   Mole or freckle that is itchy or bleeding Mole or

    freckle that is growing/changing   New mole

    Scar from previously removed mole that is skin colored and not changing

Patient Perspective:

How important is it for you, as a patient with a Melanoma history, to follow up for a melanoma full skin examination with your provider? (Please circle one)

    Not important   Slightly important   Very important

APPENDIX D:

PATIENT POST-APPOINTMENT SURVEY

Participant Post-Appointment Survey

Patient Code (last 4 digits of cell phone number or landline):

Knowledge Questions:

What is the most dangerous type of skin cancer? (Please circle one)

  Basal Cell Carcinoma Squamous Cell Carcinoma Melanoma

What is the number one risk factor for developing a melanoma? (Please circle one)

  Previous history of Melanoma Family history of Melanoma

  Personal history of abnormal moles Sun exposure

How often should you, given how long ago you were diagnosed, be coming in for follow-up? Every: (Please circle one)

  3 months 6 months Yearly

What should you be doing to help protect your skin against future sun damage? (Please circle all that apply)

  Wear sunscreen Avoid the sun completely Wear protective clothing

  Avoid the sun during the hours of 10AM – 4PM

What is the reason for you to attend melanoma follow-ups? (Please circle all that apply)

  To monitor current moles or spots for changes To monitor for recurrences

  To monitor for new moles or spots

How often should you perform a Self-Skin Examination?

  Monthly Every 3 months Yearly

What worrisome changes are you looking for in your skin when you are performing a Self-Skin Examination? (Please circle all that apply)

  Mole or freckle that is changing colors Mole or freckle that is itchy or bleeding Mole or

  freckle that is growing/changing New mole

  Scar from previously removed mole that is skin colored and not changing

Patient Perspective:

How important is it for you, as a patient with a melanoma history, to follow up for a melanoma full skin examination with your provider? (Please circle one)

Not important   Slightly important   Very important

Effectiveness of the education:

1. I learned something new about melanoma or how to perform self-skin examinations

5- Strongly agree 4-Somewhat agree   3- Neither agree nor disagree 2-Somewhat disagree

1- Strongly disagree

2. I found the education helpful today

5- Strongly agree 4-Somewhat agree   3- Neither agree nor disagree

2-Somewhat disagree   1- Strongly disagree

3. I found the melanoma pamphlet given to me today helpful

5- Strongly agree 4-Somewhat agree   3- Neither agree nor disagree

2-Somewhat disagree   1- Strongly disagree

4. I feel more comfortable performing self-skin examinations after today's visit

5- Strongly agree 4-Somewhat agree   3- Neither agree nor disagree

2-Somewhat disagree   1- Strongly disagree

5. I am more likely to attend my next melanoma full skin examinations as recommended by my provider after today's visit

5- Strongly agree 4-Somewhat agree   3- Neither agree nor disagree

2-Somewhat disagree   1- Strongly disagree

What is your preference for follow-up reminder? (Order from 1-3, 1 being highest preference and 3 being lowest preference)

___Text message   ___Phone call   ___Mailed post-card

What have been barriers to following up previous to today's visit (Select all that apply):

___Didn't think I need to come back because it was already removed

___Time   ___Cost   ___Travel

___Other (Please specify)_____

Additional Comments/ Suggestions?

APPENDIX E:

THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD APPROVAL

LETTER

THE UNIVERSITY OF ARIZONA

Research, Discovery & Innovation

Human Subjects
Protection Program

1618 E. Helen St.
P.O.Box 245137
Tucson, AZ 85724-5137
Tel: (520) 626-6721
http://rgw.arizona.edu/compliance/home

Date:	February 07, 2020
Principal Investigator:	Sara Elizabeth Romine
Protocol Number:	2002359055
Protocol Title:	Improving melanoma patient knowledge and follow-up adherence at a southwest urban dermatology clinic
Determination:	Human Subjects Review not Required

Documents Reviewed Concurrently:

HSPP Forms/Correspondence: *Romine_Determination of Human Research.pdf*

Regulatory Determinations/Comments:

- Not Research as defined by 45 CFR 46.102(l): As presented, the activities described above do not meet the definition of research cited in the regulations issued by U.S. Department of Health and Human Services which state that "Research means a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge. Activities that meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program that is considered research for other purposes. For example, some demonstration and service programs may include research activities. For purposes of this part, the following activities are deemed not to be research."

The project listed above does not require oversight by the University of Arizona.

If the nature of the project changes, submit a new determination form to the Human Subjects Protection Program (HSPP) for reassessment. Changes include addition of research with children, specimen collection, participant observation, prospective collection of data when the study was previously retrospective in nature, and broadening the scope or nature of the study activity. Please contact the HSPP to consult on whether the proposed changes need further review.

The University of Arizona maintains a Federalwide Assurance with the Office for Human Research Protections (FWA #00004218).

APPENDIX F:

EVIDENCE APPRAISAL TABLE

Reference	Research Question / Hypothesis	Study Design	Sample and Setting	Methods for Data Collection / Data Analysis
Coups, E.J., Manne, S.L., Stapleton, J.L., Tatum, K.L., & Goydos, J.S. (2016). Skin self-examination behaviors among individuals diagnosed with melanoma. *Melanoma Research, 26*(1), 71-76. doi:10.1097/CMR.0000000000000204	Determine how many MM patients are performing their own SSEs, how they are performing the SSE, methods for tracking moles, knowledge and self-efficacy in performing SSEs, and level of patient interest in learning about SSEs. Look at factors associated with thorough SSEs.	Written or telephone survey	Sample: 176 patients 18 years or older diagnosed with primary MM stage 0-III, 3-24 months from surgical treatment. 51% female. Mean age 61.7 years. Setting: Rutgers Cancer Institute of New Jersey	Data collection: Surveys asking demographic information, knowledge of the ABCDE guide, interest in more SSE information, SSE thoroughness, and specific skin practices. Data analysis: Multiple linear regression analysis to examine the association between factors.
Czajkowska, Z., Hall, N.C., Sewitch, M., Wang, B., & Körner, A. (2017). The role of patient education and physician support in self-efficacy for skin self-examination among patients with melanoma. *Patient Education and Counseling, 100*(8). doi:10.1016/j.pec.2017.02.020	To examine the relationship between SSE, physician support of SSE, and SSE self-efficacy in melanoma patients. 1-SSE self-efficacy will be higher after intervention 2-SSE self-efficacy will stay higher at 3 and 12-month follow-ups than at baseline	Longitud-inal, questionnaire-based study	Sample: 242 Melanoma patients 18 years and older. 121 males, 120 females, 1 undisclosed gender Setting: 2 major teaching hospitals in Montreal, Canada	Data collection: Questionnaires given at baseline and 4 other times over the span of 18 months (baseline, month 3 pre-intervention, month 3 post-intervention, month 6, month 18). First 2 questionnaires given in person and the following 2 sent by mail. RA taught patient how to perform standardized SSE at the

Reference	Research Question / Hypothesis	Study Design	Sample and Setting	Methods for Data Collection / Data Analysis
	3- Level of perceived physician support for SSE with be associated with patient SSE self-efficacy over the next 18 months.			time of the second questionnaire. Patients received a CCF brochure at the time. Questionnaire asked 11 Likert-type questions about physician support of SSE and SSE self-efficacy Data analysis: Likert questions analyzed using paired-samples t-test and ANOVA. Age, gender, education level, cancer stage, and time after diagnosis were entered as covariates.
Damude, S., Hoekstra-Weebers, J.E.H.M., van Leeuwen, B.L., & Hoekstra, H.J. (2017). Melanoma patients' disease-specific knowledge, information preference, and appreciation of educational YouTube videos for self-inspection. *European Journal of Surgical Oncology, 43*(8). doi:10.1016/j.ejso.2017.06.008	To investigate Dutch MM patients' knowledge of their diagnosis and to explore their opinions of information provided in an oral or written medium. To examine opinions on the value of educational health	Qualitative web-based questionnaire	Sample: 100 AJCC stage I-II MM patients. 51 females and 49 males. Setting: Dutch melanoma center	Data collection: 19-item web-based questionnaire addressing tumor characteristics, opinions of MM-based information provided, education they received, and opinions of video education for SSE (questionnaire completed after their MM visit and

Reference	Research Question / Hypothesis	Study Design	Sample and Setting	Methods for Data Collection / Data Analysis
	videos about SSE. To find out patients' preferred source of information.			after reading the provided brochure and watching 2 YouTube videos). Data analysis: Responses were tested using chi-square tests or t-tests with a significance level of 5%. Statistical analysis was performed using IBM SPSS statistics version 22. Figures of data were created using GraphPad Prism 5.04.
Finney Rutten, L.J., Agunwamba, A.A., Wilson, P., Chawla, N., Viewux, S., Blanc-Harigan, D… Hesse, B.W. (2015). Cancer-related information seeking among cancer survivors over a decade (2003-2013). *Journal of Cancer Education, 31*, 348-357. doi:10.1007/s13187-015-0802-7	To compare information seeking among cancer survivors, people with a family history of cancer, and those with no personal or family cancer history. To identify key sources of cancer-related information that cancer survivors use.	Surveys, RDD, mail	Sample: People in the U.S. HINTS1 n= 2,121, HINTS2 n= 1,162, HINTS3 n= 3,392, HINTS4 cycle 1 n= 1,153, HINTS4 cycle 2 n= 1,452. Setting: 5 iterations of HINTS information from	Data collection: Surveys asking questions about demographics and cancer information seeking Data analysis: SUDAN version 9.0.1 to estimate errors of point estimates for complex data. Wald F-tests were used to organize sociodemographic variables. Multivariate log regression analyses were

Reference	Research Question / Hypothesis	Study Design	Sample and Setting	Methods for Data Collection / Data Analysis
			U.S. responders	performed to examine sociodemographic correlates in people with a personal cancer history. Multinomial regression analysis examined information source use and preference.
Garg, A., Wang, J., Reddy, S.B., Powers, J., Jacob, R., Powers, M… Geller, A.C. (2014). The integrated skin exam film: An educational intervention to promote early detection of melanoma by medical students. *Journal of the American Academy of Dermatology, 70*(1), 115-119. doi:10.1016/j.jaad.2013.09.028	Assessment of a method of SCE, the Integrated Skin Exam. Examining the tool's effect on knowledge, attitudes, and perceptions on SCE.	Pre-post questionnaires	Sample: 631 2nd-year medical students Setting: 6 medical schools in the United States	Data collection: Pre-test measured knowledge, confidence, and intentions. Intervention- watching 14-minute video "*The Integrated Skin Exam*". Post- test measured immediately after intervention. Pre and post-tests used 4-point Likert scale questions. Data analysis: Wald X^2 test examined using PROC SURVEYOLOGISTIC in SAS. Logistic regression analysis to examine the change in odds of having a

Reference	Research Question / Hypothesis	Study Design	Sample and Setting	Methods for Data Collection / Data Analysis
				higher response in one of the questions.
Ilyas, M., Costello, C.M., Zhang, N., & Sharma, A. (2017). The role of the ugly duckling sign in patient education. *Journal of the American Academy of Dermatology, 77*(6). doi:10.1016/j.jaad.2017.06.152	Comparing sensitivity, specificity, and accuracy of MM recognition with the UD sign versus the ABCD rule. Determine if age, education, or prior knowledge of MM affected ability to recognize MM.	Questionnaire-based randomized study	Sample: 101 people in Mayo Clinic. Randomized into UD (n=50) or ABCDE (n=51) groups Setting: Mayo Clinic waiting rooms of various specialties.	Data collection: GoogleForm questionnaire given after educational tutorial about UD or ABCDE. Patients asked to categorize 9 images as MM or not MM. Data analysis: Chi-square tests used to compare demographic information between groups. Zhou and McClish GEE model evaluated specificity, sensitivity, and accuracy of each group and between groups.
Janda, M., Youl, P., Neale, R., Aitken, J., Whiteman, D., Gordon, L. & Baade, P. (2014). Clinical skin examination outcomes after a video-based behavioral intervention: Analysis from a randomized clinical trial. *JAMA Dermatol, 150*(4), 372-379.	Examine clinical outcomes and attendance of CSEs in older men that viewed a video-based behavioral intervention.	Behavioral randomized clinical trial Health Belief Model	Sample: 540 men aged 50 or older with no history of MM Setting: Queensland electoral roll	Data collection: Telephoned surveys at baseline and 7 months after. The video-based intervention group got brochures and the control group just received the brochure. Physician input

Reference	Research Question / Hypothesis	Study Design	Sample and Setting	Methods for Data Collection / Data Analysis
doi:10.1001/jamadermatol.2013.9313				was received Data analysis: SAS software versions 9.2 and 9.3. X^2 tests and Wilcoxon rank sum tests were used to assess differences in self-reported outcomes between groups. X^2 tests were used to compare physician responses. Cohen K statistic was used to compare physician and participant responses. Multivariable logistic regression was used to assess characteristics independently associated with self-reported CSE.
Livingstone, E., Krajewski, C., Eigentler, T.K., Windemuth-Kieselback, C., Benson, S… Schadendorf, D. (2015). Prospective evaluation of follow-up in melanoma patients in Germany – Results of a multicentre and longitudinal study. *European Journal of Cancer, 51*(5),	Gather information on surveillance and treatment of MM patients. Look at MM follow up care and treatment, assessing adherence to recommendations,	Mailed questionnaire	Sample: 668 MM patients. 50.9% male, 49.1% female Setting: German care centers	Data collection: Questionnaire asked about health-related QoL (7-point Likert scale), and anxiety, depression), and coping with their MM diagnosis (sum score of 0-21). Questionnaires sent at

Reference	Research Question / Hypothesis	Study Design	Sample and Setting	Methods for Data Collection / Data Analysis
653-667. doi:10.1016/j.ejca.2015.01.007	and see the psychological impact of MM on the patient.			diagnosis, 2- and 4-year follow ups. Data analysis: Chi-square and Fishers exact test to analyze differences between groups. Wilcoxon and one-sample T-test for continuous variable analysis. Kruskal-Wallis for ordinal variable analysis. Multivariate log regression analysis for follow-up frequency and exams. Software used was SAS and SPSS 21.0.
Mitchell, J., Callaghan, P., Street, J., Neuhaus, S., & Bessen, T. (2014). The experience of follow-up care: An online survey of patients in Australia. *Journal of Skin Cancer, 2014*. doi:10.1155/2014/429149	To obtain and explore patient accounts of technical and interpersonal aspects of MM follow-ups. To evaluate if MM follow up care is effective and is meeting patient needs.	Web-based survey	Sample: 64 patients with primary MM. 39 female, 25 male. Setting: Australia, web-based survey through SurveyMonkey	Data collection: 40-item survey with mostly "tick box" format. Questions asked demographic information, about their MM, treatment, and follow-up care. Open -ended questions were included to help elaborate. No intervention.

Reference	Research Question / Hypothesis	Study Design	Sample and Setting	Methods for Data Collection / Data Analysis
				Data analysis: IBM SPSS version 19 was used for quantitative analysis and NVivo 10.1 was used for qualitative analysis. Qualitative analysis was also performed by coding by two of the authors.
Robinson, J.K., Wayne, J.D., Martini, M.C., Hultgren, B.A., Mallett, K.A., & Turrisi, R. (2016). Early detection of new melanomas by patients with melanoma and their partners using a structured skin self-examination skills training intervention: A randomized clinical trial. *JAMA Dermatology, 152*(9). doi:10.1001/jamadermatol.2016.1985	Evaluate the effect of structured SSE intervention for MM patients and their partners on SSE performance and detection of new MM by the partner or physician.	Randomized clinical trial	Sample: 494 participants. Patients with stage 0-IIB melanoma and their skin-check partners. 253 females, mean age 55. Setting: June 6, 2011-April 24, 2015. Midwestern region.	Data collection: 3 intervention groups (in-person, workbook, and tablet in-office) and 1 control group. At 4-month intervals the patient and partner gave diary and self-reported survey on their SSE performance. If a MM was found, who found it was documented. Survey was a 5-point Likert scale survey. Scores were recorded at 4, 12, and 24-month visits. Data analysis: T-tests compared the control group and

Reference	Research Question / Hypothesis	Study Design	Sample and Setting	Methods for Data Collection / Data Analysis
				intervention groups. X^2 analyses were used to compare the intervention and control groups on the number of MMs found and by whom.

SSE - Self-skin examination; RA - Research assistant; CCF - Canadian Cancer Foundation; MM - malignant melanoma; AJCC - American Joint Committee on Cancer; GP - General Practitioner; UD - ugly duckling; ABCDE - Asymmetry, Border irregularity, Color variation, Diameter, Evolution; GEE - generalized estimating equations; CI - confidence interval; SCE - skin cancer examination; QoL - quality of life; RDD - random digit dial; HINTS - Health Information National Trends Survey; CSE - clinical skin examination; SCC - Squamous cell carcinoma; BCC - Basal cell carcinoma; SD - standard deviation

APPENDIX G:

EXECUTIVE SUMMARY

Executive Summary

Melanoma is the most dangerous type of skin cancer. According to the National Cancer Institute, melanoma rates have been steadily increasing by 1.5% every year over the past ten years. Melanoma patient adherence to the recommended follow up schedule per evidence-based guidelines has been noted to need improvement by Camelback Dermatology and Skin Surgery (CDSS) providers and stakeholders. They have voiced concern with how we educate our patients and that this area of CDSS policy and procedures needs attention. Ensuring patients are adequately informed regarding the diagnosis of melanoma and the importance of following up according to evidence-based practice guidelines is important to identify and treat melanoma lesions quickly.

The purpose of this quality improvement project was to educate patients about melanoma, follow-up recommendations, determine preferences for methods of follow up reminders, and to assess patient satisfaction with the educational intervention. This project had a pre-test/post-test design and utilized a pamphlet to educate patients on the aforementioned topics as well as how to perform a self-skin examination, and how to protect themselves from the sun. Data from the pre and post-tests was analyzed to identify how successful the pamphlet was at educating patients.

According to data from the pre and post-tests, out of the twenty-seven patients who participated, 56% of the patients were female and the average age was 59 years old. The most common time since diagnosis with melanoma was one to two years. Overall, the educational pamphlet was found to be helpful and patients improved their scores from an average 4.70 points on the pre-test to 6.48 points on the post-test. The data was also found to be clinically and

statistically significant and shows promise in the goal of helping educate patients. For follow up reminder methods, patients preferred text message most, with a telephone call second, and a mailed post card last.

This educational intervention was well-received by patients and showed a significant improvement in patient knowledge. It was also very well received by patients. It is recommended that this educational pamphlet be provided to all patients newly diagnosed with melanoma. This pamphlet should be given to patients at the time of diagnosis and should be printed out by the medical assistant before the visit and given to the patient during their visit. Changing the reminder method should be considered because patients prefer text messages over the current method of telephone call to remind them to schedule their next melanoma follow up appointment. This change should be tracked to assure that more patients are scheduling and attending these appointments. Lastly, melanoma patient adherence to scheduling recommended follow ups should be tracked on a weekly basis by the office manager and scheduling manager to assure patients are following up in their respective recommended time frames. This can be set up in CDSS' practice management software.

APPENDIX H:

STAFF POWERPOINT PRESENTATION

▲ ▲ ▲

IMPROVING MELANOMA PATIENT KNOWLEDGE AND FOLLOW-UP ADHERENCE AT A SOUTHWEST URBAN DERMATOLOGY CLINIC

Sara Romine, BSN, RN

THE UNIVERSITY OF ARIZONA
College of Nursing

▲

BACKGROUND

- Literature review Patients previously diagnosed with melanoma have a higher risk of developing a second primary melanoma (MM).

- MM rates have increased about 1.5% every year over the past 10 years (National Cancer Institute, 2018)

- Providers have stated that patients are not following up according to evidence-based guidelines for melanoma follow up appointments.
  - Other worries: Recurrence, Metastasis, delayed diagnosis

2

AIMS

- Project questions
  - Will the patient education tool improve patient knowledge?
  - Patient preferences for follow-up reminders

- Stakeholders

Retrieved from http://www.camelbackderm.com/

3

PURPOSE

- Patient education
  - Melanoma diagnosis
  - Follow up appointments-evidence-based recommendations
  - How to perform a SSE

- Follow up reminder preferences

- Patient satisfaction

T Stages	Clinical Stage	Recommendations for Follow Up
T0	0 in situ	Annual skin exam for life
T1a	1A	Exam focusing on nodes and skin every 6-12 months for 5 years then annually thereafter
T1b, T2a	1B	Exam focusing on nodes and skin every 6-12 months for 5 years then annually thereafter
T2b, T3a	IIA	Exam focusing on nodes and skin every 6-12 months for 5 years then annually thereafter
T3b, T4a	IIB	Exam focusing on nodes and skin every 3-6 months for 2 years, then every 3-12 months for 3 years, then annually thereafter
T4b	IIC	Exam focusing on nodes and skin every 3-6 months for 2 years, then every 3-12 months for 3 years, then annually thereafter

(Gershenwald et al., 2017a; NCCN, 2019)

4

Evidence-based recommendations for melanoma full skin exam follow up visits

The National Comprehensive Cancer Network has guidelines for how often you need to come in for a melanoma focused full skin exam by your dermatologist. These guidelines are based on the clinical stage of your melanoma.

- *In situ*- annually

- 1-2a- every 6-12 months for 5 years, then annually

- 2b-2c- every 3-6 months for 2 years, then every 3-12 months for 3 years, then annually.

Camelback Dermatology & Skin Surgery
4512 N. 40th St.
Phoenix, AZ 85018

Phone: (602) 954-7546
Fax: (602) 952-2941
E-mail: info@camelbackderm.com
Camelbackderm.com

Information in this pamphlet is provided b

American Academy of Dermatology
American Cancer Society
Centers for Disease Control and Prevention
National Cancer Institute
National Comprehensive Cancer Network

My melanoma follow-up schedule:

Date of diagnosis:

How often I need to come in:

- Every 3-6 months
- Every 6-12 months
- Yeady

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& SKIN SURGERY

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4512 N. 40th St.
Phoenix, AZ 85018

"Partnering with Patients for a Lifetime of Healthy, Beautiful Skin"

Melanoma Patient Information

Sara Romine, BSN, RN

THE ABCDEs OF MELANOMA

What to Look for:

Melanoma is the deadliest form of skin cancer. However, when detected early, melanoma is highly treatable. You can identify the warning signs of melanoma by looking for the following:

A ASYMMETRY
One half is unlike the other half.

B BORDER
Irregular, scalloped or poorly defined border.

C COLOR
Varied from one area to another; shades of tan and brown, black; sometimes white, red or blue.

D DIAMETER
While melanomas are usually greater than 6mm (the size of a pencil eraser) when diagnosed, they can be smaller.

E EVOLVING
A mole or skin lesion that looks different from the rest or is changing in size, shape or color.

Example:

What are the risks factors for melanoma?

Risk factors for developing melanoma include:

- #1- Personal history of melanoma
- Family history of melanoma
- Personal history of abnormal moles
- Sun exposure
- Fair skin

Risks of being diagnosed with melanoma are:

- Growing another melanoma
- Recurrence of the treated melanoma

Sun-Safe Habits

Using these habits in your daily routine can help to limit your sun exposure:

- Wear sunscreen ≥ SPF 30 daily
- Reapply sunscreen every 2 hours
- Wear protective clothing
- Avoid the sun from 10AM-4PM

Melanoma Follow-Ups

Why do I need to come to these appointments?

- To monitor current moles or spots for changes
- To monitor for recurrences
- To monitor for new moles or spots

Self-Skin Examination

You should perform a self-skin exam monthly.

How to perform a self-skin exam:

- Look at your front and back in a mirror
- Look at your sides with your arms raised in a mirror
- Look at the back of your neck and scalp with a mirror
- Look at upper arms, forearms, and palms
- Look at your lower legs and feet. Make sure to look in between toes and your soles
- Ask someone to help look at hard-to-see places

During a self-skin exam, I am looking for moles or freckles that are:

- Changing colors
- Growing or changing
- Itchy or bleeding
- Or scars from a previously removed mole that are not skin colored and are changing
- Moles or freckles that fit criteria from the ABCDES of melanoma chart or the Ugly Duckling sign.
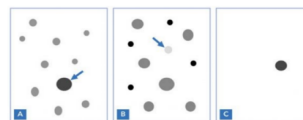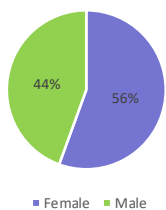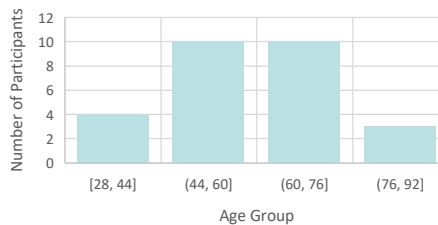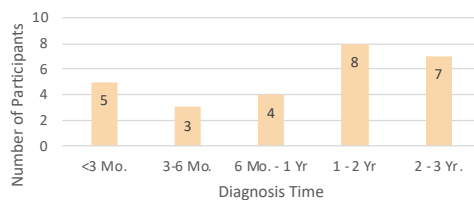
Figure 1. Three Examples of an Ugly Duckling

RESULTS

Population- Gender

Population- Age

Diagnosis Time Frame

7

RESULTS

Percent Correct for Knowledge Questions

■ Pre-Test ■ Post-Test

8

RESULTS

Education Effectiveness

(Horizontal bar chart, y-axis: "Question", x-axis: "Effectiveness Score" from 1 to 5)

- MMFSE attendance likelihood: ~4.3
- SSE comfort: ~4.2
- MM pamphlet helpfulness: ~4.45
- Education helpfulness: ~4.35
- Learned about MM or SSE: ~4.25

9

RESULTS

Follow Up Reminder Preference

(Bar chart, y-axis: "Number of Participants" 0–25, x-axis: "Follow Up Reminder Type"; legend: #1, #2, #3)

- Text message: #1 = 20, #2 = 6, #3 = 1
- Phone Call: #1 = 5, #2 = 17, #3 = 4
- Mailed Post Card: #1 = 2, #2 = 4, 22
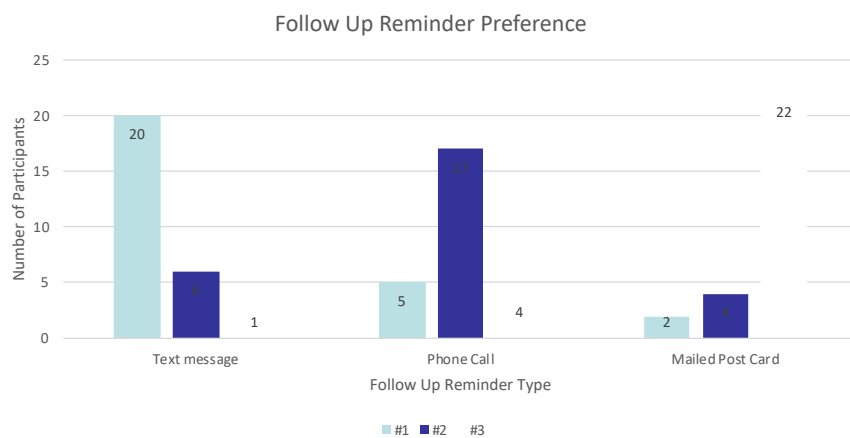
10

QUESTIONS?

11

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12

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